SPECIFICATIONS

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32) PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

BUDGET / ACCOUNT: 9172 / 8400

Department of Public Works and Planning

CONTRACT NUMBER 18-07-C

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

August 6, 2018 Contract No. 18-07-C

ADDENDUM NO. 2 to the Bidding and Contract Documents for Fresno County Westside Groundwater Project, revising the Bidding and Contract Documents as follows:

COVER PAGE

No changes

TABLE OF CONTENTS

No changes

NOTICE TO BIDDERS

DELETE the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 07/27/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

REPLACE with the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180003, Dated 01/05/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA3.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

SPECIAL PROVISIONS

No changes

PROPOSAL

No changes

AGREEMENT

No changes

PROJECT DETAILS

No changes

PLANS

No changes

END OF ADDENDUM NO. 2

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

8/6/18
Date Signed

Supervising Engineer:

Dale Siemer, PE 59670
Lic. Expiration: 12/31/19

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Seventh Floor
Fresno, CA 93721-2106

General Decision Number: CA180003 01/05/2018 CA3

Superseded General Decision Number: CA20170003

State: California

Construction Type: Heavy Water Well Drilling

Counties: California Statewide.

WATER WELL DRILLING

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

SUCA1989-001 01/01/1989

	Rates	Fringes
PUMPS		
Installer		
Alameda	$ 7.50	
Alpine	$ 8.00	
Amador	$ 8.00	
Colusa	$ 10.57	2.03
Contra Costa	$ 7.50	
El Dorado	$ 8.00	
Fresno	$ 7.25	1.04
Imperial	$ 8.50	
Kern	$ 7.25	.43
Lake	$ 10.57	2.03
Los Angeles	$ 9.76	.57
Madera	$ 7.50	.72
Marin	$ 10.57	2.03
Mariposa	$ 7.50	.72
Mendocino	$ 10.57	2.03
Monterey	$ 12.50	

Napa	$ 13.00	.81
Placer	$ 8.00	
Plumas	$ 10.36	1.65
Riverside	$ 7.25	.34
Sacramento	$ 9.43	.83
San Benito	$ 8.39	2.65
San Bernardino	$ 10.30	.77
San Diego	$ 7.85	
San Joaquin	$ 11.39	3.82
San Luis Obispo	$ 7.25	
San Mateo	$ 10.36	1.65
Santa Barbara	$ 7.57	
Santa Clara	$ 8.39	2.65
Santa Cruz	$ 8.39	2.65
Shasta	$ 9.63	1.36
Sonoma	$ 10.57	2.03
Tehama	$ 10.36	1.65
Trinity	$ 9.63	1.36
Tuolumne	$ 7.50	.72
Ventura	$ 11.00	1.48

Water Well Driller

Alameda	$ 10.00	.36
Alpine	$ 9.60	
Amador	$ 9.60	
Butte	$ 7.25	
Calaveras	$ 7.50	
Colusa	$ 11.07	2.03
Contra Costa	$ 9.50	
Del Norte	$ 8.00	.31
El Dorado	$ 9.60	
Fresno	$ 13.37	1.45
Glenn	$ 7.25	
Humboldt	$ 8.00	.31
Imperial	$ 8.70	.36
Inyo	$ 7.29	1.13
Kern	$ 7.25	.06
Kings	$ 7.25	1.21
Lake	$ 11.07	2.03
Lassen	$ 7.25	.43
Los Angeles	$ 9.65	
Madera	$ 7.50	.72
Marin	$ 11.07	2.03
Mariposa	$ 7.50	.72
Mendocino	$ 11.07	2.03
Merced	$ 7.25	.13
Modoc	$ 10.50	
Mono	$ 10.00	
Monterey	$ 12.50	
Napa	$ 8.00	.81
Nevada	$ 7.25	.13
Orange	$ 11.00	1.48
Placer	$ 9.60	
Plumas	$ 10.00	
Riverside	$ 7.25	.36
Sacramento	$ 10.00	
San Benito	$ 8.39	2.65
San Bernardino	$ 10.20	.37

San Diego	$ 8.18	
San Francisco	$ 10.00	
San Joaquin	$ 7.25	.13
San Luis Obispo	$ 7.25	1.02
San Mateo	$ 10.00	.81
Santa Barbara	$ 7.98	
Santa Clara	$ 8.39	2.65
Santa Cruz	$ 8.39	2.65
Shasta	$ 7.25	
Sierra	$ 7.25	.13
Siskiyou	$ 8.00	.31
Solano	$ 9.15	
Sonoma	$ 10.07	1.70
Stanislaus	$ 7.25	.13
Sutter	$ 7.25	
Tehama	$ 10.00	
Trinity	$ 7.25	
Tulare	$ 7.29	1.13
Tuolumne	$ 7.50	.72
Ventura	$ 11.00	1.48
Yolo	$ 10.36	1.65
Yuba	$ 7.25	.13

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

July 31, 2018 Contract No. 18-07-C

ADDENDUM NO. 1 to the Bidding and Contract Documents for Fresno County Westside Groundwater Project, revising the Bidding and Contract Documents as follows:

NOTICE TO BIDDERS

DELETE the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 06/15/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

REPLACE with the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 07/27/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

SPECIAL PROVISIONS

Section 8-1.04B - Standard Start

DELETE the following text:

SIXTY (100) WORKING DAYS

REPLACE with the following text:

ONE HUNDRED (100) WORKING DAYS

Section 00 01 10 - Table of Contents

ADD the following text:

31 23 00	Earthwork
33 21 01	Water Well Drilling

Section 01 11 00 - Description of Work and Schedule Constraints

ADD the following text to *Part 1.1*:

D. Slope failure has occurred at the CSA 32 proposed well site adjacent to the storm drain basin. The slope failure appears to have been caused by existing water treatment plant backwash water discharge eroding the side slope and filling gopher holes with water and undermining the ground in the vicinity of the well site. Work at the CSA 32 well site will initially consist of earthwork to stabilize soils and repair the slope failure in the proposed well site area so that drilling equipment can access the site.

E. Derrick Avenue (State Route 33) is Caltrans right of way. No work is anticipated to be necessary on Derrick Avenue. If the Contractor anticipates doing any work within Caltrans right of way, including placing signage for any required traffic control, the Contractor is responsible for obtaining an Encroachment Permit from Caltrans, including preparing and submitting all required application documents, paying all fees and complying with all permit requirements.

Section 01 22 00 - Explanation of Bid Items

ADD the following text to *Part 1.2*:

BID ITEM NO. 41 - Earthwork and Chemical Treatment
This bid item is a unit price bid for Earthwork and Chemical Treatment of existing soil at the proposed CSA 32 well site and shall be per cubic yard completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to excavation, removal of unsuitable material, soil mixing, chemical treatment, soil placement and side slope repair, and compaction to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price. Earthwork related to Clearing and Grubbing at the CSA 32 site shall be excluded from this bid item and included in Bid Item 22.

Section 31 11 00 - Clearing and Grubbing

DELETE and REPLACE with attached *Section 31 11 00 - Clearing and Grubbing*

Section 31 21 01 - Water Well Drilling

ADD the following to *Part 1.2*:

Section 31 23 00 - Earthwork

DELETE and REPLACE *Paragraph B* in *Part 2.8* with the following text:

B. The Contractor shall dispose of surplus drilling fluid off-site in a manner acceptable to the Owner and Engineer. The Contractor is responsible for transporting and disposing well development and test water offsite; including paying all costs associated with identifying a disposal site, obtaining approval from and making arrangements with the owner(s) of said site, transporting the water to said site, and paying all disposal charges. An exception shall be made for disposal of development water at CSA 32 to allow for the disposal of development water in the existing storm drain pond, provided that the Contractor can demonstrate sufficient storage capacity in the basin. The Contractor's bid proposal shall include all costs associated with providing any required discharge piping to an approved discharge site. The disposal plan and site shall be approved by the Owner prior to the start of drilling.

Section 31 23 00 - Earthwork

INSERT attached *Section 31 23 00 - Earthwork*

PROPOSAL

DELETE *Proposal 2.2*

REPLACE with *Proposal 2.2a*

PROJECT DETAILS

INSERT attached *Geotechnical Investigation Report* by Kleinfelder

INSERT attached *CSA 30 Site Plan*

PLANS

Sheet C2-1

DELETE and REPLACE with attached *Sheet C2-1A*

Attached:
General Decision Number CA180029, Dated 07/27/2018
Section 31 11 00 - Clearing and Grubbing
Section 31 23 00 - Earthwork
Proposal 2.2a
CSA 30 Site Plan
Geotechnical Investigation Report by Kleinfelder
Sheet C2-1A

END OF ADDENDUM NO. 1

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

Date Signed: 8/1/18

Supervising Engineer: _____

Dale Siemer, PE C59670
Lic. Expiration: 12/31/19

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Seventh Floor
Fresno, CA 93721-2106

DATE SIGNED 7/31/18

Date Signed: 7/31/18

Consultant Engineer: _____

Nicholas Jacobson, PE C84909
Lic. Expiration: 03/31/20

Provost & Pritchard Consulting Group
286 W. Cromwell Avenue
Fresno, CA 93711

SUPPLEMENTAL INFORMATION – Not Part of the Contract Documents

The following list is comprised of paraphrased questions submitted by potential bidders or sub-bidders in writing via facsimile, email, or letter. These paraphrased questions and associated responses are not part of the contract documents and shall have no bearing whatsoever on the interpretation of the Standard Specifications, the Standard Plans, the Special Provisions, or the Plans. Nor shall they have any bearing whatsoever on the interpretation of other publications referenced therein.

1. **Question**: At CSA 30, where can water be disposed when drilling?

Response: The Contractor is required to find a suitable location to dispose of drilling fluid. The Contractor may enter into an agreement with a land owner adjacent to the CSA 30 area for disposal of water while drilling. If the Contractor chooses to make arrangements with an adjacent landowner, the Contractor shall provide a copy of the fully executed written agreement to the Engineer prior to any drilling water disposal.

The CSA 30 Site Plan Project Detail which is included in Addendum No. 1 shows County owned property within CSA 30 where the Contractor may construct a discharge pipe (if necessary) to convey drilling water to an adjacent land owner's property. The Contractor shall submit a water disposal plan detailing how the Contractor proposes to dispose of drilling water. The plan shall include, but not be limited to the proposed pipe alignment for water disposal, traffic control measures, and fully executed agreement with land owner for disposal of drilling water.

2. **Question**: Can the existing soccer goal be removed during drilling operations?

Response: The Contractor may remove the existing soccer goal during drilling operations. The Contractor shall restore the soccer goal to its original condition after drilling operations are finished. Costs for removing and replacing the soccer goal shall be paid for under Bid Item No. 1 and no additional payment will be made.

General Decision Number: CA180029 07/27/2018 CA29

Superseded General Decision Number: CA20170029

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alameda, Calaveras, Contra Costa, Fresno, Kings, Madera, Mariposa, Merced, Monterey, San Benito, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Stanislaus and Tuolumne Counties in California.

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	01/12/2018
2	01/19/2018
3	01/26/2018
4	02/09/2018
5	03/02/2018
6	04/06/2018
7	04/13/2018
8	05/04/2018
9	06/01/2018
10	06/15/2018
11	06/29/2018
12	07/06/2018
13	07/13/2018
14	07/20/2018
15	07/27/2018

ASBE0016-004 06/25/2018

AREA 1: CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS & TOULMNE COUNTIES

AREA 2: ALAMEDA, CONTRA COSTA, SAN FRANSICO, SAN MATEO & SANTA CLARA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
Area 1	$ 30.81	22.71
Area 2	$ 31.81	22.71

ASBE0016-008 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANSICO, SAN MATEO, SANTA CLARA, & SANTA CRUZ

AREA 2: CALAVERAS, COLUSA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAU, & TUOLUMNE

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)		
Area 1	$ 35.36	22.98
Area 2	$ 49.46	22.98

BOIL0549-001 10/01/2016

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: REMAINING COUNTIES

	Rates	Fringes
BOILERMAKER		
Area 1	$ 43.28	37.91
Area 2	$ 39.68	35.71

BRCA0003-001 08/01/2017

	Rates	Fringes

MARBLE FINISHER.....$ 32.60 15.31

BRCA0003-003 08/01/2017

	Rates	Fringes
MARBLE MASON	$ 44.60	26.83

BRCA0003-005 05/01/2017

	Rates	Fringes
BRICKLAYER		
(1) Fresno, Kings, Madera, Mariposa, Merced	$ 38.45	21.22
(7) San Francisco, San Mateo	$ 42.34	25.83
(8) Alameda, Contra Costa, San Benito, Santa Clara	$ 44.16	21.71
(9) Calaveras, San Joaquin, Stanislaus, Toulumne	$ 39.66	20.76
(16) Monterey, Santa Cruz	$ 39.51	23.49

BRCA0003-008 09/01/2017

	Rates	Fringes
TERRAZZO FINISHER	$ 35.14	16.87
TERRAZZO WORKER/SETTER	$ 44.11	26.36

BRCA0003-011 04/01/2018

AREA 1: Alameda, Contra Costa, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz

AREA 2: Calaveras, San Joaquin, Stanislaus, Tuolumne

AREA 3: Fresno, Kings, Madera, Mariposa, Merced

	Rates	Fringes
TILE FINISHER		
Area 1	$ 28.56	15.87
Area 2	$ 25.60	14.30
Area 3	$ 25.88	15.17
Tile Layer		
Area 1	$ 47.77	18.29
Area 2	$ 42.67	16.81
Area 3	$ 38.15	17.70

CARP0022-001 07/01/2018

San Francisco County

	Rates	Fringes

Carpenters

Bridge Builder/Highway Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 48.55	29.32
Journeyman Carpenter	$ 48.40	29.32
Millwright	$ 48.50	30.91

CARP0034-001 07/01/2018

	Rates	Fringes
Diver		
Assistant Tender, ROV Tender/Technician	$ 47.65	32.52
Diver standby	$ 52.61	32.52
Diver Tender	$ 51.82	32.52
Diver wet	$ 97.17	32.52
Manifold Operator (mixed gas)	$ 56.82	32.52
Manifold Operator (Standby)	$ 51.82	32.52

DEPTH PAY (Surface Diving):
050 to 100 ft $2.00 per foot
101 to 150 ft $3.00 per foot
151 to 220 ft $4.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2017

	Rates	Fringes
Piledriver	$ 46.65	31.91

CARP0035-007 07/01/2017

AREA 1: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara counties

AREA 2: Monterey, San Benito, Santa Cruz Counties

AREA 3: Calaveras, Fresno, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tuolumne Counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer I	$ 25.61	20.42
Installer II	$ 22.18	20.42
Lead Installer	$ 29.06	20.92
Master Installer	$ 33.28	20.92
Area 2		
Installer I	$ 22.96	20.42
Installer II	$ 20.01	20.42
Lead Installer	$ 25.93	20.92
Master Installer	$ 29.56	20.92
Area 3		
Installer I	$ 22.01	20.42
Installer II	$ 19.24	20.42
Lead Installer	$ 24.81	20.92
Master Installer	$ 31.83	20.92

CARP0035-008 07/01/2018

AREA 1: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara counties

AREA 2: Monterey, San Benito, Santa Cruz Counties

AREA 3: San Joaquin

AREA 4: Calaveras, Fresno, Kings, Madera, Mariposa, Merced, Stanislaus, Tuolumne Counties

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1	$ 46.40	29.76
Area 2	$ 40.52	29.76
Area 3	$ 41.02	29.15
Area 4	$ 39.67	29.76
Drywall Stocker/Scrapper		
Area 1	$ 23.20	17.29
Area 2	$ 20.26	17.29
Area 3	$ 20.51	16.88
Area 4	$ 19.84	17.29

CARP0152-001 07/01/2018

Contra Costa County

	Rates	Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 48.40 29.32
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 48.55 29.32
Journeyman Carpenter.....$ 48.40 29.32
Millwright.....$ 48.50 30.91

CARP0152-002 07/01/2018

San Joaquin County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 42.67	29.32
Journeyman Carpenter	$ 42.52	29.32
Millwright	$ 45.02	30.91

CARP0152-004 07/01/2018

Calaveras, Mariposa, Merced, Stanislaus and Tuolumne Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 41.32	29.32
Journeyman Carpenter	$ 41.17	29.32
Millwright	$ 43.67	30.91

CARP0217-001 07/01/2018

San Mateo County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 48.55	29.32

Journeyman Carpenter	$ 48.40	29.32
Millwright	$ 48.50	30.91

CARP0405-001 07/01/2018

Santa Clara County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 48.55	29.32
Journeyman Carpenter	$ 48.40	29.32
Millwright	$ 48.50	30.91

CARP0405-002 07/01/2018

San Benito County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 42.58	29.32
Journeyman Carpenter	$ 42.52	29.32
Millwright	$ 45.02	30.91

CARP0505-001 07/01/2018

Santa Cruz County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 42.67	29.32
Journeyman Carpenter	$ 42.52	29.32
Millwright	$ 45.02	30.91

CARP0605-001 07/01/2018

Monterey County

	Rates	Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 48.40 29.32
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 42.67 29.32
Journeyman Carpenter.....$ 42.52 29.32
Millwright.....$ 45.02 30.91

CARP0701-001 07/01/2018

Fresno and Madera Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 41.32	29.32
Journeyman Carpenter	$ 41.17	29.32
Millwright	$ 43.67	30.91

CARP0713-001 07/01/2018

Alameda County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 48.55	29.32
Journeyman Carpenter	$ 48.40	29.32
Millwright	$ 48.50	30.91

CARP1109-001 07/01/2018

Kings County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter	$ 48.40	29.32
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer	$ 41.32	29.32
Journeyman Carpenter	$ 41.17	29.32

Millwright.....$ 43.67 30.91

ELEC0006-004 12/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.52	3%+18.05
Technician	$ 44.30	3%+18.05

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0006-007 06/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
ELECTRICIAN	$ 66.00	3%+43.40

ELEC0100-002 03/01/2018

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 37.50	22.18

ELEC0100-005 12/01/2016

FRESNO, KINGS, MADERA

	Rates	Fringes
Communications System		
Installer	$ 30.64	3%+17.86
Technician	$ 34.89	3%+17.86

SCOPE OF WORK
Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS Background foreground music, Intercom and telephone interconnect systems, Telephone systems Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage, master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide,

B. FIRE ALARM SYSTEMS Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems, Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems, Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems, VSAT Data Systems Data Communication Systems RF and Remote Control Systems, Fiber Optic Data Systems

WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

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* ELEC0234-001 06/01/2018

MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
ELECTRICIAN		
Zone A	$ 46.15	25.48
Zone B	$ 50.77	25.48

Zone A: All of Santa Cruz, Monterey, and San Benito Counties within 25 air miles of Highway 1 and Dolan Road in Moss Landing, and an area extending 5 miles east and west of Highway 101 South to the San Luis Obispo County Line

Zone B: Any area outside of Zone A

ELEC0234-003 12/01/2017

MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	18.69
Technician	$ 43.72	18.86

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0302-001 01/01/2018

CONTRA COSTA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 56.17	26.59
ELECTRICIAN	$ 49.76	26.59

ELEC0302-003 12/01/2017

CONTRA COSTA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 37.22	18.66
Technician	$ 42.80	18.83

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0332-001 05/29/2017

SANTA CLARA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 69.60	34.318
ELECTRICIAN	$ 60.52	34.046

FOOTNOTES: Work under compressed air or where gas masks are required, orwork on ladders, scaffolds, stacks, "Bosun's chairs," or other structures and where the workers are not protected by permanent guard rails at a distance of 40 to 60 ft. from the ground or supporting structures: to be paid one and one-half times the straight-time rate of pay. Work on structures of 60 ft. or over (as described above): to be paid twice the straight-time rate of pay.

ELEC0332-003 12/01/2017

SANTA CLARA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	18.69
Technician	$ 43.72	18.86

SCOPE OF WORK: Including any data system whose only function

is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0595-001 06/01/2018

ALAMEDA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 61.03	3%+35.72
ELECTRICIAN	$ 54.25	3%+35.72

ELEC0595-002 06/01/2018

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
CABLE SPLICER	$ 42.55	7.45%+24.58
ELECTRICIAN		
(1) Tunnel work	$ 38.85	7.45%+24.58
(2) All other work	$ 37.00	7.45%+24.58

ELEC0595-006 12/01/2017

ALAMEDA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	3%+17.96
Technician	$ 43.72	3%+17.96

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or

jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0595-008 12/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
Communications System		
Installer	$ 38.02	3%+17.96
Technician	$ 43.72	3%+17.96

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0617-001 06/01/2018

SAN MATEO COUNTY

	Rates	Fringes
ELECTRICIAN	$ 61.00	34.62

ELEC0617-003 12/01/2017

SAN MATEO COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	19.27
Technician	$ 43.72	19.27

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0684-001 06/01/2018

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 38.00	3%+21.33

CABLE SPLICER = 110% of Journeyman Electrician

ELEC0684-004 12/01/2016

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
Communications System		
Installer	$ 30.64	3%+17.86
Technician	$ 34.89	3%+17.86

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety

systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC1245-001 06/01/2018

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer	$ 56.79	17.91
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)	$ 45.36	16.74
(3) Groundman	$ 34.68	16.36
(4) Powderman	$ 49.55	3%+17.65

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0008-001 01/01/2018

	Rates	Fringes
ELEVATOR MECHANIC	$ 65.45	32.645

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-001 06/26/2017

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes

OPERATOR: Power Equipment
(AREA 1:)

GROUP 1	$ 44.67	30.39
GROUP 2	$ 43.14	30.39
GROUP 3	$ 41.66	30.39
GROUP 4	$ 40.28	30.39
GROUP 5	$ 39.01	30.39
GROUP 6	$ 37.69	30.39
GROUP 7	$ 36.55	30.39
GROUP 8	$ 35.41	30.39
GROUP 8-A	$ 33.20	30.39

OPERATOR: Power Equipment
(Cranes and Attachments -
AREA 1:)

GROUP 1		
Cranes	$ 46.30	30.39
Oiler	$ 36.63	30.39
Truck crane oiler	$ 39.20	30.39
GROUP 2		
Cranes	$ 43.79	30.39
Oiler	$ 36.36	30.39
Truck crane oiler	$ 38.98	30.39
GROUP 3		
Cranes	$ 42.05	30.39
Hydraulic	$ 38.32	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Cranes	$ 39.01	30.39

OPERATOR: Power Equipment
(Piledriving - AREA 1:)

GROUP 1		
Lifting devices	$ 45.89	30.39
Oiler	$ 36.63	30.39
Truck crane oiler	$ 39.20	30.39
GROUP 2		
Lifting devices	$ 44.07	30.39
Oiler	$ 36.36	30.39
Truck Crane Oiler	$ 38.98	30.39
GROUP 3		
Lifting devices	$ 42.39	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Lifting devices	$ 40.62	30.39
GROUP 5		
Lifting devices	$ 39.32	30.39
GROUP 6		
Lifting devices	$ 37.98	30.39

OPERATOR: Power Equipment
(Steel Erection - AREA 1:)

GROUP 1		
Cranes	$ 46.30	30.39
Oiler	$ 36.63	30.39
Truck Crane Oiler	$ 39.20	30.39
GROUP 2		
Cranes	$ 43.79	30.39
Oiler	$ 36.36	30.39
Truck Crane Oiler	$ 38.98	30.39

GROUP 3		
Cranes	$ 42.05	30.39
Hydraulic	$ 38.32	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Cranes	$ 39.01	30.39
GROUP 5		
Cranes	$ 35.13	30.39
OPERATOR: Power Equipment (Tunnel and Underground Work - AREA 1:)		
SHAFTS, STOPES, RAISES:		
GROUP 1	$ 40.77	30.39
GROUP 1-A	$ 43.24	30.39
GROUP 2	$ 39.51	30.39
GROUP 3	$ 38.18	30.39
GROUP 4	$ 37.04	30.39
GROUP 5	$ 35.90	30.39
UNDERGROUND:		
GROUP 1	$ 40.67	30.39
GROUP 1-A	$ 43.14	30.39
GROUP 2	$ 39.41	30.39
GROUP 3	$ 38.08	30.39
GROUP 4	$ 36.94	30.39
GROUP 5	$ 35.80	30.39

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade

checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson;

Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

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AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, TUOLUMNE

AREA 2 -NOTED BELOW

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern Part

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MADERA COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MARIPOSA COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MONTEREY COUNTY:
Area 1: Remainder
Area 2: Southwestern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

ENGI0003-008 07/01/2017

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman	$ 44.77	31.25
(2) Dredge Dozer; Heavy		

duty repairman.....$ 39.81 31.25
(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender; Winch
Operator.....$ 38.69 31.25
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 35.39 31.25
AREA 2:
(1) Leverman.....$ 46.77 31.25
(2) Dredge Dozer; Heavy
duty repairman.....$ 41.81 31.25
(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender; Winch
Operator.....$ 40.69 31.25
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 37.39 31.25

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
Area 1: All but the Western border with Mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeastern border with Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

ENGI0003-019 07/26/2017

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1	$ 34.05	28.73
AREA 2	$ 36.05	28.73
GROUP 2		
AREA 1	$ 30.45	28.73
AREA 2	$ 32.45	28.73
GROUP 3		
AREA 1	$ 25.84	28.73
AREA 2	$ 27.84	28.73

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner

Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
  Area 1: Western part along the Southern portion of border
  with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
  Area 1: All but the Northern portion along the border of
  Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
Area 1: All but the Western border with mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

IRON0377-002 01/01/2017

	Rates	Fringes
Ironworkers:		
Fence Erector	$ 29.58	21.59
Ornamental, Reinforcing and Structural	$ 36.00	30.15

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0067-002 12/01/2017

AREA "A" - ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
Asbestos Removal Laborer		
All Counties	$ 23.00	11.31
LABORER (Lead Removal)		
Area A	$ 30.70	22.17
Area B	$ 29.70	22.17

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LABO0073-002 06/26/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.54	22.17
Traffic Control Person I	$ 28.84	22.17
Traffic Control Person II	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0073-003 07/01/2017

SAN JOAQUIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO0073-005 06/26/2017

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72
GROUP 2	$ 36.37	21.72
GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0073-007 06/27/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE		

LABORERS)		
(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete

chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not

listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0073-009 07/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (Plaster Tender).....	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0261-003 06/26/2017

SAN FRANCISCO AND SAN MATEO COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 29.54	22.17
Traffic Control Person I	$ 29.84	22.17
Traffic Control Person II	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0261-005 06/26/2017

SAN FRANCISCO AND SAN MATEO COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72
GROUP 2	$ 36.37	21.72
GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-009 06/26/2017

SAN FRANCISCO, AND SAN MATEO COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31
Laborers: (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete

saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts

thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0261-011 05/01/2017

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
MASON TENDER, BRICK	$ 33.18	21.49

FOOTNOTES: Underground work such as sewers, manholes, catch basins, sewer pipes, telephone conduits, tunnels and cut trenches: $5.00 per day additional. Work in live sewage: $2.50 per day additional.

LABO0261-014 07/01/2017

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
PLASTER TENDER	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0270-003 06/26/2017

AREA A: SANTA CLARA

AREA B: MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person		
Area A	$ 29.54	22.17
Area B	$ 28.54	22.17
Traffic Control Person I		
Area A	$ 29.84	22.17
Area B	$ 28.84	22.17
Traffic Control Person II		
Area A	$ 27.34	22.17
Area B	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0270-004 06/26/2017

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0270-005 07/01/2017

MONTEREY AND SAN BENITO COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO0270-007 06/27/2017

MONTEREY, SAN BENITO, AND SANTA CRUZ, COUNTIES

	Rates	Fringes

LABORER (CONSTRUCTION CRAFT
LABORERS - AREA B)

Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS,
HORTICULTURAL & LANDSCAPE
LABORERS - AREA B)

(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31

LABORER (GUNITE - AREA B)

GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31

LABORER (WRECKING - AREA B)

GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches;

Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing

from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash,

windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0270-010 06/26/2017

SANTA CLARA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker

and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to

apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0270-011 07/01/2017

MONTEREY, SAN BENITO, SANTA CRUZ, SANTA CLARA COUNTIES

	Rates	Fringes
LABORER (Plaster Tender).....	$ 34.70	21.22

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0294-001 07/01/2017

FRESNO, KINGS AND MADERA COUNTIES

	Rates	Fringes
LABORER (Brick)		
Mason Tender-Brick.....	$ 30.45	21.04

LABO0294-002 06/26/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	$ 28.54	22.17
Traffic Control Person I....	$ 28.84	22.17
Traffic Control Person II...	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0294-005 06/26/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0294-008 06/30/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)		
(1) New Construction	$ 28.54	22.31

(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE - AREA B:)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING - AREA B:)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and

rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0294-010 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE

	Rates	Fringes
Plasterer tender	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0294-011 07/01/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (Plaster Tender).....	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0304-002 06/26/2017

ALAMEDA COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	$ 29.54	22.17
Traffic Control Person I....	$ 29.84	22.17
Traffic Control Person II...	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0304-003 06/26/2017

ALAMEDA COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	$ 36.60	24.83
GROUP 2.....	$ 36.37	24.83
GROUP 3.....	$ 36.12	24.83
GROUP 4.....	$ 35.67	24.83
GROUP 5.....	$ 35.13	24.83
Shotcrete Specialist.....	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and

setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0304-004 06/27/2017

ALAMEDA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer;

Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0304-005 05/01/2017

ALAMEDA COUNTY

	Rates	Fringes
Brick Tender	$ 33.18	21.49

FOOTNOTES: Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

LABO0304-008 07/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Plasterer tender	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0324-002 06/26/2017

CONTRA COSTA COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 29.54	22.17
Traffic Control Person I	$ 29.84	22.17
Traffic Control Person II	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0324-006 06/26/2017

CONTRA COSTA COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72
GROUP 2	$ 36.37	21.72
GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0324-012 06/27/2017

CONTRA COSTA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38

GROUP 1-f	$ 30.37	22.38
GROUP 1-g	$ 29.99	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder;

Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure

pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

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LABO0324-014 05/01/2017

CONTRA COSTA COUNTY:

	Rates	Fringes
Brick Tender	$ 33.18	21.49

FOOTNOTES: Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

LABO0324-018 07/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Plasterer tender	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO1130-002 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.54	22.17
Traffic Control Person I	$ 28.84	22.17
Traffic Control Person II	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO1130-003 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO1130-005 07/01/2017

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO1130-007 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE , COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38

GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)		
(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE - AREA B:)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING - AREA B:)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in

connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender,

chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO1130-008 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN

JOAQUIN, STANISLAUS & TUOLUMNE

	Rates	Fringes
Plasterer tender	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO1130-009 07/01/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER (Plaster Tender)	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0016-001 01/01/2018

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN MATEO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Painters:	$ 40.62	23.83

PREMIUMS:

EXOTIC MATERIALS - $0.75 additional per hour.
SPRAY WORK: - $0.50 additional per hour.
INDUSTRIAL PAINTING - $0.25 additional per hour
  [Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:
over 50 feet - $2.00 per hour additional
100 to 180 feet - $4.00 per hour additional
Over 180 feet - $6.00 per houir additional

PAIN0016-003 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: CALAVERAS, MARIPOA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
Drywall Finisher/Taper		
AREA 1	$ 45.16	26.74
AREA 2	$ 41.03	25.34

PAIN0016-012 01/01/2018

ALAMEDA, CONTRA COSTA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 48.00	26.03

PAIN0016-015 01/01/2018

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
PAINTER		
Brush	$ 32.91	19.26

FOOTNOTES:
SPRAY/SANDBLAST: $0.50 additional per hour.
EXOTIC MATERIALS: $1.00 additional per hour.
HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour. 100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.

PAIN0016-022 01/01/2018

SAN FRANCISCO COUNTY

	Rates	Fringes
PAINTER	$ 44.24	23.83

PAIN0169-001 01/01/2018

FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES:

	Rates	Fringes
GLAZIER	$ 35.00	26.26

PAIN0169-005 01/01/2018

ALAMEDA CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA & SANTA CRUZ COUNTIES

	Rates	Fringes
GLAZIER	$ 46.13	28.04

PAIN0294-004 01/01/2018

FRESNO, KINGS AND MADERA COUNTIES

	Rates	Fringes

PAINTER
Brush, Roller.....$ 29.78 18.11
Drywall Finisher/Taper.....$ 34.87 23.68

FOOTNOTE:
Spray Painters & Paperhangers recive $1.00 additional per hour. Painters doing Drywall Patching receive $1.25 additional per hour. Lead Abaters & Sandblasters receive $1.50 additional per hour. High Time - over 30 feet (does not include work from a lift) $0.75 per hour additional.

PAIN0294-005 01/01/2018

FRESNO, KINGS & MADERA

	Rates	Fringes
SOFT FLOOR LAYER.....	$ 31.49	20.48

PAIN0767-001 01/01/2018

CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
GLAZIER.....	$ 34.57	28.25

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee rquired to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 01/01/2017

HIGHWAY IMPR0VEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1.....	$ 34.41	16.31
GROUP 2.....	$ 29.25	16.31
GROUP 3.....	$ 29.59	16.31

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-003 01/01/2018

CALAVERAS; SAN JOAQUIN COUNTIES; STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
SOFT FLOOR LAYER	$ 34.81	21.51

PLAS0066-002 07/01/2017

ALAMEDA, CONTRA COSTA, SAN MATEO AND SAN FRANCISCO COUNTIES:

	Rates	Fringes
PLASTERER	$ 40.51	27.13

PLAS0300-001 07/01/2018

	Rates	Fringes
PLASTERER		
AREA 188: Fresno	$ 32.70	31.68
AREA 224: San Benito, Santa Clara, Santa Cruz	$ 32.88	31.68
AREA 295: Calaveras & San Joaquin Couonties	$ 32.70	31.68
AREA 337: Monterey County	$ 32.88	31.68
AREA 429: Mariposa, Merced, Stanislaus, Tuolumne Counties	$ 32.70	31.68

PLAS0300-005 07/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 33.49	23.67

PLUM0038-001 07/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)	$ 70.00	43.24

PLUM0038-005 07/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter)	$ 59.50	38.24

PLUM0062-001 07/01/2018

MONTEREY AND SANTA CRUZ COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 42.30	32.94

PLUM0159-001 07/01/2018

CONTRA COSTA COUNTY

	Rates	Fringes
Plumber and steamfitter		
(1) Refrigeration	$ 59.42	35.94
(2) All other work	$ 55.92	34.44

PLUM0246-001 07/01/2018

FRESNO, KINGS & MADERA COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 39.65	31.89

PLUM0246-004 01/01/2017

FRESNO, MERCED & SAN JOAQUIN COUNIES

	Rates	Fringes
PLUMBER (PIPE TRADESMAN)	$ 13.00	10.74

PIPE TRADESMAN SCOPE OF WORK:
Installation of corrugated metal piping for drainage, as well as installation of corrugated metal piping for culverts in connection with storm sewers and drains; Grouting, dry packing and diapering of joints, holes or chases including paving over joints, in piping; Temporary piping for dirt work for building site preparation; Operating jack hammers, pavement breakers, chipping guns, concrete saws and spades to cut holes, chases and channels for piping systems; Digging, grading, backfilling and ground preparation for all types of pipe to all points of the jobsite; Ground preparation including ground leveling, layout and planting of shrubbery, trees and ground cover, including watering, mowing, edging, pruning and fertilizing, the breaking of concrete, digging, backfilling and tamping for the preparation and completion of all work in connection with lawn sprinkler and landscaping; Loading, unloading and distributing materials at jobsite; Putting away materials in storage bins in jobsite secure storage area; Demolition of piping and fixtures for remodeling and additions; Setting up and tearing down work benches, ladders and job shacks; Clean-up and sweeping of jobsite; Pipe wrapping and waterproofing where tar or similar material is applied for protection of buried piping; Flagman

PLUM0342-001 07/01/2017

ALAMEDA & CONTRA COSTA COUNTIES

	Rates	Fringes
PIPEFITTER		
CONTRA COSTA COUNTY	$ 58.10	42.45
PLUMBER, PIPEFITTER, STEAMFITTER		
ALAMEDA COUNTY	$ 58.10	42.45

PLUM0355-004 07/01/2018

ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, AND TUOLUMNE COUNTIES:

	Rates	Fringes
Underground Utility Worker /Landscape Fitter	$ 27.10	16.30

PLUM0393-001 07/01/2018

SAN BENITO AND SANTA CLARA COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 62.66	41.93

PLUM0442-001 07/01/2018

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 41.50	30.14

PLUM0467-001 07/01/2017

SAN MATEO COUNTY

	Rates	Fringes
Plumber/Pipefitter/Steamfitter	$ 62.70	34.21

ROOF0027-002 01/01/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
ROOFER	$ 26.01	14.21

FOOTNOTE: Work with pitch, pitch base of pitch impregnated products or any material containing coal tar pitch, on any building old or new, where both asphalt and pitchers are used in the application of a built-up roof or tear off:

$2.00 per hour additional.

ROOF0040-002 08/01/2017

SAN FRANCISCO & SAN MATEO COUNTIES:

	Rates	Fringes
ROOFER	$ 37.88	18.22

ROOF0081-001 08/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Roofer	$ 38.20	16.81

ROOF0081-004 08/01/2017

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
ROOFER	$ 38.20	16.81

ROOF0095-002 08/01/2017

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES:

	Rates	Fringes
ROOFER		
Journeyman	$ 41.56	17.47
Kettle person (2 kettles); Bitumastic, Enameler, Coal Tar, Pitch and Mastic worker	$ 42.36	16.42

SFCA0483-001 01/01/2018

ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES:

	Rates	Fringes
SPRINKLER FITTER (FIRE)	$ 61.37	29.12

SFCA0669-011 04/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes

SPRINKLER FITTER.....$ 37.20 15.84

SHEE0104-001 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO, SANTA CLARA

AREA 2: MONTEREY & SAN BENITO

AREA 3: SANTA CRUZ

	Rates	Fringes
SHEET METAL WORKER		
AREA 1:		
Mechanical Contracts under $200,000	$ 50.29	37.16
All Other Work	$ 57.09	37.79
AREA 2	$ 46.97	32.08
AREA 3	$ 49.31	29.61

SHEE0104-003 07/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES:

	Rates	Fringes
SHEET METAL WORKER	$ 39.74	31.50

SHEE0104-005 07/01/2017

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
SHEET METAL WORKER (Excluding metal deck and siding)	$ 37.67	34.10

SHEE0104-007 07/01/2017

FRESNO, KINGS, AND MADERA COUNTIES:

	Rates	Fringes
SHEET METAL WORKER	$ 37.49	34.45

SHEE0104-015 07/01/2017

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only)	$ 37.53	32.10

SHEE0104-018 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Sheet metal worker (Metal decking and siding only)	$ 37.53	32.10

TEAM0094-001 07/01/2017

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 30.72	27.47
GROUP 2	$ 31.02	27.47
GROUP 3	$ 31.32	27.47
GROUP 4	$ 31.67	27.47
GROUP 5	$ 32.02	27.47

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.
Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport

tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of

each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of clearing, grubbing, grinding, transporting, removing and disposing of trees, stumps, roots, vegetation debris, and existing improvements, including curb, gutters, catch basins, storm drains, landscaping, fencing, utilities, and other protruding obstructions within the clearing limits.

B. Protect trees, landscaping and shrubs that are not designated to be removed or near construction site that may be harmed by construction activities.

1.2 RELATED WORK

A. Section 31 23 00 - Earthwork

1.3 REGULATORY REQUIREMENTS

A. Obtain all required permits.

B. Dispose of removed materials in a legal manner at an approved disposal facility.

1.4 REFERENCES

A. Section 15 – Existing Facilities, State Standard Specifications

B. Section 19 – Earthwork, State Standard Specifications

C. Geotechnical report entitled, "Geotechnical Investigation Report Proposed Cantua Creek and El Porvenir Pipeline Improvements Fresno, County California" prepared by Kleinfelder, dated November 20, 2017 (See Appendix)

D. Recommendations for Chemical Treatment of Basin Slope Repair and Drilling Equipment Area, prepared by Kleinfelder, dated July 27, 2018 (See Appendix)

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. Clear the specified areas by removing, above the natural ground surface, all existing improvements including curbs, gutters, catch basins, storm drains, landscaping fencing and utilities; vegetable growth such as trees, shrubs, logs, upturned stumps, roots of down trees, brush, and similar material.

1. Trees of 4-inch diameter and larger shall not be removed without Owner's authorization.

3.2 STRIPPING

A. In conformance with the Recommendations for Chemical Treatment, however, the minimum stripping depth shall be 2 inches.

3.3 PRESERVATION

A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; fell trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

END OF SECTION

SECTION 31 23 00

EARTHWORK

PART 1 GENERAL

1.1 WORK INCLUDED

A. Excavate earth and rock as necessary to allow the installation or construction of various items of work, regardless of character and subsurface conditions.

B. Haul, place, rough grade, compact, and finish grade excavated material as engineered fill on those portions of the project site where it is necessary in order to construct the facilities indicated on the Plans.

C. Dispose of unsuitable material off-site or in designated areas, as directed by the Engineer.

D. Import suitable material as required.

E. Prepare excavation and fill for compaction testing.

F. Chemical treatment of soil at CSA 32 well site as shown in Plans and as directed by Engineer.

1.2 RELATED WORK

A. Section 31 11 00 – Clearing and Grubbing

B. Section 33 21 01– Water Well Drilling

C. Construction Specification for High Calcium Quicklime attached to the "Recommendations for Chemical Treatment of Basin Slope Repair and Drilling Equipment Area" prepared by Kleinfelder, dated July 27, 2018 (See Appendix)

1.3 REFERENCES

A. ANSI/ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft lbf/ft^3 (600 kN m/m^3))

C. ANSI/ASTM D1557 – Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 10 lb (4.54 kg) Hammer and 18-inch (457 mm) Drop.

D. ANSI/ASTM D1556 – Density of Soil and base rock in Place by Sand-Cone Method.

E. ASTM D75 Standard Practice for Sampling Aggregates

F. ASTM D 6938 – Density of soil and base rock in place by Nuclear method.

G. ASTM D 2937 – Density of soil and in place by Tube method.

H. Section 26 – Aggregate Bases, State Standard Specifications.

I. Section 15 – Existing Facilities, State Standard Specifications

J. Section 18 – Dust Palliatives, State Standard Specifications

K. Section 19 – Earthwork, State Standard Specifications

L. Geotechnical report entitled, "Geotechnical Investigation Report Proposed Cantua Creek and El Porvenir Pipeline Improvements Fresno, County California" prepared by Kleinfelder, dated November 20, 2017 (See Appendix)

M. Recommendations for Chemical Treatment of Basin Slope Repair and Drilling Equipment Area prepared by Kleinfelder, dated July 27, 2018 (See Appendix).

1.4 PROTECTION

A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

1. Trenches shall have sloping, sheeting, shoring, and bracing conforming with 29CFR1926, Subpart P – Excavations, CAL/OSHA requirements, and the Contract Documents.

B. Notify Engineer of unexpected subsurface conditions.

C. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

D. Grade excavation top perimeter to prevent surface water run-off into excavation.

1.5 CONTROL AND DIVERSION OF WATER

A. General – The Contractor shall furnish or procure all materials and labor required for constructing and maintaining all necessary cofferdams, channels, flumes, drains, sumps, and/or other temporary diversion and protective works and shall furnish, install, maintain, and operate all necessary pumping and other equipment for removal of water from the various parts of the work and for maintaining the foundations and other parts of the work free from water.

B. Plan – Prior to beginning any work on the removal of water from foundations, the Contractor shall submit for the Engineer's approval a water control plan showing his proposed method for the removal of water from foundations and other parts of the work.

1.6 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 – Submittal Procedures.

B. Submit plans as required for work protection against caving ground in excavation. Designs for shoring, bracing, sloping, or similar provisions shall bear the seal of a registered civil or structural engineer licensed to practice in the State of California.

1.7 SAMPLES

A. As specified in Section 01 33 00 – Submittal Procedures

1.8 QUALITY ASSURANCE

A. Compaction Testing

1. Compaction testing will be performed in accordance with State Standard Specifications, Section 19-6.03.

2. Compaction testing for expansive soils shall be in accordance with Recommendations for Chemical Treatment and Construction Specification for High Calcium Quicklime.

1.9 DEFINITION

A. Unsuitable Material: Unsuitable material is material determined to be:

1. Impossible to compact to specified density using ordinary methods at optimum moisture content.

2. Too wet to be properly compacted if circumstances prevent satisfactory in-place drying prior to incorporation into the work.

3. Otherwise unsuitable for the planned use.

1.10 PROJECT CONDITIONS

A. Underground utilities may exist at this site. Contractor shall take all necessary precautions to protect said utilities. Notify Engineer of any deviation in utility location from that which is shown on the drawings.

B. Arrange construction sequences to provide the shortest practical time that trenches will be open to avoid hazard to the public, and to minimize the possibility of trench collapse.

C. Obtain all required permits and licenses before installing utilities and follow the rules and requirements of the authority having jurisdiction.

1.11 EXCAVATION CLASSIFICATION

A. Regardless of the nature of material excavated, all excavation will be considered unclassified.

PART 2 PRODUCTS

2.1 EXPANSIVE ENGINEERED FILL

A. As specified in Recommendations for Chemical Treatment and Construction Specification for High Calcium Quicklime.

2.2 LIME

A. As specified in Construction Specification for High Calcium Quicklime

2.3 WATER

A. As specified in Construction Specification for High Calcium Quicklime

2.4 NON-EXPANSIVE ENGINEERED FILL

A. As specified in the Geotechnical Engineering Investigation

2.5 GENERAL

A. All backfill material shall be approved before use and be free of cinders, ashes, ice, frozen soil, large hard clods, organic debris, or other deleterious items.

B. Gravel: Pit run, natural stone; free of shale, clay, organic matter; No. 8 minimum to $^{3}/_{8}$" maximum size per State Standard Specifications, Section 90-1.02C(4)(a).

C. Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; ¼" minimum to $^{5}/_{8}$" maximum size.

D. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter, graded in accordance with State Standard Specifications, Section 90-1.02C(4)(C), within the following limits:

Sieve Size	Percent Passing
No. 4	75 - 100
No. 200	0 – 10

E. Imported sand shall have a Sand Equivalent of 30, per ASTM D 2419.

F. Class 2 Aggregate Base: Material as specified for ¾" maximum grading in State Standard Specifications Section 26-1.02B, unless otherwise specified.

G. Permeable material for use in backfilling under, around, and over underdrains; and permeable material for chimney drains, riprap bedding, or other subdrainage purposes shall consist of hard, durable, clean sand, gravel or crushed stone and shall be free from organic materials, clay balls, or other deleterious substances.

1. The percentage composition by weight of permeable materials in-place shall conform to the following gradation when determined by ASTM D-422:

Sieve Size	Percent Passing
1½ inch	90-100
¾ inch	45-75
No. 4	30-45
No. 50	4-10
No. 100	1-3
No. 200	0-2

PART 3 EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum.

3.2 MOISTURE CONTROL

A. Water development, hauling, and application shall be in accordance with State Standard Specifications Section 10-6, Watering and Recommendations for Chemical Treatment and Construction Specification for High Calcium Quicklime

3.3 CLEARING AND GRUBBING

A. All surface vegetation and any miscellaneous surface obstructions should be removed from the project area prior to any site grading in accordance with Section 31 11 00, “Clearing and Grubbing” and the Geotechnical Engineering Investigation and See Recommendations for Chemical Treatment Report.

3.4 STRIPPING

A. See Section 31 11 00 Clearing and Grubbing

3.5 OVER-EXCAVATION

A. Excavate disturbed soil, undocumented fill and subsurface obstructions to expose firm native material. Excavation shall include earth and rock, as necessary, to allow the installation or construction of various items of work.

B. Over-excavate to a minimum depth in conformance with Recommendations for Chemical Treatment.

3.6 EXCAVATION

A. Excavate the specified areas as shown on the Plans.

B. If the Plans require placement of fill prior to pipe, or structure excavation, the fill shall first be constructed to the design grade shown for a distance each side of the pipe or structure of not less than five times the diameter of the pipe or the width of the structure after which the trench shall be excavated and the pipe or structure installed.

3.7 ENGINEERED FILL AND EMBANKMENT CONSTRUCTION

A. As specified in Recommendations for Chemical Treatment and Construction Specification for High Calcium Quicklime.

3.8 SHORING AND SHEETING

A. Construct and maintain all shoring, sheeting, and slope layback necessary to protect the excavation, as needed, for the safety of the employees and as required by applicable State and Federal laws. Provide suitable barricades for public safety, regardless of trench depth.

3.9 DEWATERING

A. The Contractor shall keep all excavation free from water. Furnish, install, maintain, and operate all necessary pumping and other equipment for dewatering of excavations. The Contractor shall at all times have on the project sufficient pumping equipment for immediate use, including stand-by pumps for use in case other pumps become inoperable.

B. The dewatering operation shall be continuous, so that the excavated areas are kept free from water during the construction, until backfill has been placed to a sufficient height to anchor the work against possible floatation.

C. Dewatering devices shall be adequately filtered to prevent the removal of fines from the soil.

D. Repair any damage caused by the failure of any part of the protective works. Remove temporary protective works when they are no longer needed for dewatering purposes.

E. Any drain rock required in the trench bottom to convey water or stabilize wet soil shall be included at no extra cost to the Owner.

F. Provision of dewatering and dewatering equipment shall be considered part of the project with no additional compensation allowed.

3.10 SURPLUS MATERIAL

A. Unless otherwise specified, surplus excavated material shall be disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.11 UNSUITABLE MATERIAL

A. Unsuitable material shall be excavated and disposed of in a lawful manner off the project site, all disposal shall be approved by the Engineer prior to initiating the work.

3.12 SURFACE FINISH WORK

A. Paved Areas: Replace removed paving and base course with new material of equal or better quality and of the same texture and color as the adjacent paved areas. Saw cut pavement edges to a true line and broom as needed prior to repaving.

B. Open Areas: Grade all disturbed areas, blending with adjacent terrain. Minor irregularities will be permitted.

C. Drainage Ditches: Restore drainage ditches to appropriate line and grade, using approved surface erosion prevention techniques.

D. Clean Up: Remove all rubbish and excess material for disposal as approved, and leave area in a neat, satisfactory condition.

3.13 TOLERANCES

A. Top Surface of Backfilling: ±0.10 foot from design grade.

B. Aggregate Base Subgrade: ±0.05 foot from design grade.

END OF SECTION

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	**QUANTITY**	**F/S**	**UNIT OF MEASURE**	**ITEM**	**ITEM PRICE**	**TOTAL PRICE**
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	**QUANTITY**	**F/S**	**UNIT OF MEASURE**	**ITEM**	**ITEM PRICE**	**TOTAL PRICE**
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
41	500		CY	EARTHWORK AND CHEMICAL TREATMENT		
SUBTOTAL BID (ITEMS 21 - 41)						

TOTAL BID (ITEMS 1 - 41)	

F - Final Pay Item
S - Specialty Item

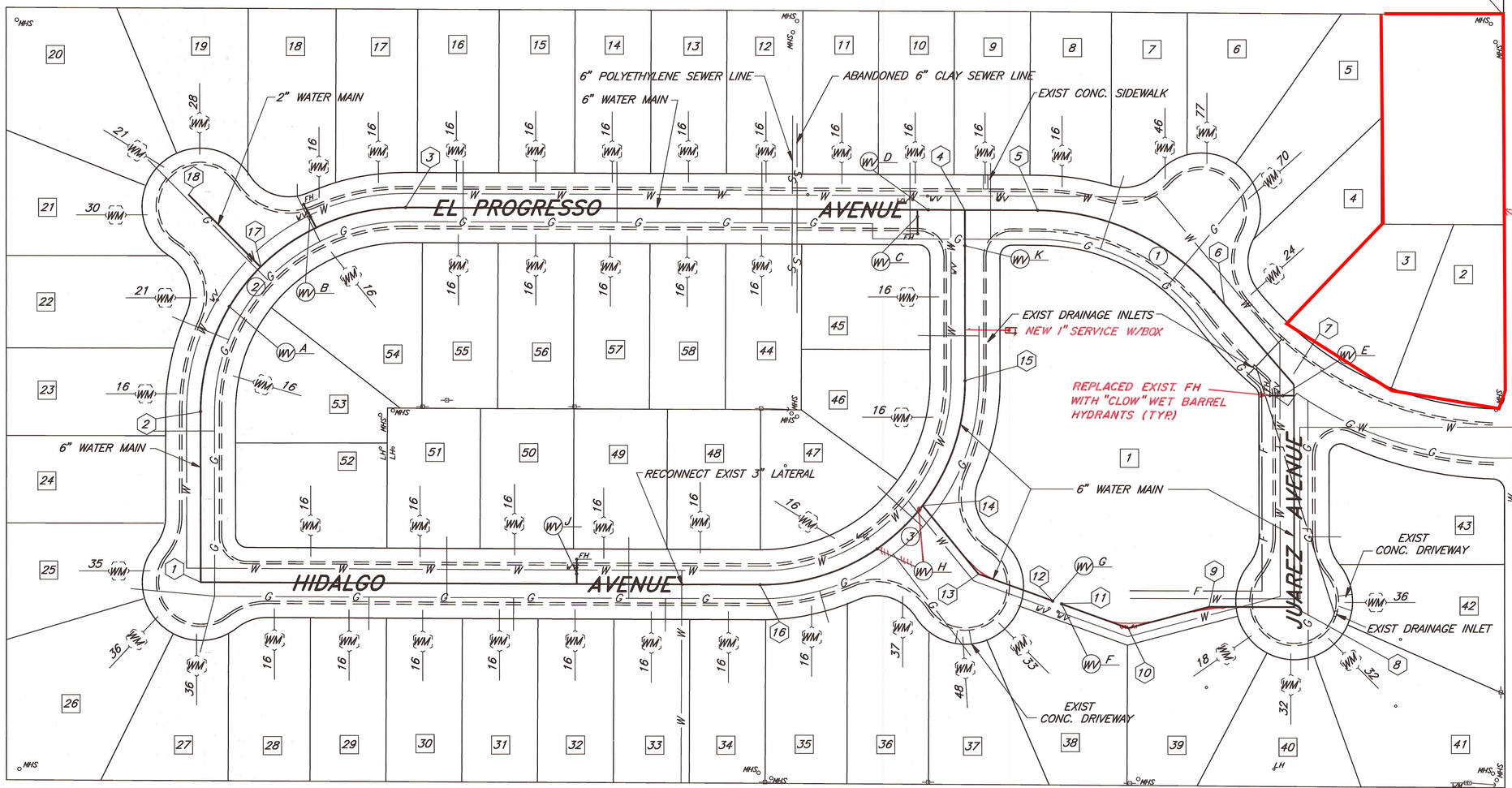
CSA 30 Site Plan

(2)
△ = 90° 12' 00"
R = 175'
T = 175.62'
L = 275.51'
RP = N 10,321.7, E 9,008.4

(3)
△ = 90° 13' 00"
R = 175'
T = 175.66'
L = 275.55'
RP = N 10,348.4, E 9313.4

(1)
△ = 48° 58' 23"
R = 200'
T = 91.10'
L = 170.95'
RP = N 10,294.2, E 9550.0

NE PROPERTY CORNER N 10661.89
E 9950.00



T 16 S , R 14 E
25 30 N 10000.00
36 31 E 10000.00

COORDINATES OF WATER MAIN AT VARIOUS LOCATIONS

**	LOCATION	LENGTH	NORTH	EAST
1	WEST END HIDALGO		N 10,175.8	E 8,833.2
		146.2		
2	BC CURVE #2		N 10,322.0	E 8,833.4
		275.5		
3	EC CURVE #2		N 10,496.8	E 9,009.2
		479.4		
4	NORTH END HIDALGO		N 10494.5	E 9,488.6
		62.3		
5	BC CURVE #1		N 10,494.2	E 9,550.9
		171.0		
6	EC CURVE #1		N 10,424.8	E 9,701.5
		104.7		
7	NORTH END JUAREZ		N 10,345.5	E 9,769.9
		190.5		
8	SOUTH END JUAREZ		N 10,155.0	E 9,769.9
		72.9		
9	ANGLE PT		N 10,155.0	E 9,697.0
		71.7		
10	ANGLE PT		N 10,136.5	E 9,627.8
		60.7		
11	WATER PLANT CONN		N 10,157.1	E 9,570.7

COORDINATES OF WATER MAIN AT VARIOUS LOCATIONS

**	LOCATION	LENGTH	NORTH	EAST
12	WATER PLANT CONN		N 10,159.8	E 9,563.3
		67.6		
13	ANGLE PT		N 10,182.7	E 9,499.7
		75.7		
14	WATER MAIN CONN		N 10,241.4	E 9,451.9

4	NORTH END HIDALGO		N 10494.5	E 9,488.6
		146.3		
15	EC CURVE #3		N 10,348.2	E 9,488.4
		275.5		
16	BC CURVE #3		N 10,173.4	E 9,312.6
		479.3		
1	WEST END HIDALGO		N 10,175.8	E 8,833.2

17	2" LATERAL TO MAIN		N 10,445.9	E 8,885.0
		87.2		
18	2" LATERAL END		N 10,507.7	E 8,823.5

COORDINATES OF 6" GATE VALVES AT VARIOUS LOCATIONS

*	LOCATION	NORTH	EAST
A	NW CORNER OF PROGRESSO	N 10,412.0	E 8,858.2
B	HYDRANT NW CORNER PROGRESSO	N 10,488.8	E 8,927.7
C	HYDRANT : PROGRESSO & HIDALGO	N 10,488.8	E 9,448.0
D	PROGRESSO & HIDALGO INTER	N 10494.7	E 9,457.2
E	HYDRANT : PROGRESSO & JUAREZ	N 10,336.0	E 9,760.2
F	WATER TREATMENT PLANT	N 10,157.2	E 9,570.9
G	WATER TREATMENT PLANT	N 10,159.6	E 9,563.2
H	SE CORNER OF HIDALGO	N 10,204.3	E 9,412.8
J	HYDRANT BETWEEN LOTS 49 & 50	N 10,182.9	E 9,155.4
K	PROGRESSO & HIDALGO INTER	N 10,464.0	E 9,488.6

AS - BUILT PLANS
RESIDENT ENGINEER — DATE
Manuel Hernandez 10/15/97

11060-03.DWG / 3210-P96795 / 02-06-97 LJC

DESIGNED PAUL HARDING 11/96
DRAWN LEE CANDELAS 11/96
CHECKED GEORGE DAVIS 12/96

GENERAL PLAN

APPROVED — INTERIM ASSISTANT DIRECTOR OF PUBLIC WORKS & DEVELOPMENT SERVICES
APPROVAL RECOMMENDED — ASSISTANT DESIGN ENGINEER

REGISTERED PROFESSIONAL ENGINEER JOHN A. WOODS No. 25779 Exp. 12-31-97 CIVIL STATE OF CALIFORNIA

County of FRESNO
PUBLIC WORKS & DEVELOPMENT SERVICES DEPARTMENT

SCALE: 1" = 50'
PROJECT

DRAWING NO 11060 ROAD NO N/A BRIDGE NO N/A SHT NO 3 TOT SHTS 4

REVISION — FOR R/W DATA AND ACCURATE ACCESS DETERMINATION SEE R/W RECORDS AT PUBLIC WORKS

November 20, 2017
File No.: 20180195

Provost and Prichard Consulting Group
286 West Cromwell Avenue
Fresno, California

Attn: Mr. Nicholas Jacobson

SUBJECT: Geotechnical Investigation Report
Proposed Cantua Creek and El Porvenir Pipeline Improvements
Fresno County, California

Dear Mr. Jacobson:

The attached report presents the results of the geotechnical investigation for the proposed Cantua Creek and El Porvenir Pipeline Improvements in Fresno County, California. This report describes the study, findings, conclusions, and recommendations for use in project design.

Kleinfelder appreciates the opportunity to provide geotechnical engineering services during the design phase of this project. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully submitted,
KLEINFELDER, INC.

Victoria Tinoco
Staff Engineer

Nathan L. Dahlen, PE
Senior Project Manager

NMP:DLP:sj

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GEOTECHNICAL INVESTIGATION REPORT
PROPOSED CANTUA CREEK AND EL PORVENIR PIPELINE IMPROVEMENTS
FRESNO COUNTY, CALIFORNIA

Prepared For:
Provost and Prichard Consulting Group
286 West Cromwell Avenue
Fresno, California

November 20, 2017

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Prepared For:

Provost and Prichard Consulting Group
286 West Cromwell Avenue
Fresno, California

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED CANTUA CREEK AND EL PORVENIR PIPELINE IMPROVEMENTS
FRESNO COUNTY, CALIFORNIA

Kleinfelder Job No.: 20180195

Prepared by:

Victoria Tinoco
Staff Engineer

Nathan L. Dahlen, PE
Senior Project Manager

KLEINFELDER, INC.
3731 West Ashcroft Avenue
Fresno, California 93722
(559) 486-0750

November 20, 2017

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1. INTRODUCTION

1.1 GENERAL

This report presents the results of the geotechnical investigation for the proposed Cantua Creek and El Porvenir Pipeline Improvements in Fresno County, California. The pipeline will service an elementary school and residential area at locations near Cantua Creek and El Porvenir. The purpose of the investigation was to evaluate the subsurface conditions along the alignment and develop geotechnical engineering recommendations to aid in design and construction of the project.

The Site Vicinity Map, Figures 1 and 3, shows the approximate location of the projects. The Boring Location Map, presented on Figures 2 and 4, displays the approximate boring locations performed for this study.

This report includes recommendations related to the geotechnical aspects of project design. Conclusions and recommendations presented in this report are based on the subsurface conditions encountered at the locations of exploration and the provisions and requirements outlined in the “Limitations” Section of this report. Recommendations presented herein should not be extrapolated to other areas or used for other projects without prior review.

1.2 PROJECT DESCRIPTION

Understanding of the project is based upon a general site plan and discussions with representatives of Provost and Prichard Consulting Group.

Improvements at the sites include new wells, pipelines, and pumping facilities. The proposed well at the Cantua Creek site location will be installed next to the County storm water basin located northeast of Cantua Elementary School and will include approximately 500 feet of pipeline connecting the well to the existing tank located at the surface water treatment plant. It is also anticipated that the site have an approximately 5,800 foot water main pipeline. It is understood the pipe diameter will be 8 inches and the trench will follow County Standards.

The proposed well at the El Porvenir site located at the northwest corner of Clarkson and SR 33 will be installed next to the existing tank and booster pump in the residential neighborhood park

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and will also include the installation of an approximately 200 foot supply main running from the newly installed well to the existing tank and booster pump located at the southwest corner of the residential neighborhood on Clarkson Avenue. This site will also include the addition of 500 feet of a new sewer main. It is anticipated that the El Porvenir well site will include the addition of a light metal frame building.

Other improvements at each well installation location will include the addition of one 5,000 gallon hydropneumatic tank, one standby generator, site grading, concrete slabs for electrical cabinets, and other various well site improvements including but not limited to new booster pumps, valves, and pipes.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to explore the general subsurface conditions along the alignment and each site and provide comments and recommendations to aid in design and construction. This report includes the following:

- ☑ A description of the proposal project, including a plan showing the locations of the exploration points for this study
- ☑ A description of the site surface and subsurface conditions encountered during the field investigation, including boring logs
- ☑ A summary of the field exploration and laboratory testing programs
- ☑ General discussion of the regional geology and site engineering seismology including potential for liquefaction
- ☑ Comments and parameters for use in evaluating backfill criteria
- ☑ Recommended E'_n for trench wall soil and E'_b and density of backfill for use in initial pipe deformation analysis
- ☑ Recommended frictional resistance along pressured pipe and lateral bearing parameters for thrust blocks for use in resisting sustained and test condition lateral loading
- ☑ Recommendations for site preparation and earthwork grading, including a discussion concerning the use of on-site soils for engineered fill, recommended import fill specifications, and overexcavation requirements (if any)
- ☑ Seismic design parameters and other requirements for site based on 2016 CBC

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- ☑ Recommendations for foundation design for building and pneumatic tank including bearing capacity of foundation soil for sustained loading and total combined loading

- ☑ Comments on regional subsidence and general recommendations to minimize local subsidence and settlement

- ☑ Comments on groundwater conditions encountered

- ☑ Comments on the general corrosion potential of on-site soil

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2. FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The exploration included nine (9) borings along the alignment and each site, which were performed May 1, 2017. The borings were advanced to depths ranging from 16.5 to 36.5 feet below existing ground surface. The test borings were drilled with a CME-75 truck mounted drill rig using hollow-stem auger techniques. The approximate locations of the test borings are indicated on the Boring Location Plan, Figures 2 and 4.

The earth materials encountered in the test borings were visually classified in the field and a continuous log was recorded. In-place sample collection was achieved at selected depths by driving a 2.5-inch I.D. split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic safety hammer free falling a distance of 30-inches. Sampling also utilized an ASTM D1586 standard penetrometer without liners (barrel I.D. of 1.5 inches), driven 18-inches in the same manner. This latter sampling procedure generally conformed to the ASTM D1586 test procedure. Resistance to sampler penetration over the last 12-inches is noted on the boring logs. The penetration indices listed on the boring logs have not been corrected for the effects of overburden pressure, sampler size, rod length, or hammer efficiency. Bulk samples were also obtained from cuttings at selected locations.

2.2 FIELD AND LABORATORY TESTING

SPT penetration rates, determined in general accordance with ASTM D1586, were used to aid in evaluating the consistency, compression, and strength characteristics of the soils.

Kleinfelder performed laboratory tests on selected samples to evaluate certain physical characteristics. The following laboratory tests were used to develop the design geotechnical parameters:

- Unit Weight (ASTM D2937)
- Moisture Content (ASTM D2216)
- Grain-Size Distribution (ASTM D422, without hydrometer)
- Direct Shear (ASTM D3080)

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- Atterberg Limits (ASTM D4318)
- One Dimensional Consolidation (ASTM D2435)
- Maximum Dry Density and Optimum Moisture (ASTM D1557)
- pH and Minimum Resistivity (California Test Method No. 643)
- Soluble Sulfate and Chloride Content (California Test Method Nos. 417 and 422)

The dry density, moisture content, and percent passing the 75-micron (#200 sieve) test results are shown on the borings in Appendix A. The pH, minimum resistivity, and soluble sulfate and chloride results are summarized in Section 6.4 (“Corrosion Potential”). The remaining test results are provided in Appendix B.

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3. SITE CONDITIONS

3.1 SURFACE CONDITIONS

The pipeline alignment along the Cantua Creek site is generally surrounded by agricultural land the well site is adjacent to a storm water basin. The pipeline alignment at the El Porvenir site is within a small residential area surrounded by agricultural land. In general, the site is relatively flat and slopes downhill gently to the east. The Cantua Creek pipeline alignment runs along Clarkson Avenue between San Mateo Avenue and Stanislaus Avenue.

3.2 EARTH MATERIALS

The following description provides a general summary of the subsurface conditions encountered during the field exploration and further verified by the laboratory testing program. For a more thorough description of the actual conditions encountered at specific boring locations, refer to the boring logs presented in Appendix A. All soils have been classified in general accordance with the Unified Soil Classification System (ASTM D2487).

The natural earth material consists of Great Valley fan deposits, which have a geologic age of Holocene. The general soil profile encountered along the Cantua Creek pipeline alignment consist of fat clay underlain by interbedded, laterally discontinuous layers of lean clay, clayey sand and silty sands with clay. The general soil profile encountered at the El Porvernir site consist of clayey sand underlain by interbedded, laterally discontinuous layers of lean clay, clayey sand and poorly graded sand.

3.3 GROUNDWATER CONDITIONS

Groundwater was encountered in boring B-1 at 35.5 feet. The encountered water is likely a perched condition from the nearby storm water basin. Department of Water Resources indicates the depth to ground water in the general project area is generally about 400 feet or deeper. Groundwater is not anticipated to be within construction limits. Groundwater conditions at the site could change at some time in the future due to variations in rainfall, groundwater withdrawal, construction activities, or other factors not apparent at the time the test borings were made. The variation could be most pronounced adjacent to ponds, canals, creeks, and other bodies which periodically contain water.

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3.4 REGIONAL SUBSIDENCE

Deep regional subsidence is surface settlement attributed to fluid withdrawal. In the San Joaquin Valley, deep subsidence is primarily related to groundwater overdraft. Deep subsidence can also occur due to oil production, but is generally confined to close proximity of oil producing fields. Shallow subsidence would be the result of near surface soil collapse in response to surface moisture infiltration.

In preparation for development of the California Aqueduct, an evaluation of land subsidence was undertaken by an Inter-Agency Committee comprised of representatives of the U.S. Geologic Survey, California Department of Water Resources (DWR), California Division of Highways, U.S. Bureau of Reclamation, U.S. Corps of Engineers, and various California universities. With regards to deep subsidence, research by the committee determined land subsidence was first observed in about 1935 along the west side of the valley between about Los Banos and Kettleman City. Measurements between 1943 and 1953 showed as much as 7 feet of deep subsidence in the area between Los Banos and Kettleman City. The maximum angular distortion indicated by subsidence contours during this ten year period was 0.000335 radian (about four feet over 2.25 miles). Another area of deep subsidence was observed in the area from Tulare to Wasco, where ground water levels lowered between 125 to 230 feet (not elevation) from 1905 to 1952. The maximum measured subsidence from 1926 to 1954 was ten feet. The maximum angular distortion was 0.000473 radian (about 4 feet over 1.6 miles).

Evaluation of regional deep subsidence in the general project area was based on recent satellite imagery. NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California, prepared a report (subsidence in the Central Valley of California) on deep subsidence for the California DWR. Report co-author, Mr. Tom Fair, provide Kleinfelder with three sets of data which covered the project area. This data showed deep subsidence generally throughout both sites and alignments. Data from Japan's PALSAR satellite indicated subsidence of about 2 to 5 inches between June 2007 and December 2010, with an angular distortion of about 0.0000625 radian (about 3 inches over 4000 feet). The second set of data was from the European Space Agency's Sentinel satellite between May 7, 2015 and May 25, 2016. This data also showed the deep subsidence within the area between about 4 and 8 inches, with a maximum angular distortion of 0.00033 radian (about 4 inches in 4000 feet). The third set of data was from the Canadian Space Agency's Radarsat-2 indicated subsidence of about 2 to 4 inches between May 3, 2014 to January 22, 2015, with an angular distortion of about 0.000042 radian (about 2 inches over 4000 feet).

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These movements are typically not significant to linear structures.

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4. GEOLOGIC CONDITIONS

4.1 FAULTS LOCAL TO THE PROPOSED ALIGNMENT

The project site is located in an area characterized by relatively low to moderate historic seismic activity. The site is not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code).

Numerous faults and shear zones within the region could influence the project site. The most significant of these faults, with respect to the project site, is the Great Valley Fault (modal magnitude 7.0, about 19 kilometers away from the site), and the San Andreas Fault (modal magnitude 7.9, about 53 kilometers away from the site). A major seismic event on this, or other regional, faults could cause moderate ground shaking at the site.

4.2 SEISMIC DESIGN CRITERIA

If any components of the project require seismic design, the 2016 California Building Code (CBC) code based design could be used. The estimated Maximum Considered Earthquake (MCE), mapped spectral accelerations for 0.2 second and 1 second periods (S_S and S_1) and associated soil amplification factors (F_a and $F_{v)}$ are presented in Table 4.2-1. Corresponding site modified maximum (S_{MS} and S_{M1}) and design (S_{DS} and S_{D1}) spectral accelerations are also presented in Table 4.2-1.

Based on Table 20.3-1 of ASCE 7-10, the project is categorized as Site Class D. Site Class D is defined as a stiff soil profile with average shear wave velocities within the upper 100 feet between 600 ft/sec and 1,200 ft/sec, average SPT N value of 15<N<50, or average undrained shear strength (Su) of 1,000 psf <Su< 2,000 psf.

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TABLE 4.2-1
2016 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value
S_S	1.500
S_1	0.489
Site Class	D
Seismic Design Category	D
F_a	1.000
F_v	1.511
PGA	0.500g
S_{MS}	1.500g
S_{M1}	0.739g
S_{DS}	1.000g
S_{D1}	0.492g
F_{PGA}	1.000
PGA_M	0.500g
C_{RS}	0.977
C_{R1}	1.014
T_L	8

4.3 LIQUEFACTION POTENTIAL AND SEISMIC SETTLEMENT

In order for liquefaction, and possible associated effects, of soils due to ground shaking to occur, it is generally accepted that four conditions will exist:

- The subsurface soils are in a relatively loose state,
- The soils are saturated,
- The soils are non-plastic, and
- Ground shaking is of sufficient intensity and duration to act as a triggering mechanism.

Based on the ground shaking which may be expected at this site, the soil relative density, soil type, and depth to groundwater, analysis utilizing Youd (2001) indicates liquefaction, and associated seismically induced settlement, is considered unlikely

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5. EARTHWORK

5.1 GENERAL

Based on the laboratory data, field exploration, and geotechnical analyses conducted by Kleinfelder for this study, it is geotechnically feasible to construct the proposed project, as currently envisioned. It is anticipated required earthwork can be accomplished with conventional grading equipment and techniques. All references to compaction, maximum density and optimum moisture content are based on ASTM D1557, unless otherwise noted.

The investigation has indicated moderate to high expansion potential for the near surface clayey soils. Expansive soils are susceptible to volume changes associated with changes in soil moisture content. The potential for future differential movement resulting from these soils can be reduced to normally tolerable levels by following the recommendations presented in this report. The intent of the recommendations is to result in a degree of saturation of about 80% to 85% at the time of construction. Moisture conditioning and compaction mitigation implemented during grading should be consistent with the soil expansiveness. For structures, careful attention must be paid to future maintenance, including site drainage and irrigation practices.

5.2 STRUCTURE SITE PREPARATION

5.2.1 Stripping

At the time of the site reconnaissance, sparse vegetation was present on the site. It is likely the amount of surface vegetation will vary with time. Any surface vegetation and any miscellaneous surface or subsurface obstructions should be removed from the project area, prior to any site grading. Based on site observation, stripping will likely involve the upper 2 to 6 inches of surface soil. Surface strippings should not be incorporated into fill unless they can be sufficiently blended to result in an organic content less 3 percent by weight (ASTM D2974).

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5.2.2 Existing Obstructions and Fill

During the initial site grading, a reasonable search should be conducted to locate and remove any unsuitable material, unengineered fill or soil disturbed by previous activity that may exist within the area of construction (i.e. animal burrows, irrigation pipes). If any areas or pockets of soft or unstable soils are encountered, they should be over-excavated to firm native material approved by a representative of the project Geotechnical Engineer. Excavations for removal of unsuitable conditions should be backfilled with engineered fill (see Sections 5.2.4 and 5.3).

5.2.3 Over-Excavation

Over-excavation is typically reserved for soils that, in their natural state, will not provide adequate bearing for structures. The native soils at the project site should provide adequate bearing for the proposed structures. Therefore, provided the recommendations in Section 5.2 are followed, no general site over-excavation is required.

5.2.4 Scarification and Compaction

Following site stripping and any necessary removal, any areas to receive engineered fill should be properly prepared. The exposed surface should be scarified to a depth of 8 inches and moisture conditioned to at least 4% above optimum and compacted to at least 88%, but not more than 92%, of maximum dry density.

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ENGINEERED FILL

5.2.5 Non-Expansive Engineered Fill

All engineered fill soils should be nearly free of organic or other deleterious debris and less than 3 inches in maximum dimension. Table 5.3-1 provides recommended compliance criteria for the quality of imported non-expansive engineered fill to be used at the site.

TABLE 5.3-1
IMPORTED ENGINEERED FILL CRITERIA

Gradation		Test Procedures	
Sieve Size	**Percent Passing**	**ASTM[1]**	**Caltrans[2]**
76 mm (3 inch)	100	C136	202
19 mm (¾ inch)	80 – 100	C136	202
No. 4	60 - 100	C136	202
No. 200	20 – 50	C136	202
Plasticity			
Liquid Limit	Plasticity Index		
< 25	< 9	D4318	204
Soluble Sulfates			
< 2000 ppm		-	417
Soluble Chloride			
<300 ppm		-	422
Resistivity			
>3000 ohm-cm		-	643

Notes:
[1] American Society for Testing and Materials Standards (latest edition)
[2] State of California, Department of Transportation, Standard Test Methods (latest edition)

Any imported materials to be used for engineered fill should be sampled and tested by a representative of the project Geotechnical Engineer prior to being transported to the site.

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5.2.6 Compaction Criteria

On-site soil used for engineered fill should be uniformly moisture-conditioned to at least 4% above optimum, placed in horizontal lifts less than 8 inches in loose thickness, and compacted to at least 88 percent, but not more than 92 percent, as determined by ASTM D1557. The general intent is to bring the expansive material to about 80% to 85% saturation at the time of construction. Moisture and compaction may be adjusted, as necessary, to achieve this intent. Disking and/or blending may be required to uniformly moisture-condition soils used for engineered fill.

Imported 'non-expansive' soils used for engineered fill should be uniformly moisture conditioned to at, or above, optimum moisture, placed in horizontal lifts less than 8 inches in loose thickness, and compacted to 90 percent relative compaction. Disking and/or blending may be required to uniformly moisture-condition soils used for engineered fill**.**

5.2.7 Construction Considerations

Should site grading be performed during or subsequent to wet weather, near-surface site soils may be significantly above optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Disking to aerate, chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be required to mitigate the effects of excessive soil moisture and facilitate earthwork operations. Any consideration of chemical treatment (e.g. lime) to facilitate construction would require additional soil chemistry evaluation and could affect landscape areas and some construction materials (e.g. aluminum).

If construction is performed during dry, hot or windy weather, it may be necessary to periodically apply surface watering to counter evaporative loss or re-establish moisture prior to constructing structures.

5.3 LIME TREATED SUBGRADE OPTION

Amendment with quicklime can be used to increase workability, reduce post-construction expansion potential, reduce pavement sections and reduce subgrade moisture sensitivity for soil used as engineered fill or structure or pavement subgrade. In general, the lime treated soil

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should be uniformly mixed and moisture conditioned, mellowed, remixed and moisture conditioned, compacted and cured. In cut areas, initial mixing and moisture conditioning could be performed in-place after the subgrade area is cut to approximate rough grade. In fill areas, the untreated soil could be transported to, and spread over, the fill area and then mixed and moisture conditioned in-place or treated soil could be transported from a "mixing table." The blended material would initially be mixed, moisture conditioned to 4% above optimum and mellowed for 48 hours to allow for formation of any ettringite mineral associates with the presence of sulfates.

If lime treatment is used it is recommended a 4.0% lime amendment to the subgrade soil be used for a minimum depth of 18 inches. This would result in an unconfined compressive strength for the lime treated subgrade (LTS) of about 400 psi. 4.0% would be the practical minimum amendment to result in a constructible uniform mixture.

5.4 TEMPORARY EXCAVATIONS

5.4.1 General

All excavations must comply with applicable local, State, and Federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety is generally the responsibility of the contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. The information below is provided as a service to the client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

5.4.2 Excavations and Slopes

The contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, State, and/or Federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations). Such regulations are strictly enforced and, if they are not followed, the owner, contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

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All excavations should be constructed and maintained in conformance with current OSHA requirements (29 CFR Part 1926).

5.4.3 Construction Considerations

Heavy construction equipment, building materials, excavated soil, and vehicular traffic should be kept sufficiently away from the top of any excavation to prevent any unanticipated surcharging. If it is necessary to encroach upon the top of an excavation, Kleinfelder can provide comments on slope gradients or loads on shoring to address surcharging, if provided with the geometry. Shoring, bracing, or underpinning required for the project (if any), should be designed by a professional engineer registered in the State of California.

During wet weather, earthen berms or other methods should be used to prevent runoff water from entering all excavations. All runoff should be collected and disposed of outside the construction limits.

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5.5 TRENCH BACKFILL

5.5.1 Materials

Pipe embedment zone backfill (i.e., bedding, haunching, pipe zone, and initial backfill per ASTM D2321) should consist of soil compatible with design requirements for the specific types of pipes. It is recommended the project designer or pipe supplier develop the material specifications based on planned pipe types, bedding conditions, tolerable deflection and other factors beyond the scope of this study. Randomly excavated on-site soil will likely be Class IV material per ASTM D2321.

Trench zone backfill (i.e., material placed between the pipe zone backfill and finished subgrade) may consist of native soil that meets the requirements for engineered fill.

5.5.2 Compaction Criteria

Trench backfill should be placed and compacted in accordance with recommendations provided above for engineered fill. Reduced compaction (85% minimum) could be specified for trench zone backfill in non-structural areas. Mechanical compaction is recommended; ponding or jetting should not be used.

Table 5.6-1 provides estimated geotechnical parameters for designers to consider in evaluating pipe zone backfill criteria that is compatible with pipe types and deformation tolerances. Data is presented for site soil and imported Class III (per ASTM D 2321) soil. Use of site soil as backfill will be very labor intensive to provide adequate placement and compaction under and around pipes.

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TABLE 5.6-1
PIPE ZONE BACKFILL PARAMETERS

Site	Soil Stiffness Modulus (psi)			Backfill Density (pcf)	
	E'_n (Trench Sidewall)	E'_b (Backfill)		85% Compaction	90% Compaction
		85% Compaction	90% Compaction		
Cantua	3000	700	1000	96	102
El Porvenir	3000	700	1000	100	106
Class III	3000	900	1350	116	123

E'_n represents the modulus for the undisturbed natural soil and is based on relative density and data by Howard (1996). E'_b is the modulus for backfill derived from random excavation of on-site soil and is based on data by Hartley and Duncan (1982) and Watkins and Anderson (2000). The design E' will be dependent upon the pipe diameter and trench width, which dictates the relative influence of E'_n and E'_b. Methods by Howard (1996) are suggested for evaluating the design E'.

In evaluating the maximum load (W_c) on pipes, a Kμ' of 0.19 (K = 0.42 and μ' = 0.45) can be used in determining the load coefficient C_d for the Cantua site and a Kμ' of 0.19 (K = 0.35 and μ' = 0.55) can be used for the El Porvenir site.

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6. DESIGN RECOMEDATIONS

6.1 GENERAL

The investigation has indicated a moderate to high expansion potential for the surface clay soils. Expansive soils are susceptible to volume changes associated with changes in soil moisture content. The potential for future differential movement of conventional slabs resulting from these soils can be reduced to normally tolerable levels by following the moisture conditioning and compaction recommendations presented in this report. The intent of the recommendations is to result in a degree of saturation of about 80% to 85% at the time of construction. Moisture conditioning and compaction mitigation implemented during grading should be consistent with the soil expansion potential. Considering the potential for variation in soil expansion, Atterberg Limits tests should be performed in conjunction with the maximum density testing during site grading to determine the appropriate moisture conditioning. Careful attention must be paid to maintaining site drainage, preventing the ponding of water.

6.2 SPREAD AND MAT FOUNDATIONS

6.2.1 General

The proposed structures may be supported by conventional shallow spread or mat footings supported on approved undisturbed native soil or properly engineered fill. The following recommendations are based on the assumption that the recommendations in Section 5, “Earthwork”, have been implemented. Recommendations regarding the geotechnical aspects of building and equipment foundation design are presented in subsequent sections.

6.2.2 Available Bearing Capacity – Buildings and Tank Mats

Generally two geotechnical issues determine the design bearing pressure for conventional spread footing or mat foundations: (1) available soil bearing capacity based on the strength of the soil and foundation geometry and/or (2) tolerable settlement.

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The available bearing capacity of the foundation soil is dependent upon the effective foundation width and depth of embedment and the shear strength of the soil. Table 6.2-1 provides the expressions for the available allowable bearing capacity for static loading (D+L loads) and total combined loading (D+L+transient loads). In these expressions, B represents the effective foundation width (least dimension) and D is the total foundation embedment below the lowest adjacent grade (both in feet). Due to the high expansive potential of the soils present at the Cantua site the footings should be established at a depth of at least 24 inches below the lowest adjacent exterior grade. Footings to be located at El Porvenir should be placed at a depth of at least 18 inches below the lowest adjacent exterior grade.

TABLE 6.2-1
AVAILABLE VERTICAL BEARING CAPACITY

Site	Loading Conditions	Available Bearing Capacity (psf)
Cantua	Static	4050 + 85 B + 350 D
	Total Combined	6075 + 130 B + 525 D
El Porvenir	Static	2950 + 200B + 640D
	Total Combined	4450 + 310B + 960D

Concrete mat slabs are planned at each site. The slabs will be 8'W x 22'L x 8"T at Cantua and 10'W x 37'L x 10"T at El Porvenir. The available bearing capacity for items supported on the slabs can be estimated by from the equations in Table 6.2-1 by using the surface bearing width of elements plus 3T (slab thickness) to determine B and the slab thickness (T) as D. The size of the planned mat slabs could result edge movement due to expansion and contraction of unprotected clay soil subgrade. Consequently, the clayey subgrade should be moisture conditioned and protected with a draped PVC membrane as indicated in Section 6.3.

6.2.3 Estimated Settlement – Buildings and Tank Mats

Analysis, based on Hough, determined the following estimated static settlement based on a range of assumed design bearing and estimated structural loads. Results are presented in Table 6.2-2.

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TABLE 6.2-2
ESTIMATED STATIC SETTLEMENTS

Site	Footing Type	Loading	Design Bearing (psf)	Estimated Settlement (inch)
Cantua	Mat	50 kips	200 psf	0.3
El Porvenir	Square	25 kips	2500 psf	0.8
	Mat	50 kips	200 psf	Less than 0.25
	Strip	2 klf	2500 psf	0.3

6.2.4 Pipe Line Design

If pressurized pipelines are utilized, the lateral thrust can be resisted by friction between the pipe and pipe zone backfill and lateral bearing on thrust blocks. Frictional resistance and lateral bearing may be used in combination. Table 6.2-3 provides the recommended frictional resistance and lateral bearing for sustained loading and test loading conditions.

TABLE 6.2-3
LATERAL RESISTANCE FOR PIPES

Site	Resistance Mode	Sustained Loading	Test Loading
Cantua	Frictional Coefficient		
	Smooth	0.20	0.24
	Rough	0.38	0.46
El Porvenir	Smooth	0.19	0.22
	Rough	0.35	0.42
Cantua	Lateral Bearing		
	Shallow Thrust Block (1)	270 psf/ft	360 psf/ft
	Deep Thrust Block (2)	610H psf + 4000 psf (3)	920H psf + 6000 psf
El Porvenir	Shallow Thrust Block (1)	250 psf/ft	330 psf/ft
	Deep Thrust Block (2)	1170H psf	1750H psf

Notes: (1) Shallow thrust block has a height greater than 70% of the depth to the center of the pipe, and if not covered by hardscape, the upper 24 inches should not be included.
(2) Deep thrust block has a height less than 70% of the depth to the center of the pipe
(3) H is height of the thrust block in feet

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The horizontal deflection associated with developing the allowable lateral bearing on shallow thrust blocks is about 0.005D for sustained loading and 0.008D for test loading. D represents the depth below the ground surface to the base of the thrust block. The estimated horizontal deflection associated with the lateral bearing on deep thrust blocks is about 0.06 inch per 1000 psf of lateral bearing.

6.3 CONCRETE SLABS-ON-GRADE

Conventional (4 to 5 inch thick) building slabs-on-grade or hardscape (concrete less than 12 inches thick) should be supported on approved moisture conditioned and compacted fill or lime treated subgrade.

Untreated clay subgrade soil should have a moisture content of at least 4% above optimum and compaction between 88% and 92% of maximum density, to a depth of at least 30 inches below pad grade. Moisture needs to be maintained throughout the life of the slab or hardscape. To minimize moisture loss at the free (unabutted by structures or pavement) edges of hardscape or exterior slabs, a thickened edge or a vapor barrier should be provided. The vapor barrier could consist of a 10-mil PVC membrane. At the free edges of the slab, the membrane should extend below the ground surface to a depth of 30 inches.

Due to the expansive potential of untreated soils, the minimum reinforcement of conventional concrete building slabs should be #3 bars spaced at 18 inches center-to-center in both directions. The reinforcement is based on engineering judgment and experience with expansive soils and is not based on any structural analysis. The reinforcement assumes a nominal slab thickness of 4 to 5 inches. Slab thickness and reinforcement must also satisfy structural considerations. Any additional reinforcement for structural considerations should be provided by a structural engineer or building designer. No additional reinforcement (besides structural reinforcement) is needed if a lime treated subgrade option is chosen.

Slabs on grade could be supported on 18 inches of compacted lime treated subgrade. With this amended soil subgrade, reinforcement should be consistent with structural considerations.

Table 6.6-1 provides the design modulus of subgrade reaction k_1 (1-foot square plate) for elastic evaluation of footings or slabs placed on lime stabilized soil or untreated site soil.

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TABLE 6.6-1
MODULUS OF SUBGRADE REACTION

Subgrade Soil	Subgrade Modulus (pci)
	K_1
Lime Stabilized	500
Untreated Clayey Soil	180

It should be noted the subgrade modulus reflects the response of the subgrade under primarily elastic conditions and small deflections. It is not a characteristic intended to define soil compressibility (settlement) or load-bearing capacity.

6.4 CORROSION POTENTIAL

Soil obtained from borings was tested for pH, minimum resistivity, soluble sulfates and chlorides. Specific test results are presented in Table 6.4-1.

TABLE 6.4-1
CORROSION TEST RESULTS

Sample	Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)
Cantua Creek B-3	0-5	7.6	270	2917.6	168.8
El Porvenir B-7	0-5	7.6	200	1548.6	22.6

The minimum electrical resistivity for both sites is generally representative of a very severely corrosive environment for buried unprotected metals.

Corrosion is dependent upon a complex variety of conditions (e.g., pH, soluble ions, redox, microbes, and area cathodic protection), which are beyond the geotechnical practice. Consequently, a qualified corrosion engineer/specialist should be consulted for specific recommendations on the need for any mitigation or protection of the pipeline.

The soluble sulfate content test results suggest that moderate to severe levels are present in on-site soils. Type V cement should be used in foundation concrete. The water-cement ratio

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for concrete in contact with foundation soils should not exceed 0.45. The soluble chlorides test results suggest that a relatively low level are present in on-site soils. Normal reinforcement cover should be adequate in foundation concrete that comes in contact with the foundation soils.

6.5 SITE DRAINAGE

It is important that drainage away from the improvements be provided and maintained to prevent ponding and/or saturation of the soils in the vicinity of foundations or concrete slabs-on-grade. Proper drainage requires a partnering between the design and construction of the facility and the ultimate maintenance personnel.

The development should incorporate the basis for good drainage. This includes:

- Sufficient pad height to allow for proper drainage.
- Defined drainage gradients away from the structures to points of conveyance, such as drainage swales and/or area drains and discharge pipe.
- Roof downspouts connected to proper areas of discharge.

The maintenance personnel for the property must maintain the established site drainage by not blocking or obstructing gradients away from the foundations and structure. If the site is landscaped, the landscape personnel are also the only persons who can avoid over watering. If planted areas adjacent to the structure are desired, it is suggested that care be taken not to over irrigate and to maintain a leak-free sprinkler piping system. Well-maintained low volume emitter irrigation systems are best suited for planters adjacent to structures. Watering practices should strive to use only sufficient water to sustain and promote plant growth. All site irrigation should promote a soil moisture condition that is relatively uniform year round.

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7. LIMITATIONS

Recommendations contained in this report are based on the field observations and subsurface explorations, laboratory tests, and present knowledge of the proposed construction. It is possible that soil conditions could vary between or beyond the points explored. If soil conditions are encountered during construction that differ from those described herein, Kleinfelder should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed construction, changes from that described in this report, the recommendations provided should also be reviewed.

This report has been prepared in substantial accordance with the generally accepted geotechnical engineering practice, as it exists in the general area at the time of the study. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that Kleinfelder will conduct an adequate program of tests and observations during the construction phase in order to evaluate compliance with the recommendations.

This report may be used only by Provost and Pritchard Consulting Group, other project consultants and reviewing regulatory agencies, and only for the purposes stated within a reasonable time from its issuance. Land use, site conditions or other factors may change over time, and additional work may be required with the passage of time. Any other party who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

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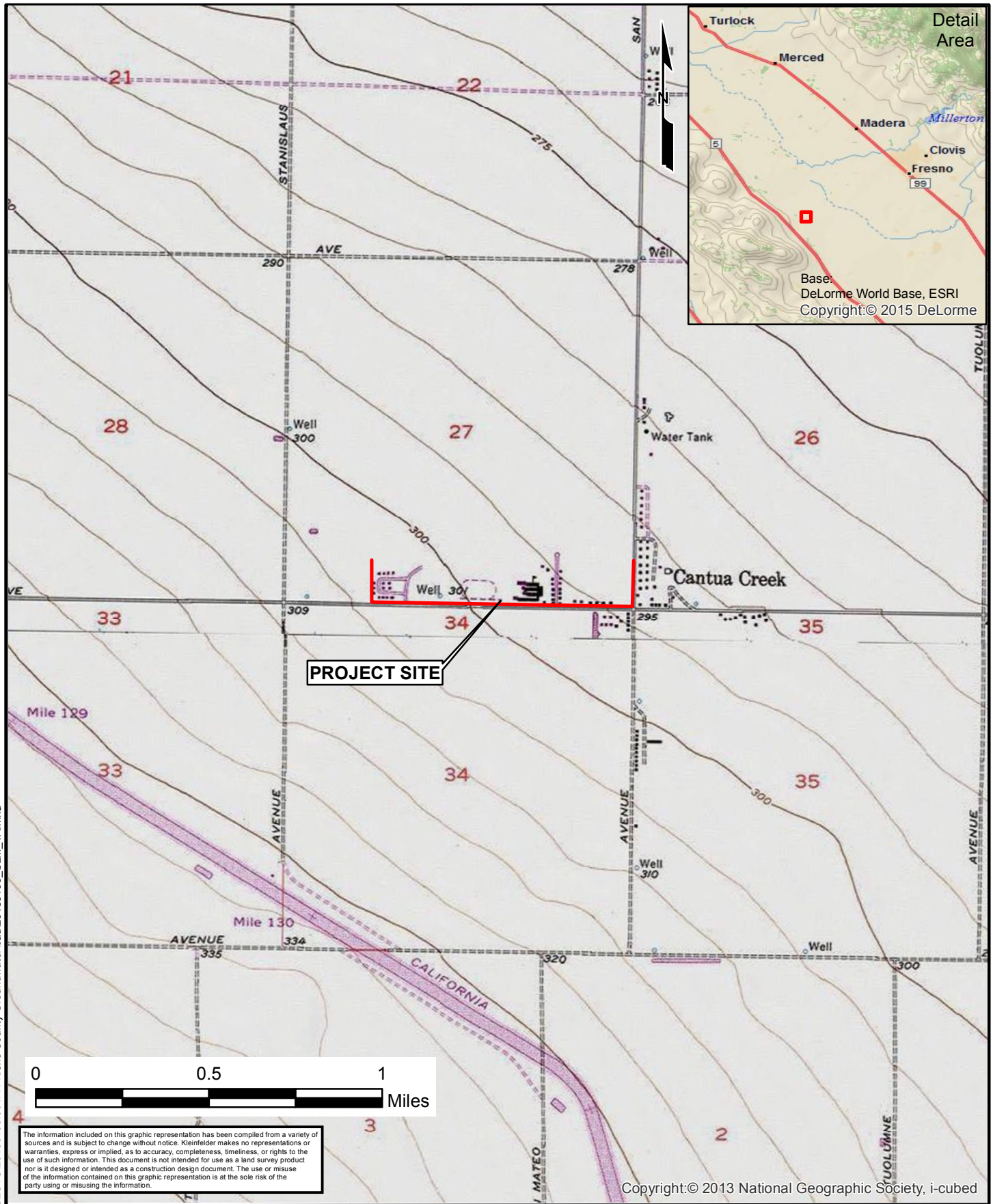

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SITE VICINITY MAP
CANTUA CREEK

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
1

LEGEND

Approximate Boring Location

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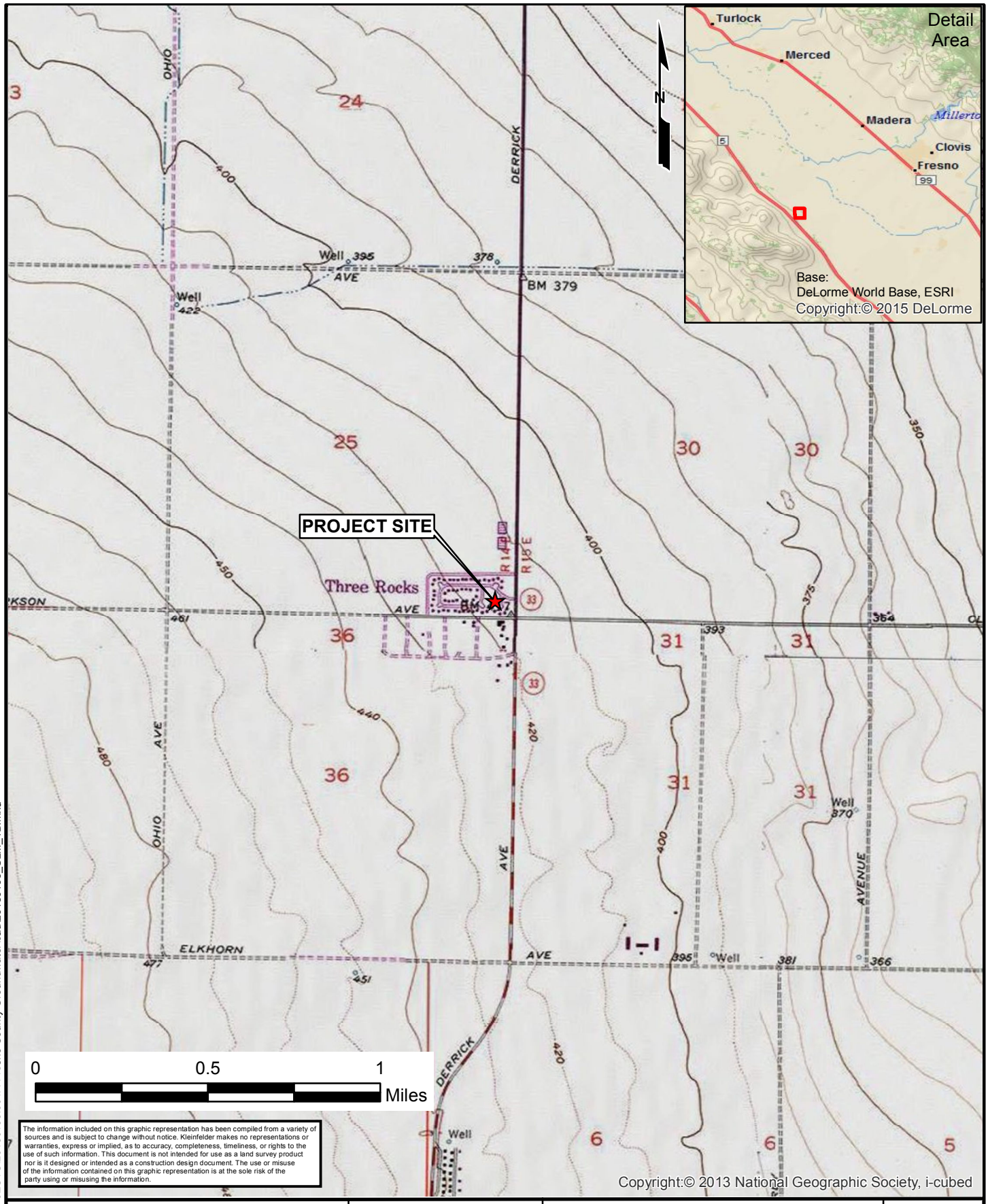
PROJECT NO.	20180195
DRAWN:	05/15/2017
DRAWN BY:	D. Ross
CHECKED BY:	V. Tinoco
FILE NAME:	20180195_2.dwg

BORING LOCATION MAP
CANTUA CREEK

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
2

CAD FILE: K:\2017_PROJECTS\20180195.001A-Fresno County Groundwater\cad\ LAYOUT: CANTUA
PLOTTED: 15 May 2017, 9:28am, DRoss



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PROJECT NO. 20180195.001A	
DRAWN: 5/15/2017	
DRAWN BY: D. Ross	
CHECKED BY: V. Tinoco	
FILE NAME: 20180195_SLM_1B.mxd	

SITE VICINITY MAP
EL PORVENIR

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
3

Date Saved: 5/8/2017 10:30:32 AM

Document Path: K:\2017_PROJECTS\20180195.001A-Fresno County Groundwater\cad\20180195_SLM_1B.mxd

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PROJECT NO.	20180195
DRAWN:	05/15/2017
DRAWN BY:	D. Ross
CHECKED BY:	V. Tinoco
FILE NAME:	20180195_2.dwg

BORING LOCATION MAP
EL PORVENIR

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
4

PLOTTED: 15 May 2017, 9:33am, DRoss
CAD FILE: K:\2017_PROJECTS\20180195.001A-Fresno County Groundwater\cad\ LAYOUT: EL PORVENIR

SAMPLE/SAMPLER TYPE GRAPHICS

BULK SAMPLE

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu ≥4 and 1≤ Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu <4 and/ or 1>Cc >3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu ≥4 and 1≤ Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu <4 and/ or 1>Cc >3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu ≥6 and 1≤ Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu <6 and/ or 1>Cc >3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu ≥6 and 1≤ Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu <6 and/ or 1>Cc >3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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GRAPHICS KEY

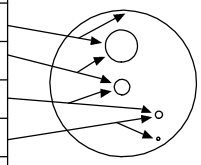
FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

1

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [GEO-LEGEND 1 (GRAPHICS KEY) WITH USCS]
PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
PLOTTED: 08/09/2017 10:07 AM BY: NStrid

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4≤ PP	>8000	Thumbnail will not indent soil.

FROM TERZAGHI AND PECK, 1948; LAMBE AND WHITMAN, 1969; FHWA, 2002; AND ASTM D2488

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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PROJECT NO.: 20180195
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SOIL DESCRIPTION KEY

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-2

PLOTTED: 08/09/2017 10:08 AM BY: NStrid
OFFICE FILTER: FRESNO
PROJECT NUMBER: 20180195
[LEGEND 2 (SOIL DESC KEY)]
gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-1**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	70°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Fat CLAY with Sand (CH)**: fine-grained, high plasticity, light olive gray, moist, medium stiff		BC=6 8 9		CH	22.3	89.1		73	60	41	**ASTM D1557 Method A=** Max. Dry Unit Wt.: 112.6 pcf Opt. Water Content: 14.8%
5		calcium present		BC=5 7 6			22.5	89.4					
10		mica present		BC=4 3 5									
15		trace fine to medium grained sands		BC=5 8 11			25.2	91.8					
20		**Clayey SAND (SC)**: fine to medium-grained, low plasticity, dark olive, moist, medium dense		BC=4 4 4						41			
25		**Silty SAND with Clay (SM)**: fine to medium-grained, non-plastic to low plasticity, dark olive brown, moist, medium dense		BC=5 10 13			11.1	90.4					
30		**Lean CLAY (CL)**: fine-grained, low to medium plasticity, olive gray, moist, medium stiff		BC=2 4 6									

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PROJECT NO.:	20180195
DRAWN BY:	VT
CHECKED BY:	ND
DATE:	
REVISED:	-

BORING LOG B-1

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-3

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
PLOTTED: 08/09/2017 11:31 AM BY: NStrid

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-1**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	70°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	FIELD EXPLORATION: Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
▽		**Clayey SAND (SC)**: fine to coarse-grained, non-plastic to low plasticity, light olive brown, wet, medium dense		BC=7 10 13									

The boring was terminated at approximately 36.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 35.5 ft. below ground surface during drilling.
GENERAL NOTES:

40
45
50
55
60
65

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PROJECT NO.:	20180195
DRAWN BY:	VT
CHECKED BY:	ND
DATE:	
REVISED:	-

BORING LOG B-1

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-3

PLOTTED: 08/09/2017 11:31 AM BY: NStrid
gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-2**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	70°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
		Fat CLAY (CH): fine-grained, medium to high plasticity, light olive gray, moist, medium stiff											
		stiff, calcium present		BC=8 10 10			31.7	87.9					**Consolidation**
5		increase in calcium, trace fine sand		BC=5 9 15			31.0	83.1					**Direct Shear=** Peak Cohesion: 453 psf Peak Friction Angle: 20.3°
10				BC=5 8 9			25.2	94.8					
15		medium stiff, top 2 in. include fine sand		BC=2 3 3									
		Clayey SAND (SC): fine to medium-grained, low plasticity, light olive brown, moist, medium dense											
20				BC=4 7 11			18.5	99.2					
		Silty SAND with Clay (SM): fine to medium-grained, non-plastic to low plasticity, light olive gray, moist, medium dense											
25				BC=4 4 5									
		Clayey SAND (SC): fine-grained, low plasticity, light olive gray, moist, medium stiff											
30				BC=5 7 8			20.2	93.1					

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REVISED:	-

BORING LOG B-2

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE

A-4

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
PLOTTED: 08/09/2017 11:31 AM BY: NStrid

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-2**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	70°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	FIELD EXPLORATION: Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Sandy Lean CLAY (CL): fine-grained, low to medium plasticity, light olive gray, moist, stiff		BC=5 6 8									

The boring was terminated at approximately 36.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

40
45
50
55
60
65

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BORING LOG B-2

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-4

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-3**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	70°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Sandy Fat CLAY (CH)**: fine-grained, medium plasticity, light olive gray, moist, medium stiff											
5		medium to high plasticity, dark olive, stiff, decrease in sands		BC=6 9 13			20.2	92.7					
10		calcium present		BC=4 4 5									
15				BC=7 12 12									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-3

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-5

PAGE: 1 of 1

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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-4**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	75°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Sandy Fat CLAY (CH)**: fine-grained, medium to high plasticity, light olive gray, moist, medium stiff											
5		high plasticity, decrease in sands		BC=4 6 5									
10				BC=4 8 10			14.8	95.6					
		Clayey SAND (SC): fine-grained, low to medium plasticity, light olive gray, moist, medium dense											
15		**Lean CLAY (CL)**: fine-grained, medium plasticity, light olive gray, moist, stiff		BC=3 6 9									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.:	20180195
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BORING LOG B-4

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-6

PAGE: 1 of 1

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-5**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	75°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Fat CLAY (CH)**: fine-grained, medium to high plasticity, light olive brown, moist, medium stiff, trace fine subangular gravel up to 1 in.											
5		high plasticity, stiff, calcium present		BC=6 8 8			20.0	93.8					
10		trace fine to medium sands		BC=4 6 5									
15		increase in sands, trace fine subrounded gravel up to 1/4 in.		BC=7 9 15									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-5

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-7

gINT FILE: Klf_gint_master_2017
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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
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Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-6**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	75°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
		Sandy Fat CLAY (CH): fine-grained, medium to high plasticity, light olive brown, moist, medium stiff											**ASTM D1557 Method A=** Max. Dry Unit Wt.: 113.2 pcf Opt. Water Content: 14.5%
5		calcium present		BC=4 4 4						68			
10		stiff, trace fine sand		BC=9 10 11			16.3	92.3					
15		decrease in fine sand		BC=4 6 7									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-6

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-8

PAGE: 1 of 1

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
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Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-7**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	75°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth and Grass / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Clayey SAND (SC)**: fine-grained, olive, moist, medium dense				CL				50	36	20	**ASTM D1557 Method A=** Max. Dry Unit Wt.: 118.1 pcf Opt. Water Content: 13.0%
5				BC=13 14 12			10.2	88.7					**Direct Shear=** Peak Cohesion: 140 psf Peak Friction Angle: 29.7°
		Lean CLAY (CL): fine-grained, low to medium plasticity, olive, moist, medium stiff, calcium present											
		Sandy Lean CLAY (CL): fine-grained, low to medium plasticity, olive, moist, medium stiff											
10				BC=4 5 6									
15				BC=7 10 14			5.1	101.5					
		Poorly graded SAND (SP): fine to coarse-grained, non-plastic, light brownish gray, moist, medium dense											
		Clayey SAND (SC): fine to medium-grained, low plasticity, olive, moist, medium dense											
20				BC=6 9 7									
25		dense, increase in calcium		BC=8 16 25			18.1	100.6					
30		medium dense		BC=7 13 13									

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BORING LOG B-7

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-9

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA		**BORING LOG B-7**
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	75°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth and Grass / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Poorly graded SAND with Clay (SP-SC): fine to coarse-grained, non-plastic to low plasticity, olive, moist, dense		BC=15 18 23			15.6	97.8					
		Lean CLAY (CL): fine-grained, low to medium plasticity, olive, moist, stiff											
40		The boring was terminated at approximately 36.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.											
45													
50													
55													
60													
65													

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-7

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-9
PAGE: 2 of 2

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PROJECT NUMBER: 20180195 OFFICE FILTER: FRESNO
gINT FILE: Klf_gint_master_2017 gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-8**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	80°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Bare Earth / Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Clayey SAND (SC)**: fine-grained, low to medium plasticity, olive yellow, moist, medium dense								23			
5		3 in. pocket poorly graded sand (SP), light brownish gray, fine to medium grained, medium dense, non-plastic		BC=9 10 7									
10		fine to medium-grained, low plasticity		BC=4 8 6									
15				BC=5 5 7									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-8

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-10

gINT FILE: Klf_gint_master_2017
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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
PLOTTED: 08/09/2017 11:31 AM BY: NStrid

Date Begin - End:	5/01/2017	**Drilling Company:**	AWA	**BORING LOG B-9**	
Logged By:	V. Tinoco	**Drill Crew:**	Miguel/Angel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	80°/Sunny	**Bore Diameter:**	8 in. O.D.		

Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
0		**Clayey SAND (SC)**: fine to medium-grained, low plasticity, olive, moist, medium dense											
5		calcium present		BC=5 7 5			6.1	95.9					
		Sandy Lean CLAY (CL): fine-grained, medium plasticity, olive yellow, moist, medium stiff, mica present											
10				BC=5 4 3									
		Clayey SAND (SC): fine to medium-grained, non-plastic to low plasticity, olive gray, moist, medium dense											
15				BC=5 6 8									
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on May 01, 2017.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.:	20180195
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BORING LOG B-9

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
A-11

PAGE: 1 of 1

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-1	0.0	FAT CLAY WITH SAND (CH)					73	60	19	41	**ASTM D1557 Method A=**
											Maximum Dry Unit Weight: 112.6 pcf
											Optimum Water Content: 14.8%
B-1	2.5		22.3	89.1							
B-1	5.0		22.5	89.4							
B-1	15.0		25.2	91.8							
B-1	20.0	CLAYEY SAND (SC)					41				
B-1	25.0		11.1	90.4							
B-2	2.5	FAT CLAY (CH)	31.7	87.9							**Consolidation**
B-2	5.0	FAT CLAY (CH)	31.0	83.1							**Direct Shear=**
											Peak Cohesion: 453 psf
											Peak Friction Angle: 20.3°
B-2	10.0		25.2	94.8							
B-2	20.0		18.5	99.2							
B-2	30.0		20.2	93.1							
B-3	5.0		20.2	92.7							
B-4	10.0		14.8	95.6							
B-5	5.0		20.0	93.8							
B-6	0.0	SANDY FAT CLAY (CH)									**ASTM D1557 Method A=**
											Maximum Dry Unit Weight: 113.2 pcf
											Optimum Water Content: 14.5%
B-6	5.0	SANDY FAT CLAY (CH)					68				
B-6	10.0		16.3	92.3							
B-7	0.0	CLAYEY SAND (SC)					50	36	16	20	**ASTM D1557 Method A=**
											Maximum Dry Unit Weight: 118.1 pcf
											Optimum Water Content: 13.0%

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-7	5.0	CLAYEY SAND (SC)	10.2	88.7							**Direct Shear=**
											Peak Cohesion: 140 psf
											Peak Friction Angle: 29.7°
B-7	15.0		5.1	101.5							
B-7	25.0		18.1	100.6							
B-7	35.0		15.6	97.8							
B-8	0.0	CLAYEY SAND (SC)					23				
B-9	5.0		6.1	95.9							

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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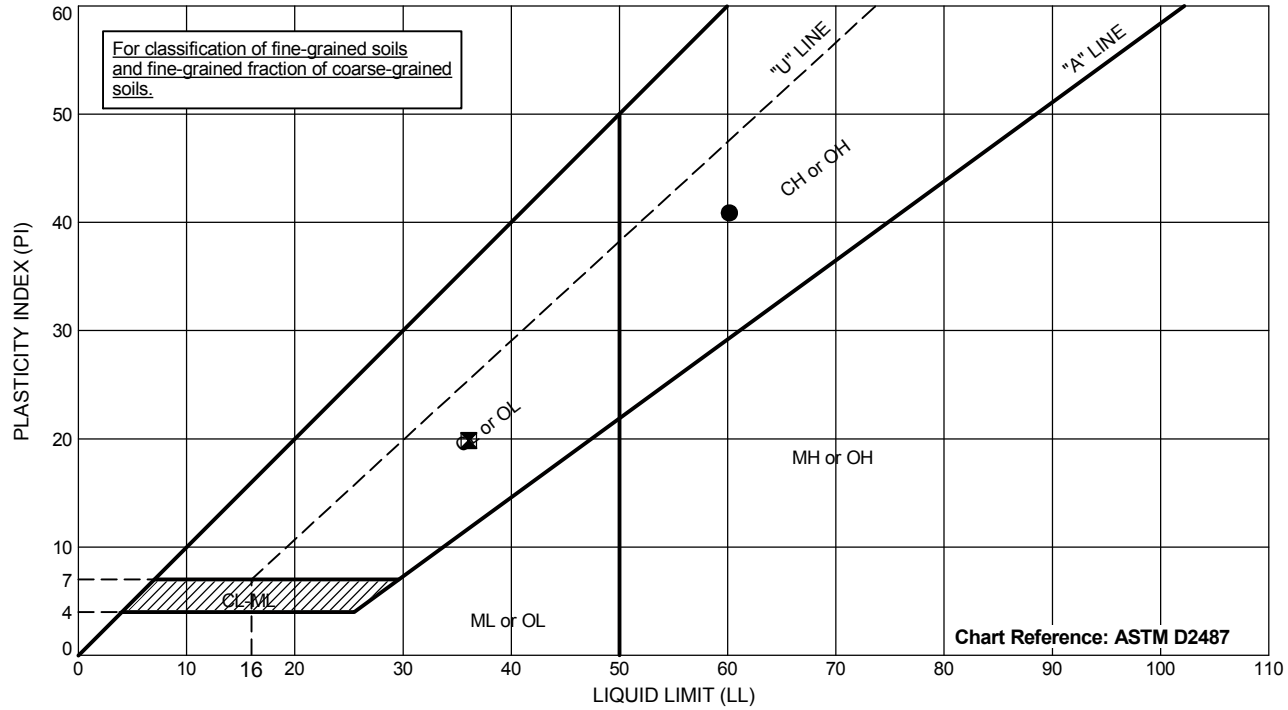
LABORATORY TEST RESULT SUMMARY

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-2



	Exploration ID	Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	B-1	0 - 5	FAT CLAY WITH SAND (CH)	73	60	19	41
⊠	B-7	0 - 5	CLAYEY SAND (SC)	50	36	16	20

Testing perfomed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

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ATTERBERG LIMITS

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-3

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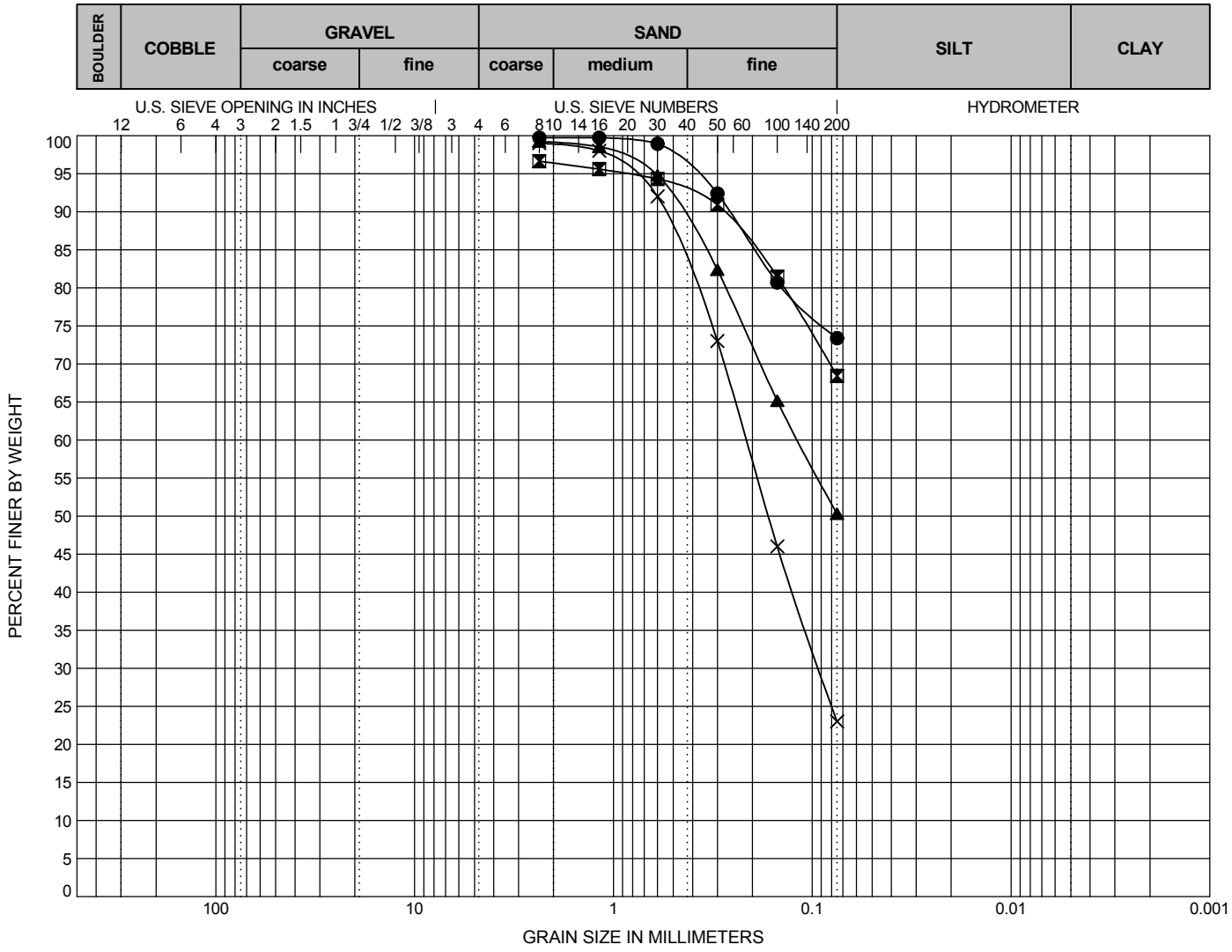

Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	B-1	0 - 5	FAT CLAY WITH SAND (CH)	60	19	41
⊠	B-6	5	SANDY FAT CLAY (CH)	NM	NM	NM
▲	B-7	0 - 5	CLAYEY SAND (SC)	36	16	20
×	B-8	0 - 5	CLAYEY SAND (SC)	NM	NM	NM

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	B-1	0 - 5	2.36	NM	NM	NM	NM	NM			73	NM	NM
⊠	B-6	5	2.36	NM	NM	NM	NM	NM			68	NM	NM
▲	B-7	0 - 5	2.36	0.118	NM	NM	NM	NM			50	NM	NM
×	B-8	0 - 5	2.36	0.215	0.093	NM	NM	NM			23	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60}\, D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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SIEVE ANALYSIS

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-4

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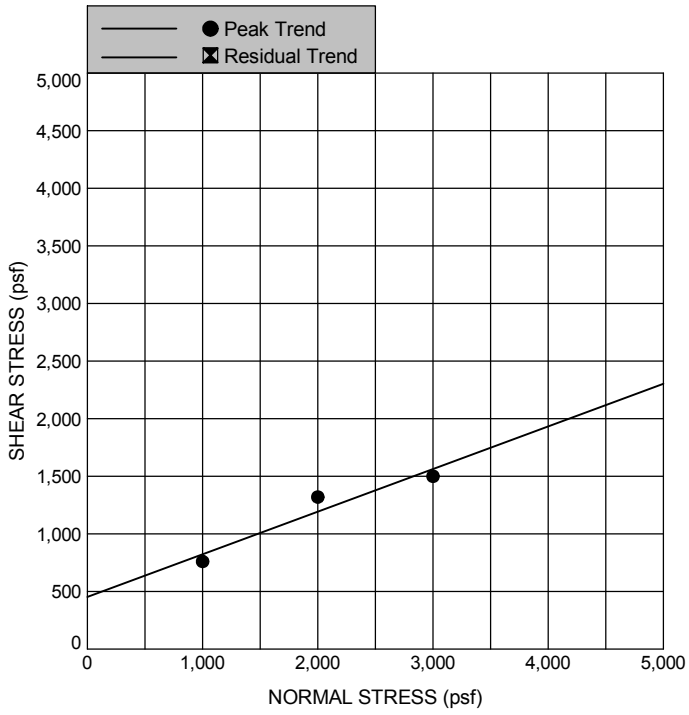

Exploration ID	Depth (ft.)	Sample Description
B-2	5	FAT CLAY (CH)

Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plastic Limit	Plasticity Index	Specific Gravity
NM	NM	NM	NM	NM	

	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
Initial	1	30.6	81.0	78.1	1.040	4.60	0.96
	2	31.2	83.4	83.9	0.983	4.60	0.96
	3	31.2	84.8	87.0	0.950	4.60	0.96
At Test	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
	1	41.5	81.8		1.022	4.60	0.95
	2	41.7	85.1		0.944	4.60	0.94
	3	39.9	86.4		0.911	4.60	0.94

Specimen No.	Peak Shear Stress (psf)	Residual Shear Stress (psf)	Horizontal Displacement (in)	Normal Stress (psf)	Strain Rate (in/min)
1	760		0.0700	1000	0.001
2	1320		0.0500	2000	0.001
3	1500		0.0400	3000	0.001

Results	Cohesion (psf)	Friction ϕ (deg)	Tan ϕ (deg)
Peak	453	20.3	
Residual			

Testing perfomed in general accordance with ASTM D3080.
NP = Nonplastic
NM = Not Measured

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DIRECT SHEAR

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-5

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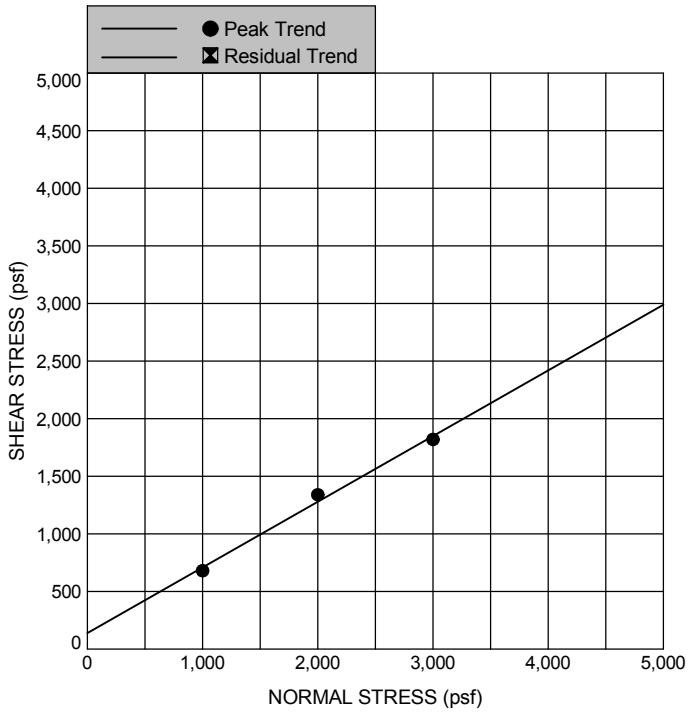

Exploration ID	Depth (ft.)	Sample Description
B-7	5	CLAYEY SAND (SC)

Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plastic Limit	Plasticity Index	Specific Gravity
NM	NM	NM	NM	NM	

	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
Initial	1	8.4	94.8	30.0	0.745	4.60	0.96
	2	9.2	88.7	28.3	0.865	4.60	0.96
	3	12.9	82.5	34.0	1.004	4.60	0.96
	Specimen No.	**Water Content (%)**	**Dry Unit Weight (pcf)**	**Saturation (%)**	**Void Ratio**	**Area (in^2)**	**Height (in)**
At Test	1	22.9	100.2		0.745	4.60	0.96
	2	38.0	96.1		0.865	4.60	0.96
	3	41.4	91.8		1.004	4.60	0.96

Specimen No.	Peak Shear Stress (psf)	Residual Shear Stress (psf)	Horizontal Displacement (in)	Normal Stress (psf)	Strain Rate (in/min)
1	680		0.1400	1000	0.001
2	1340		0.1400	2000	0.001
3	1820		0.1400	3000	0.001

Results	Cohesion (psf)	Friction ϕ (deg)	Tan ϕ (deg)
Peak	140	29.68	
Residual			

Testing perfomed in general accordance with ASTM D3080.
NP = Nonplastic
NM = Not Measured

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DIRECT SHEAR

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE
B-6

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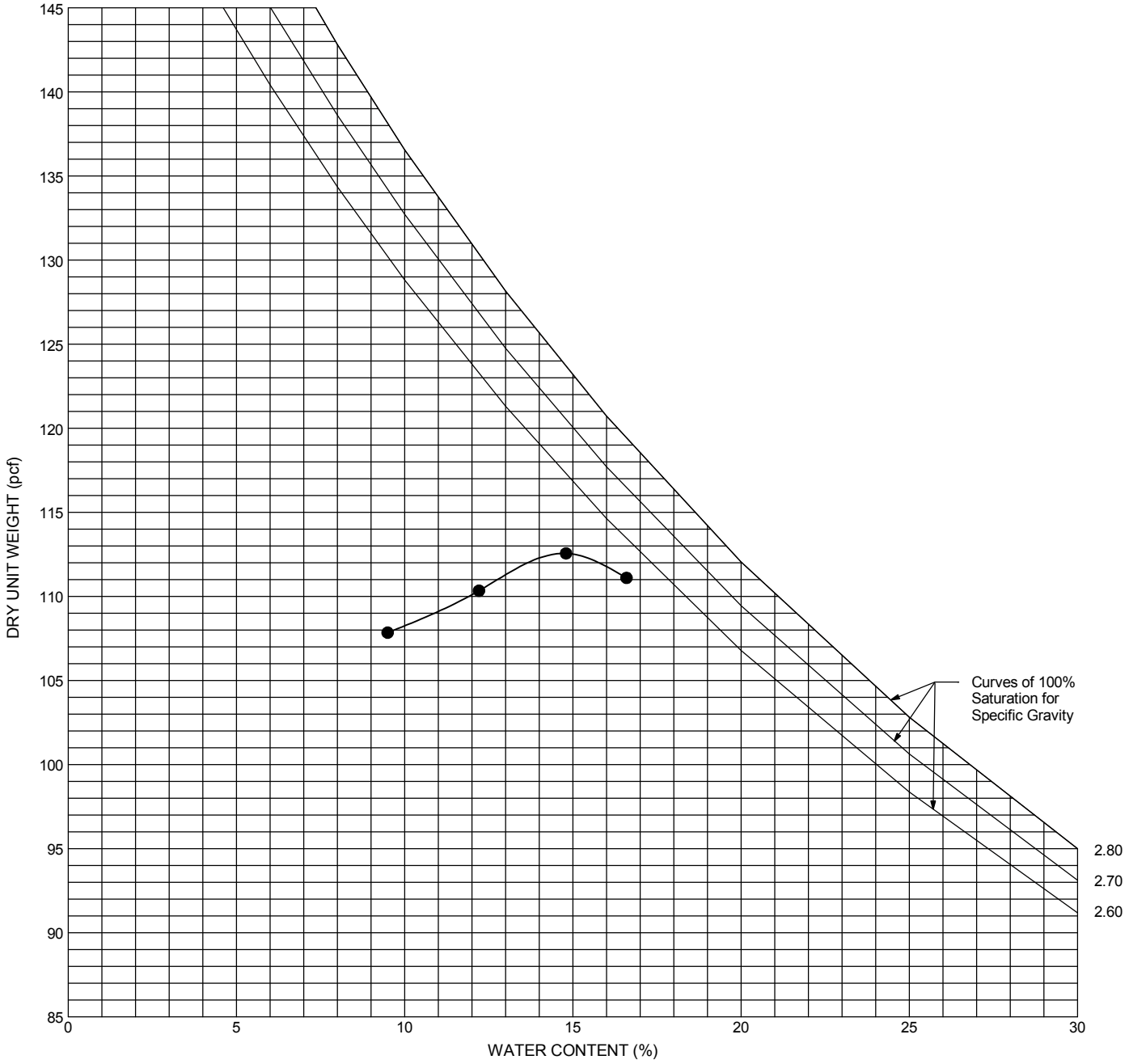

Exploration ID	Depth (ft.)	Sample Description
● B-1	0 - 5	FAT CLAY WITH SAND (CH)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Maximum Dry Unit Weight (pcf)	Optimum Water Content (%)
NM	NM	73	60	19	41	112.6	14.8

Testing performed in general accordance with ASTM D1557 Method A.
NP = Nonplastic
NM = Not Measured

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COMPACTION CURVE

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE

B-7

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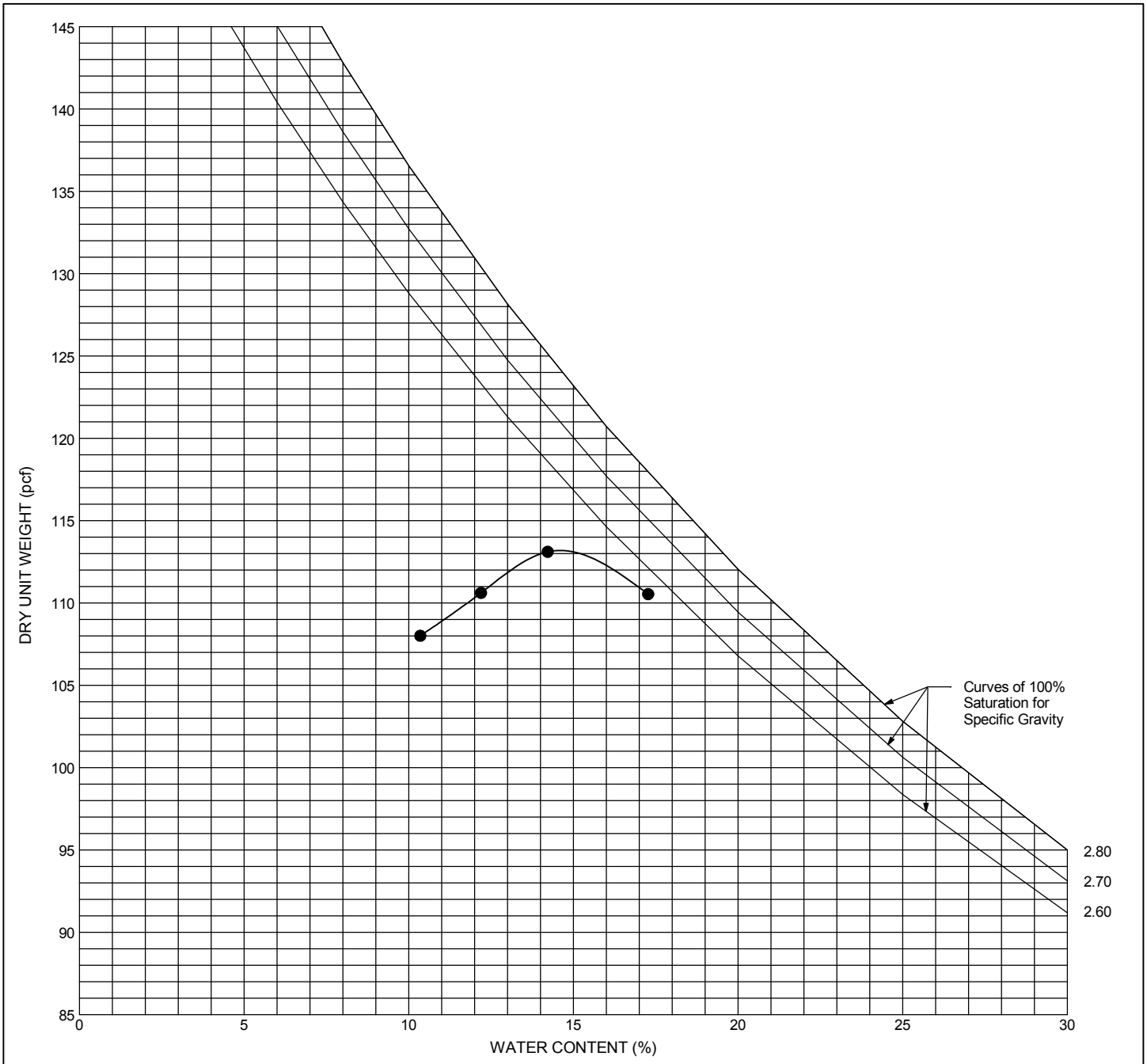

Exploration ID	Depth (ft.)	Sample Description
● B-6	0 - 5	SANDY FAT CLAY (CH)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Maximum Dry Unit Weight (pcf)	Optimum Water Content (%)
NM	NM	NM	NM	NM	NM	113.2	14.5

Testing performed in general accordance with ASTM D1557 Method A.
NP = Nonplastic
NM = Not Measured

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COMPACTION CURVE

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE

B-8

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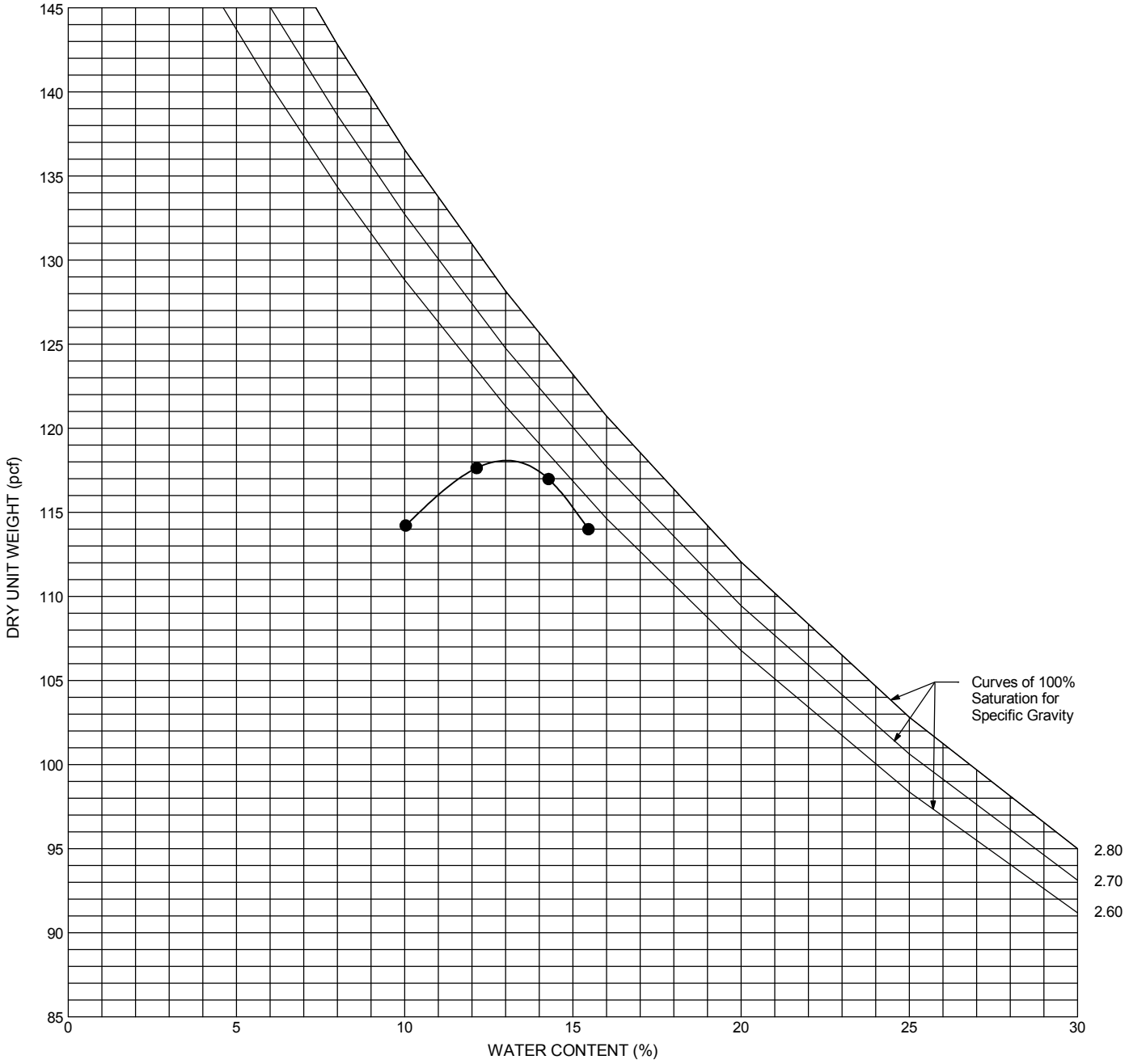

Exploration ID	Depth (ft.)	Sample Description
● B-7	0 - 5	CLAYEY SAND (SC)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Maximum Dry Unit Weight (pcf)	Optimum Water Content (%)
NM	NM	50	36	16	20	118.1	13.0

Testing performed in general accordance with ASTM D1557 Method A.
NP = Nonplastic
NM = Not Measured

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COMPACTION CURVE

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE

B-9

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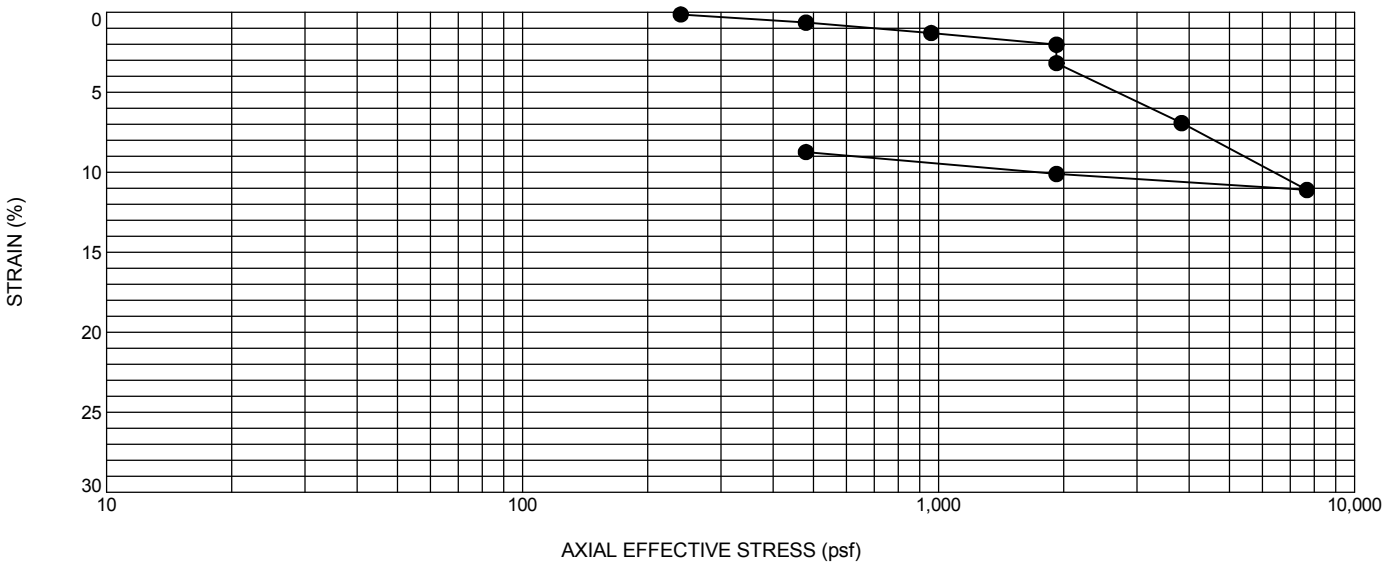

Exploration ID	Depth (ft.)	Sample Description
B-2	2.5 - 3	FAT CLAY (CH)

	Sample Condition Type	Sample Diameter (mm)	Height (mm)	Water Content (%)	Dry Unit Wt. (pcf)	Wet Unit Wt. (pcf)	Saturation (%)	Void Ratio	Specific Gravity	Passing #200	LL	PL	PI
Initial		61.5	25.4	31.7	106.2	139.9	NM	NM	NM	NM	NM	NM	NM
Final		61.5	23.2	33.7	106.3	142.1	NM	NM	NM				

Testing perfomed in general accordance with ASTM D2435 Method A.
NP = Nonplastic
NM = Not Measured

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ONE DIMENSIONAL CONSOLIDATION TEST

FRESNO COUNTY GROUNDWATER PROJECT
EL PORVENIR & CANTUA CREEK
FRESNO COUNTY, CALIFORNIA

FIGURE

B-10

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PROJECT NUMBER: 20180195
OFFICE FILTER: FRESNO
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July 27, 2018
Kleinfelder Project No.: 20180195.001A

Mr. Nicholas Jacobson
Provost and Pritchard Consulting Group
286 W. Cromwell Avenue
Fresno, California
Phone: (559) 499-2700
Email: njacobson@ppeng.com

SUBJECT: **Recommendations for Chemical Treatment of Basin Slope Repair and Drilling Equipment Area**
Pipeline and Well Improvements Project
Cantua Creek, California

File Reference: **Geotechnical Investigation Report – Proposed Cantua Creek El Porvenir Pipeline Improvements,**
Fresno County, California
Kleinfelder Project No. 20180195, dated November 20, 2017

Dear Mr. Jacobson:

Kleinfelder prepared this letter to provide earthwork and lime treated subgrade recommendations for the above referenced project in Cantua Creek, California.

BACKGROUND

Kleinfelder previously prepared a Geotechnical Investigation Report (GIR) for well and pipeline improvements in Cantua Creek, California. Planning calls for the construction of a water well near boring B-1 of the referenced GIR. Through conversations with Mr. Nicholas Jacobson, of Provost and Pritchard and review of photographs of the subject site, it's understood erosion of the side slope of the ponding basin near boring B-1 was discovered during a pre-construction bid job walk. The eroded area has left large gullies and ruts throughout the sidewall of the basin that appeared to be unstable as evidenced by vertical slopes and additional tension cracks near the slope, thus causing concern for the stability of the well drilling equipment.

Provost and Pritchard has proposed to implement recommendations for lime treatment provided in the GIR to stabilize the slope and surrounding area to provide a stable subgrade for the well drilling equipment. Due to the expansive nature of the near surface soil, the GIR provided generalized recommendations to chemically treat the subgrade below foundations and pavements to decrease soil expansion and increase strength and stability.

The following recommendations and construction specifications are intended to supplement the recommendations in the GIR.

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RECOMMENDATIONS

Chemical Treatment

In accordance with the recommendations provided in the referenced GIR and subsequent recommendations herein, the proposed drilling equipment area and the soils used for repair of the slope can be treated with high calcium quicklime. High calcium quicklime reacts with the clay mineral to create a pozzolanic reaction resulting in the formation of various cementing agents. This cementing through pozzolanic action increases the compressive strength, durability, and the R-value of the soil.

For preliminary purposes, it is recommended a 4 percent lime amendment to the subgrade soil in the equipment area be used for a minimum depth of 18 inches. In addition, excavated clay soils for use as fill within the eroded slope should be amended with 4 percent lime. It is anticipated that this amendment would result in an unconfined compressive strength for Lime Treated Subgrade (LTS) of about 400 psi after compaction and curing. It is recommended that prior to construction that Kleinfelder perform additional testing to provide the recommended final percentage of lime additive to produce a stable subgrade and achieve the recommended compressive strength of 400 psi. In addition, the attached Construction Specifications should be updated to reflect the final recommended percentage of lime additive prior finalizing construction estimates and initiation of construction.

In general, the lime treated soil should be uniformly mixed and moisture conditioned, mellowed, remixed, and moisture conditioned, compacted, and cured. In the drilling equipment areas and surrounding surface area, initial mixing and moisture conditioning could be performed in-place after the subgrade area is cut to approximate rough grade. In the erosion repair areas, the untreated soil could be mixed, and moisture conditioned and transported from a “mixing table”. The blended material would initially be mixed, moisture conditioned to 4 percent above optimum and mellowed for 48 hours to allow for formation of any ettringite mineral associated with the presence of sulfates, followed by remixing, moisture conditioning, and compaction

The addition of lime should be placed, moisture conditioned, and compacted in accordance with the attached construction specifications.

Site Preparation Prior to Chemical Treatment

Stripping

All surface vegetation and any miscellaneous surface obstructions should be removed from the project area, prior to any site grading. It is anticipated stripping of vegetation will involve the upper 1 to 2 inches. Surface strippings should be excluded from fill and removed from the immediate project area.

Disturbed Soil, Undocumented Fill, and Surface Obstructions

Initial site grading in the drilling equipment area and access areas outside of the basin should include a reasonable search to located and removed disturbed or loose soils, undocumented fill

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soils, debris, and soft or yielding soils, animal burrows, etc. that may exist within the area of construction. Any areas or pockets of soft, loose, or saturated soils or void spaces made by burring animals or other disturbed soil which are encountered, should be excavated to expose firm native material. Excavations for removal of any unsuitable conditions should be dish-shaped and backfilled with engineered fill.

To reconstruct the eroded basin slope, it is recommended to prepare the basin to expose competent underlying soil approved by a representative of the Geotechnical Engineer. This includes stripping of vegetation, excavation of loose soils in the eroded area, excavation of animal burrows, and removal of soils found to be unstable within the vicinity of surface tension cracks. The excavated material should be stockpiled nearby for lime treatment and re-used as engineered fill to reconstruct the slope.

Benching

Where fill will be placed in the slope areas, it will be necessary to bench the slope to receive fill. Benching should begin at the toe of the slope or eroded areas. As successive filling operations are performed, slopes should be benched to receive fill. Benches should be constructed approximately every 2 feet of vertical fill thickness and have a minimum width of 2 feet. Soil excavated during benching should be stockpiled nearby for lime treatment and re-used as engineered fill to reconstruct the slope.

Engineered Fill

It is anticipated that the reconstruction of the basin slope will utilize the eroded soil from the basin and surrounding on-site soil. Should imported material be required to repair the basin slope, the fill should consist of clay soil that is similar to the on-site soils. Import soils should be reviewed and approved by the Geotechnical Engineer prior to being transported to the site.

CONSTRUCTION OBSERVATIONS

Excavation, chemical treatment, and earthwork efforts should be observed and approved by a representative of the Geotechnical Engineer. The spread rate, mix depth, uniformity, and relative compaction should be periodically checked by a representative of the Geotechnical Engineer to observe conformance with the recommendations contained herein and the attached Construction Specifications.

LIMITATIONS

The recommendations contained in this letter are based on information as a result of the previous investigation and present knowledge of the proposed construction. This letter has been prepared in substantial accordance with the generally accepted geotechnical engineering practice, as it exists in the site area at the time of the study. No warranty, express or implied is made or provided.

This letter may be used only by Provost and Pritchard Consulting Group and their designers only for the purposes stated, within a reasonable time from its issuance. Any other party who wishes

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to use this report shall notify Kleinfelder of such intended use. Land use, site conditions or other factors may change over time. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the miss-use of this report by any party.

CLOSING

Kleinfelder appreciates the opportunity to provide geotechnical engineering services during the construction phase of this project. If there are any questions concerning the information presented in this letter, please contact the undersigned this office at your convenience.

Respectfully,
KLEINFELDER, INC

Adam AhTye, EIT
Staff Engineer

Stephen P. Plauson, PE, GE
Principal Geotechnical Engineer

AA:SPP:jb

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CONSTRUCTION SPECIFICATIONS
HIGH CALCIUM QUICKLIME

1.01 GENERAL

1.01A Summary

The subgrade for the proposed well drilling equipment and proposed reconstructed basin slopes should be treated with a minimum of 4 percent (by dry weight) High Calcium Quicklime. A minimum chemical treatment depth of 18 inches below finished grade is recommended in the drilling equipment area and access areas outside the basin and full depth within the fill placement of the eroded areas in the basin.

1.01B Related Documents and sections

1. Geotechnical Recommendations Letter for Cantua Creek Well and Pipeline Improvements, prepared by Kleinfelder, Inc. dated July 27, 2018.
2. ASTM Testing Methods (latest revisions):
   - 3.1 ASTM C136
   - 3.2 ASTM C150
   - 3.3 ASTM D1557
   - 3.4 ASTM D1633
   - 3.5 ASTM D2216
   - 3.6 ASTM D6938
   - 3.7 ASTM C25
   - 3.8 ASTM C110
   - 3.9 ASTM C977
   - 3.10 ASTM C1271
   - 3.11 ASTM C1301
4. Caltrans Testing Methods (latest revisions)
   - 4.1 CT 373
   - 4.2 CT 417
   - 4.3 CT 422

1.01C – Definitions

High Calcium Quicklime: Anhydrous calcium oxide (CaO) in the form of high calcium quicklime.
Spreader: Motorized vane fed spreader which can control lime application rate to measure lbs/ft^2 ±5%
Mixer: Cross-shafted mixer with a mixing depth of 1.5 feet and capable of controlled introduction of water
Drop Pan: Rectangular metal box with minimum area of 3 square feet and height which allow passage of spreader
Optimum Moisture: Moisture content associated with maximum dry density determined by ASTM D1557
Relative Compaction: In-place compacted dry density divided by ASTM D1557 maximum dry density.
Unconfined Compressive Strength: Strength determined from ASTM D1633, Method A, using a 7-day oven cure per CT 373 H(2), (3). For curing only, test specimen must by tightly wrapped with two layers of plastic with minimum thickness of 4-mil, seal all seams with duct tape to prevent moisture loss.
Mellowing Period: Time between initial and final mixing of lime to promote initial chemical reaction between lime, water and soil.

1.01D Submittals

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Submit product data and certificates of compliance for High Calcium Quicklime.

1.01E Quality Control and Assurance

1.01E (1) Quality Assurance

1. The Owner will retain the services of a testing agency to perform field quality control testing.
2. The testing agency shall perform sampling and testing, as a minimum, in accordance with the following table. Additional testing may be performed as

1.01E (2) Field Quality Control, Sampling and Testing

1. The Owner will retain the services of an independent testing agency to perform field quality control testing.
2. The testing agency shall perform sampling and testing, as a minimum, in accordance with the following table. Additional testing may be performed as necessitated by field conditions or as determined by the Owner's representative.

Quality Control Testing Requirements

Quality Characteristic	Tested Method	Minimum Frequency	Sampling Location
Maximum Dry Density (pcf)	ASTM D1557[b, c, f]	60,000 ft^2	Loose Completed Mix
In-Place Dry Moisture (%)	ASTM D6938[d]	7,500 ft^2	Compacted Mix
Moisture Bias (%)	ASTM D2216[e]	Weekly	ASTM D6938 and Composite Moisture
Composite Mix Moisture (%)	ASTM D2216 [b, f] or ASTM D4959	15,000 ft^2	Loose Completed Mix
High Calcium Quicklime Application (lbs./ft^2)	Drop Pan[g]	60,000 ft^2	Working Spread
Mix Thickness Verification (in)	Phenolphthalein[h,i]	15,000 ft^2	Loose Completed Mix
Mix Uniformity	Visual and Phenolphthaelein[i]	15,000 ft^2	Loose Completed Mix

[a] Only required for non-potable water sources. Must be sampled and tested a minimum of 7 days prior to start of construction

[b] Sample immediately after mixing is completed

[c] Test to be completed within 2 hours of sampling

[d] If lift thickness exceeds 1-foot, at least one-third of tests shall be a depth of 0.5 foot to designated treatment depth

[e] For bias to nuclear gauge, test at beginning of each work week on sample obtained from ASTM D6938 test location. For bias to direct heat source, test on composite sample of loose mix

[f] Direct heat source must have temperature control to allow for repeatable procedure

[g] At least one test per day

[h] Initial thickness verification to be taken in loose mix and at the same location in compacted mix or by measuring treated depth elevation to provide correlation for required loose mix thickness to result in specified compacted mix

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thickness. At least one comparison between loose and compacted mix thickness shall be made at the beginning of each work week or with any change to mixing and/or compaction procedures.

[i] At least two per day (one beginning of shift and one at mid-shift), thickness and uniformity at same location.

1.01E (3) Acceptance Criteria

Lime treated soil acceptance shall be based on:

1. Compliance with the quality characteristics shown in the following table

Lime Treated Soil Acceptance Criteria

Quality Characteristic	Requirement
Lime Application (lb./ft^2)	Mix Design (-5%, +10%)
Relative Compaction (min)	95%
Moisture Content (min)	4% above optimum
Thickness (ft)	Design (-0.05', +0.10')

2. Visual inspection of the following:
   - 2.1 Uniformity of lime treated soil mix
   - 2.2 Segregation, raveling or loose material
   - 2.3 Uniform surface texture and consistency
3. Finish grade ±0.05 foot of design and within 0.05 foot of bottom edge of a 12-foot straight edge.

1.02 MATERIALS

1.02B LIME

Lime must comply with ASTM C977 and the following criteria:

Lime Quality

Quality Characteristic	ASTM	Requirement
Minimum Available Calcium Oxide	C25 or (C1271 and 1301)	90%
Maximum Loss on Ignition	C25	7% (total)
		5% (CO_2)
		2% (free moisture)
Minimum Slaking Rate	C110	30°C rise in 8 minutes

A 0.50-pound sample of lime dry-sieved in mechanical sieve shaker for 10 minutes ±30 seconds shall comply with the following grading:

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Lime Grading

Sieve Size	Percentage Passing
3/8 inch	98-100

1.02B Water

If available, potable water shall be used for mixing the lime treated soil. The Engineer shall be notified if a water source other than potable water is to be used. Water, other than potable water, shall:

1. Contain no more than 500 ppm chlorides as Cl and no more than 1000 ppm sulfates as SO_4.
2. Not contain an amount of impurities that will cause a reduction in the strength of the lime treated soil.

Prior to approval of a non-potable water source, a mix design shall be submitted which utilizes the non-potable water source.

1.03 CONSTRUCTION

1.03A General

Do not start lime treated soil activities if the ambient air temperature is below 40ºF or if the road or ground surface is below 35ºF. If the ambient air temperature drops below 40ºF during the lime treated soil activities, the Contractor may only complete compaction and finishing of lime treated soil already mixed.

Deliver lime in full loads unless it is the last load of the work shift.

Lime treatment shall be to the design depth below the specified subgrade elevation. Treatment shall extend to the hinge point of the slope, encompass the equipment area, and the slope repair area, unless otherwise specified on the approved plans or directed by the Owner's representative.

1.03B Utility Preparation

Prior to mixing, positively identify the horizontal and vertical location of utilities within the proposed lime treated soil area. At a minimum, pothole each utility at the crossing with the proposed or existing lip of gutter and at 300-foot intervals for lines running parallel the roadway. Any conflicts with existing utilities and a theoretical surface 12 inches below the bottom of the lime treated soil limits shall be reported to the Engineer immediately and prior to the mixing process. Coordinating the relocation of any utilities as a result of these findings, as deemed necessary by the Engineer, shall be the responsibility of the Contractor.

Surface utilities (manholes, water valves, etc.), which conflict with the lime treated soil section shall be adjusted below the lime treated soil conflict prior to mixing and re-adjusted to finished grade. With the approval of the Engineer, the Contractor may work around utilities which cannot be adjusted.

1.03C Surface/Treatment Zone Preparation

Before lime treated soil, activities start, prepare the surface and treatment zone by:

1. Clear foreign matter including vegetation.
2. Remove standing water.
3. Referencing the profile and cross slope.
4. Marking the proposed longitudinal cut lines on the existing pavement as follows:
    - 4.1 Cut lines must coincide with points where the existing cross slope changes, approximately at the centerline and edge of traveled way
    - 4.2 Cut lines must indicate the sequence of the cuts
5. The lime treated soil material to be treated shall be essentially free of irreducible particles greater than 6 inches in maximum dimension, contain less than about 10% irreducible particles greater than 3

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inches in maximum dimensions and be determined by the Contractor to be satisfactory to not damage the mixer.

6. Provide a rough grade within ±0.1 foot of the specified finish subgrade elevation.
7. Clear and dispose of any vegetation, debris or other deleterious matter from any area used to store excess material.

1.03D Applying Lime

Lime shall be applied in dry form.

Lime shall be uniformly spread over the work area. The lime should be added at a rate of 4% of the in-place dry weight of the native soil. The spread rate shall be designated as pounds/square foot of material. The in-place dry weight of the soil (average through the planned treatment depth) shall be determined at the time of placement ahead of the mixer using nuclear gauge or sand cone density testing methods.

1.03E Mixing

Lime and subgrade soil shall be uniformly mixed at least twice to the specified treatment depth. Mix until the mixture is visibly uniform with no streaks or pockets of lime. The mixed material shall have a uniform color reaction for the full specified treatment depth when sprayed with a phenolphthalein alcohol indicator. The lime soil mixture shall be moisture conditioned and mixed as indicated below for lime treated soil.

Water must be injected through the mixer. The injection rate of mixing water must be sufficient to produce a workable lime treated soil material and a moisture content at least 4% above the optimum moisture content determined by ASTM D1557. A composite sample from 5 random locations shall be taken after initial mixing and tested under ASTM D2216 or D4959 (calibrated to ASTM D2216) to confirm the moisture prior to compaction.

Mixing shall occur in a series of parallel lanes of convenient width and length. Mixing of adjoining lanes shall overlap the previous lane by at least 4 inches, but not more than 1 foot, to provide continuity. Where the mixing drum stops at the end of a lane, the position of the drum shall be marked and a subsequent lane on that longitudinal alignment shall start at least 2 feet behind the mark.

If work is to be performed around utilities or curbing, the untreated soil shall be pulled away from the obstruction to the specified treatment depth and into a mixing lane. After mixing, the treated soil shall be replaced adjacent to the obstruction.

1.03F Mellowing and Re-Mixing

After initial mixing and hydration of the High Calcium Quicklime, material will mellow a minimum of 48 hours. The mellowing period is recommended to allow any formation ettringite to occur prior to re-mixing and compaction. This method follows the criteria established by Dr. Little of the University of Texas.

Once the mellowing period has been completed the contractor will re-mix and re-hydrate material to the full depth of treatment as explained above in Section 1.03E Mixing.

1.03G Compaction

Begin compaction within 0.5 hour of final mixing.

Compact using equipment capable of uniform compaction throughout the thickness of the treated zone. For treatment depths greater than 0.65 feet, use an open hub/ring wheel compactor (e.g. Rex 760). Complete compaction with non-vibrating steel drum rollers or pneumatic-tired rollers. Compact to at least 95% relative compaction.

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Use other compaction methods, as necessary, in areas not accessible to heavy equipment (e.g. around manholes, drain inlets or curbing).

The total time from final mixing of the lime treated soil to completion of compaction shall not exceed 2 hours.

1.03H Finishing Grading

Maintain the moisture of the lime treated soil surface at, or above, the optimum moisture throughout the entire finish grading operation.

The finish grade of the lime treated soil surface shall be ±0.05 foot of the specified subgrade elevation and within ±0.05 foot of the bottom edge of a 12-foot straight edge laid in directions parallel and perpendicular with the centerline.

If the lime-treated soil surface is above the allowable tolerance, trim, remove and dispose of excess material.

The finish lime-treated soil surface shall be free of ruts, bumps, indentations, segregation, raveling and any loose materials and shall be rolled with at least one complete coverage of a non-vibrating smooth-drum or pneumatic tired roller.

Finish grading shall be completed within 2 hours of completion of lime treated soil compaction.

1.03I Curing

Curing shall consist of a water cure or curing seal. Curing shall begin the same day as finish grading.

Water curing shall keep the finished lime treated soil surface at, or above, the optimum moisture content for a minimum of 7 days or placement of finish surfacing, whichever occurs first.

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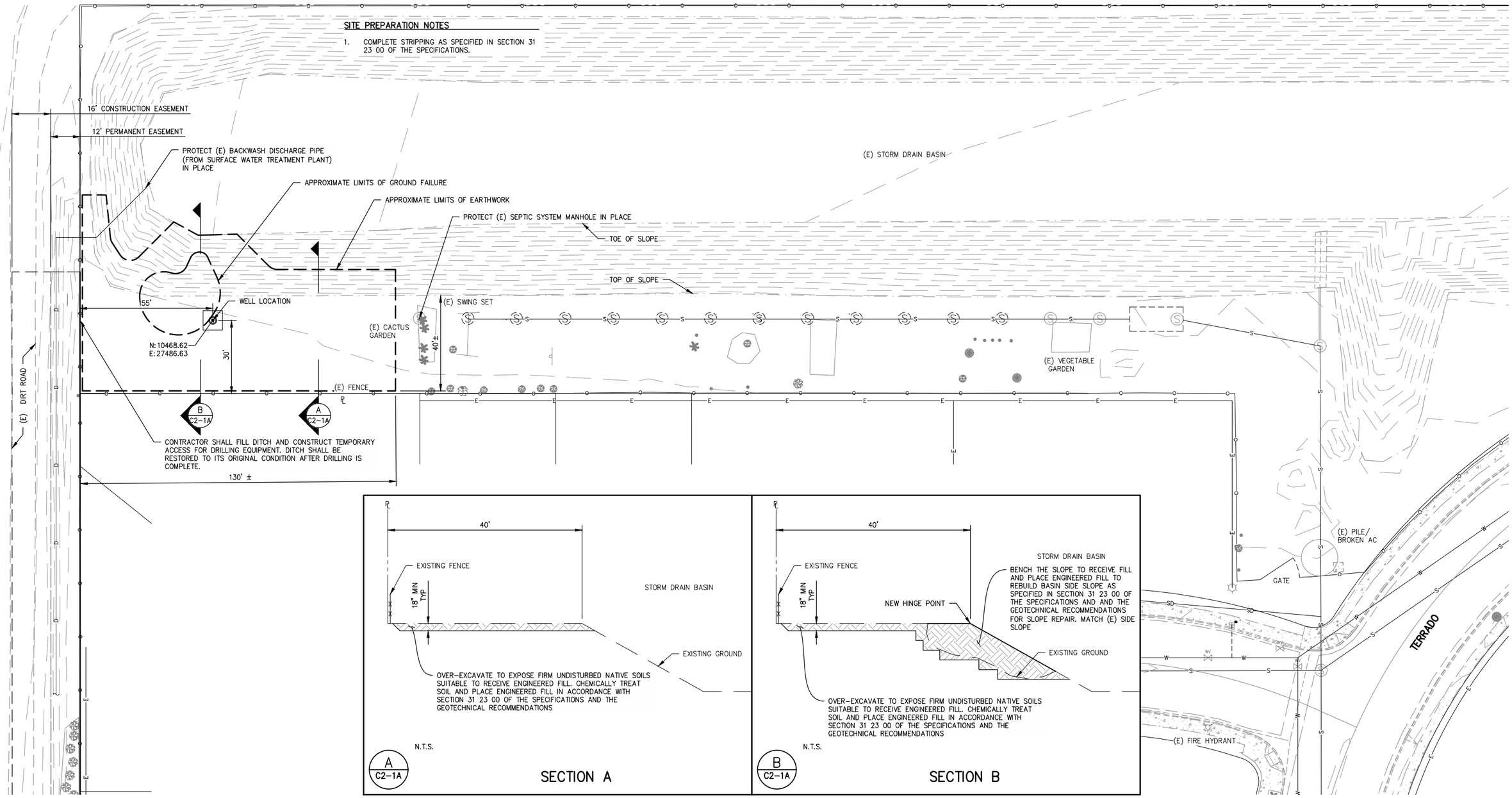
KLEINFELDER 3731 W. Ashcroft Ave., Fresno, CA 93722 **p|** 559.486.0750 **f|** 559.442.5081

SITE PREPARATION NOTES

1. COMPLETE STRIPPING AS SPECIFIED IN SECTION 31 23 00 OF THE SPECIFICATIONS.



NO.	REVISION	BY	DATE
1	ADDENDUM NO. 1	NJ	7/24/18

	DATE	RECORD DRAWING		DATE
DESIGNED: NDJ	07-30-2018	RESIDENT ENGINEER		
DRAWN: PPI	07-30-2018			
CHECKED: MWK	07-30-2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SCALE

SCALE IN FEET

0 10 20 40

SUPERVISING ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER NICHOLAS DAVID JACOBSON No. 84909 CIVIL STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

DEPARTMENT OF PUBLIC WORKS AND PLANNING

SITE PLAN-CANTUA CREEK

CIVIL

DRAWING NO. 11273 SHEET NO. C2-1A TOTAL 5 of 7

T A B L E O F C O N T E N T S

COVER SHEET

BOARD ADOPTION AND ACKNOWLEDGMENT

Engineer's Signature
Consultant’s Signature

NOTICE TO BIDDERS

BID ITEMS AND APPLICABLE SECTIONS

SPECIAL PROVISIONS

FEDERAL REQUIREMENTS
EPA Guidance Memorandum: Implementation of American Iron and Steel Provisions
Davis-Bacon Requirements
Federal Wage Decision

PROJECT DETAILS / DRAWINGS

Location Map
Drinking Water State Revolving Fund Project Signage Requirements
Self-Dealing Transactions Disclosure Form
Contractor Request for Clarification

BID BOOK

Bidder’s Declaration
Bid Form
Abbreviations Used
Signature Page
Noncollusion Affidavit
Public Contract Code
Subcontractor List
Certifications
DBE Forms
Guaranty
Guidelines for Meeting the California State Revolving Fund (CASRF) Programs (Clean Water and Drinking Water SRF) Disadvantaged Business Enterprise (DBE) Requirements

AGREEMENT

PLANS

PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

CONTRACT NUMBER: 18-07-C

Sal Quintero, Chairman	3rd District
Andreas Borgeas, Vice Chairman	2nd District
Brian Pacheco	1st District
Ernest Buddy Mendes	4th District
Nathan Magsig	5th District

Jean Rousseau, County Administrative Officer

Steven E. White, Director
Department of Public Works and Planning

_____

Date Signed: 6/12/18

Supervising Engineer: _____

Dale Siemer, PE C59670
Lic. Expiration: 12/31/19

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106

PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

CONTRACT NUMBER: 18-07-C

Date Signed: 6/7/2018

Consultant Engineer: _____

Nicholas Jacobson , PE C84909
Lic. Expiration: 03/31/20

Provost & Pritchard Consulting Group
286 W. Cromwell Avenue
Fresno, CA, 93711

BOARD OF SUPERVISORS COUNTY OF FRESNO STATE OF CALIFORNIA

N O T I C E T O B I D D E R S

Sealed proposals will be received at the Fresno County Department of Public Works and Planning (Department), Office of the Design Engineer, Seventh Floor, Fresno County Plaza Building, 2220 Tulare Street, Fresno, CA 93721 until

2:00 P.M., (1400 hours and 00 seconds)
Thursday, August 9, 2018

at which time the bidding will be closed. Promptly following the closing of the bidding all timely submitted bids will be publicly opened and read at the Department in said building, for construction in accordance with the project specifications therefor, to which special reference is made as follows:

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

CONTRACT NUMBER: 18-07-C

The work to be done consists, in general, of drilling a total of two (2) initial pilot holes and final production wells in El Porvenir (CSA 30) and Cantua Creek (CSA 32) on County-owned property, including drilling pilot holes for zone sampling and water quality testing and constructing final production wells after zone test results are obtained and final well design is completed.

Funding for this project has been provided in full or in part by the United States Environmental Protection Agency (USEPA) and the State Water Resources Control Board (SWRCB). The contents of this document do not necessarily reflect the views and policies of the USEPA or the SWRCB, nor does the USEPA or the SWRCB endorse trade names or recommend the use of commercial products mentioned in this document.

Bidders are advised that their Good Faith Effort implementation, as described pursuant to the *Guidelines for Meeting the California State Revolving Fund (CASRF) Programs Disadvantaged Business Enterprise (DBE) Requirements* (Proposal 17 of the Bid Book), will be evaluated to determine bid responsiveness, regardless of whether fair share objectives have been met. Meeting or exceeding the objectives will not be considered adequate evidence of Good Faith Efforts. Emphasis is placed on the need for contractors to post solicitations for bids or proposals for a minimum of 30 calendar days before the bid opening date. Bids will be considered non-responsive if a bidder fails to comply with the Good Faith Efforts requirements.

The County of Fresno affirms that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation. Bidders are advised that Disadvantaged Business Enterprise (DBE) requirements are included in Section 2, "Bidding," under subsection 2-1.12 "Disadvantaged Business Enterprises (DBEs)".

A pre-bid conference will be held at 9:00 a.m., on July 3, 2018. A discussion of the project will be held and the project sites will be open for examination. Contractors should meet at the park located

in the community of El Porvenir/Three Rocks, near the intersection of S. Derrick Ave. and W. Clarkson Ave. Attendance at the pre-bid is not mandatory; however, the scheduled pre-bid will be the only opportunity for prospective bidders to visit the site in the presence of County staff, and requests for individual site visits with County staff will not be granted.

This project is subject to the "American Iron and Steel" provisions of the Consolidated Appropriations Act Of 2014. Unless a predominantly iron or steel product qualifies for an exemption, as listed by the United States Environmental Protection Agency, all manufactured iron and steel products must be certified as produced within the United States.

Planholder and exchange/publication names may be obtained from the Fresno County website at **http://www.co.fresno.ca.us/planholders**.

Electronic copies, in ".pdf" file format, of the official project plans and specifications, and such additional supplemental project information as may be provided, are available to view, download, and print at **http://www.co.fresno.ca.us/planholders**.

Bid books, which contain bid proposal sheets necessary to submit a bid, may be obtained at no charge by sending a request to DesignServices@co.fresno.ca.us. Upon receipt of the request, a bid book will be mailed to the requestor via First Class United States Mail and the requestor will then be listed as a planholder for the project.

Project plans and specifications will not be sold to prospective bidders in hardcopy format except upon special written request to DesignServices@co.fresno.ca.us. A payment to the Department in the amount of $20 will be required for each set of plans and $20 for each set of specifications.

A Summary of Bids and a list of subcontractors for the apparent low bidder will be posted at the above listed website, generally within 24 hours of the Bid Opening.

All questions regarding this project shall be in writing and shall be received by the Department of Public Works and Planning, Design Division, no later than 2:00 P.M. on the seventh (7th) calendar day before bid opening. Any questions received after this deadline will not receive a response unless the Department of Public Works and Planning elects to issue an addendum to revise the bid opening date. In the event that the bid opening date is revised, the deadline for questions will be extended to no later than 2:00 P.M. on the seventh (7th) calendar day before the revised bid opening date. Questions shall be submitted on the "CONTRACTOR REQUEST FOR CLARIFICATION" form provided in the "Project Details" section of these project specifications. Fax questions to (559) 455-4609; e-mail to DesignServices@co.fresno.ca.us or mail to:

County of Fresno
Department of Public Works and Planning
2220 Tulare Street, Sixth Floor
Fresno, Ca. 93721-2104

Any changes to, or clarification of, the project plans and specifications shall be in the form of a written addendum issued to planholders of record. Questions that prompt a change or clarification shall be included in the addendum with the subsequent answer.

Any oral explanation or interpretations given to this project are not binding.

Bids shall be submitted in a sealed envelope addressed to the Department and labeled with the name of the bidder, the name of the project and the statement 'Do Not Open Until The Time Of Bid Opening.'

Bid security in the amount of ten (10) percent of the amount of the bid, and in the form of a bid bond issued by an admitted surety insurer licensed by the California Department of Insurance, cash,

cashier's check or certified check shall accompany the bid. Bid security shall be made in favor of the County of Fresno.

No contract will be awarded to a contractor who has not been licensed in accordance with the provisions of the Contractors State License Law, California Business and Professions Code, Division 3, Chapter 9, as amended, or whose bid is not on the proposal form included in the contract document. A valid California Contractor's License, **Class C-57 (Well Drilling Contractor)**, is required for this project.

Special attention is directed to the licensure and experience requirements listed in Part 1.5 of Section 33 21 01 of these Special Provisions. Any bidder who fails to demonstrate the appropriate minimum level of experience within 5 business days of the bid opening will be deemed non-responsive.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at County of Fresno, Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno CA 93721-2104 and available from the California Department of Industrial Relations' Internet web site at http://www.dir.ca.gov/DLSR/PWD. Future effective general prevailing wage rates, which have been predetermined and are on file with the California Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 06/15/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

Attention is directed to the provisions in the "Federal Requirements" section of these specifications. If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, the Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by the Contractor and subcontractors, the Contractor and subcontractors shall pay not less than the Federal minimum wage rate, which most closely approximates the duties of the employees in question.

The U.S. Environmental Protection Agency (EPA) provides a toll-free "hotline" (Telephone No. 1-888-546-8740) service to report bid rigging activities. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report these activities. The "hotline" is part of the EPA's continuing effort to identify and investigate contract fraud and abuse and is operated under the direction of the EPA Inspector General. All information will be treated confidentially and caller anonymity will be respected. Additional information may be obtained at https://www.epa.gov/office-inspector-general/epa-oig-hotline#what_to_report.

Bids are required for the entire work described herein. Bids will be compared on the basis of the total of bid items.

The successful bidder shall furnish a faithful performance bond in the amount of 100 percent of the contract amount and a payment bond in the amount of 100 percent of the contract amount. Each bond specified in this Notice (bid bond, faithful performance bond and payment bond) shall meet the requirements of all applicable statutes, including but not limited to those specified in Public Contract Code section 20129 and Civil Code section 3248.

Each bond specified in this Notice shall be issued by a surety company designated as an admitted surety insurer in good standing with and authorized to transact business in this state by the California Department of Insurance, and acceptable to the County of Fresno. Bidders are cautioned that representations made by surety companies will be verified with the California Department of Insurance. Additionally, the County of Fresno, in its discretion, when determining the sufficiency of a proposed surety company, may require the surety company to provide additional information supported by documentation. The County generally requires such information and documentation whenever the proposed surety company has either a Best's Key Rating Guide of less than **A** and a financial size designation of less than **VIII**. Provided, however, that the County expressly reserves its right to require all information and documentation to which the County is legally entitled from any proposed surety company.

Pursuant to Public Contract Code Section 22300, substitution of securities for any moneys withheld by the County of Fresno to ensure performance under the contract shall be permitted.

The Board of Supervisors reserves the right to reject any or all bids.

Board of Supervisors, County of Fresno

Jean Rousseau, County Administrative Officer

Issue Date: June 21, 2018 By: Bernice E. Seidel, Clerk to the Board

DIVISION I GENERAL PROVISIONS

1 GENERAL

1-1.01 GENERAL

Add to the beginning of Section 1:

The work is done in accordance with the 2015 Standard Specifications, 2015 Standard Plans and the following special provisions.

Where these special provisions indicate to replace, add to, delete, delete from, or otherwise modify a "section," or a portion thereof, the section or portion thereof to which such modification is to be applied is the section or portion thereof with the corresponding numbering in the 2015 Standard Specifications.

Except to the extent that they may conflict with these special provisions, revised standard specifications apply if included in the project details section of the book entitled "specifications."

Revised standard plans apply if listed on the "List of Revised Standard Plans," if any, in these special provisions; or if shown or referenced on the project plans or in the project details section of the book entitled "specifications."

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

In case of conflict between applicable Revised Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

Delete the Following from Section 1-1.01

The bid items set forth the construction specifications that apply. The first 2 digits of a bid item code correspond to the specification section number with the same first 2 digits except for bid item code 999990 that corresponds to section 9 and unless shown otherwise in the table titled "Bid Items and Applicable Sections" in the special provisions.

Add the Following to Section 1-1.01

Technical Specifications which apply, are included in sections 01 00 05 through 33 24 13. Payment for the various items of work is described in section 01 22 00

Add to the 1st table of section 1-1.06:

APCD	air pollution control district
AQMD	air quality management district
CISS	cast-in-steel shell
CSL	crosshole sonic logging
GGL	gamma-gamma logging

Add to section 1-1.06:

Abbreviations in the Bid Item List are also used in Proposal Sheet 2.

Replace the headings and paragraphs of Section 1-1.07 with:

1-1.07 DEFINITIONS

1-1.07A General

Interpret terms as defined in the Contract documents.

1-1.07B Glossary

abandon: Render unserviceable in place.

acts of God: *Acts of God* as defined in Pub Cont Code § 7105.

activity: Task, event, or other project element on a schedule that contributes to completing the project. An activity has a description, start date, finish date, duration, and one or more logic ties.

adjust: Raise or lower a facility to match a new grade line.

aerially deposited lead: Lead primarily from vehicle emissions deposited within unpaved areas or formerly unpaved areas.

Authorized Facility Audit List: Caltrans-developed list of facilities. For the Authorized Facility Audit List, go the METS website.

authorized laboratory: Independent testing laboratory (1) not employed or compensated by any subcontractor or subcontractor's affiliate providing other services for the Contract and (2) authorized by the Department.

Authorized Material List: Caltrans-developed list of authorized materials. For the Authorized Material List go to the METS website.

Authorized Material Source List: Caltrans-developed list of authorized source materials. For the Authorized Material Source List go to the METS website.

base: Layer of specified material of planned thickness placed immediately below the pavement or surfacing.

basement material: Material in an excavation or embankment under the lowest layer to be placed.

bid item: Work unit for which the Bidder provides a price.

Bid Item List: List of bid items, units of measure, and the associated quantities. The verified Bid Item List is the Bid Item List with verified prices. The Contract Proposal (Proposal 2) of Low Bidder at the Department's website is the verified Bid Item List. After contract award, interpret a reference to the Bid Item List as a reference to the verified Bid Item List.

borrow: Fill acquired from an excavation source outside the described cut area.

1. **local borrow:** Material obtained by widening cuts or excavating from sources outside the planned or authorized cross section on the job site. The location of the local borrow is described or designated by the Engineer.
2. **imported borrow:** Borrow that is not local borrow.

bridge: Structure that:

1. Has a bridge number
2. Carries a (1) utility, (2) railroad, or (3) vehicle, pedestrian, or other traffic over, under, or around obstructions or waterways

building-construction contract: Contract that has *Building Construction* on the cover of the *Notice to Bidders and Special Provisions*.

California Test: Caltrans-developed test for determining work quality. For California Tests, go to the METS website.

Caltrans: State of California Department of Transportation

certificate of compliance: Certificate stating the material complies with the Contract.

Certified Industrial Hygienist: Industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene.

change order work: Work described in a Change Order, including extra work and work described in the Contract as change order work.

closure: Closure of a traffic lane or lanes, including shoulder, ramp, or connector lanes, within a single traffic control system.

commercial quality: Quality meeting the best general practices.

commercial source: Established business operating as a material source for the general public.

Contract: Written and executed contract between the Department and the Contractor.

Contract acceptance: Director's written acceptance of a completed Contract.

Contract time: Number of original working days as adjusted by any time adjustment.

Contractor: Person or business or its legal representative entering into a Contract with the Department for performance of the work.

controlling activity: Construction activity that will extend the scheduled completion date if delayed.

County: The County of Fresno

critical path: Longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path extends the scheduled completion date.

critical path method: Network-based planning technique using activity durations and relationships between activities to calculate a schedule for the entire project.

culvert: Structure other than a bridge that provides an opening under a roadway.

data date: Day after the date through which a schedule is current. Everything occurring earlier than the data date is as-built and everything on or after the data date is planned.

day: 24 consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar except a Saturday and a holiday.
2. **working day:** Time measure unit for work progress. A working day is any 24-consecutive-hour period except:
    - 2.1. Saturday and a holiday.
    - 2.2. Day during which you cannot perform work on the controlling activity for at least 50 percent of the scheduled work shift with at least 50 percent of the scheduled labor and equipment due to any of the following:
        - 2.2.1. Adverse weather-related conditions.
        - 2.2.2. Traffic maintenance under the Contract.
        - 2.2.3. Suspension of a controlling activity that you and the Engineer agree benefits both parties.
        - 2.2.4. Unanticipated event not caused by either party, such as:
            - 2.2.4.1. Act of God
            - 2.2.4.2. Act of a public enemy.
            - 2.2.4.3. Epidemic.
            - 2.2.4.4. Fire.
            - 2.2.4.5. Flood.
            - 2.2.4.6. Governor-declared state of emergency.
            - 2.2.4.7. Landslide.
            - 2.2.4.8. Quarantine restriction.
        - 2.2.5. Issue involving a third party, including:
            - 2.2.5.1. Industry or area-wide labor strike.
            - 2.2.5.2. Material shortage.
            - 2.2.5.3. Freight embargo.
            - 2.2.5.4. Jurisdictional requirement of a law enforcement agency.
            - 2.2.5.5. Workforce labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the Contractor's convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
    - 2.3. Day during a concurrent delay.

3. **original working days:**
    3.1. Working days to complete the work shown on the *Notice to Bidders* for a non-cost-plus-time-based bid
    3.2. Working days bid to complete the work for a cost-plus-time-based bid

Where working days is specified without the modifier *original* in the context of the number of working days to complete the work, interpret the number as the number of original working days as adjusted by any time adjustment.

deduction: Money permanently taken from a progress payment or the final payment. Deductions are cumulative and are not retentions under Pub Cont Code § 7107.

delay: Event that extends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began, such as:
    1.1. Change in the work
    1.2. Department action that is not part of the Contract
    1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
    1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
    1.5. Department's failure to obtain timely access to the right-of-way
    1.6. Department's failure to review a submittal or provide notification in the time specified
2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
    3.1. Critical delay
    3.2. Delay to a controlling activity caused by you
    3.3. Non–working day

Department: The Fresno County Board of Supervisors and its authorized representatives.

District Office: County of Fresno Department of Public Works and Planning

detour: Temporary route for traffic around a closed road part. A passageway through a job site is not a detour.

Director: Department's Chairman

disadvantaged business enterprise: Disadvantaged business enterprise as defined in 49 CFR 26.5.

dispose of: Remove from the job site.

divided highway: Highway with separated traveled ways for traffic, generally in opposite directions.

Engineer: The County's Director of Public Works and Planning, acting through their authorized designees.

early completion time: Difference in time between an early scheduled completion date and the work completion date.

environmentally sensitive area: Area within or near construction limits where access is prohibited or limited to protect environmental resources.

estimated cost: Estimated cost of the project as shown on the *Notice to Bidders*.

extra work: Any work, desired or performed, but not included in the original Contract.

federal-aid contract: Contract that has a federal-aid project number on the cover of the *Notice to Bidders and Special Provisions*.

final pay item: Bid item whose q2uantity shown on the Bid Item List is the quantity paid.

finished grade: Final surface of the completed facility. If the work under the Contract includes stage construction, the relation between the finished grade and the work under the Contract is shown.

fixed cost: Labor, material, or equipment cost directly incurred by the Contractor as a result of performing or supplying a particular bid item that remains constant regardless of the item's quantity.

float: Difference between the earliest and latest allowable start or finish times for an activity.

1. **Department-owned float:** Time saved on the critical path by actions of the Department. It is the last activity shown on the schedule before the scheduled completion date.

force account work: Work ordered on a construction project without an existing agreement on its cost, and performed with the understanding that the contractor will bill the owner according to the cost of labor, materials, and equipment, plus a certain percentage for overhead and profit.

grading plane: Basement material surface on which the lowest layer of subbase, base, pavement, surfacing, or other specified layer is placed.

highway: Whole right-of-way or area reserved for use in constructing the roadway and its appurtenances.

holiday: Holiday shown in the following table:

Holidays

Holiday	Date observed
Every Sunday	Every Sunday
New Year's Day	January 1st
Birthday of Martin Luther King, Jr.	3rd Monday in January
Presidents' Day	3rd Monday in February
Cesar Chavez Day	March 31st
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th
Thanksgiving Day	4th Thursday in November
Day after Thanksgiving Day	Day after Thanksgiving Day
Christmas Day	December 25th

If January 1st, March 31st, July 4th, November 11th, or December 25th fall on a Sunday, the Monday following is a holiday. If January 1st, March 31st, July 4th, November 11th, or December 25th fall on a Saturday, the preceding Friday is a holiday.

hours of darkness: Hours of darkness as defined in Veh Code § 280.

idle equipment: Equipment:

1. On the job site at the start of a delay
2. Idled because of the delay
3. Not operated during the delay

informal-bid contract: Contract that has *Informal Bid Authorized by Pub Cont Code § 10122* on the cover of the *Notice to Bidders and Special Provisions*.

job site: Area within the defined boundaries of a project.

Labor Surcharge and Equipment Rental Rates: Caltrans publication that lists labor surcharge and equipment rental rates.

landscaping: Practice of a landscaping contractor under 16 CA Code of Regs § 832.27.

material: Any product or substance specified for use in the construction of a project.

material shortage:

1. Shortage of raw or produced material that is area-wide and caused by an unusual market condition except if any of the following occurs:
    1.1. Shortage relates to a produced, nonstandard material
    1.2. Supplier's and the Contractor's priority for filling an order differs
    1.3. Event outside the United States for a material produced outside the United States
2. Unavailability of water that delays a controlling activity

material source facility audit: Self-audit and a Caltrans audit evaluating a facility's capability to consistently produce materials that comply with Caltrans standards.

median: Portion of a divided highway separating the traveled ways including inside shoulders.

milestone: Event activity that has zero duration and is typically used to represent the start or end of a certain stage of the project.

mobilization: Preparatory work that must be performed or costs incurred before starting work on the various items on the job site (Pub Cont Code § 10104).

modify: Add to or subtract from an appurtenant part.

narrative report: Document submitted with each schedule that discusses topics related to project progress and scheduling.

near critical path: Chain of activities with total float exceeding that of the critical path but having not more than 10 working days of total float.

obliterate: Place an earth cover over or root, plow, pulverize, or scarify.

Office engineer: The Director of Public Works and Planning for the County of Fresno

pavement: Uppermost layer of material placed on a traveled way or shoulder.

plans: Standard plans, revised standard plans, and project plans.

1. **standard plans:** Drawings standard to Department construction projects.
2. **revised standard plans:** New or revised standard plans.
3. **project plans:** Drawings specific to the project, including authorized shop drawings.

plant establishment period: Number of days shown on the *Notice to Bidders* for plant establishment.

quality characteristic: Characteristic of a material that is measured to determine conformance with a given requirement.

quality control plan: Contractor's plan to ensure QC.

reconstruct: Remove and disassemble and construct again at an existing or new location.

relocate: Remove and install or place in a new location.

remove: Remove and dispose of.

reset: Remove and install or place laterally at the same station location.

roadbed: Roadway portion extending from the curb line to curb line or the shoulder line to shoulder line. A divided highway has 2 roadbeds.

roadside: Area between the outside shoulder edge and the right-of-way limits.

roadway: Portion of the highway within the outside lines of curbs, sidewalks, slopes, ditches, channels, or waterways. A roadway includes the structures and features necessary for safety, protection of facilities, and drainage.

salvage: Remove, clean, and haul to a specified location.

schedule:

1. **baseline schedule:** Initial schedule showing the original work plan starting on the date of Contract approval. This schedule shows no completed work to date and no negative float or negative lag to any activity.
2. **revised schedule:** Schedule that incorporates a proposed or past change to logic or activity durations.
3. **updated schedule:** Current schedule developed from the accepted baseline and any subsequent accepted updated or revised schedules through regular monthly review to incorporate actual past progress.

scheduled completion date: Planned work completion date shown on the current schedule.

shoulder: Roadway portion contiguous with the traveled way for accommodation of a stopped vehicle, emergency use, and lateral support of base and surface courses.

small tool: Tool or piece of equipment not listed in Labor Surcharge and Equipment Rental Rates that has a replacement value of $500 or less.

specifications: Standard specifications, revised standard specifications, and special provisions.

1. **standard specifications:** Specifications standard to Department construction projects. These specifications are in a book titled *Standard Specifications*.
2. **revised standard specifications:** New or revised standard specifications. These specifications are in a section titled *Revised Standard Specifications* of a book titled *Notice to Bidders and Special Provisions*.
3. **special provisions:** Specifications specific to the project. These specifications are in a section titled *Special Provisions* of a book titled *Notice to Bidders and Special Provisions*.

State: State of California, including its agencies, departments or divisions whose conduct or action is related to the work.

Structure Design: Offices of Structure Design of the Department of Transportation.

subbase: Layer of material between a base and the basement material.

subgrade: Roadbed portion on which pavement, surfacing, base, subbase, or a layer of any other material is placed.

submittal:

1. **action submittal:** Written and graphic information and samples that require the Department's response.
2. **informational submittal:** Written information that does not require the Department's response.

substantial defects: Defects plainly seen as damaged, displaced, or missing parts or improper functioning of materials, parts, equipment, or systems.

substructure: Bridge parts below the bridge seats, pier tops, and haunches for rigid-framed bridges or spring lines for arched bridges; includes abutment backwalls, abutment parapets, and wingwalls.

superstructure: Bridge parts except the substructure.

supplemental project information: Information relevant to the project, specified as supplemental project information, and made available to bidders.

surfacing: Uppermost layer of material placed on a traveled way or shoulders; pavement.

time impact analysis: Analysis using a CPM schedule developed specifically to demonstrate the effect a proposed or past change or delay has on the current scheduled completion date.

time-scaled network diagram: Graphic depiction of a CPM schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

total bid: Sum of the item totals as verified by the Department; original Contract price.

total float: Amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.

traffic: Pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

traffic lane: Portion of traveled way used for the movement of a single line of vehicles.

traveled way: Portion of the roadway for the movement of vehicles, exclusive of the shoulders, berms, sidewalks, and parking lanes.

tunnel: Tunnel as defined in 8 CA Code of Regs § 8405 et seq.

unauthorized work: Work performed beyond the lines and grades described in the Contract or established by the Engineer or extra work performed without Department authorization.

unsuitable material: Material encountered below the natural ground surface in embankment areas or below the grading plane in excavation areas that the Engineer determines to be in any of the following conditions:

1. Of such unstable nature that it cannot be compacted to the specified density using ordinary methods at optimum moisture content.
2. Too wet to be properly compacted and cannot be dried before incorporating it into the work. Excessive moisture alone is not sufficient cause for determining that the material is unsuitable.
3. Inappropriate for the planned use.

withhold: Money temporarily or permanently taken from a progress payment.

work: Resources and activities required for Contract acceptance, including labor, materials, equipment, and the created product.

work plan: Detailed formulation of a program of action.

work zone: Area of a highway with construction, maintenance, or utility work activities.

1-1.08 DISTRICTS

Replace the first sentence in Section 1.08 with the following:

Caltrans' district composition and office addresses are as shown in the following table:

Replace the headings and paragraphs of Section 1-1.11 with:

1-1.11 WEBSITES, ADDRESSES, AND TELEPHONE NUMBERSWebsites, Addresses, and Telephone Numbers

Reference or agency or department unit	Website	Address	Telephone no.
Authorized Material Lists Authorized Material Source Lists	http://www.dot.ca.gov/hq/esc/approved_products_list	--	--
CA Unified Certification Program's list of certified DBEs	http://www.dot.ca.gov/hq/bep/find_certified.htm	--	--
California MUTCD	http://www.dot.ca.gov	--	--
Department	http://www.co.fresno.ca.us	2220 Tulare Street Design Division – Sixth Floor Fresno, CA 93721	**(559) 600-** 4501 or (559) 600-4528
Department of Conservation, Office of Mine Reclamation	http://www.conservation.ca.gov/omr/	--	--
Department of Industrial Relations	http://www.dir.ca.gov	455 GOLDEN GATE AVE SAN FRANCISCO CA 94102	--
Design Services - Contract Administration, Planholders, Bid Results	http://www.co.fresno.ca.us/departmentpage.aspx?id=5818	2220 TULARE STREET; 7TH FLOOR; FRESNO, CA 93721	Tel: (559) 600-4528 Fax:(559) 600-4399 Email: DesignServices@co.fresno.ca.us
Division of Accounting, Office of External Accounts Payable	http://www.dot.ca.gov/hq/asc/oap/payments/contact.htm#conpets1	MAJOR CONSTRUCTION PAYMENT AND INFORMATION UNIT OFFICE OF EXTERNAL ACCOUNTS PAYABLE DIVISION OF ACCOUNTING DEPARTMENT OF TRANSPORTATION P.O. BOX 168043 SACRAMENTO CA 95816-8043	(916) 227-9013
Division of Construction	http://www.dot.ca.gov/hq/construc/	--	--
Geotechnical Services	http://www.dot.ca.gov/hq/esc/geotech	GEOTECHNICAL SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-7000
METS	http://www.dot.ca.gov/hq/esc/Translab/	MATERIALS ENGINEERING AND TESTING SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-7000
MPQP	http://www.dot.ca.gov/manuals.htm	--	--

Office Engineer	--	MSC 43 OFFICE ENGINEER DEPARTMENT OF TRANSPORTATION 1727 30TH ST SACRAMENTO CA 95816-7005	(916) 227-6299
Offices of Structure Design, Documents Unit	--	MSC 9-4/4I DOCUMENTS UNIT OFFICES OF STRUCTURE DESIGN DEPARTMENT OF TRANSPORTATION 1801 30TH ST SACRAMENTO CA 95816-7006	(916) 227-0716
Publication Distribution Unit	--	PUBLICATION UNIT DEPARTMENT OF TRANSPORTATION 1900 ROYAL OAKS DR SACRAMENTO CA 95815-3800	--

Replace the headings and paragraphs of Section 1-1.12 with the following:

1-1.12 MISCELLANY

Make checks and bonds payable to the Fresno County Director of Department of Public Works and Planning.

2 BIDDING

Replace the headings and paragraphs of Section 2 with the following:

2-1.01 GENERAL

Section 2 includes specifications related to bid eligibility and the bidding process.

2-1.02 BID INELIGIBILITY

A firm that has provided architectural or engineering services to the Department for this contract before bid submittal for this contract is prohibited from any of the following:

1. Submitting a bid
2. Subcontracting for a part of the work
3. Supplying materials

2-1.03 CONTRACTOR REGISTRATION

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

2-1.04–2-1.05 RESERVED

2-1.06 BID DOCUMENTS

2-1.06A General

The *Bid* book includes bid forms and certifications and may be requested from Design Services.

The *Notice to Bidders and Special Provisions* includes the *Notice to Bidders*, revised standard specifications, project details, and special provisions.

The *Notice to Bidders and Special Provisions*, project plans, and any addenda to these documents may be accessed at Design Services.

The *Standard Specifications* and *Standard Plans* may be purchased at the Publication Distribution Unit.

2-1.06B Supplemental Project Information

The Department makes the following supplemental project information available:

Supplemental Project Information

Where Available	Description
Included in Project Details	A. Well "dummy" permit
	B. USEPA Guidance Memorandum: Implementation of American Iron and Steel Provisions
	C. Drinking Water State Revolving Fund Project Signage Requirements

If as-built drawings are available they may not show existing dimensions and conditions. Where new construction dimensions are dependent on existing bridge dimensions, verify the field dimensions and adjust the dimensions of the work to fit the existing conditions.

2-1.06C–2-1.06D Reserved

2-1.07 JOB SITE AND DOCUMENT EXAMINATION

Examine the job site and bid documents. Notify the Department of apparent errors and patent ambiguities in the plans, specifications, and Bid Item List. Failure to do so may result in rejection of a bid or rescission of an award.

Bid submission is your acknowledgment that you have examined the job site and bid documents and are satisfied with:

1. General and local conditions to be encountered
2. Character, quality, and scope of work to be performed
3. Quantities of materials to be furnished
4. Character, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

2-1.08 RESERVED

2-1.09 BID ITEM LIST

Submit a bid based on the bid item quantities the Department shows on Proposal 2.

2-1.10 SUBCONTRACTOR LIST

On the Subcontractor List form, list each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or $10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

For each subcontractor listed, the Subcontractor List form must show:

1. Business name and the location of its place of business.
2. California contractor license number for a non-federal-aid contract.
3. Public works contractor registration number.
4. Portion of work it will perform. Show the portion of the work by:
   - 4.1. Bid item numbers for the subcontracted work
   - 4.2. Percentage of the subcontracted work for each bid item listed
   - 4.3. Description of the subcontracted work if the percentage of the bid item listed is less than 100 percent

2-1.11 RESERVED

Replace section 2-1.12 with

2-1.12 DISADVANTAGED BUSINESS ENTERPRISES (DBEs)

2-1.12A General

Section 2-12 is applicable to this contract.

Under 40 CFR 33:

> The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

Include this assurance in each subcontract you sign with a subcontractor.

2-1.12B Good Faith Efforts

You are required to make and demonstrate the following good faith efforts whenever procuring construction, equipment, services and supplies, even if it has achieved the fair share objective:

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through solicitation, outreach and recruitment activities.
2. Make information on forthcoming opportunities available to DBEs and arrange time frames to establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
3. Consider in the contracting process, whether firms competing for large contracts could subcontract with DBEs. This could include dividing tasks, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one firm to handle individually.
5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

Failure to take the steps outlined above prior to bid opening, and to submit the documents specified in Section 2-1.33, shall cause the bid to be rejected as non-responsive.

2-1.12C Fair Share Objectives

A fair share objective has been adopted for this project, as required by 40 CFR 33. The objective is not a quota or binding requirement. Meeting the objective will not exempt you from employing and

demonstrating the mandatory Good Faith Efforts in Section 2-1.12B for any subcontract, and you will not be penalized or treated as if out of compliance if you do not meet the goal.

2-1.13–2-1.30 RESERVED

Replace section 2-1.31 with:

2-1.31 RESERVED

2-1.32 RESERVED

2-1.33 BID DOCUMENT COMPLETION AND SUBMITTAL

2-1.33A General

Complete forms in the *Bid* book.

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

Certain bid forms must be submitted with the bid and properly executed.

Certain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

2-1.33B Bid Item List and Bid Comparison

Submit a bid based on the bid item quantities the Department shows on Proposal 2. Bids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders.*

2-1.33C Bid Document Completion

Proposal sheets are identified by title and by the letter "P" followed by the number assigned to the proposal sheet in question. Proposal sheets are included in the *Bid Book.*

2-1.33C(1) Proposal 1 - Proposal to the Board of Supervisors of Fresno County

2-1.33C(2) Proposal 2 - Bid Proposal Sheet

One or more sheet(s) upon which the bidder completes the bid.

Fill out completely including a unit price and total for each unit price-based item and a total for each lump sum item.

Do not make any additions such as "plus tax", "plus freight", or conditions such as "less 2% if paid by 15th".

Use ink or typewriter.

2-1.33C(3) Proposal 3 - Evaluation of Bid Proposal Sheet

Describes how inconsistences and irregularities are evaluated and corrected when Design Services reviews the Bid Sheet.

2-1.33C(4) Proposal 4 - Bid Security and Signature

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

- Cash
- Cashier's check
- Certified check
- Signed bidder's bond by an admitted surety insurer

Indicate type of bid security provided.

- Cash – Acceptable but not recommended. Cash is deposited in a clearing account and is returned to bidders by County warrant. This process may take several weeks.
- Cashier's or Certified Checks. This type of security is held until the bid is no longer under consideration. If submitted by a potential awardee, they will be returned when the contract is fully executed by the bidder and bonds and insurance have been approved.
- Bid Bonds - Must be signed by the bidder and by the attorney-in-fact for the bonding company. Provide notarized signature of attorney-in-fact accompanied by bonding company's affidavit authorizing attorney-in-fact to execute bonds. An unsigned bid bond will be cause for rejection.

Provide contractor's license information.

State business name and if business is a:

- Corporation - list officers
- Partnership - list partners
- Joint Venture - list members; if members are corporations or partnerships, list their officers or partners.
- Individual - list Owner's name and firm name style

Signature of Bidder - the following lists types of companies and corresponding authorized signers.

- Corporation - by an officer
- Partnership - by a partner
- Joint Venture - by a member
- Individual - by the Owner

If signature is by a Branch Manager, Estimator, Agent, etc., the bid must be accompanied by a power of attorney authorizing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be rejected.

Business Address - Firm's Street Address

Mailing Address - P.O. Box or Street Address

Complete, sign, and return with bid.

2-1.33C(5) Proposal 5 - Noncollusion Affidavit

Must be completed, signed, and returned with bid.

2-1.33C(6) Proposal 6 - Public Contract Code Section 10285.1 Statement

Check "has" or "has not" in accordance with instructions on form, return with completed for with bid. Note that signing the bid constitutes signing this statement.

2-1.33C(7) Proposal 7 - Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement

Check: "yes" or "no" accordance with instructions on form, include explanation if "yes" is checked. Return completed form with bid. Note that signing the bid constitutes signing this questionnaire and statement.

2-1.33C(8) Proposal 8(a) through Proposal 8(f) - Subcontractors

Sheet(s) upon which bidders list subcontractors. List each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid (Pub Cont Code § 4100 et seq.).

The *Subcontractor List* submitted with the bid must show the name, location of business, work portions to be performed, and the contractor's license number for each subcontractor listed.

- Use subcontractor's business name style as registered with the License Board.
- Specify the city in which the subcontractor's business is located and the state if other than California.
- Description of the work to be performed by the subcontractor. Indicate with bid item numbers from the bid sheet and/or work descriptions similar to those on bid sheet.
- List license number and Department of Industrial Relations registration number for each subcontractor.

Upon request from Design Services, provide the following additional information within 24 hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- Complete physical address for each subcontractor listed.
- Percentage of the total bid or dollar amount associated with each subcontractor listed.

2-1.33C(9) Proposal 9 - *Certification With Regard To The Performance Of Previous Contracts Or Subcontracts Subject To The Equal Opportunity Clause And The Filing Of Required Reports*

For a Federal-aid contract, complete, sign, and return with bid.

2-1.33C(10) Proposal 10 - *Title 40, Code Of Federal Regulations, Part 32 Debarment And Suspension Certification*

For a Federal-aid contract, complete, sign, and return with bid.

2-1.33C(11) Proposal 11 - *Nonlobbying Certification For Federal-Aid Contracts*

For a Federal-aid contract, complete, sign, and return with bid.

2-1.33C(12) Proposal 12(a) through Proposal 12(b) - *Disclosure Of Lobbying Activities*

For a Federal-aid contract, complete, sign, and return with bid.

2-1.33C (13) Proposal 13 - Does not apply to this contract

2-1.33C(14) Proposal 14(a) through propsoal 14(c) *- DBE Information — Good Faith Efforts*

For a Federal-aid contract, the apparent low, second-low, and third-low bidders must complete and submit so that it is received by Design Services no later than 4:00 PM on the fourth business day after the bid opening if not submitted with the bid.

2-1.33C(15) Proposal 15 - Does not apply to this contract

2-1.33C(16) Proposal 16 - *Guaranty*

Does not need to be signed with the bid. Part of the contract which must be signed by the contractor when contract is executed.

2-1.33C(17) Proposal 17 – *Guidelines for Implementing California State Revolving Funds Disadvantaged Business Enterprise Requirements*

Instructions and forms for compliance with the State of California's Clean Water and Drinking Water State Revolving Fund Programs' requirements and regulations regarding Disadvantaged Business Enterprises. Complete and submit forms in accordance with the guidelines. Adhere to the instructions for the included forms, and ensure that those forms required to be submitted with the bid package are included.

2-1.34 BIDDER'S SECURITY

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

1. Cash
2. Cashier's check
3. Certified check
4. Signed bidder's bond by an admitted surety insurer

Submit cash, cashier's check, certified check, or bidder's bond with your bid.

2-1.35–2-1.39 RESERVED

2-1.40 BID WITHDRAWAL

1. An authorized agent may withdraw a bid before the bid opening date and time by submitting a written bid withdrawal request at the location where the bid was submitted. Withdrawing a bid does not prevent you from submitting a new bid. An authorized agent is an individual authorized to submit a bid.
2. After the bid opening time, you cannot withdraw a bid.

2-1.41–2-1.42 RESERVED

2-1.43 BID OPENING

The Department publicly opens and reads bids at the time and place shown on the *Notice to Bidders*.

2-1.44–2-1.45 RESERVED

2-1.46 DEPARTMENT'S DECISION ON BID

The Department's decision on the bid amount is final.

The Department may reject:

1. All bids
2. A nonresponsive bid

2-1.47 BID RELIEF

The Department may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to Design Services.

2-1.48 RESERVED

2-1.49 SUBMITTAL FAILURE HISTORY

The Department considers a bidder's past failure to submit documents required after bid opening in determining a bidder's responsibility.

2-1.50 BID RIGGING

Section 2-1.50 applies to a federal-aid contract.

The US Department of Transportation (DOT) provides a toll-free hotline to report bid rigging activities. Use the hotline to report bid rigging, bidder collusion, and other fraudulent activities. The hotline number is (800) 424-9071. The service is available 24 hours 7 days a week and is confidential and anonymous.. The hotline is part of the DOT's effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General.

2-1.51 DISCLOSURE OF SELF-DEALING TRANSACTIONS

This provision is only applicable if the contractor is operating as a corporation (a for-profit or non-profit corporation) or if during the term of this agreement, the contractor changes its status to operate as a corporation.

Members of the contractor's Board of Directors shall disclose any self-dealing transactions that they are a party to while contractor is providing goods or performing services under this agreement. A self-dealing transaction shall mean a transaction to which the contractor is a party and in which one or more of its directors has a material financial interest. Members of the Board of Directors shall disclose any self-

dealing transactions that they are a party to by completing and signing a Self-Dealing Transaction Disclosure Form which is included in *Project Details* of these special provisions.

In the event that the Contractor (to whom the project is awarded) is operating as a corporation or incorporates during the course of the construction contract, and any member of its board of directors is engaged or intends to become engaged in self-dealing transaction(s), each member of its board of directors who is engaged or intends to become engaged in a self-dealing transaction or transactions must complete and submit to the County a completed Self-Dealing Transaction Disclosure Form (in Project Details) for each such transaction prior to engaging therein or immediately thereafter.

3 CONTRACT AWARD AND EXECUTION

Replace the headings and paragraphs of Section 3 with:

3-1.01 GENERAL

Section 3 includes specifications related to contract award and execution. Prospective bidders are advised that a primary source of financing for this Agreement for construction of the Project is the "State Financing" under the Drinking Water State Revolving Fund and the *Water Quality, Supply and Infrastructure Improvement Act of 2014* (also known as Proposition 1), as more fully described in the "Construction Grant and Loan Agreement" (Agreement No. D17-02090) between the County of Fresno and the California State Water Resources Control Board, and that the Owner may not have funds to finance this Agreement independently of the State Financing.

The award of contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed. The award, if made, will be as follows within ninety (90) calendar days after the opening of proposals, unless that time is extended pursuant to Section 3-1.16, below.

3-1.02 CONSIDERATION OF BIDS

3-1.02A General

Bids will be compared on the basis listed in the Notice to Bidders.

3-1.02B Tied Bids

The Department breaks a tied bid with a coin toss:

3-1.03 CONTRACTOR REGISTRATION

No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

3-1.04 CONTRACT AWARD

Submit any bid protest to Design Services.

If the Department awards the contract, the award is made to the lowest responsible bidder within 90 calendar days after bid opening.

The Department may extend the specified award period if the Bidder agrees.

You may request to extend the award period by faxing a request to Design Services before 4:00 p.m. on or before the last day of the award period. If you do not make this request, after the specified award period:

1. Your bid becomes invalid
2. You are not eligible for the award of the contract

3-1.05 CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)

The successful bidder must furnish 2 bonds conforming to the requirements in the *Agreement* of these special provisions.

3-1.06 CONTRACTOR LICENSE

For a federal-aid contract, the Contractor must be properly licensed as a contractor from contract award through Contract acceptance (Pub Cont Code § 10164).

For a non-federal-aid contract:

1. Contractor must be properly licensed as a contractor from bid opening through Contract acceptance (Bus & Prof Code § 7028.15)
2. Joint venture bidders must obtain a joint venture license before contract award (Bus & Prof Code § 7029.1)

3-1.07 INSURANCE POLICIES

The successful bidder must submit copies of its insurance policies conforming to the requirements in the *Agreement* of these special provisions.

3-1.08 –3-1.10 RESERVED

3-1.11 PAYEE DATA RECORD

Complete and deliver to the Engineer a Payee Data Record form when requested by the Engineer.

3-1.12 RESERVED

3-1.13 FORM FHWA-1273

For a federal-aid contract, form FHWA-1273 is included with the Contract form in the documents sent to the successful bidder for execution. Comply with its provisions. Interpret the training and promotion section as specified in section 7-1.11A.

3-1.14 CONDITIONAL AWARD

The Owner will first make a "conditional award of contract" to the lowest responsible bidder whose proposal complies with all the requirements prescribed. Such Owner's "conditional award of contract" is subject to, and conditioned upon, approval of such lowest responsible bidder's proposal by the California State Water Resources Control Board ("SWRCB"), as evidenced by notice thereof by the SWRCB to the Owner. The Owner has no authority or control over, and the Owner does not assume any responsibility herein for, the SWRCB's decision-making; the Owner may rely solely upon the SWRCB's notice thereof to the Owner as proof of such SWRCB approval, if it is given. Such Owner's "conditional award of contract" is not by itself the award of the contract.

3-1.15 AWARD APPROVAL & AWARD NOTIFICATION

If the SWRCB provides the Owner with the SWRCB's notice of approval of such lowest responsible bidder's proposal, (a) the Owner's receipt thereof satisfies the condition of the Owner's "conditional award of contract" to the lowest responsible bidder whose proposal complies with all the requirements prescribed, and (b) the Director will provide written notice to the Chairman of the Board of Supervisor of the Owner and such lowest responsible bidder, mailed to the address shown on his or her proposal, substantially to the following effect:

(a) the Owner received the SWRCB's notice that the SWRCB approved such lowest responsible bidder's proposal;
(b) the Owner's receipt of notice of such approval by the SWRCB satisfies the condition of the Owner's "conditional award of contract" to the lowest responsible bidder whose proposal complies with all the requirements prescribed; and
(c) that such written notice is given pursuant to this section.

The award of contract, if it is to be is made, will be made as follows: the Director will notify the successful bidder by letter, mailed to the address shown on his or her proposal, that (a) his or her bid has been accepted and that he or she has been awarded the contract, and (b) before the Owner executes the written contract, the successful bidder must first comply with Section 03-5.01, below. The Owner shall not be required to enter into the written contract with the successful bidder unless and until the successful bidder shall have complied with Section 3-1.18, below.

The right is reserved by the Owner to reject any or all proposals, to waive technicalities, to advertise for new proposals, or to proceed to do this work otherwise, if in the judgment of the Owner the best interests of the Owner will be promoted thereby.

3-1.16 EXTENSION OF TIME

If the Owner finds that it will be unable to award the contract within ninety (90) calendar days after the opening of proposals, the Director may request any or all bidders to extend all terms of their proposal(s) to a specified date. More than one such extension may be requested, and in all such instances, the provisions of this section shall likewise apply. If a bidder who receives a request for an extension does not elect to extend the terms of his or her proposal beyond the ninety (90) calendar days (or such further extended date) following opening of proposals, or does not respond within seven (7) calendar days to a request for an extension, that bidder's proposal will be deemed as having expired, and that bidder's proposal will not be considered for award of the contract.

3-1.17 CANCELLATION OF CONDITIONAL AWARD OR AWARD

The Owner reserves the right to cancel the conditional award of any contract or the award of any contract at any time before the execution of said contract by all parties without any liability against the Owner.

3-1.18 CONTRACT BONDS, EXECUTION, AND DELIVERY

The bidder to whom award is made shall, within ten (10) calendar days after receiving the award notification, execute and deliver to the Owner a written contract, upon terms and conditions required herein, with the Owner. The bidder’s security shall forfeit in the event he or she does not follow through with the execution and delivery of the written contract to the Owner within ten (10) calendar days after the contract is awarded.

The successful bidder shall furnish a faithful performance bond in the amount of 100% of the contract amount and a payment bond in the amount of 100% of the contract amount; each of said bonds shall comply with all applicable legal requirements, and shall be submitted in triplicate.

The payment bond shall include provisions such that if the Contractor or his or her subcontractors shall fail to pay either (a) amounts due under the Unemployment Insurance Code with respect to work performed under the contract, or (b) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from the wages of the employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor, then the surety will pay these amounts. In case suit is brought upon the payment bond, the surety will pay a reasonable attorney's fee to be fixed by the court.

The payment bond and the faithful performance bond shall name the State of California as an additional beneficiary under the bonds.

Liability and Workers Compensation Insurance requirements shall be as set forth in the written agreement. Execution of the written contract by bidders will not be required until after the award approval, and the requirements for such execution by the successful bidder are provided hereinabove.

After the successful bidder shall have complied with this Section, the Director and Chairman of the Board of Supervisors of the Owner will execute the written contract on behalf of the Owner, and deliver the executed written contract to the successful bidder.

3-1.19 BIDDERS' SECURITIES

The Department keeps the securities of the 1st, 2nd, and 3rd low bidders until the contract has been executed. The other bidders' securities, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd low bidders, and their bidders' bonds are of no further effect (Pub Cont Code § 10184).

4 SCOPE OF WORK

Replace Section 4-1.02 with:

4-1.02 INTENT

The Contract intent is to provide for work completion using the best general practices.

Nothing in the specifications, special provisions, Standard Specifications, or in any other Contract document voids the Contractor's public safety responsibilities.

Replace the paragraphs of Section 4-1.07C with the following:

4-1.07C Reserved

Replace Section 4-1.13 with:

4-1.13 CLEANUP

Before final inspection, leave the job site neat and presentable and dispose of:

1. Rubbish
2. Excess materials
3. Falsework
4. Temporary structures
5. Equipment

Remove warning, regulatory, and guide signs when directed by the Engineer.

5 CONTROL OF WORK

Delete the 9th Paragraph of Section 5-1.01

Add the following before the last sentence in Section 5-1.02

Caltrans Standard Plans, County of Fresno Standard Drawings, and any other other-agency Standard Drawings included in the “Project Details” section of the book entitled “specifications” have the same ranking as Standard Plans.”

All other drawings in the “Project Details” section of the book entitled “specifications” have the same ranking as Project Plans.

Tables and other documents in the “Project Details” section of the book entitled “specifications” have the same ranking as Special Provisions. If a portion of a document in the Project Details section conflicts with the Special Provisions, the Special Provisions shall prevail.

Replace the headings and paragraphs of section 5-1.09 with:

5-1.09 RESERVED

Replace Section 5-1.12 with:

5-1.12 ASSIGNMENT

No third-party agreement relieves you or your surety of the responsibility to complete the work. Do not sell, transfer, or otherwise dispose of any Contract part without prior written consent from the Department.

If you assign the right to receive Contract payments, the Engineer accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the Contract. The Department may use withheld payments for work completion whether payments are assigned or not.

A pending or disapproved request for assignment does not relieve you of the responsibility to commence and pursue work timely and in strict accordance with contract documents.

Replace the headings and paragraphs of section 5-1.13C with:

5-1.13C RESERVED

Replace the headings and paragraphs of section 5-1.13D with:

5-1.13D RESERVED

Replace the paragraphs of section 5-1.20B(4) with:

5-1.20B(4) Contractor–Property Owner Agreement

Before procuring material from or disposing or stockpiling of material on non-highway property:

1. Provide proof that the property where materials are to be stockpiled or equipment parked/stored is appropriately zoned and/or permitted for the use proposed by the Contractor.
2. Obtain written authorization from each and every owner of the property where materials are to be stockpiled or equipment parked/stored.
3. Provide proof that the signor(s) of the authorization are the owners of the property.
4. Provide an executed release from the property owner(s) absolving the Department from any and all responsibility in connection with the stockpiling of materials or parking/storage of equipment on said property.
5. Obtain written permission from the Engineer to stockpile materials or park/store equipment at the location designated in said authorization.

Before Contract acceptance, submit a document signed by the owner of the material source or disposal site stating that the Contractor has complied with the Contractor-owner agreement.

Failure by the Contractor to provide written authorization shall result in the withholding of all funds due to the Contractor until said authorization is received by the County.

Replace the paragraph of section 5-1.20C with:

5-1.20C Railroad Relations

If the Contract includes an agreement with a railroad company, the Department makes the provisions of the agreement available in Project Details in the document titled "Railroad Relations and Insurance Requirements." Comply with the requirements in the document.

5-1.23 SUBMITTALS

Attention is directed to Section 5-1.23 SUBMITTALS of the State Standard Specifications which, except as modified herein, shall apply in its entirety**.**

In case of conflict between the Section 5-1.23 SUBMITTALS of the State Standard Specifications and SECTION 01 33 00 of special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

Replace the paragraphs of section 5-1.23A with:

5-1.23A General

Section 5-1.23 includes specifications for action and informational submittals.

Any submittal not specified as an informational submittal is an action submittal.

Submit action and informational submittals to the Engineer. Unless otherwise specified in these Specifications, submittals shall be provided via email in .pdf format.

Each submittal must have a cover sheet that must include:

1. Contract number
2. Project Name

3. Date
4. Submittals (and resubmittals if applicable) must be numbered sequentially
5. Structure number if applicable
6. Contractor
7. Person responsible for submitting the submittal
8. Signature of Contractor's representative sending submittal
9. Section number and/or item submittal is referencing
10. Pages of submittal, excluding cover sheet

The Department rejects a submittal if it has any error or omission.

If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

Documents must be submitted in the English language.

Convert documents to US customary units.

Replace Section 5-1.26 with:

5-1.26 CONSTRUCTION SURVEYS

The Engineer places stakes and/or marks as the Engineer determines to be necessary to establish the lines and grades required for the work.

Submit your request for Engineer-furnished stakes:

1 Once staking area is ready for stakes
2. On a Request for Construction Stakes form

After your submittal, the Engineer starts staking within 2 working days.

Preserve stakes and marks placed by the Engineer. If the stakes or marks are destroyed, the Engineer replaces them at the Engineer's earliest convenience and deducts the cost.

Replace Section 5-1.27E with:

5-1.27E CHANGE ORDER BILLS

Maintain separate records for change order work costs.

5-1.32 AREAS FOR USE

Occupy the highway only for purposes necessary to perform the work.

Defend, indemnify, and hold the Department harmless to the same extent as under section 7-1.05.

The Department does not allow temporary residences within the highway.

6 CONTROL OF MATERIALS

Replace section 6-1.04 with:

6-1.04 AMERICAN IRON AND STEEL

6-1.04A General

This project is subject to "American Iron and Steel" provisions. Unless a predominantly iron or steel product qualifies for an exemption, as listed by the United States Environmental Protection Agency, all manufactured iron and steel products must be certified as produced within the United States.

Attention is directed to the "American Iron and Steel" requirements of P.L. 113-76 (also known as the Continuing Appropriations Act of 2014), and the regulations adopted pursuant thereto. In conformance with the law and regulations, all manufacturing processes for steel and iron materials furnished for incorporation into the work on this project shall occur in the United States. American Iron and Steel compliance certifications and/or waivers must be provided to the Engineer with the applicable material or

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

Include substantiating data with the substitution request that proves that substitution:

1. Causes no delay
2. Is of equal or better quality and suitability

If the special provisions disallow substitution of a particular item, provide the specified item and do not propose substitution.

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Add to the end of Section 7-1.02K(1):

This project is subject to labor compliance monitoring efforts complying with Labor Code 1771.5, which requires that the Department utilize a Department of Industrial Relations certified Labor Compliance Program meeting the requirements of Labor Code 1771.5 for projects funded in whole or in part by Proposition 84 or any other funding source requiring such a Labor Compliance Program. The Department has a certified Labor Compliance Program, and may utilize a consulting firm to assist in the compliance monitoring and enforcement efforts. Complying with the requirements of this section, and cooperating with the Department or any consulting firm employed by the Department, is required. Non-compliance will be reported to the Department of Industrial Relations, and may be subject to the assessment of penalties to enforce compliance.

Replace the 2nd Paragraph of Section 7-1.02K(2) with:

The general prevailing wage rates and any applicable changes to these wage rates are available:

1. From Design Services
2. From the Department of Industrial Relations' Web site

Replace section 7-1.02K(3) with:

04-22-16

Keep accurate payroll records.

Submit a copy of your certified payroll records, weekly, including those of subcontractors. Include:

1. Each employee's:
    - 1.1. Full name
    - 1.2. Address
    - 1.3. Social security number
    - 1.4. Work classification
    - 1.5. Straight time and overtime hours worked each day and week
    - 1.6. Actual wages paid for each day to each:
        - 1.6.1. Journeyman
        - 1.6.2. Apprentice
        - 1.6.3. Worker
        - 1.6.4. Other employee you employ for the work
    - 1.7. Pay rate
    - 1.8. Itemized deductions made
    - 1.9. Check number issued
2. Apprentices and the apprentice-to-journeyman ratio

Each certified payroll record must include a Statement of Compliance form signed under penalty of perjury that declares:

1. Information contained in the payroll record is true, correct, and complete
2. Employer has complied with the requirements of sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project
3. Wage rates paid are at least those required by the Contract

Submitted certified payrolls for hauling and delivering ready-mixed concrete must be accompanied by a written time record. The time record must include:

1. Truck driver's full name and address
2. Name and address of the factory or batching plant
3. Time the concrete was loaded at the factory or batching plant
4. Time the truck returned to the factory or batching plant
5. Truck driver's signature certifying under penalty of perjury that the information contained in this written time record is true and correct

Make certified payroll records available for inspection at all reasonable hours at your main office on the following basis:

1. Upon the employee's request or upon request of the employee's authorized representative, make available for inspection a certified copy of the employee's payroll record.
2. Refer the public's requests for certified payroll records to the Department. Upon the public's request, the Department makes available for inspection or furnishes copies of your certified payroll records. Do not give the public access to the records at your main office.

Make all payroll records available for inspection and copying or furnish a copy upon request of a representative of the:

1. Department or Department’s consultant firms
2. Division of Labor Standards Enforcement of the Department of Industrial Relations
3. Division of Apprenticeship Standards of the Department of Industrial Relations

Furnish the Department the location of the records. Include the street address, city, and county. Furnish the Department a notification of a location and address change within 5 business days of the change.

Comply with a request for the records within 10 days after you receive a written request. If you do not comply within this period, the Department withholds from progress payments a $100 penalty for each day or part of a day for each worker until you comply. You are not assessed this penalty for a subcontractor's failure to comply with Labor Code § 1776.

The Department withholds from progress payments for delinquent or inadequate records (Labor Code § 1771.5). If you have not submitted an adequate record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds up to 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than $10,000 or less than $1,000.

7-1.02K(4)i Apprenticeship Requirements for non-Federal Projects

A. Pursuant to Sections 1770-1780 of the Labor Code of the State of California, the Director of the Department of Industrial Relations has determined the general prevailing rate of wages in the locality for each craft or type of worker needed to execute the work. Said wage rates pursuant to Section 1773.2 of the Labor Code are on file with the Clerk to the Fresno County Board of Supervisors, and will be made available to any interested person on request. A copy of this wage scale may also be obtained at the following Web Site: *www.dir.ca.gov/dlsr.*

B. Pursuant to Section 1775 of the Labor Code of the State of California, nothing in this Article shall prevent the employment of properly registered apprentices upon public works. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which he/she is registered.

C. Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards and written apprentice agreements under Chapter 4 (commencing at Section 3070), Division 3, of the Labor Code, are eligible to be employed on public works. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

D. Fresno County is committed to increasing the availability of employment and training opportunities, with particular attention to the plight of those who are most economically disadvantaged. In an effort to advance that purpose, the County will require that the Contractor and each subcontractor employed on this Project shall use their best efforts to ensure that thirty-three percent (33%) of apprentice hours, as determined by California Labor Code Section 1777.5 for each contractor and subcontractor of any tier on this Project, are performed by qualified participants in state approved apprenticeship programs who also are current or former "Welfare-to-Work" participants in the CalWORKs program. Provided, that nothing contained in this Paragraph D shall be interpreted to relieve or in any way diminish the obligation of the Contractor and each subcontractor to comply fully with all applicable apprenticeship laws in accordance with the California Labor Code and the California Code of Regulations; and accordingly such requirements as are contractually imposed by this Paragraph D shall be in addition to such legally mandated requirements, and applicable only to the extent fully consistent therewith.

Add between the 9th and 10th paragraphs of section 7-1.03:

07-15-16

If a height differential of more than 0.04 foot is created by construction activities at a joint transverse to the direction of traffic on the traveled way or a shoulder subject to public traffic, construct a temporary taper at the joint with a slope complying with the requirements shown in the following table:

Temporary Tapers

Height differential (foot)	Slope (horizontal:vertical)	
	Taper use of 14 days or less	Taper use of more than 14 days
Greater than 0.08	100:1 or flatter	200:1 or flatter
0.04–0.08	70:1 or flatter	70:1 or flatter

For a taper on existing asphalt concrete or concrete pavement, construct the taper with minor HMA under section 39-2.07.

Grind existing surfaces to accommodate a minimum taper thickness of 0.10 foot under either of the following conditions:

1. HMA material such as rubberized HMA, polymer-modified bonded wearing course, or open-graded friction course is unsuitable for raking to a maximum 0.02 foot thickness at the edge
2. Taper will be in place for more than 14 days

For a taper on a bridge deck or approach slab, construct the taper with polyester concrete under section 60-3.04B.

The completed surface of the taper must be uniform and must not vary more than 0.02 foot from the lower edge of a 12-foot straightedge when placed on its surface parallel and perpendicular to traffic.

If authorized, you may use alternative materials or methods to construct the required taper.

Replace the headings and paragraphs of Section 7-1.04 with:

7-1.04 PUBLIC SAFETY

7-1.04A GENERAL

You are responsible to provide for public safety.

Do not construct a temporary facility that interferes with the safe passage of traffic.

Control dust resulting from the work, inside and outside the right-of-way.

Move workers, equipment, and materials without endangering traffic.

Whenever your activities create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public.

Any fences, temporary railing, barricades, lights, signs, or other devices furnished, erected and maintained by you are in addition to those for which payment is provided elsewhere in the specifications.

Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone. At locations where traffic is being routed through construction under one-way controls, move your equipment in compliance with the one-way controls unless otherwise ordered.

Use of signs, lights, flags, or other protective devices must comply with the *California MUTCD* and any directions of the Engineer. Signs, lights, flags or other protective devices must not obscure the visibility of, nor conflict in intent, meaning, and function of either existing signs, lights and traffic control devices, or any construction area signs.

Keep existing traffic signals and highway lighting in operation. Other forces within the Department will perform routine maintenance of these facilities during the work.

Cover signs that direct traffic to a closed area.

Install temporary illumination in a manner which the illumination and the illumination equipment does not interfere with public safety. The installation of general roadway illumination does not relieve you from furnishing and maintaining any protective devices.

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of traffic. All movements of workmen and construction equipment on or across lanes open to traffic must be performed in a manner that do not endanger the public. Your vehicles or other mobile equipment leaving an open traffic lane to enter the construction area must slow down gradually in advance of the location of the turnoff to give the traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying traffic, your vehicles and equipment must yield to traffic.

Immediately remove hauling spillage from a roadway lane or shoulder open to traffic. When hauling on roadways, trim loads and remove material from shelf areas to minimize spillage.

Notify the Engineer not less than 5 days before the anticipated start of an activity that will change the vertical or horizontal clearance available to traffic, including shoulders.

If vertical clearance is temporarily reduced to 15.5 feet or less, place low clearance warning signs in compliance with the *California MUTCD* and any directions of the Engineer. Signs must comply with the dimensions, color, and legend requirements of the *California MUTCD* and section 12-3.06 except that the signs must have black letters and numbers on an orange retroreflective background. W12-2P signs must be illuminated so that the signs are clearly visible.

Pave or provide full width continuous and cleared wood walks for pedestrian openings through falsework. Protect pedestrians from falling objects and concrete-curing water. Extend overhead protection for pedestrians at least 4 feet beyond the edge of the bridge deck. Illuminate all pedestrian openings through falsework. Temporary pedestrian facilities must comply with the *California MUTCD*, Part 6, Chapter 6D, "Pedestrian and Worker Safety."

Do not store vehicles, material, or equipment in a way that:

1. Creates a hazard to the public
2. Obstructs traffic control devices

Do not install or place temporary facilities used to perform the work which interfere with the free and safe passage of traffic.

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

If you appear to be neglectful or negligent in furnishing warning devices and taking protective measures, the Engineer may direct your attention to the existence of a hazard. You must furnish and install the necessary warning devices. If the Engineer points out the inadequacy of warning devices and protective measures, that action on the part of the Engineer does not relieve you from your responsibility for public safety or abrogate your obligation to furnish and pay for these devices and measures.

Install Type K temporary railing or other authorized protective systems under any of the following conditions:

1. Excavations: Where the near edge of the excavation is within 15 feet from the edge of an open traffic lane
2. Temporarily unprotected permanent obstacles: When the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and you elect to install the obstacle before installing the protective system; or you, for your convenience and as authorized, remove a portion of an existing protective railing at an obstacle and do not replace such railing completely the same day
3. Storage areas: When material or equipment is stored within 15 feet of the edge of an open traffic lane and the storage is not otherwise prohibited by the Contract
4. Height differentials: When construction operations create a height differential greater than 0.15 feet within 15 feet of the edge of traffic lane

Installation of Type K temporary railing is not required if an excavation within 15 feet from the edge of an open traffic lane is protected by any of the following:

1. Steel plate or concrete covers of adequate thickness to prevent accidental entry by traffic or the public
2. Side slope where the downhill slope is 4:1 (horizontal: vertical) or less unless a naturally occurring condition
3. Barrier or railing

Offset the approach end of Type K temporary railing a minimum of 15 feet from the edge of an open traffic lane. Install the temporary railing on a skew toward the edge of the traffic lane of not more than 1 foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing must be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules must be installed at the approach end of the temporary railing.

Secure Type K temporary railing in place before starting work for which the temporary railing is required.

Where 2 or more lanes in the same direction are adjacent to the area where the work is being performed, including shoulders, the adjacent lane must be closed under any of the following conditions:

1. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the approach speed is greater than 45 miles per hour
2. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the approach speed is less than 45 miles per hour

Closure of the adjacent traffic lane is not required when performing any of the following:

1. Working behind a barrier
2. Paving, grinding, or grooving
3. Installing, maintaining, or removing traffic control devices except Type K temporary railing

Do not reduce an open traffic lane width to less than 10 feet. When traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

If a traffic lane is closed with channelizers for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices as specified for the lane closure.

Do not move or temporarily suspend anything over a traffic lane open to the public unless the public is protected.

7-1.04B WORK ZONE SAFETY AND MOBILITY

7-1.04B(1) POLICY

In order to ensure safe and efficient flow of traffic through work zones, the County of Fresno, via its General Plan, Transportation and Circulation Element, Policy TRA-1, has adopted the use of AASHTO Standards as supplemented by Caltrans and County Department of Public Works and Planning Standards.

7-1.04B(2)TRAFFIC MANAGEMENT PLAN

Perform traffic management shall be in accordance with Section 12, “TEMPORARY TRAFFIC CONTROL,” of these special provisions.

7-1.04B(3)TEMPORARY TRAFFIC CONTROL PLAN

Prepare traffic control plan(s) in accordance with Section 12, “TEMPORARY TRAFFIC CONTROL,” of these special provisions.

7-1.04B(4)PUBLIC INFORMATION

Provide notice to notice to public agencies and others to the extent required, if any, elsewhere in these special provisions. The Engineer provides other noticing not identified to be performed by the Contractor.

Replace the headings and paragraphs of Section 7-1.06 with:

7-1.06 INSURANCE

7-1.06A General

Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.06B Casualty Insurance

Obtain and maintain insurance on all of your operations with companies acceptable to the Department as follows:

1. Keep all insurance in full force and effect from the start of the work through Contract acceptance.
2. All insurance must be with an insurance company with a rating from A.M. Best Financial Strength Rating of A or better and a Financial Size Category of VIII or better.
3. Maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Civ Pro Code § 337.1.

7-1.06C Workers' Compensation and Employer's Liability Insurance

Under Labor Code § 1860, secure the payment of worker's compensation under Labor Code § 3700.

Submit to the Department the following certification before performing the work (Labor Code § 1861):

> I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

Contract signing constitutes certification submittal.

Provide Employer's Liability Insurance in amounts not less than:

1. $1,000,000 for each accident for bodily injury by accident
2. $1,000,000 policy limit for bodily injury by disease
3. $1,000,000 for each employee for bodily injury by disease

If there is an exposure of injury to your employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage must be included for such injuries or claims.

7-1.06D Liability Insurance

7-1.06D(1) General

Carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of you providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

7-1.06D(2) Liability Limits/Additional Insureds

Refer to the *Agreement* of these special provisions

Additional insured coverage must be provided by a policy provision or by an endorsement providing coverage at least as broad as *Additional Insured* (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

7-1.06D(3) Contractor's Insurance Policy is Primary

The policy must stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and must not be called upon to contribute with this insurance.

7-1.06E Automobile Liability Insurance

Comply with requirements in the *Agreement* of these special provisions

7-1.06F Policy Forms, Endorsements, and Certificates

Provide your General Liability Insurance under Commercial General Liability policy form no. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form no. CG0001.

7-1.06G NOT USED

7-1.06H Enforcement

The Department may assure your compliance with your insurance obligations. Ten days before an insurance policy lapses or is canceled during the Contract period you must submit to the Department evidence of renewal or replacement of the policy.

If you fail to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to you or terminate your control of the work.

You are not relieved of your duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.

Minimum insurance coverage amounts do not relieve you for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this Contract.

7-1.06l Self-Insurance

Comply with the *Agreement* of these special provisions

Replace the headings and paragraphs of Section 7-1.07 with:

7-1.07 LEGAL ACTIONS AGAINST THE DEPARTMENT

7-1.07A General

If legal action is brought against the Department over compliance with a State or federal law, rule, or regulation applicable to highway work, then:

1. If the Department in complying with a court order prohibits you from performing work, the resulting delay is a suspension related to your performance, unless the Department terminates the Contract.
2. If a court order other than an order to show cause or the final judgment in the action prohibits the Department from requiring you to perform work, the Department may delete the prohibited work or terminate the Contract.

7-1.07B Seal Coat Claims

This section applies to seal coat projects. Pay for claims for personal property damage caused by screening and bituminous binder. Seal coat claims are limited to:

1. 10 percent of the total bid
2. Damage occurring between the 1st day of screening spreading and 4 days after the last day of screening spreading for each seal coat location

Within 30 days of the last screening spreading, do the following:

1. Process and resolve all claims reported or submitted to you by the public as follows:
   1.1. Within 3 business days of receipt of a claim, submit to the Department a copy of the claim, a written analysis of the claim, and a statement indicating whether or not you will pay the claim. If you reject a claim, provide the reasons for rejection in writing.
   1.2. If the claimant becomes dissatisfied with your handling of the claim, immediately refer the claimant to the local district claims office for assistance in resolving the claim.
2. Submit to the Department evidence of your paid claims.

All claims presented to the Department, any district claims office, or the State Board of Control (Govt Code § 900 et seq.) are processed and resolved by the Department as follows:

1. The claims are processed as formal government claims subject to all laws and policies and are resolved as the Department determines including referring the claim to you for handling.
2. If the Department or the State Board of Control approves settlement of a claim or is ordered to pay pursuant to a court order, the claim is paid from funds withheld from you.
3. Within 3 business days of the Department's determination that you are responsible for resolving the claim, the Department sends a copy of the claim to you for resolution or notifies you of the Department's decision to resolve the claim.

The Department withholds an amount not to exceed 5 percent of the total bid to resolve all claims. The amount is held no longer than 60 days following the last spreading of screenings so that the Department has ample time to resolve any pending claims. After 60 days, any remaining amount withheld is returned to you.

If no withheld funds remain or have been returned, the Department may pay any claims and seek reimbursement from you through an offset or any other legal means. Any reimbursement or offset to be recovered from you, including all other paid claims, is limited to 10 percent of the total bid.

Section 7-1.07B does not limit your obligation to defend and indemnify the Department.

7-1.07C Claims

This section applies to non-seal coat projects which involve asphalt concrete paving. Pay for claims for personal property damage caused by your work. Claims are limited to:

1. 10 percent of the total bid

Within 30 days of the last working day placement of hot mix asphalt, do the following:

1. Process and resolve all claims reported or submitted to you by the public as follows:
   1.1. Within 3 business days of receipt of a claim, submit to the Department a copy of the claim, a written analysis of the claim, and a statement indicating whether or not you will pay the claim. If you reject a claim, provide the reasons for rejection in writing.
   1.2. If the claimant becomes dissatisfied with your handling of the claim, immediately refer the claimant to the local district claims office for assistance in resolving the claim.
2. Submit to the Department evidence of your paid claims.

All claims presented to the Department, (Govt Code § 900 et seq.) are processed and resolved by the Department as follows:

1. The claims are processed as formal government claims subject to all laws and policies and are resolved as the Department determines including referring the claim to you for handling.
2. If the Department approves settlement of a claim or is ordered to pay pursuant to a court order, the claim is paid from funds withheld from you.
3. Within 3 business days of the Department's determination that you are responsible for resolving the claim, the Department sends a copy of the claim to you for resolution or notifies you of the Department's decision to resolve the claim.

The Department withholds an amount not to exceed 5 percent of the total bid to resolve all claims. The amount is held no longer than 60 days following the last working day so that the Department has ample time to resolve any pending claims. After 60 days, any remaining amount withheld is returned to you.

If no withheld funds remain or have been returned, the Department may pay any claims and seek reimbursement from you through an offset or any other legal means. Any reimbursement or offset to be recovered from you, including all other paid claims, is limited to 10 percent of the total bid.

Section 7-1.07C does not limit your obligation to defend and indemnify the Department.

Add between the 1st and 2nd paragraphs of section 7-1.11A:

Comply with 46 CFR 381.7(a)–(b).

8 PROSECUTION AND PROGRESS

Replace the headings and paragraphs in Section 8 with:

8-1.01 GENERAL

Section 8 includes specifications related to prosecuting the Contract and work progress.

8-1.01A Work Hours

Perform all work on working days during daytime except drilling operations that may proceed 24 hrs a day. .

You may request approval to work on a holiday or on a non-working day. If, pursuant to such request, the Engineer authorizes you to work on a holiday or on a non-working day, you pay the actual cost incurred by the Department to perform all inspection, surveying, testing, and all other project-related work by the Department on such holiday or non-working day. Such payment will be deducted from monies due or which may become due to the Contractor.

Plan work so that all construction operations performed each day, including cleanup of the project site, establishment of appropriate traffic control and any other work necessary for the safety of the public shall be completed within the daytime hours.

Do not perform work during nighttime unless approved by the Engineer, except drilling operations that may proceed 24 hrs a day.

For work other than drilling operations, request approval to work during nighttime in writing and include the appropriate traffic control plan(s) and work plan(s) which clearly identify all provisions for illuminating all portions of the work site, including any flagging operations.

For work other that drilling operations, if you fail to complete work during the daytime hours, the Engineer may stop all work upon the onset of nighttime and order you to perform any and all work the Engineer deems necessary to ensure the safety of the public during the nighttime hours.

You are not entitled to any additional compensation or extension of the contract time as a result of the Engineer stopping the work due to the onset of nighttime.

8-1.02 SCHEDULE

8-1.02A General

Upon completion of all work, the Department returns the withholds associated with section 8-1.02 and makes a payment adjustment for work not performed in the same manner as work-character changes.

8-1.02B Level 1 Critical Path Method Schedule

8-1.02B(1) General

No pay item is provided for Level 1 Critical Path Project Schedule. Payment is considered to be included in the various items of work.

Before or at the preconstruction conference, submit a CPM baseline schedule.

For each schedule, submit:

1. Plotted original, time-scaled network diagram on a sheet at least 8-1/2 by 11 inches with a title block and timeline
2. Read-only compact disc or other Engineer-authorized data-storage device containing the schedule data if software is used to make the schedule. Label the device with:
   2.1. Contract number
   2.2. CPM schedule number and date produced
   2.3. File name

8-1.02B(2) Schedule Format

On each schedule, show:

1. Planned and actual start and completion dates of each work activity, including applicable:
   1.1. Submittal development
   1.2. Submittal review and acceptance
   1.3. Material procurement
   1.4. Contract milestones and constraints
   1.5. Equipment and plant setup
   1.6. Interfaces with outside entities
   1.7. Erection and removal of falsework and shoring
   1.8. Test periods
   1.9. Major traffic stage change
   1.10. Final cleanup
2. Order that you propose to prosecute the work
3. Logical links between the time-scaled work activities
4. All controlling activities
5. Legible description of each activity
6. At least 1 predecessor and 1 successor to each activity except for project start and project end milestones
7. Duration of at least 1 working day for each activity
8. Start milestone date as the Contract approval date

8-1.02B(3) Updated Schedule

Submit a monthly updated schedule that includes the status of work completed to date and the work yet to be performed as planned.

You may include changes to updated schedules that do not alter a critical path or extend the scheduled completion date compared to the current schedule. Changes may include:

1. Adding or deleting activities
2. Changing activity constraints
3. Changing durations
4. Changing logic

If any proposed change in planned work would alter the critical path or extend the scheduled completion date, submit a revised schedule within 15 days of the proposed change.

8-1.02C–8-1.02F Reserved

8-1.03 PRECONSTRUCTION CONFERENCE

Attend a preconstruction conference with key personnel, including your assigned representative, at a time and location determined by the Engineer. Submit documents as required before the preconstruction conference.

Be prepared to discuss the topics and documents shown in the following table:

Topic	Document
Potential claim and dispute resolution	Potential claim forms
Contractor's representation	Assignment of Contractor's representative
Equipment	Equipment list
Labor compliance and equal employment opportunity	Job site posters and benefit and payroll reports
Material inspection	Notice of Materials to be Used form
Materials on hand	Request for Payment for Materials on Hand form
Measurements	--
Partnering	--
Quality control	QC plans
Safety	Injury and Illness Prevention Program and job site posters
Schedule	Baseline schedule and Weekly Statement of Working Days form
Subcontracting	Subcontracting Request form
Surveying	Survey Request form
Traffic control	Traffic contingency plan and traffic control plans
Utility work	--
Weight limitations	--
Water pollution control	SWPPP or WPCP
Work restrictions	PLACs
Action submittals	--

8-1.04 START OF JOB SITE ACTIVITIES

8-1.04A General

Provide signed contracts, bonds, and evidence of insurance timely as required.

This section, 8-1.04, “Start of Job Activities,” does not modify remedies available to the Department should you fail to provide signed contracts bonds and insurance timely.

Submit a notice 72 hours before starting job site activities. If the project has more than 1 location of work, submit a separate notice for each location.

You may start job site activities before receiving notice of Contract approval if you:

1. Deliver the signed Contract, bonds, and evidence of insurance to the Department
2. Submit 72-hour notice
3. Obtain an encroachment permit from the Department
4. Are authorized by the Department to start

5. Perform work at your own risk
6. Perform work under the Contract

If the Contract is approved, work already performed that complies with the Contract is authorized.

If the Contract is not approved, leave the job site in a neat condition. If a facility has been changed, restore it to its former condition or an equivalent condition. The Department does not pay for the restoration.

8-1.04B Standard Start

Be prepared to begin work at the project site no later than the 20th business day after award of the Contract by the Department.

The Engineer may issue a notice to proceed as soon as the Contracts, including bonds and insurance certificates, have been approved.

Start work on the day shown in the notice to proceed, unless an early start has been approved.

The Engineer may issue a notice of commencement of contract time if you fail to provide Contracts, including bonds and insurance certificates or other required documents timely.

A notice of commencement of contract time does not authorize you to start work on the project site, but contract time begins to elapse on the date shown in the notice of commencement of contract time.

Complete work before the expiration of

SIXTY (100) WORKING DAYS

from the date shown in said Notice to Proceed, or in the Notice of Commencement of Contract Time, whichever comes first.

Complete all work, including corrective work and punch list work, prior to the expiration of the allotted working days. Working days continue to accrue until corrective work and punch list work is completed and accepted.

Pay to the County of Fresno the sum of

TWO THOUSAND FIVE HUNDRED DOLLARS ($2,500.00)

per day for each and every calendar day's delay in finishing the work, including corrective work and punch list work, in excess of the total number of working days prescribed above.

8-1.04C Long Lead Time Equipment Start

Reserved

8-1.05 TIME

Contract time starts on the day specified in the notice to proceed or in the notice of commencement of contract time as described in section 8-1.04 or on the day you start job site activities, whichever occurs first.

Complete the work within the Contract time.

Meet each specified interim work completion date.

The Engineer issues a *Weekly Statement of Working Days* by the end of the following week.

The *Weekly Statement of Working Days* shows:

1. Working days and non–working days during the reporting week
2. Time adjustments
3. Work completion date computations, including working days remaining
4. Controlling activities

8-1.06 SUSPENSIONS

The Engineer may suspend work wholly or in part due to conditions unsuitable for work progress. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified in sections 7-1.03 and 7-1.04. Providing the passageway is force account work. The Department makes a time adjustment for the suspension due to a critical delay.

The Engineer may suspend work wholly or in part due to your failure to (1) fulfill the Engineer's orders, (2) fulfill a Contract part, or (3) perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur. The Department may provide for a smooth and unobstructed passageway through the work during the suspension and deduct the cost from payments. The Department does not make a time adjustment for the suspension.

Upon the Engineer's order of suspension, suspend work immediately. Resume work when ordered.

8-1.07 DELAYS

8-1.07A General

To request a delay-related time or payment adjustment, submit an RFI.

8-1.07B Time Adjustments

The Department may make a time adjustment for a critical delay. The Engineer uses information from the schedule to evaluate requests for time adjustments.

To request an adjustment, submit a revised schedule showing the delay's effect on the controlling activity. If the delay has:

1. Occurred, submit records of the dates and what work was performed during the delayed activity
2. Not occurred, submit the expected dates or duration of the delayed activity

Update the schedule to the last working day before the start of the delay if ordered.

8-1.07C Payment Adjustments

The Department may make a payment adjustment for an excusable delay that affects your costs.

Only losses for idle equipment, idle workers, and moving or transporting equipment are eligible for delay-related payment adjustments.

The Engineer determines payment for idle time of equipment in the same manner as determinations are made for equipment used in the performance of force account work under section 9-1.04 with the following exceptions:

1. Delay factor in the *Labor Surcharge and Equipment Rental Rates* applies to each equipment rental rate.
2. Daily number of payable hours equals the normal working hours during the delay, not to exceed 8 hours per day.
3. Delay days exclude non–working days.
4. Markups are not added.

The Engineer determines payment adjustment for the idle workers under section 9-1.04B, but does not add markups.

The Engineer includes costs due to necessary extra moving or transporting of equipment.

The Department does not make a payment adjustment for overhead incurred during non–working days of additional construction seasons experienced because of delay.

8-1.08–8-1.09 RESERVED

8-1.10 LIQUIDATED DAMAGES

8-1.10A General

The Department specifies liquidated damages (Pub Cont Code § 10226). Liquidated damages, if any, accrue starting on the 1st day after the expiration of the working days through the day of Contract acceptance except as specified in sections 8-1.10B and 8-1.10C.

The Department withholds liquidated damages before the accrual date if the anticipated liquidated damages may exceed the value of the remaining work.

Liquidated damages are specified in section 8-1.04.

8-1.10B Failure to Complete Work Parts within Specified Times

The Department may deduct specified damages from payments for each day needed to complete a work part in excess of the time specified for completing the work part.

Damages for untimely completion of work parts may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely completion of work parts and for the whole work.

Damages accrue starting the 1st day after a work part exceeds the specified time through the day the specified work part is complete.

8-1.10C Failure to Complete Work Parts by Specified Dates

The Department may deduct specified damages from payments for each day needed to complete a work part in excess of the specified completion date for the work part.

Damages for untimely completion of a work part may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely completion of a work part and the whole work.

Damages accrue starting the 1st day after an unmet completion date through the day the work part is complete.

8-1.10D RESERVED

8-1.11–8-1.12 RESERVED

8-1.13 CONTRACTOR'S CONTROL TERMINATION

The Department may terminate your control of the work for failure to do any of the following (Pub Cont Code § 10253):

1. Supply an adequate workforce
2. Supply material as described
3. Pay subcontractors (Pub Cont Code §10262)
4. Prosecute the work as described in the Contract

The Department may also terminate your control for failure to maintain insurance coverage.

For a federal-aid project, the Department may terminate your control of the work for failure to include "Required Contract Provisions, Federal-Aid Construction Contracts" in subcontracts.

The Department gives notice to you and your surety at least 5 business days before terminating control. The notice describes the failures and the time allowed to remedy the failures. If failures are not remedied within the time provided, the Department takes control of the work.

The Department may complete the work if the Department terminates the Contractor's control or you abandon the project (Pub Cont Code § 10255). The Department determines the unpaid balance under Pub Cont Code § 10258 and the Contract.

At any time before final payment of all claims, the Department may convert a Contractor's control termination to a Contract termination.

8-1.14 CONTRACT TERMINATION

8-1.14A General

The Director may terminate the Contract if it serves the State's best interest. The Department issues you a written notice, implements the termination, and pays you.

8-1.14B Relief from Responsibility for Work

Upon receiving a termination notice:

1. Stop work
2. Notify subcontractors and suppliers of the Contract termination and stop Contract-related work
3. Perform the Engineer-ordered work to secure the job site for termination
4. Remove equipment
5. Subject to the Engineer's authorization, settle termination-related claims and liabilities involving subcontractors and suppliers; assign to the Department the rights, titles, or interests held by you with respect to these parties

8-1.14C Responsibility for Materials

Upon receiving a termination notice, protect unused material until:

1. You submit an inventory of materials already produced, purchased, or ordered but not yet used; include the location of the material.
2. The Engineer identifies materials that will be retained by the Department. Submit bills of sales or other records of material title.
3. The Engineer confirms that unused materials paid by progress payment and materials furnished by the State have been delivered and stored as ordered.
4. The titles are transferred for materials purchased by the Department.

Dispose of materials that will not be retained by the Department.

8-1.14D Contract Acceptance after Termination

The Engineer recommends Contract acceptance after determining the completion of:

1. Work ordered to be completed before termination
2. Other work ordered to secure the project before termination
3. Material delivery and title transfer

The Department pays you under section 9-1.17.

8-1.14E Payment Adjustment for Termination

If the Department issues a termination notice, the Engineer determines the payment for termination based on the following:

1. Direct cost for the work:
    1.1. Including:
        1.1.1. Mobilization.
        1.1.2. Demobilization.
        1.1.3. Securing the job site for termination.
        1.1.4. Losses from the sale of materials.
    1.2. Not including:
        1.2.1. Cost of materials you keep.
        1.2.2. Profit realized from the sale of materials.
        1.2.3. Cost of material damaged by:
            1.2.3.1. Act of God.
            1.2.3.2. Act of a public enemy.
            1.2.3.3. Fire.
            1.2.3.4. Flood.
            1.2.3.5. Governor-declared state of emergency.
            1.2.3.6. Landslide.
            1.2.3.7. Tsunami.
        1.2.4. Other credits.
2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work. Prove a likelihood of having made a profit had the Contract not been terminated.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.

Termination of the Contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

8-1.15–8-1.16 RESERVED

9 PAYMENT

Add the following Section 9-1.01A

9-1.01A COMPENSATION

The bid items shown in the bid proposal sheet represent full compensation for performing all work. Full compensation for any work for which there is no bid item shall be considered to be included in the various items of work.

Replace the headings and paragraphs of Section 9-1.03 with:

9-1.03 PAYMENT SCOPE

The Department pays you for furnishing the resources and activities required to complete the work. The Department's payment is full compensation for furnishing the resources and activities, including:

1. Risk, loss, damage repair, or cost of whatever character arising from or relating to the work and performance of the work
2. PLACs and taxes
3. Any royalties and costs arising from patents, trademarks, and copyrights involved in the work

The Department does not pay for your loss, damage, repair, or extra costs of whatever character arising from or relating to the work that is a direct or indirect result of your choice of construction methods, materials, equipment, or manpower, unless specifically mandated by the Contract.

Payment is:

1. Full compensation for all work involved in each bid item shown on the Bid Item List by the unit of measure shown for that bid item
2. For the price bid for each bid item shown on the Bid Item List or as changed by change order with a specified price adjustment

Full compensation for work specified in divisions I, II, and X is included in the payment for the bid items unless:

1. Bid item for the work is shown on the Bid Item List
2. Work is specified as change order work

Work paid for under one bid item is not paid for under any other bid item.

Payment for a bid item includes payment for work in sections referenced by the section set forth by that bid item.

Notwithstanding anything to the contrary in these special provisions, full compensation for performing all work as shown, as specified, and as directed by the Engineer is considered to be included in the various bid items, and no additional payment will be made, except pursuant to a contract change order to perform work not shown and/or specified.

If one or more bid item(s) is/are not included, perform the work as shown and as specified and payment therefor is considered to be included in the various items of work.

If an alternative is described in the Contract, the Department pays based on the bid items for the details and specifications not described as an alternative unless the bid item is described as an alternative, in which case, the Department pays based on the details and specifications for that alternative.

The Department pays for change order work based on one or a combination of the following:

1. Bid item prices
2. Force account

3. Agreed price
4. Specialist billing

If the Engineer chooses to pay for change order work based on an agreed price, but you and the Engineer cannot agree on the price, the Department pays by force account.

If a portion of extra work is covered by bid items, the Department pays for this work as changed quantities in those items. The Department pays for the remaining portion of the extra work by force account or agreed price.

If the amount of a deduction or withhold exceeds final payment, the Department invoices you for the difference, to be paid upon receipt.

Pay your subcontractors within 10 days of receipt of each progress payment under Pub Cont Code §§ 10262 and 10262.5.

Replace the headings and paragraphs of section 9-1.07 with:

9-1.07 PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS DOES NOT APPLY TO THIS PROJECT

Replace Section 9-1.16F with:

9-1.16F Retentions

The Department, once in each month, shall cause an estimate in writing to be made by the Engineer. The estimate shall include the total amount of work done and acceptable materials furnished, provided the acceptable materials are listed as eligible for partial payment as materials in the special provisions and are furnished and delivered by the Contractor on the ground and not used or are furnished and stored for use on the contract, if the storage is within the State of California and the Contractor furnishes evidence satisfactory to the Engineer that the materials are stored subject to or under the control of the Department, to the time of the estimate, and the value thereof. The estimate shall also include any amounts payable for mobilization. Daily extra work reports furnished by the Contractor less than 5 calendar days, not including Saturdays, Sundays and legal holidays, before the preparation of the monthly progress estimate shall not be eligible for payment until the following month's estimate.

The amount of any material to be considered in making an estimate will in no case exceed the amount thereof which has been reported by the Contractor to the Engineer on State-furnished forms properly filled out and executed, including accompanying documentation as therein required, less the amount of the material incorporated in the work to the time of the estimate. Only materials to be incorporated in the work will be considered. The estimated value of the material established by the Engineer will in no case exceed the contract price for the item of work for which the material is furnished.

The Department shall retain 5 percent of the estimated value of the work done and 5 percent of the value of materials so estimated to have been furnished and delivered and unused or furnished and stored as aforesaid as part security for the fulfillment of the contract by the Contractor.

The Department shall pay monthly to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the contract. No monthly estimate or payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the contract.

No monthly estimate or payment shall be construed to be an acceptance of any defective work or improper materials.

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in Business and Professions Code Sections 7028.15(a) and 7031.

No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.

Add the following Section 9-1.23:

9-1.23 RESOLUTION OF CONTRACT CLAIMS

Public works contract claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a Contractor and a local public agency shall be resolved in accordance with the provisions of California Public Contract Code Sections 20104-20104.6, inclusive. In addition, California Public Contract Code Section 9204 requires that the procedure established therein shall apply to all claims (as therein defined) filed by a contractor in connection with a public works project. Accordingly, this contract expressly incorporates all of the terms and conditions of those statutory provisions, which are as follows:

California Public Contract Code Section 9204

(a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

(1) "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

(A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.

(B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.

(C) Payment of an amount that is disputed by the public entity.

(2) "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

(3)(A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

(B) "Public entity" shall not include the following:

(i) The Department of Water Resources as to any project under the jurisdiction of that department.

(ii) The Department of Transportation as to any project under the jurisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.

(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.

(v) The Military Department as to any project under the jurisdiction of that department.

(vi) The Department of General Services as to all other projects.
(vii) The High-Speed Rail Authority.

(4) “Public works project” means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) “Subcontractor” means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity’s written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(e) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(f) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(g) This section applies to contracts entered into on or after January 1, 2017.

(h) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(i) This section shall remain in effect only until January 1, 2020, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

California Public Contract Code Sections 20104 – 20104.6

Section 20104

(a)(1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b)(1) "Public work" means "public works contract" as defined in Section 1101 but does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

Section 20104.2

For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

Section 20104.4

The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (**1)** If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be

paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

Section 20104.6

(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the contract.

(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Protect any irrigation component to be relocated before performing any other construction activity in the area.

12 TEMPORARY TRAFFIC CONTROL

Replace section 12-1.04 with:

12-1.04 FLAGGING COSTS

You pay the cost of furnishing all flaggers, including transporting flaggers and furnishing stands and towers for flaggers to provide for the passage of traffic through the work as specified in sections 7-1.03 and 7-1.04.

Replace Section 12-3.01C With:

12-3.01C Construction

If channelizing devices are used on the project, perform all layout work necessary to place channelizing devices:

1. On the proper alignment
2. Uniformly at the location and spacing described
3. Straight on a tangent alignment
4. On a true arc in a curved alignment

If temporary traffic control devices are damaged, displaced, or stop operating or functioning as described from any cause during the progress of the work, immediately repair, repaint, or replace the components and restore them to their original locations and positions.

If ordered, furnish and place additional temporary traffic control devices. This work is not change order work if:

1. Required to conform with your traffic control plan
2. Required to conform with the MUTCD
3. Necessary for public safety or convenience as determined by the Engineer
4. Required to perform staged construction shown on the plans

Replace Section 12-3.03C With:

12-3.03C Construction

If plastic traffic drums are used on project, use 1 type of plastic traffic drum on the project.

Use the same type and brand of retroreflective sheeting for all plastic traffic drums used on the project.

Do not use sandbags or comparable ballast.

Moving plastic traffic drums from location to location if ordered after initial placement is not change order work if:

1. Required to conform with your traffic control plan
2. Required to conform with the MUTCD
3. Necessary for public safety or convenience as determined by the Engineer
4. Required to perform staged construction shown on the plans

Replace Section 12-3.10C With:

12-3.10C Construction

If barricades are used on the project, place each barricade such that the stripes slope downward in the direction road users are to pass.

Place each sand-filled bag near the ground level on the lower parts of the frame or stays to serve as ballast for the barricades. Do not place ballast on top of barricades or over any retroreflective barricade rail face that is facing traffic.

Do not remove barricades that are shown to be left in place at the time of work completion.

Moving a barricade from location to location is change order work if ordered after initial placement of the barricade unless.

1. Required to conform with your traffic control plan
2. Required to conform with the MUTCD
3. Necessary for public safety or convenience as determined by the Engineer
4. Required to perform staged construction shown on the plans

Replace Section 12-3.20C(1) With:

12-3.20C1 General

If type K temporary rail is used on the project, before placing Type K temporary railing on the job site, paint the exposed surfaces of the railing with white paint complying with the specifications for acrylic emulsion paint for exterior masonry.

Place Type K temporary railing on a firm, stable foundation. Grade the foundation to provide a uniform bearing surface throughout the entire length of the railing.

Structure excavation and backfill must comply with section 19-3 except compaction of earth fill placed behind Type K temporary railing in a curved layout is not required.

Place and maintain the abutting ends of PC concrete units in alignment without substantial offset from each other.

The drilling of holes and bonding of threaded rods or dowels must comply with the specifications for drilling and bonding dowels in section 51-1.

Install a reflector on the top or face of the rail of each rail unit placed within 10 feet of a traffic lane. Apply adhesive for mounting the reflector under the reflector manufacturer's instructions.

Install a Type P marker panel at each end of railing placed adjacent to a 2-lane, two-way highway and at the end facing traffic for railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, install the marker at the end of the skew nearest the traveled way. Type P marker panels must comply with section 82 except you must furnish the marker panels.

After removing Type K temporary railing:

1. Restore the area to its previous condition or construct it to its planned condition if temporary excavation or embankment was used to accommodate the railing.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the surface of the concrete. Fill the resulting holes with mortar under section 51-1 except cure the mortar by the water method or by the curing compound method using curing compound no. 6.

If the Engineer orders a lateral move of Type K temporary railing and repositioning is not shown, the lateral move is change order work unless:

1. Required to conform with your traffic control plan
2. Required to conform with the MUTCD
3. Necessary for public safety or convenience as determined by the Engineer
4. Required to perform staged construction shown on the plans

Replace Section 12-3.22C With:

12-3.22C Construction

If crash cushion modules are used on the project, use the same type of crash cushion module for a single grouping or array.

Temporary crash cushion arrays must not encroach on the traveled way.

Secure the sand-filled modules in place before starting an activity requiring a temporary crash cushion.

Maintain sand-filled temporary crash cushions in place at each location, including times when work is not actively in progress. You may remove the crash cushions during the work shift for access to the work if the exposed fixed obstacle is 15 feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the work shift.

Immediately repair sand-filled temporary crash cushion modules damaged due to your activities. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order work.

You may place sand-filled temporary crash cushion modules on movable pallets or frames complying with the dimensions shown. The pallets or frames must provide a full-bearing base beneath the modules. Do not move the modules and supporting pallets or frames by sliding or skidding along the pavement or bridge deck.

Attach a Type R or Type P marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. Attach the Type R marker panel such that the top of the panel is 1 inch below the module lid. Attach the Type P marker panel such that the bottom of the panel rests upon the pallet or roadway surface if pallets are not used.

A lateral move of a temporary crash cushion module is change order work if ordered and the repositioning is not shown, unless required for staged construction.

Remove sand-filled temporary crash cushion modules, including sand, pallets or frames, and marker panels, at Contract acceptance. Do not install sand-filled temporary crash cushion modules in the permanent work.

Replace section 12-3.31C with:

12-3.31C Construction

If portable flashing beacons are used on the project, remove portable flashing beacons from the traveled way at the end of each night's work. You may store the flashing beacon at selected central locations within the highway where designated by the Engineer.

Moving portable flashing beacons from location to location if ordered after initial placement is change order work unless:

1. Required to conform with your traffic control plan
2. Required to conform with the MUTCD
3. Necessary for public safety or convenience as determined by the Engineer
4. Required to perform staged construction shown on the plans

Replace Section 12-3.35B(6) with:

12-3.35B(6) User Interface

If the project includes an AWIS, the system must have a user interface to control the AWIS PCMS communications. The interface must be (1) software compatible with a Windows environment or (2) a web service accessed by a web browser.

Provide any software on a CD or other Engineer-authorized data-storage device.

The user interface must, at a minimum, provide the user with a list of AWIS PCMSs in the field, location information for each AWIS PCMS, and a real-time on-board display of the message in the field. Control options must, at a minimum, provide the user the ability to change the on-board messages and flash rate.

Replace the headings and paragraphs of Section 12-4 with:

12-4 MAINTAINING TRAFFIC

12-4.01 GENERAL

12-4.01A General

Section 12-4.01 includes general specifications for maintaining traffic through construction work zones.

If local authorities regulate traffic, notify them at least 5 business days before the start of job site activities. Cooperate with the local authorities to handle traffic through the work zone and to make arrangements to keep the work zone clear of parked vehicles.

12-4.01B Materials

Not Used

12-4.01C CONSTRUCTION

Furnishing and operating pilot cars is not change order work.

12-4.01D Payment

Not Used

12-4.02 TRAFFIC CONTROL SYSTEMS

12-4.02A General

12-4.02A(1) Summary

Section 12-4.02 includes specifications for providing a traffic control system to close traffic lanes, shoulders, and roadways.

A traffic control system for a closure includes the temporary traffic control devices described as part of the traffic control system. Temporary traffic control devices must comply with section 12-3.

12-4.02A(2) Definitions

designated holidays: Designated holidays are shown as “holidays” in Section 1-1.07B.

12-4.02A(3) Submittals

12-4.02A(3)(a) General

The Contractor shall prepare and submit to the County Construction Engineer for approval, a traffic control system plan indicating the means and methods he will employ to institute and maintain traffic control for all phases of the work within the project. The traffic control system plan shall be submitted to the County Construction Engineer as early as possible, preferably **five (5) working days** prior to pre-construction meeting. The Engineer will require five (5) working days to review the initial submittal of the traffic control system plan and an additional five (5) working days for each successive review.

No work at the project site whatsoever, including preparatory work such as the installation of construction project funding signs, shall commence until the traffic control system plan has been approved in writing by the Engineer. In the event that the traffic control system plan is not submitted timely, the Engineer may issue a notice of commencement of contract time prior to approval of the traffic control system plan, and working days will begin to accrue against the allotted contract time.

Late submittal of the traffic control plan or revisions thereafter required, due to the inadequacy of the plan, shall not be accepted as justification for the delay in the start of the working days for the project.

It shall be the Contractor's responsibility to provide, install, maintain, and remove any and all detour signage and traffic control devices and to obtain all permits, including permits from Caltrans, as may be necessary to establish detours as part of the contractor's traffic control plan.

Traffic will not be allowed to be limited to one direction when construction activities are not actively in progress. Providing, installing, maintaining, and removing all traffic control, including portable changeable message signs if required, obtaining and complying with all permits, and providing all traffic control operations shall be the responsibility of the contractor, and no additional compensation will be allowed therefor.

12-4.02A(3)(b) Closure Schedules

One-way traffic shall be controlled through the project in accordance with the California Manual MUTCD and Caltrans Standard Plans T-11 and T-13 entitled "Traffic Control System for Lane Closure on Multilane Conventional Highways" and "Traffic Control System for Lane Closure on Two Lane Conventional Highways," and these special provisions. Night closure will not be permitted.

When traffic is under one way control on unpaved areas, the cones shown along the centerline on the plan need not be placed.

Every Monday by noon, submit a closure schedule request for planned closures for the next week.

The next week is defined as Sunday at noon through the following Sunday at noon.

Submit a closure schedule request 5 days before the anticipated start of any job site activity that reduces:

1. Horizontal clearances of traveled ways, including shoulders, to 2 lanes or fewer due to activities such as temporary barrier placement and paving
2. Vertical clearances of traveled ways, including shoulders, due to activities such as pavement overlays, overhead sign installation, or falsework girder erection

Submit closure schedule changes, including additional closures, by noon at least 3 business days before a planned closure.

Cancel closure requests at least 48 hours before the start time of the closure.

The Department notifies you of unauthorized closures or closures that require coordination with other parties as a condition for authorization.

12-4.02A(3)(c) Contingency Plans for Closures

Submit a contingency plan for an activity that could affect a closure if a contingency plan is specified in the special provisions or if a contingency plan is requested.

If a contingency plan is requested, submit the contingency plan within 1 business day of the request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate equipment, materials, or workers are not on the job site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.
2. General time-scaled logic diagram displaying the major activities and sequence of the planned activities. For each activity, identify the critical event that will activate the contingency plan.

Submit revisions to a contingency plan at least 3 business days before starting the activity requiring the contingency plan. Allow 2 business days for review.

12-4.02A(4) Quality Assurance

Reserved

12-4.02B Materials

Not Used

12-4.02C Construction

12-4.02C(1) General

Traffic will be controlled by flagmen by eyesight, radio (walkie talkie) or baton. In the event these methods do not work satisfactorily, as determined by the Engineer, a pilot car will be required.

The Engineer may require a pilot car to be used during earthwork operations in preparation of the grading plane or other operations when the Contractor's operations cover an area beyond the line of sight, or beyond the range of radios or when the baton method does not function satisfactorily.

Full compensation for furnishing and operating the pilot car, (including driver, radios, and any other equipment and labor required) shall be considered as included in the contract lump sum price paid for traffic control system and no further payment will be made therefor.

Work that interferes with traffic is limited to the hours when closures are allowed.

12-4.02C(3) Closure Requirements and Charts

12-4.02C(3)(a) General

Where 2 or more lanes in the same direction, including the shoulders, are adjacent to the area where the work is being performed, close the adjacent lane under any of the following conditions:

1. Work is off the traveled way but within 6 feet of the edge of the traveled way, and the approach speed is greater than 45 mph
2. Work is off the traveled way but within 3 feet of the edge of the traveled way, and the approach speed is less than 45 mph

Closure of the adjacent traffic lane is not required during any of the following activities:

1. Work behind a barrier
2. Paving, grinding, or grooving
3. Installation, maintenance, or removal of traffic control devices except for temporary railing

12-4.02C(3)(b) - 12-4.02C(3)(n)

Reserved

12-4.02C(3)(o) Closure of Conventional County Roads

The type and location of signs, lights, flags, flagmen, and other traffic control and safety devices shall be in accordance with the current edition of the California Manual on Uniform Traffic Control Devices (MUTCD) issued by the State of California, Department of Transportation (Caltrans).

Public traffic shall be permitted to pass through construction at all times unless otherwise specified herein.

Provide access to properties abutting the project site at all times.

When directed by the Engineer, traffic shall be routed through the work under one-way control.

Under one-way reversing traffic control operations, public traffic may be stopped in one direction for periods not to exceed 10 minutes.

Lane closure is defined as the closure of a traffic lane or lanes within a single traffic control system.

No work that would require a lane closure shall be performed.

The full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.

The Contractor's attention is directed to private driveways and access roads. The driveways and access roads shall remain accessible at all times.

The Contractor's attention is directed to the access roads adjacent to the project site. Vehicular access to the channel bank access roads shall be maintained at all times.

12-4.02C(3)(o)–12-4.02C(3)(s) Reserved

12-4.02C(4)–12.4.02C(6) Reserved

12-4.02C(7) Traffic Control System Requirements

12-4.02C(7)(a) General

Control traffic using stationary closures.

If components of the traffic control system are displaced or cease to operate or function as specified, immediately repair them to their original condition or replace them and place them back in their original locations.

Vehicles equipped with attenuators must comply with section 12-3.23.

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must have a Type II flashing arrow sign that must operate whenever the vehicle is used for placing, maintaining, or removing thed components. For a stationary closure, vehicles with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components must display only the caution display mode. If a flashing arrow sign is required for a closure, activate the sign before the closure is in place.

12-4.02C(7)(b) Stationary Closures

Except for channelizing devices placed along open trenches or excavations adjacent to the traveled way, remove the components of the traffic control system for a stationary closure from the traveled way and shoulders at the end of each work period. You may store the components at authorized locations within the limits of the highway.

If a traffic lane is closed with channelizing devices for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices as shown for the lane closure.

12-4.02C(7)(c) Moving Closures

For a moving closure, use a PCMS that complies with section 12-3.32 except the sign must be truck mounted. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

If you use a flashing arrow sign in a moving closure, the sign must be truck mounted. Operate the flashing arrow sign in the caution display mode if it is being used on a 2-lane, two-way highway.

12-4.02C(8) Traffic Control System Signs

12-4.02C(8)(a) General

Traffic control system signs must comply with section 12-3.11.

12-4.02C(8)(b) Connector and Ramp Closure Signs

Inform motorists of a temporary closing of a (1) connector or a (2) freeway or expressway entrance or exit ramp using:

1. SC6-3(CA) (Ramp Closed) sign for closures of 1 day or less

2. SC6-4(CA) (Ramp Closed) sign for closures of more than 1 day

SC6-3(CA) and SC6-4(CA) signs must be stationary mounted at the locations shown and must remain in place and visible to motorists during the connector or ramp closure.

Notify the Engineer at least 2 business days before installing the sign and install the sign from 7 to 15 days before the closure.

12-4.02C(10)–12-4.02C(11) Reserved

12-4.02C(12) Failure to Provide Traffic Control.

If the Contractor does not provide the traffic control and it becomes necessary for the Engineer to notify the Contractor of his duties according to the Standard Specifications and these special provisions, the Contractor shall pay $200 per 15-minute period or portion thereof to the County for all the time required to acquire the traffic control, including pilot car.

Such payment shall commence at the time notice of the improper traffic control condition is given to the Contractor or his authorized representative by the Engineer and shall terminate when the condition is corrected. Such payment will be deducted from the Contractor's payment.

In addition thereto, when it is necessary for the Engineer to perform the work, the Contractor shall pay the actual cost for the performance thereof. Such amount will be deducted from the Contractor's payment. This will be in addition to any penalties imposed in these special provisions.

The provisions in this section will not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety," of the Standard Specifications.

12-4.02D Payment

There is no pay item for maintaining traffic or for traffic control system. Full compensation therefor is considered to be included in the various items of work, and no additional compensation will be allowed therefor.

12-4.03 FALSEWORK OPENINGS

Reserved

12-4.04 PEDESTRIAN FACILITIES

12-4.04A General

Section 12-4.04 includes specifications for providing temporary pedestrian facilities.

Temporary pedestrian facilities must comply with section 16-2.02.

12-4.04B Materials

Not Used

12-4.04C Construction

If pedestrian traffic is allowed to pass through work areas, provide a temporary pedestrian facility through the construction areas within the highway. Include a protective overhead covering as necessary to ensure protection from falling objects and drippings from overhead structures.

If an activity requires a closure of a walkway, provide another walkway nearby, off of the traveled way.

Where pedestrian openings through falsework are required, provide a temporary pedestrian facility with a protective overhead covering during all bridge construction activities.

12-4.04D Payment

Not Used

13 WATER POLLUTION CONTROL

Replace 13-1.01A with:

13-1.01A Summary

Section 13-1 includes general specifications for preventing, controlling, and abating water pollution within waters of the State.

Information on forms, reports, and other documents is in the following Caltrans manuals:

1. Field Guide to Construction Site Dewatering
2. Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
3. Construction Site Best Management Practices (BMPs) Manual
4. Construction Site Monitoring Program Guidance Manual

You may view these manuals at the Stormwater and Water Pollution Control Information link at the Caltrans Division of Construction website or purchase them at the Caltrans Publication Distribution Unit.

A WPCP and a SWPPP must comply with the Caltrans Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual and must be prepared using the latest template posted on the Construction stormwater website.

Replace Section 13-1.01D92) with

13-1.01D(2) Regulatory Requirements

Comply with the discharge requirements in the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities; Order No. 2009-000 9-DWQ, CAS000002 (Construction General Permit) and any amendments thereto issued by the SWRCB. The Construction General Permit may be found at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Discharges from manufacturing facilities, such as batch plants and crushing plants, must comply with the discharge requirements in the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities; Order No. 2014-0057-DWQ, CAS000001 (Industrial General Permit), issued by the SWRCB. For the Industrial General Permit, go to the SWRCB website.

For a batch plant and crushing plant outside a job site or within a job site that serves one or more contracts, obtain coverage under the Industrial General Permit before operating a batch plant to manufacture concrete, HMA, or other material or a crushing plant to produce rock or aggregate.

This Project disturbs acres of soil.

A WPCP is required for this project.

Replace Section 13-1.01D(4)(b) with:

13-1.01D(4)(b) Qualifications

The WPC manager must:

1. Comply with the requirements provided in the Construction General Permit for:
   1.1. QSP if the project requires a WPCP
   1.2. QSD if the project requires a SWPPP
2. Complete the stormwater management training described at the Stormwater and Water Pollution Control Information link at the Caltrans Division of Construction website

Replace Section 13-3.01C(2)(b)(iv) with:

13-3.01C(2)(b)(iv) Sampling and Analysis Plan

If a sampling and analysis plan is required, submit a sampling and analysis plan that complies with the Caltrans *Construction Site Monitoring Program Guidance Manual*.

The sampling and analysis plan must describe:

1. Sampling equipment and sample containers.
2. Preparation of samples.
3. Collection and holding times.
4. Field measurement methods.
5. Analytical methods.
6. Quality assurance and quality control.
7. Sample preservation and labeling.
8. Collection documentation, including the names of personnel collecting samples and their training.
9. Shipment of samples.
10. Chain of custody.
11. Data management and reporting.
12. Precautions from the construction site health and safety plan, including procedures for collecting samples during precipitation. List the conditions under which you are not required to collect samples, such as:
    12.1. Dangerous weather
    12.2. Flooding or electrical storms
    12.3. Times outside of normal working hours
13. Procedures for collecting and analyzing at least 3 samples for each day of each qualifying rain event for a risk level 2 or risk level 3 project.
14. Procedures for collecting effluent samples at all locations where the stormwater is discharged off the job site.

The sampling and analysis plan must identify the State-certified laboratory that will perform the analyses. For a list of State-certified laboratories, go to the SWRCB's website.

Submit a revised plan if discharges or sampling locations change because of changed work activities or knowledge of site conditions.

Replace Section 13-3.01C(5) with:

13-3.01C(5) Annual Certification

Submit an annual certification of compliance as described in the Caltrans *Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* before July 15th of each year.

Replace Section 13-4.03G with:

13-4.03G Dewatering

Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities.

If dewatering is required, perform dewatering work as specified for the work items involved, such as a temporary ATS or dewatering and discharge.

If dewatering and discharging activities are not specified for a work item and you perform dewatering activities:

1. Conduct dewatering activities under the Caltrans *Field Guide for Construction Site Dewatering*.
2. Ensure any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
3. Discharge the water within the project limits. Dispose of the water if it cannot be discharged within project limits due to site constraints or contamination.

4. Do not discharge stormwater or nonstormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Immediately notify the Engineer upon discovering any such condition.

Replace Section 13-5.04 with:

13-5.04 PAYMENT

There is no pay item for water pollution control or for any associated work. Full compensation therefor is considered to be included in the various items of work, and no additional compensation will be allowed therefor.

Replace Section 13-6.04 with:

13-6.04 PAYMENT

There is no pay item for water pollution control or for any associated work. Full compensation therefor is considered to be included in the various items of work, and no additional compensation will be allowed therefor.

Replace Section 13-7.03D with:

13-7.03D Payment

There is no pay item for water pollution control or for any associated work. Full compensation therefor is considered to be included in the various items of work, and no additional compensation will be allowed therefor.

14 ENVIRONMENTAL STEWARDSHIP

Add Section 14-12.04:

14-12.04 RELATIONS WITH SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (SJVAPCD)

You are responsible for compliance with all applicable SJVAPCD regulations and requirements. This section is provided for your information, and nothing herein or elsewhere within these special provisions shall be construed as limiting your responsibility for complying with all applicable rules and regulations.

In accordance with SJVAPCD Regulation VIII – Fugitive PM10 Prohibitions: Rule 8021, implementation of an SJVAPCD-approved dust control plan is required prior to commencement of any dust generating activities. The County has filed a dust control plan with the SJVAPCD and has paid the application fee. A copy of the dust control plan filed by the County is included in “Project Details” of these special provisions.

Prepare and submit proposed modifications to the dust control plan to provide any information which is identified as “to be determined” on the dust control plan filed by the County and to modify the dust control plan to the extent necessary to accurately reflect your proposed operations. The Engineer completes the review within two working days after receipt thereof. In the event that the Engineer determines your submittal as incomplete or inadequate submit a corrected plan.The Engineer completes review of any re-submittal within two working days after receipt thereof.

Upon approval by the Engineer, submit the proposed modified dust control plan to the SJVAPCD. Pay to the SJVAPCD any fees which may be required for any modifications of the dust control plan. You are solely responsible for prompt preparation and submittal to the Engineer, and immediately upon approval by the Engineer, submittal to the SJVAPCD of all proposed modifications to the dust control plan.

Do not commence work until the SJVAPCD has approved or conditionally approved the dust control plan and the Engineer authorizes. When a modification to an approved dust control plan is under consideration do not perform work which is inconsistent with the approved dust control plan prior to receiving written approval.

Compensation for delays associated with review and approval of dust control plans is only considered in the event that: 1) the Engineer fails to review any modified dust control plan submitted by the Contractor within two working days after submittal thereof by the Contractor; or 2) the SJVAPCD fails to review and to either approve or disapprove a modified dust control plan within 30 calendar days after their receipt thereof. Disapproval of a proposed modification to the dust control plan by the Engineer or by the SJVAPCD shall not be considered as a basis for an extension of contract time nor as the basis for any additional compensation. Only in the event that it is determined by the Engineer that the Contractor was unreasonably delayed, through no fault of the Contractor, will compensation for delays be considered in conformance with the provisions in Section 8-1.07, "Delays," of the Standard Specifications.

It is your responsibility to be fully informed of the requirements of the Dust Control Plan and all rules, regulations, plans and conditions that may govern your operations and to conduct the work accordingly.

You must comply with the modifications to the Dust Control Plan approved by the SJVAPCD and accepted by the Engineer. Ensure the provisions of this section and SJVAPCD-approved modifications to the Dust Control Plan is made part of every subcontract executed pursuant to this contract.

Replace Section 14-12.04–14.12.08 With:

14-12.05–14.12.08 RESERVED

DELETE DIVISION III THROUGH DIVISION XII AND REPLACE WITH THE FOLLOWING

TABLE OF CONTENTS

DIVISION01 - GENERAL REQUIREMENTS

01 00 05	Specifications
01 11 00	Description of Work and Schedule Constraints
01 11 05	Engineer's Status During Construction
01 11 10	Coordination of Work
01 20 00	Measurement & Payment
01 22 00	Explanation of Bid Items
01 26 13	Requests for Interpretation
01 31 19	Project Meetings
01 33 00	Submittal Procedures
01 35 00	Material Substitution Procedures
01 42 13	Definitions & Abbreviations
01 43 00	Quality Control and Testing
01 50 00	Temporary Facilities
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01 77 00	Contract Closeout

DIVISION 31 - EARTHWORK

31 11 00	Clearing and Grubbing

DIVISION 33 - UTILITIES

33 21 13	Water Well Drilling

SECTION 01 00 05

SPECIFICATIONS

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall keep on the job a copy of the Plans and Specifications and shall at all times give the Owner and Engineer access thereto.

B. Anything mentioned in the Specifications and not shown on the Plans or shown on the Plans and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

C. The Contractor shall not take advantage of any errors, discrepancies or omissions which may exist in the Plans and Specifications but shall immediately call them to the attention of the Engineer whose interpretation or correction thereof shall be conclusive.

D. Change Orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over documents listed above. Detailed Plans shall have precedence over general Plans.

E. Whenever any conflict appears in any portions of the Contract Documents, it shall be resolved by application of the order of precedence.

1.2 GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS

A. For definitions of the Specifications categorized as General Requirements and Technical Specifications refer to Section 01 42 13 – Definitions and Abbreviations.

1.3 REFERENCE DOCUMENTS

A. For a definition of Reference Documents and State Standard Specifications refer to Section 01 42 13 – Definitions and Abbreviations.

B. Throughout the following Specification sections, references are made to various widely published, standard and commercial specifications, manuals, or codes of technical societies, organizations, or associations. These specifications are intended to amplify the descriptions of materials, equipment, and construction systems. The Contractor shall caution each of his Subcontractors to become familiar with the contents of the pertinent portions of these Reference Documents. The following Reference Documents are the most widely used, and are cited or referred to in each of the following sections of these Specifications:

1. American Society of Testing Materials (ASTM)

2. American National Standards Institute (ANSI)

3. American Standards Associations (ASA)

4. American Concrete Institute (ACI)

5. Federal Specifications, as applicable.

6. California Building Code

7. California Plumbing Code

8. National Electric Code

9. Construction Safety Orders of the Division of Industrial Relations latest edition.

C. Each citation of a Reference Document shall be construed to refer to the latest published revision of such specification as of the date of the invitation for bids and to such portions of it that relate and apply directly to the material or installation called for on this job. The Engineer will give no consideration to any claimed ignorance as to what a cited Reference Document contains, since such Subcontractor on a project of this scope is deemed to be experienced and familiar with his own trade to be experienced and familiar with his own trade's generally accepted, published standards of quality.

D. Whenever references are made to any of the above-mentioned Reference Documents or testing methods in the governing Building Codes, the requirements of those Reference Documents shall govern, insofar as they are not in contravention with maxima or minima prescribed by documents designated in the Building Code.

LIST OF DRAWINGS

E. The Work shall conform to the following Drawings:

TITLE	SHEET NUMBERS
COUNTY OF FRESNO WESTSIDE GROUNDWATER PROJECT PILOT HOLE TESTING AND PRODUCTION WELLS	
Cover Sheet	G-1
Legend and Abbreviations	G-2
Community Site Plans	G-3
Site Plan – El Porvenir	C1-1
Site Plan – Cantua Creek	C2-1
Well Drilling and Casing – El Porvenir	D1-1
Well Drilling and Casing – Cantua Creek	D2-1

1.4 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The applicable standards of the American National Standards Institute and the National Fire Protection Association that have been adopted are hereby made a part of these Specifications as a whole and as mentioned in the various sections.

B. Any errors, ambiguities, or inconsistencies of these standards with either the local codes, the Specifications, or the Drawings shall be brought to the attention of the Engineer.

1.5 COMPLIANCE WITH ALL LAWS AND CODES

A. Contractor shall conform to and abide by all local city, county, state and federal laws, rules, regulations, including industrial safety laws. Such laws shall be considered as essential parts of these Specifications and, in the absence of definite requirements herein, the provisions of such rules and regulations shall be observed by the Contractor. If the Drawings and/or Specifications are at variance therewith, Contractor shall so notify Engineer promptly. Should the Contractor perform any work contrary to such laws, ordinances, rules and regulations he shall bear all costs arising therefrom.

B. Where these Specifications, however, call for or describe materials workmanship or construction of a better quality, higher standard, or larger size than is required by said rules and regulations, the provisions of these Specifications shall take precedence over said rules and regulations. Contractor shall furnish, without any extra charge, all additional labor or materials, or both, when required for compliance with these rules and regulations.

END OF SECTION

SECTION 01 11 00

DESCRIPTION OF WORK AND SCHEDULE CONSTRAINTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Work consists of furnishing all labor, materials and equipment necessary to construct two new community water wells within County of Fresno. The work at each location will consist of initially installing and cementing a conductor casing and drilling a pilot hole to the depth shown in the Drilling Details using the reverse circulation method of drilling and collecting zone specific water samples. If upon completion of the pilot hole and associated test results, completion of a production well is authorized, the work will additionally consist of reaming the pilot hole to the final bore hole diameter by the reverse circulation method of drilling, and constructing and developing a production well at each site, and incidentals to complete the work described in the Plans and the Specifications.

B. The construction site is located in County of Fresno near the community of Cantua Creek, California and El Porvenir, California.

C. The primary components are generally described as follows:

1. Drill each borehole in turn to total depth, collect cutting samples and perform electric logs.

2. Collecting zone depth samples

3. Construct each well in turn: Install Casing, Gravel Pack and Annular Seal.

4. Perform Preliminary Well Development on each well in turn.

5. Install development pump in each well in turn, perform Pump Development at Engineers direction.

1.2 BEGINNING OF WORK

A. The Contractor shall begin work as stated in Section 8-1.04A Start of Job Site Activities.

1.3 TIME OF COMPLETION

A. The Contractor shall substantially complete all work as stated in Section 8-1.04A Start of Job Site Activities

1.4 TIME CONSTRAINTS

A. Contractor shall supervise, inspect, and direct the Work competently and apply such skills and expertise as may be necessary to perform the Work in

accordance with the Contract Documents. Contractor shall be solely responsible for the specific means, methods, techniques, sequence, or procedure of construction required to complete the project as specified by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

1.5 ORDER OF WORK

A. The wells do not need to be constructed in any particular order.

END OF SECTION

SECTION 01 11 05

ENGINEER'S STATUS DURING CONSTRUCTION

PART 1 GENERAL

1.1 VISITS TO SITE

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, will determine, in general, if the Work is proceeding in accordance with the Contract Documents..

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Section 1.4, below. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

C. Review of the Work by the Engineer shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

D. No oral or telephonic agreement or conversation with any officer, agent or employee of the Owner or the Engineer, or with the Engineer, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the Contract Documents.

1.2 AUTHORIZED VARIATIONS IN WORK

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

1.3 REJECTING DEFECTIVE WORK

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed,

or completed. Neither this authority nor the Engineer's good faith judgment to reject or not reject any work shall subject the Engineer to any liability or cause of action by the Contractor, subcontractors, or any other suppliers or persons performing work on the Contract.

1.4 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES

A. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

B. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

C. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

END OF SECTION

SECTION 01 11 10

COORDINATION OF WORK

PART 1 GENERAL

1.1 RESPONSIBILITY OF CONTRACTOR

A. If any part of the Work depends for proper execution or results upon the work of others, the Contractor shall inspect and promptly report to the Engineer any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the Work by the Contractor.

1.2 WORK INVOLVED WITH EXISTING SYSTEM

A. Existing materials and equipment removed not designated to be salvaged for Owner in the execution of the Work shall become the property of the Contractor and shall be removed from, and disposed of, off the site by the Contractor in an acceptable and lawful manner.

1.3 COORDINATION OF WORK

A. The Contractor shall maintain overall coordination for the execution of the Work. Based on the Construction Schedule prepared in accordance with these Specifications, he shall obtain from each of his subcontractors a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

END OF SECTION

SECTION 01 20 00

MEASUREMENT & PAYMENT

PART 1 GENERAL

1.1 MEASUREMENT

A. Unless otherwise specified in the Contract Documents, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures and shall be measured on the basis of “in-place” quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be measured. Compensation for such incidental work is considered to be included in the various items of work bid.

1.2 PARTIAL PAYMENT

A. Attention is directed to Section 9-1.06 of the State Standard Specifications which, except as modified herein, shall apply in its entirety.

1. The local agency shall withhold not less than 5 percent of the contract price until final completion and acceptance of the project.

2. Partial payments for materials on hand shall not exceed one hundred percent (100%) of the value of material delivered on site, properly stored in a secured fenced area subject to, or under the control of, the owner and local agency, and unused. Contractor shall submit copies of invoices of materials to support values. Materials stored shall be installed within 60 days of delivery for payment eligibility.

B. Payment shall not relieve the Contractor from its obligations under the Contact; nor shall such payment be construed as acceptance of any of the Work. Payment shall not be construed as transfer of ownership of any equipment or materials to the Owner. Responsibility of ownership shall remain with the Contractor who shall obligated to protect any fully or partially completed work or structure for which payment has been made; or replace any materials or equipment to be provided under the Contract which may be damaged, lost, stolen or otherwise degraded in any way prior to acceptance of the Work, except as provided in Section 7-1.15 of the State Standard Specifications.

1.3 FINAL PAYMENT

A. Notice of Completion will be filed in the normal course of business following the first regular meeting of County of Fresno Board which occurs far enough after Final Completion to allow for agendizing County of Fresno Board approval of the Notice.

B. Final payment will be due thirty-five (35) days after the recording of the Notice of Completion by the Owner.

C. Upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Bidder's Proposal hereto attached. Payments on account thereof will be made as set forth in these Specifications.

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between _____ _____ whose address is _____ _____ herein after called "Owner," _____ _____ whose address is _____ _____ hereinafter called "Contractor" and _____ _____ whose address is _____ _____ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for _____ in the amount of _____ _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the escrow agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of _____, and shall designate the Contractor as the beneficial owner.

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:	On behalf of Contractor:	On behalf of Escrow Agent:
_____	_____	_____
Title	Title	Title
_____	_____	_____
Name	Name	Name
_____	_____	_____
Signature	Signature	Signature
_____	_____	_____
Address	Address	Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner	Contractor
_____	_____
Title	Title
_____	_____
Name	Name
_____	_____
Signature	Signature

END OF SECTION

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

SECTION 01 26 13

REQUESTS FOR INTERPRETATION

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for handling and processing Requests for Interpretation (RFI).

B. Requests for Interpretation are intended for requesting clarification and interpretation of Contract Documents due to apparent inconsistencies, errors or omissions in the Contract Documents, and due to unanticipated existing conditions.

C. An RFI which fails to comply with the requirements of this section will be returned to the Contractor for correction without the benefit of the Engineer's response.

D. No extension of Contract Time will be granted due to the Contractor's failure to transmit an RFI to the Engineer sufficiently in advance of the Work to permit processing.

E. The Owner reserves the right to assess the Contractor for the costs of the Engineer's response to an RFI which the Owner deems as being frivolous or unnecessary.

F. The RFI form is provided at the end of this section.

1.2 PROCEDURE

A. Only after the Contractor has thoroughly reviewed all Contract Documents and other data available to the Contractor, shall the Contractor submit an RFI to the Engineer.

B. All RFI's shall utilize the provided RFI form noted above and shall indicate which drawings, details, and specifications need clarification. The RFI should be explicit in what interpretation or information is required. Each submitted RFI shall only address a single subject or issue; and shall be numbered in sequence of submittal.

C. RFI's shall be submitted to the Engineer at least 10 calendar days before a response is needed.

D. The Engineer will log each received RFI along with the date of receipt and name of the individual submitting.

E. The Engineer will provide written responses to RFI's within 5 regular working days.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

REQUEST FOR INFORMATION / INTERPRETATION

Project: RFI Number: _____

From: _____

To: Provost & Pritchard Engineering Group Date: _____

Request:

Requested Date/Time for Response:

Signed by:_____

Response:

☐ Attachments

Response From: To: Date Received: Date Returned:

Signed by:

Copies: ☐ Owner ☐ Consultants ☐_____ ☐_____ ☐_____ ☐ File

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.1 PRECONSTRUCTION CONFERENCE

A. Upon approval of the contract or at an earlier time if mutually agreeable, the Engineer will arrange a preconstruction conference to be attended by the Contractor, Contractor's superintendent, the Engineer, and representatives of utilities, major subcontractors, County of Fresno and others involved in the execution of the Work.

B. The purpose of this conference shall be to establish a working understanding between the parties and to discuss the Construction Schedule, Critical Path Method format required, shop drawing submittals and processing, applications for payment and their processing, and such other subjects as may be pertinent for the execution of the Work.

1.2 PROGRESS MEETINGS

A. The Engineer shall arrange and conduct progress meetings. These meetings shall be conducted weekly, unless designated otherwise and shall be attended by the Engineer or his representative, Contractor, Contractor's superintendent and representatives of all subcontractors, utilities, and others, that are active in the execution of the Work. The purpose of these meetings shall be to expedite the work of any subcontractor or other organization that is not up to schedule, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

B. The agenda of progress meetings shall include review of progress and schedule, of payment request, of the latest Construction Schedule update, and of the record documents.

1.3 PROGRESS AND SCHEDULE REVIEW

A. The progress of the Work and the Construction Schedule shall be reviewed to verify:

1. Actual start and finish dates of completed activities since the last progress meeting.

2. Durations and progress of all activities not completed.

3. Reason, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.

4. Payment due to the Contractor based on percentage complete of items in the submitted payment request.

5. Reasons for, and duration of, required revisions in the Construction Schedule.

6. After each monthly update, the Contractor shall submit to the Engineer three (3) prints of the last accepted Construction Schedule, revised in accordance with the monthly review.

1.4 REVIEW OF PAYMENT REQUEST

A. The Contractor shall have his copy of the payment request and all other data required by the Contract Documents completed prior to the progress meeting. The Engineer will process Contractor's payment request after satisfactory review of the schedule update.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work described in this section includes general requirements and procedures related to the preparation and transmission of submittals to include Shop Drawings, Samples, Manuals, and Record Drawings

1.2 RELATED WORK

A. General Conditions

B. Individual equipment specifications

1.3 GENERAL

A. Before submitting a Shop Drawing or Sample, Contractor shall have:

1. Reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

2. Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

3. Determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

4. Determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

B. Submit each submittal document under separate cover or transmittal. Transmittal shall include the following identification data, as applicable:

1. Contract number

2. Project name and location

3. Submittal number and revision

4. Product identification

5. Applicable contract drawing number, specification section, and paragraph number

6. Stamp Space: Blank space of approximately 2-1/2 inches high by 4 inches wide adjacent to the identification data to receive Engineer's status stamp.

7. Contractor's certification statement as described below

C. To each submittal affix the following signed Certification Statement.

1. "Certification Statement: By this submittal, we hereby represent that we have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and pertinent data and we have checked and coordinated each item with other applicable approved drawings and all Contract requirements."

D. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

E. Furnish neat, legible, and sufficiently explicit detail to enable proper review for Contract compliance.

F. Contractor assumes all risks of error and omission.

G. Work performed before approval, or not conforming to approved submittals, shall be at Contractor's risk.

H. Submittal requirements contained in this specification are in addition to specific submittal requirements contained in individual equipment specification sections.

1.4 APPROVAL PROCESS

A. Submittals shall be submitted in sufficient time to allow the Engineer not less than 10 regular working days for examining the Shop Drawings and Samples. Engineer will provide review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

B. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

C. Engineer's review of a separate item as such will not indicate approval of the assembly in which the item functions.

D. Engineer's review of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has given Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the Contract Documents and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

E. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

F. Submittals will be returned, marked with one of the following classifications:

1. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.

2. MAKE CORRECTIONS NOTED: Same as F-1, except that minor corrections as noted shall be made by the Contractor. No resubmittal required.

3. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Engineer. Re-submittal is required.

4. SUBMIT SPECIFIED ITEM: Minor item in submittal missing or incomplete. Submit data, specifications, drawings covering specified item only. Submittal shall be referenced to the main submittal under review.

5. REJECTED: Submitted item does not conform to Plans and Specifications in a major respect, i.e: wrong item, wrong size, model, capacity, or material. Re-submittal is required.

PART 2 SUBMITTAL DOCUMENTS

2.1 SHOP DRAWINGS

A. Unless otherwise noted in the individual specification sections, submit five (5) sets of shop drawings.

B. All catalog and specification sheets shall be clearly marked to indicate the specific model number and configuration to be used. Items not applicable to the project shall be crossed out.

C. Show complete and detailed fabrication; assembly and installation details; wiring and control diagrams; catalog data; pamphlets; descriptive literature; and performance and test data.

D. Include calculations or other information sufficient to show comprehensive description of structure, equipment, or system provided and its intended manner of use.

E. Include Manufacturer's installation recommendations.

2.2 SAMPLES

A. Unless otherwise noted in the individual specification sections, submit three (3) samples of each item.

B. Samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, texture, and finish.

C. Permanently attach to each sample

1. The contract number

2. Project name and location

3. Product identification

4. Applicable contract drawing and specification section number

5. Subcontractor's, vendor's and/or manufacturer's name, address, and telephone number.

D. Certain samples may be tested for specific requirements by the Owner and/or Engineer prior to approval. Failure of sample to pass tests will be sufficient cause for refusal to consider further samples of the same brand and make.

E. Rejected samples will be returned upon request, and resubmittals shall consist of new samples.

2.3 RECORD DRAWINGS

A. Maintain 1 record copy of Contract Documents at site in good order and annotated to show revisions made during construction. Keep annotations current for possible inspection.

1. Make record drawings available to Engineer at all times during life of Contract.

2. Drawings: Made part of record drawings and to include:

   a. Contract Drawings: Annotate or redraft, as required, to show revisions, substitutions, variations, omissions, and discrepancies made or discovered during construction concerning location and depth of utilities, piping, ductbanks, conduits, manholes, pumps, valves, vaults, and other equipment. Make revisions and show on all drawing views with actual dimensions established to permanent points.

   b. Working/Layout Drawings: When required as submittals, record actual layouts of conduit runs between various items of electrical equipment for power, control, and instrumentation; wire sizes, numbers, and functions; configuration of conduits; piping layouts; and duct layouts. Add sections

3. Before preliminary inspection, furnish reproducible of record drawings. At completion of Contract and before final payment is made, furnish Engineer one set of reproducibles of finally approved record drawings reflecting revisions herein described.

2.4 OPERATION AND MAINTENANCE MANUALS

A. Furnish Operation and Maintenance Manuals for various types of equipment and systems, as required by Contract Documents. Operation and Maintenance Manuals shall be provided for all mechanical and electrical equipment. Unless otherwise indicated, furnish separate manual for each piece of equipment and system. If manual contains other items or equipment, indicate where specified items are located in manual. Include in manual complete information necessary to operate, maintain, and repair specific equipment and system furnished under this Contract, and include the following specific requirements;

   1. Contents.

      a. Table of Contents and Index.

      b. Brief description of equipment/system and principal components.

      c. Starting and stopping procedures, both normal and emergency.

      d. Installation, maintenance, and overhaul instructions including detailed assembly drawings with parts list and numbers, and recommended spare parts list with recommended quantity, manufacturer's price, supplier's address, and telephone number.

      e. Recommended schedule for servicing, including technical data sheets that indicate weights and types of oil, grease, or other lubricants recommended for use and their application procedures.

f. One copy of each component wiring diagram and system wiring diagram showing wire size and identification.

g. One reviewed and stamped copy of each submittal with changes made during construction properly noted, including test certificates, characteristic curves, factory and field test results.

h. For electrical systems, include dimensioned installation drawings, single line diagrams, control diagrams, wiring and connection diagrams, list of material for contactors, relays and controls, outline drawings showing relays, meters, controls and indication equipment mounted on equipment or inside cubicles, control and protective schematics, and recommended relay settings.

2. Material:

a. Covers: Oil, moisture, and wear resistant 9 inches by 11-1/2 inches size.

b. Pages: 60 pound paper 8-1/2 inches by 11 inches size with minimum of 2 punched holes 8-1/2 inches apart reinforced with plastic, cloth, or metal.

c. Fasteners: Metal screw post or Acco metal strap type.

d. Diagrams and Illustrations: Attach foldouts, as required.

B. Copies:

1. Submit five (5) preliminary copies of manuals for review and approval no later than date of shipment of equipment. Installation shall not begin until manuals are accepted by Engineer. Include in preliminary copies all items required under “Contents” above. Three copies will be marked and returned to Contractor.

2. Deliver seven (7) copies of finally approved manuals to Engineer before startup.

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 35 00

MATERIAL SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 GENERAL

A. The materials furnished and used shall be new, except as may be provided elsewhere in these Specifications, or on the Plans.

B. All materials required to complete the work under this contract shall be furnished by the Contractor, unless otherwise stated.

C. It shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instruction before proceeding with the Work. The Engineer may, by appropriate instructions, correct said apparent errors and omissions, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.

1.2 DEFINITIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor.

B. Revisions: Changes to Contract Documents requested by Owner or Engineer.

C. Options: Specified options of products and construction methods included in Contract Documents.

1.3 TRADE NAMES AND ALTERNATIVES

A. Wherever an article, or any class of materials, is specified by the trade name or by the name of any particular patentee, manufacturer or dealer, or by reference to the catalog of any such manufacturer or dealer, it shall be taken as intending to mean and specify the article or material described or any other equal thereto in quality, finish and durability, and equally as serviceable for the purpose for which it is or they are intended. The intent of the Plans and Specifications is to specify highest grade standard equipment, and it is not the intent of these Plans and Specifications to exclude or omit the products of any responsible manufacturer, if such products are equal in every practical respect to those mentioned herein, as determined by the Engineer.

1.4 SAMPLES

A. At the option of the Engineer, the source of supply of materials for the Work shall be subject to tests and inspection before the delivery is started and before such materials are used in the Work. Samples representative of the character and

quality of materials shall be submitted by the Contractor. Samples shall be of sufficient quantities or amounts for testing or examination.

B. All tests of materials furnished by the Contractor shall be made in accordance with the commonly recognized standards of national technical organizations, and such special methods and tests as are prescribed in the Contract Documents.

C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until the Engineer has had the opportunity to test or examine such materials. Samples will be secured and tested whenever necessary to determine the quality of the material. Samples and test specimens prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer, or his designated representative, in the presence and with the assistance of the Contractor.

1.5 SUBMITTALS

A. Material Submittals shall be made in accordance with Caltrans Standard Specifications Section 5-1.23 and Section 01 33 00 – of these specifications.

1.6 INSPECTION OF MATERIALS BY THE CONTRACTOR

A. Contractor shall make a close inspection of all materials as delivered, and shall promptly return all defective materials without waiting for their rejection by the Engineer.

1.7 CERTIFICATES OF COMPLIANCE

A. A Certificate of Compliance may be required for certain materials and equipment that become final products of the completed Work. Certificates of Compliance shall be furnished prior to the use of any materials for which these Specifications require that such a certificate be furnished. In addition, when so authorized in these Specifications, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.

B. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.

C. A Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate.

D. All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Plans and Specifications and any such material not conforming to such requirements will be subject to rejection whether in place or not.

E. The County of Fresno reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

1. The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

1.8 MANUFACTURER TESTING

A. At the option of the Engineer, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials and equipment to be tested and inspected at point of origin.

1. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or re-inspection at the site of the Work.

2. Materials and equipment which will require testing and inspection at the place of origin shall not be shipped prior to such testing and inspection.

1.9 MANUFACTURERS' RECOMMENDATIONS

A. All equipment specified and used in the project shall be installed in accordance with the approved manufacturer's current written recommendations.

B. All such equipment, material, etc., shall be of the manufacturer's latest system or line.

1.10 SUBSTITUTIONS

A. Conditions: Contractor's substitutions shall be considered when one or more conditions are satisfied, as determined by the Engineer. (The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.)

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents.

3. Request is timely, fully documented and properly submitted.

4. Request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request shall not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by governing authority, and the requested substitution can.

7. Substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear.

   a. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

   b. Contractor shall provide all data in support of any proposed substitute or “or-equal” at Contractor’s expense.

8. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. Specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

1.11 SUBSTITUTION REQUEST FORM

A. Use Substitution Request Form in on page 01 35 00-5.

B. Submit one form (4 copies) for each request.

END OF SECTION

SUBSTITUTION REQUEST FORM

TO: _____

PROJECT: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION: _____ PARAGRAPH: _____ SPECIFIED ITEM: _____

Proposed Substitution: _____

Attach: 1) Complete technical data, including laboratory tests, if applicable.

2) Complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

A. Does the substitution affect dimensions on Drawings?

B. Will the undersigned pay for changes to the project design, including engineering and detailing costs caused by the requested substitution?

C. What affect does substitution have on other trades?

D. Differences between proposed substitution and specified item?

E. Manufacturer's guarantees of the proposed and specified items are:

____Same _____ Different (explain on attached sheet)

SUBSTITUTION REQUEST FORM

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature _____

Firm _____

Address _____

Date _____

Telephone _____

For Use by Design Consultant
Accepted Accepted as Noted Not Accepted Received Late By_____ Date_____ Remarks_____

SECTION 01 42 13

DEFINITIONS AND ABBREVIATIONS

PART 1 GENERAL

1.1 DEFINITIONS AND TERMS – IN THE EVENT THAT THESE DEFINITIONS CONFLICT WITH THE DEFINITIONS IN SECTION 1-1.07, THE DEFINITIONS IN SECTION 1-1.07 SHALL PREVAIL.

A. Whenever in these Specifications, or in other Contract Documents, the following terms are used, the intent and meaning shall be interpreted as follows:

1. Board: Board of Directors, County of Fresno.

2. Calendar Day: Every day shown on the calendar.

3. Contractor: The word “Contractor” means the person, firm or corporation to whom the award is made. Subcontractors as such will not be recognized.

4. Contract Price: The total amount of money for which the Contract is awarded.

5. Contract Unit Price: The Contractor’s original bid for a single unit of an item of work in the Proposal.

6. Contract Time: The number of calendar days for completion of the Work, including authorized time extensions. In the event a calendar date is specified for Project completion in lieu of a number of calendar days, the Work shall be completed by that calendar date. The Contract Time shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

7. Engineer: Director of Public Works and Planning and/or his designee.

8. Equipment: (Construction) - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of work. (Installed) - All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

9. General Conditions: As specified in Section 00 72 00 – General Conditions.

10. General Requirements: All specifications contained in Division 1.

11. Notice: Any notice allowed or required to be given by the Owner may be given by the Engineer.

12. Owner: County of Fresno

13. Person: Any individual, association, partnership, corporation, trust, joint venture or other legal entity.

14. Plans: The drawings, profiles, cross-sections, working drawings and supplemental drawings, or reproduction thereof, approved by the Engineer, which show the location, character, dimensions or details of the work.

15. Proposal: The offer of a Bidder when submitted on the Proposal form; properly signed and guaranteed.

16. Reference Documents: Bulletins, Rules, Methods of Analysis or Test, Codes, Standards, and Specifications of public or private agencies, Engineer Societies, or Industrial Associations. Reference shall be to the latest edition thereof, including Amendments, which are in effect and published at the time the Request for Bids is issued, unless a specific edition is identified, in which case reference shall be to such specific edition. Reference Documents are intended to amplify the descriptions of materials, equipment, and construction systems and are to be considered a part of the Contract Documents insofar as the various sections thereof are referred to hereinafter. Examples of Reference Documents are Federal Specifications, State Standard Specifications, and those of American Society of Testing Materials (ASTM), American National Standards Institute (ANSI), American Standards Associations (ASA), and American Concrete Institute (ACI).

17. Salvage: The protection storage, and/or removal of specified existing equipment, parts or materials during the work for retention and later use by the Owner.

18. Sanitary Sewer: Any conduit and appurtenances intended for the reception and transfer of sewage.

19. Specifications: Any or all of the specifications defined in this section and any addendums thereof. They are divided into four general categories: Contract and Bidding Requirements (Division 0 Caltrans Standard Specifications Division I and II), General Requirements (Division 1), Technical Specifications (Division 31 and Division 33), and Reference Documents.

20. State: The State of California.

21. State Standard Plans: State of California, Business and Transportation Agency, Department of Transportation, Caltrans, Standard Plans, latest revision.

22. State Standard Specifications: Standard Specifications for the project are those entitled "Standard Specifications, State of California, Business and

Transportation Agency, Department of Transportation", 2015 edition, hereinafter referred to as the State Standard Specifications. These Specifications are to be considered a part of the Contract Documents insofar as they are not superseded by other provisions contained in Divisions 0 through 2 and 33 of these Specifications.

23. Storm Sewer: Any conduit and appurtenances intended for the reception and transfer of storm water.

24. Street: Any public road, highway, parkway, freeway, alley, walk or right-of-way.

25. Surety: Any individual, firm or corporation bound with and for the Contractor for the acceptable performance, execution and completion of the Work, and for the satisfaction of all obligations incurred.

26. Utility: Tracks, overhead of underground wires, pipelines, conduits, ducts or structures, sewers of storm drains owned, operated or maintained in or across a public right-of-way or private easement.

27. Water Main: Any conduit and appurtenances intended for the distribution of water.

28. Working Day: Any weekday (Monday through Friday), not a designated national holiday, during which weather allows the Contractor to work four or more hours consecutively, starting no later than 10:00 AM.

1.2 REFERENCED STANDARDS

A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the Owner. The Engineer will furnish, upon request, information as to how copies may be obtained.

1.3 LIST OF ABBREVIATIONS

A. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AEIC	Association of Edison Illuminating Companies

AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARI	American Refrigeration Institute
ASA	(now U.S.A.S.I., USA Standards Institute) Association & its Standard Specifications
ASAHC	American Society of Architectural Hardware Consultants
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Institute of America (formerly SCPI)
CAL/OSHA	California Occupational Safety and Health Administration
CALTRANS	California Department of Transportation
CBC	California Building Code
CCR	California Codes of Regulations
CDA	Copper Development Association
CEC	California Electrical Code
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America
CMC	California Mechanical Code
CPC	California Plumbing Code
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
DHI	Door and Hardware Institute
DIPRA	Ductile Iron Pipe Research Association
EEI	Edison Electric Institute
EJCDC	Engineers' Joint Contract Documents Committee

EPA	Environmental Protection Agency
FED SPEC	Federal Specification
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual
FSA	Fluid Sealing Association
FTI	Facing Tile Institute
HEI	Heat Exchange Institute
HMI	Hoist Manufacturers Institute
HPMA	Hardwood Plywood Manufacturers Association
HTI	Hand Tools Institute
ICBO	International Conference of Building Officials
I-B-R	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFI	Industrial Fasteners Institute
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
JIC	Joint International Conference (Hydraulic Institute)
MHI	Materials Handling Institute
MIL	Military Specification
MMA	Monorail Manufacturers Association
MSS	Manufacturers' Standardization Society
NAAMM	National Association of Architectural Metals Manufacturers
NACE	National Association of Corrosion Engineers.
MBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NBHA	National Builders Hardware Association
NCSPA	National Corrugated Steel Pipe Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEMI	National Elevator Manufacturing Industry
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NLA	National Lime Association
NPC	National Plumbing Code
NPT	National Pipe Thread
NRCA	National Roofing Contractors' Association
NRMCA	National Ready Mixed Concrete Association
NSC	National Safety Council
NSF	National Sanitation Foundation
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration

PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PFI	Pipe Fabrication Institute
PS	Product Standard
RTI	Resilient Tile Institute (formerly AVATI)
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SI	International Systems of Units (Metric)
SIGMA	Sealed Insulating Glass Manufacturers Association
SFPA	Southern Forest Products Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPFA	Steel Plate Fabricators Association
SPI	Society of the Plastics Industry
SPTA	Southern Pressure Treaters Association
SSI	Scaffolding and Shoring Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction (Greenbook)
UL	Underwriters' Laboratories
UPC	Uniform Plumbing Code
USBR	U.S. Bureau of Reclamation
USGS	United States Geological Survey
WCLA	West Coast Lumbermen's Association (Std. Grading and Dressing Rule)
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

END OF SECTION

SECTION 01 43 00

QUALITY CONTROL AND TESTING

PART 1 GENERAL

1.1 NOTICE OF DEFECTS

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

B. All defective Work may be rejected, corrected, or accepted, at the discretion of the Owner and Engineer.

1.2 ACCESS TO WORK

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests shall have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith.

1.3 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be subject to the requirements of Section 01 35 00.

1.4 PROJECT SITE TESTING

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Except for specified material suitability tests, all initial routine tests of materials shall be at the expense of the Owner and shall be performed by an independent certified laboratory designated by the Owner. Whenever a specified percent relative compaction test is required and the material or portion thereof so tested fails to meet or exceed the relative compaction specified, all subsequent retesting shall be performed at the expense of the Contractor.

C. All material suitability tests shall be at the expense of the Contractor. Testing shall be by an independent certified laboratory approved by the Engineer.

1.5 TEST STANDARDS

A. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations.

B. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the ASTM, where applicable.

1.6 UNCOVERING WORK

A. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without concurrence of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and recovered at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be re-observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall promptly correct said defects, including all work involved in uncovering and recovering the work, at no cost to the Owner.

2. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

1.7 CORRECTION OR REMOVAL OF DEFECTIVE OR REJECTED WORK

A. Upon receipt of notice, Contractor shall correct all defective or rejected Work and replace it with Work that is not defective, at no cost to the Owner.

1.8 ACCEPTANCE OF DEFECTIVE WORK

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so.

1. If any such acceptance occurs, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

2. Engineer shall determine the reasonableness of the diminished value of Work so accepted and Contractor shall pay all costs involved in making such determination.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 GENERAL

A. The Contractor shall provide all temporary facilities and utilities required for completion of the Work as well as safety precautions and programs. No attempt is made to set out in detail the Contractor's means or methods necessary to accomplish the tasks involved.

1.2 TEMPORARY UTILITIES

A. Water

1. Water used for human consumption shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water.

B. Sanitary Facilities

1. The Contractor shall provide suitable and adequate sanitary conveniences for the use his staff at the site of the Work. Such conveniences shall include chemical toilets or water closets and shall be located at appropriate locations at the site of the Work. All sanitary conveniences shall conform to the regulations of the public authority having jurisdiction over such matters. At the completion of the Work, all such sanitary conveniences shall be removed and the site left in a sanitary condition.

2. With respect to sanitation facilities, the Contractor shall cooperate with and follow directions of representatives of the Public Health Service and the State. State and County of Fresno Public Health Service representatives shall have access to the Work, whether it is in preparation or progress, and the Contractor shall provide facilities for such access and inspection.

1.3 TEMPORARY CONSTRUCTION FACILITIES

A. Construction hoists, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. The Contractor shall submit design calculations prepared by a professional registered engineer for staging and shoring prior to application of loads.

C. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations from one hour before sunset each day to one hour after sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded in such a manner as to prevent person from falling, walking, or otherwise entering any excavation in any street, roadway, parking lot, treatment plant, or any other area, public or private.

D. The Contractor shall adequately identify and guard all hazardous areas and conditions by visual warning devices and, where necessary, physical barriers. Such devices shall, as a minimum, conform to the requirements of Cal/OSHA.

E. At such time or times any temporary construction facilities and utilities are no longer required for the work, the Contractor shall notify the Engineer of his intent and schedule for removal of the temporary facilities and utilities, and obtain the Engineer's approval before removing the same. As approved, the Contractor shall remove the temporary facilities and utilities from the site as his property and leave the site in such condition as specified, as directed by the Engineer, and/or as indicated on the Plans.

1.4 ACCESS ROADS AND STAGING AREA

A. Adequate access shall be maintained to all storage areas and other areas to which frequent access is required. The Contractor shall limit the location of his storage of equipment and materials outside of the project site. The Contractor shall make his own arrangements for space that may be required and bear all associated costs. The Contractor shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

B. Storage and protection:

1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with accordance with manufacturer’s recommendations to prevent corrosion.

2. Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.

END OF SECTION

SECTION 01 57 50

CONSTRUCTION STAKES, LINES, AND GRADES

PART 1 GENERAL

1.1 LINES AND GRADE

A. The Work shall be executed in accordance with the lines and grades indicated in the Contract Documents. Distances and measurements, except elevations and structural dimensions, shall be made on horizontal planes.

1.2 OWNER'S SURVEY SERVICES

A. Construction surveying and staking for construction will be done by the Engineer or Engineer's representative at the Owner's expense. The Engineer will provide one set of staking indicating the location of each well.

B. Additional detail staking layout will be the responsibility of the Contractor.

C. The Contractor shall be responsible for preserving construction survey stakes, permanent survey monuments and bench marks for the duration of their usefulness. If any construction survey stakes permanent survey monuments or benchmarks are lost or disturbed and need to be replaced, such replacement shall be made by the Engineer at the expense of the Contractor.

D. The Contractor shall notify the Engineer at least three (3) working days before he will require survey services in connection with laying out of any portion of the Work. The Contractor at his own expense shall dig all holes necessary for line and grade stakes prior to requesting survey services that depend on such digging.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 GENERAL

A. It is the intent of these Contract Documents that the Contractor shall deliver a complete and operable facility capable of performing its intended functions and ready for use.

1.2 CLEANING

A. Throughout the period of construction the Contractor shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the Work, all unused and rejected materials, surplus earth, concrete, plaster, and debris, excepting select material which may be required for refilling or grading.

1.3 FINAL SITE CLEAN-UP

A. Upon completion of the Work, and prior to final acceptance, the Contractor shall remove from the vicinity of the Work all paint, surplus material, and equipment belonging to him or used under his direction during construction.

B. The Contractor shall restore to original condition all property not designated for alteration by these Contract Documents.

1.4 FINAL BUILDING CLEAN-UP

A. On all building projects and wherever else applicable, besides general broom cleaning, the following special cleaning shall be performed at completion of the Work:

1. Putty stains and paint shall be removed from glass; glass shall be washed and polished, inside and outside. Care shall be exercised so as not to scratch glass.

2. Marks, stains, fingerprints, and other soil and dirt shall be removed from painted, decorated, or stained work.

3. Waxed woodwork shall be cleaned and polished.

4. Hardware shall be cleaned and polished of all traces; this shall include removal of stains, dust, dirt, paints, and blemishes.

5. Spots, soil, paint, plaster, and concrete shall be removed from tile; tile work shall be washed afterwards.

6. Fixtures and equipment shall be cleaned and stains, paint, dirt, and dust shall be removed.

7. Temporary floor protection shall be removed; floors shall be cleaned, waxed, and buffed.

8. Dust, cobwebs, and traces of insects and dirt shall be removed.

1.5 WASTE DISPOSAL

A. The Contractor shall dispose of surplus materials, waste products, demolition materials, and debris. The Contractor shall transport and dispose of waste materials in accordance with applicable laws and regulations.

1.6 PROJECT RECORD DOCUMENTS

A. The Contractor shall maintain at the site, available to the Owner and Engineer, one copy of the Contract Documents, Drawings, Shop Drawings, Change Orders, and other modifications in good order and annotated to show all changes made during construction. These Documents shall be delivered to the Engineer for the Owner upon completion of the Work.

B. Record documents shall be reviewed during progress meetings to ascertain that all changes have been recorded.

C. Store Record Documents separate from documents used for construction.

1.7 TOUCH-UP AND REPAIR

A. The Contractor shall touch-up or repair finished surfaces on structures, equipment, fixtures, or installations that have been damaged prior to final acceptance. Surfaces on which such touch-up or repair cannot be successfully accomplished shall be completely refinished or in the case of hardware and similar small items, the item shall be replaced. Such items shall include, but not be limited to, the following:

1. Road surfaces

2. Exposed structure surfaces

3. Exposed equipment surfaces

4. Exposed piping surfaces

1.8 EQUIPMENT START-UP

A. After all acceptance tests have been completed by the Contractor and Owner but prior to final acceptance, the Contractor shall recheck all equipment for proper alignment and adjustment, check oil levels, re-lubricate all bearings and wearing

points, and in general assure that all equipment is in proper condition for continuous operation.

1.9 OPERATION AND MAINTENANCE (O&M) MANUALS

A. See Section 01 33 00 for Operation and Maintenance Manuals.

1.10 FINAL EQUIPMENT CHECK

A. After testing and before acceptance, all equipment shall be test run by the Owner for a minimum of 7 days to ensure proper operation. At the end of the test run each piece of machinery shall be lubricated and all components and couplings checked for proper alignment and adjustment.

B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Provide submittals to the Owner required by other governing authorities.

1.11 MANUFACTURER'S CERTIFICATES OF PROPER INSTALLATION

1. The Contractor shall submit manufacturers' certificates of proper installation for all items of equipment.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section consists of clearing, grubbing, grinding, transporting, removing and disposing of trees, stumps, roots, vegetation debris, and existing improvements, including curb, gutters, catch basins, storm drains, landscaping, fencing, utilities, and other protruding obstructions within the clearing limits.

B. Protect trees, landscaping and shrubs that are not designated to be removed or near construction site that may be harmed by construction activities.

1.2 RELATED WORK

NOT USED

1.3 REGULATORY REQUIREMENTS

A. Obtain all required permits.

B. Dispose of removed materials in a legal manner at an approved disposal facility.

1.4 REFERENCES

A. Section 15 – Existing Facilities, State Standard Specifications

B. Section 19 – Earthwork, State Standard Specifications

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. Clear the specified areas by removing, above the natural ground surface, all existing improvements including curbs, gutters, catch basins, storm drains, landscaping fencing and utilities; vegetable growth such as trees, shrubs, logs, upturned stumps, roots of down trees, brush, and similar material.

1. Trees of 4-inch diameter and larger shall not be removed without Owner's authorization.

B. Grub the specified areas below the natural ground surface, except in embankment areas where the grading plane is two feet or more above the natural ground, to a depth necessary to remove all boulders, stumps, roots, buried logs, and other objectionable material including rock and concrete. Remove and stock pile the top 4 inches of topsoil in any area which is to receive structural fill.

3.2 PRESERVATION

A. If indicated or required, preserve trees, plants, rock outcroppings, or other features designated to remain. Protect trees and plants from damage; fell trees in a manner which shall not injure standing trees, plants and improvements which are to be preserved.

3.3 SALVAGE EQUIPMENT

A. Salvaged equipment shall be delivered to the Owner at a designated site.

B. Equipment to be salvaged is designated in Section 02 41 00, Demolition:

END OF SECTION

SECTION 33 21 01

WATER WELL DRILLING

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work consists of constructing two (2) new community water wells. One well will be located in El Porvenir (CSA 30) and one well will be located in Cantua Creek (CSA 32) as shown on the construction drawings The work at each location will consist of initially installing and cementing a conductor casing and drilling a pilot hole to the depth shown in the Drilling Details using the reverse circulation method of drilling and collecting zone specific water samples. If upon completion of the pilot hole and associated test results, completion of a production well is authorized, the work will additionally consist of reaming the pilot hole to the final bore hole diameter by the reverse circulation method of drilling and constructing and developing a production well at each site.

B. The purpose of the pilot hole is to allow collection of drill cuttings, electric logging of the hole upon completion to total depth, and collection of depth zone specific water samples for water quality testing purposes, as described in these Specifications.

C. In El Porvenir, the production well is expected to be about 900 feet deep and to be perforated for about 810 to 880 feet in depth. However, the exact depth and interval of perforation will be based on the results of the pilot hole drilling and testing.

D. In Cantua Creek, the production well is expected to be about 1,170 feet deep and to be perforated from about 1,050 to 1,150 feet in depth. However, the exact depth and interval of perforation will be based on the results of the pilot hole drilling and testing.

E. Upon completion of construction of the production wells, the Contractor shall develop and pump test the wells as described in these Specifications. Contractor shall supply equipment and labor including variable speed equipment for pump testing. If completion to a production well is not authorized, Contractor shall properly destroy the pilot hole.

F. The owner of the wells is the County of Fresno, the engineer is the County of Fresno, the consultant is Provost & Pritchard, and the geologist is Kenneth D. Schmidt and Associates.

1.2 RELATED WORK

1.3 SUBMITTALS

A. Submit shop drawings in accordance with General Provisions.

B. As specified in Section 01 33 00 – Submittal Procedures

C. Prior to installation, the Contractor shall submit the manufacturer's or supplier's standard literature and certification that the following materials for the production well comply with this specification:

1. Well casing
2. Perforated well casing
3. Gravel Pack
4. Sand Cement Grout
5. Fine Sand
6. Bentonite

D. The Contractor shall prepare a final written report in accordance with Sections 13750 through 13755 of Division 7, Chapter 10, Article 3 of the California Water Code, and containing, as a minimum, the following information for the pilot hole and, if authorized, the production well:

1. For the pilot hole, drillers log and e-log (e-log to be performed by West Coast Geophysical, Boredata, or approved equal, subject to approval by the Geologist, and paid for by Contractor).
2. For the production well, well log submitted to California Department of Water Resources showing casing diameter and wall thickness, lengths and location of casing installed, type of perforation and aperture size, perforated intervals, bore hole diameter, cemented conductor casing, gradation of gravel envelope and location of cement seal.
3. Construction records showing quantity of gravel initially installed, quantity of gravel added during development operations, preliminary development time.
4. Pumping and surge development and pump test records showing production rate, static water level, pumping water levels, drawdown, production of sand, and all other information concerning development by pumping and surging.

5. Three copies of the written report shall be submitted to the Engineer prior to acceptance.

1.4 STANDARDS AND PERMITS

A. Each well shall be constructed in accordance with the County of Fresno Water Well Ordinance, the California Water Well Standards, and as described in these Specifications. The Contractor shall obtain, and pay approximately $605 per well, for a well drilling permit from County of Fresno Environmental Health Department for each well, and shall report the results of the drilling to the California Department of Water Resources.

B. If completion to a production well is not authorized, the Contractor shall conform to State requirements for abandonment of the pilot hole, and the Geologist will recommend the procedure.

1.5 EXPERIENCE AND LICENSE

A. The pilot hole, construction, development and production well shall be drilled by a qualified well driller meeting the following minimum experience requirements: at least five (5) years' cumulative experience (not necessarily in any five (5) consecutive years, or in the last five (5) years) in drilling public water supply wells to a depth of at least 1,200 feet using reverse rotary drilling for the pilot hole, for construction and development of the production well, and for water zone sampling of the pilot holes necessary for making a determination for the construction of the well.

B. The Bidder shall submit to the Owner and Engineer three (3) references for whom the bidder satisfactorily completed the drilling of public water supply wells to a depth of at least 1,200 feet using reverse rotary drilling for the pilot holes, for construction and development of the production wells, and for water zone sampling of the pilot holes necessary for making a determination for the construction of these wells. In listing these references, the Bidder shall give the name of the person or entity for whom the work was performed, the address and telephone number at which that person or entity can be contacted, and a description of the work performed. The provisions of this subparagraph 1.5.B. are subject to the provisions of subparagraph 1.5.A., herein. Failure to provide adequate and acceptable information under this subparagraph 1.5.B may be grounds for rejecting the bid.

C. Well driller must possess a C-57 Well Drillers License, valid in the State of California.

1.6 ORDER OF WORK

A. Install and cement conductor casing.

B. Drill the pilot hole. Upon completion of the pilot hole, Contractor shall furnish copies of the drilling log, the electric log (e-log), plumbness test results, and suitable bagged drill cutting samples for review of the Geologist.

C. After the electric log is available the Geologist shall be allowed up to 12 business hours to identify zone depths for sampling. Contractor shall

sequentially install the formation sampling tool and the associated materials and develop each zone for sampling.

D. The Contractor shall fill the remainder of the pilot hole with gravel or native material after completing depth zone sampling.

E. Geologist shall be allowed up to twenty-one (21) calendar days to obtain the laboratory results to determine if the production well is to be constructed, and to prepare the final well design.

1. If the Geologist determines that the production well is to be constructed, the Geologist shall submit the pilot hole laboratory results and final well design to Division of Drinking water for approval.

2. If completion to a production well is not authorized, the Contractor shall properly abandon the pilot hole after notification by the Engineer.

F. Construction of a production well shall not proceed until Geologist has made final recommendation of construction details and Division of Drinking Water has issued written approval of final recommendation and construction details to the Engineer. Upon receipt of the Notice to Proceed, the Contractor shall drill and construct the production well.

G. Upon completion of a production well, development and pump test, Contractor shall furnish 3 copies of the pump test to the Engineer.

1.7 WORK TO BE PERFORMED BY THE CONTRACTOR

A. All drilling, casing, sealing, developing, test pumping, and other work incidental to the well shall be performed by the Contractor. The Contractor shall drill the pilot hole by the reverse rotary method and, as authorized, the production well using the reverse rotary method and shall provide all necessary equipment for development and test pumping of the wells. Contractor shall provide temporary pump equipment for test pumping.

B. The Contractor will prepare and maintain access to the work area as well as provide sufficient room for the efficient operation of his equipment. Contractor shall provide all appropriate safety measures and temporary fencing to enclose the work area and all stored equipment. The Contractor will be held as having examined the drilling site and access roads in order to acquaint himself with local conditions, as no allowance will be made after the bid has been accepted for any errors or omissions made by the Contractor due to site conditions.

C. The Contractor shall diligently pursue all work to completion. Upon completion of the well, the Contractor shall level the drill site, and remove all materials incidental to the drilling operations.

D. The Contractor shall, at his own expense, furnish all equipment, material (including lost circulation materials), supplies, and personnel necessary to perform the work (including, but not limited to, drilling rig, water truck, a crew comprised of experienced drillers, and helpers).

E. The entire cost of furnishing, transporting, unloading, hauling, handling, sorting, and caring for all equipment, materials, tools, and supplies, and of removing same from the site of the work as hereinafter specified, shall be included in prices bid in the proposal for the work for which the materials are required. The drilling shall be done with well drilling equipment of proper type and size and in good working condition so that the work can be performed without interruption arising from defective or improper equipment. All materials that will become a part of the completed work shall be new. All equipment, materials, tools, and supplies not a part of the completed well shall remain the property of the Contractor and shall be removed from the site upon completion of the work. All materials to be stored shall be stored at the drilling site within a fenced enclosure.

1.8 NOTIFICATION

A. The Contractor shall give notice to the Geologist and Engineer of specific operations as follows:

1. At least 72 hours advance notice of start of drilling operations at the well site.

2. At least eight (8) hours notice of electric logging.

3. At least six (6) hours advance notice of start of “depth zone airlifting” from the pilot hole at each depth interval.

4. *If applicable,* at least twenty-four (24) hours advance notice of pilot hole abandonment.

5. At least twenty-four (24) hours advance notice of installation of casing (including conductor), gravel, and annular seal.

6. At least twenty-four (24) hours advance notice of commencement of development of the completed production well.

7. At least twelve (12) hours advance notice of the pump test.

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in “straight from the factory” condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

2.6 BENTONITE

A. The bentonite shall consist of bentonite slurry, chips or pellets, which will be hydrated with clean water. Bentonite to be mixed and hydrated per manufacturer's recommendations.

2.7 SAND CEMENT GROUT

A. Sand cement grout shall be composed of not more than two parts by weight of sand and one part of Portland Type II cement to 4.5 to 6.5 gallons of clean water per sack of cement.

B. Concrete truck loads will be rejected unless placement begins within 90 minutes of the load being mixed. Concrete truck loads that are acceptable shall continue essentially continuously once placement begins.

2.8 DRILLING FLUID

A. Water alone shall be employed as a drilling fluid in the pilot hole as well as in the production well unless prior approval is given by the Geologist.

B. The Contractor shall dispose of surplus drilling fluid in a manner acceptable to the Owner and Engineer. The Contractor is responsible for transporting and disposing well development and test water offsite; including paying all costs associated with identifying a disposal site, obtaining approval from and making arrangements with the owner(s) of said site, and transporting the water to said site. The Contractor's bid proposal shall include all costs associated with providing any required discharge piping to an approved discharge site. The disposal plan and site shall be approved by the Owner prior to the start of drilling.

C. The Owner will furnish water, from the existing CSA 30 and CSA 32 water distribution systems via fire hydrant. The Contractor shall be responsible for furnishing and installing a connection to each fire hydrant, flow meter with totalizer, pump, portable tank, and all necessary piping and appurtenances necessary for well drilling operations. It is assumed that the Contractor will require up to 200 gallons per minute (gpm), for flow for an estimated period of up to 3 weeks. If the Contractor elects to utilize distribution system water for drilling operations, the Contractor will be charged $402.12 per acre-foot of water. The price of water for use by the Contractor is subject to change dependent on the cost of surface water supplied to the County of Fresno at the time of well drilling. The contractor's bid proposal shall include all costs associated with purchase of water for the project. The Contractor shall only utilize water from CSA 30 and CSA 32 distribution system fire hydrants during off peak demand times from the hours of 10:00 PM until 6:00 AM. The Contractor shall coordinate with County of Fresno operators for

obtaining water during the allowed off peak hours. It will be the responsibility of the Contractor to furnish and install all required equipment necessary to deliver water from the Owner's source. Alternatively, the Contractor may make arrangements to obtain water from an approved nearby agriculture water well to complete drilling operations. Contractor shall provide written proof to Owner that owner of agricultural well has authorized use of water from the well. All arrangements, costs, and equipment required for use of the ag well and to convey water to project site will be the responsibility of the Contractor. The Contractor may utilize both distribution system water and an alternative approved water source to complete drilling operations.

2.9 VENT PIPE, GRAVEL CHUTE, AND PERMANENT SOUNDING TUBE

A. In accordance with the Plans and as described below, the following items shall be installed.

1. A 3-inch diameter Schedule 40 steel vent pipe shall be welded to the well casing as shown on the Plans. The upper end of the vent pipe shall be threaded and provided with a screened, inverted vent.

2. A 3-inch diameter Schedule 40 steel gravel fill chute shall be installed as shown on the Plans. The upper end of the pipe shall be threaded and provided with a cap as shown on the Plans. The cap shall be marked with the termination depth of the chute.

3. A 3-inch diameter Schedule 40 steel sounding tube shall be installed on the well casing as shown on the Plans. The sounding tube will be held to the well casing by brackets welded to the casing at 40-feet intervals. The sounding tube will not be welded to the brackets but allowed to move vertically through them. A prefabricated sounding tube connection shall be used to provide transducer entry into the casing. This connection shall include two 3/8-inch thick by 10-inch wide mild steel stiffener plates running parallel to a 5-feet long access slot and three 1-inch thick by 2-inch wide mild steel stiffener rings around the casing.

PART 3 EXECUTION

3.1 HOUR OF OPERATION

A. Drilling operations may proceed continuously, 24 hours per day. Installation of casing and gravel shall proceed continuously until complete. When work is expected to occur between the hours of 7 PM and 7 AM the Contractor shall notify all residents within 500 feet of the impending construction activity.

3.2 INSTALLING CONDUCTOR CASING

A. A 26-inch conductor casing shall be installed to a depth of at least 50 feet below natural grade, and include an extension at least 6-inches above the ground. If an adequate clay layer is not present at that depth, the depth shall be increased as directed by the geologist. The conductor casing shall be set in a hole not less than 32 inches in diameter. It shall be securely anchored at the ground surface to prevent falling.

B. Care shall be taken to install the conductor casing plumb. Centralizers shall be welded to the conductor casing at intervals not to exceed 20 feet to center the casing in the bore. The centralizers shall be constructed of 3/8-inch-thick by 2-inch-wide steel strips so shaped as to form a guide approximately 2.5 inches from the casing well.

C. Each strip shall provide at least 1-foot length of bearing surface at the bore interface. A minimum of three strips shall be provided at each circumferential location for centering the casing. Centralizer strips shall be located on the same vertical alignment so as to minimize interference with placing the sealing material as specified.

D. After the conductor casing has been installed, the annular space between the conductor casing and the bore hole shall be sealed with sand cement grout. The sand cement grout shall be placed by pressure grouting with the use of a tremie pipe. The sand cement grout shall be placed through the tremie pipe, and the pipe shall be gradually withdrawn as the sand cement rises in the annulus. The quantity of cement grout placed in the annulus shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids. Upon completion of cementing, sand cement shall be visible above the surface of the ground outside the conductor casing. After cementing operations are completed, the sand cement shall be left undisturbed for a period of not less than 24 hours. Contractor shall notify County of Fresno Environmental Health Department 48 hours prior to placing the grout seal.

3.3 METHOD OF DRILLING

A. The pilot hole and the production well, as authorized, shall be drilled by the reverse rotary method of drilling.

3.4 MUD PIT DESIGN

A. The above ground mud recirculation sump shall have a capacity no less than 3 times the expected volume of the completed hole. Contractor’s bid

proposal shall include all costs related to the above ground mud recirculation sump.

B. The sump must be on-site and have a total capacity not less than the total required volume prior to commencement of drilling operations.

3.5 PILOT HOLE DRILLING

A. The standard reverse rotary method will be used to drill the pilot hole to an anticipated depth of 1,300 feet at the El Porvenir site and 1,500 feet at the Cantua Creek site. The Contractor shall be responsible for keeping each hole open to the total depth of the hole. The hole will be a minimum of seventeen inches in diameter. The purpose of the pilot hole is to allow collection of drill cuttings and geophysical logging of the hole upon completion to the total depth. In addition, the pilot hole will be used to obtain depth zone specific water samples for water quality testing.

B. Samples of drill cuttings from the bottom of the conductor casing to total depth shall be collected at changes of strata or at 10-foot depth intervals, whichever is less, and placed in separate bags or containers. These samples shall be plainly marked with the depth. Two sets of samples shall be collected and marked.

C. One electric log will be run in each pilot hole, and it is estimated that two hours will be required for the logging. The Contractor will be responsible for retaining West Coast Geophysical Logging, Boredata, or approved equal, at the Contractor's expense, to perform the geophysical logging. Contractor shall remain at the site during logging and cooperate with the firm in running the logging tools in the hole.

D. After the e-log for each well is complete, the Contractor shall perform a plumbness test per AWWA Standard A100 for each pilot hole. The maximum allowable horizontal deviation of the well from the vertical shall not exceed 0.0067 times the smallest inside diameter of that part of the well being tested per foot of depth. If it is determined that the well fails to meet the plumbness requirements, the pilot hole shall be abandoned, and a new pilot hole shall be drilled at no additional expense to the Contractor. Contractor shall provide all records pertaining to the plumbness test as stated in Appendix D of AWWA Standard A100.

E. All work shall conform to the Project specifications, the State of California Standard Specifications, and local and State permits and ordinances for drilling of pilot holes and wells.

3.6 PILOT HOLE DEPTH ZONE SPECIFIC WATER SAMPLING

A. After completion of pilot hole drilling and logging, the Contractor will perform depth zone specific water sampling. Upon notification by the Engineer to perform such sampling, the Contractor will prepare a formation testing tool to sample formation water from selected depths. The tool will consist of 30-feet of approved diameter pipe that contains 20-feet of perforated section (see plans) on the lower end of the casing, with a plate welded to the bottom of the section. The tool will be connected to approved diameter drill pipe to allow air-lifting a minimum flow of water of 200 gpm against a head of 600-feet. For bidding purposes the drilling pipe diameter shall be steel and have a minimum diameter of 6-inches. Air line shall be sized to accommodate air lifting minimum requirements and approved by Geologist prior to commencement of air lifting.

B. The Geologist, upon review of drill cuttings and geophysical log, shall determine zones to be sampled and location of bentonite seals. Prior to placing the drill pipe and testing tool at the lowest desired depth, a 10-foot seal shall be placed in the hole followed by 5-feet of fine sand. Then with the drill pipe and testing tool set at the desired depth, a sufficient amount of selected gravel will be placed in the hole to fill to a depth 10-feet above the top of the perforated section. In order to facilitate sampling, the gravel pack material for sampling should be selected to screen out the finest formation encountered and to be compatible with the 1/16-inch sampling tool slot. Then 5-feet of fine sand will be placed atop the gravel followed by 10-feet of bentonite placed on the sand. The gravel, sand and bentonite shall be placed with a tremie pipe and approved by the Owner prior to placement.

C. The well should be air-lifted at a rate of 200 gpm, if possible, for at least 6 hours and until the turbidity substantially decreases. A submersible pump shall then be installed and pumped at a rate of at least 70 gpm for at least six hours. The time to be recorded shall commence when the equipment is installed in the well and is placed in operation and shall end when the pumping is stopped. Water, including mud, sand and debris pumped from the well during zone sampling shall be disposed of by the Contractor off site and in such a manner as not to damage or interfere with other work. The disposal and discharge sites shall be approved by the Owner. The Contractor may make arrangements with the Owner to discharge water at storm drain ponds located in CSA 30 and 32 or arrange with a local landowner for the discharge of the water on private land. If water is disposed of on private land, written authorization from landowner must be provided to Owner before water can be discharged.

D. When the sampling at that zone is completed the string of tools shall be raised to the next zone to be tested. Seals, sand, and gravel shall be placed as in the first zone tested. It is anticipated that four (4) formation

tests will be conducted in each pilot hole, although the Engineer may modify this number.

E. After the last sample is collected, the remainder of the hole shall be filled with gravel. Geologist shall be allowed twenty-one (21) calendar days to review the pilot hole data.

F. Full payment for formation testing shall be provided as specified and no additional payment will be made. The Contractor will not be paid for formation testing hours required as a result of negligence on his part.

G. Geologist will be responsible for collecting water samples and having them analyzed.

3.7 PILOT HOLE ABANDONMENT

A. If upon completion of the pilot hole, and associated test results, the Owner decides not to proceed with a production well, the Contractor shall destroy the pilot hole by filling with sand-cement grout to top and in conformance with the Project specifications, the State of California Standard Specifications, and local and State permits and ordinances for abandonment of test wells.

3.8 REAMING HOLE AND INSTALLING BLANK AND PERFORATED WELL CASINGS

A. The pilot hole shall be reamed to a final minimum diameter of 24-inches from the bottom of the conductor casing to an estimated 1,000 feet at the El Porvenir site and an estimated 1,270 feet at the Cantua Creek site. A fifty foot sand-cement well seal will then be placed beginning at the bottom of each of the reamed holes. Contractor shall not begin the drilling operation until all casing and gravel is on-site. The final drilling operation shall be continuous (non-stop) through the entire length of bore to be developed into the completed well unless permitted or specified otherwise by Owner in writing. The exact depth of reaming shall be determined by the Engineer after the pilot hole is completed and all information interpreted. Perforated casing will be required as shown on the Plans or as modified by the Engineer after completion of the pilot hole.

B. Prior to installing the casing, clean water shall be circulated in the bore hole to remove the drilling fluid and any cuttings caked to the side of the drilled hole.

C. Upon completion of reaming the borehole to the final diameter, and after clean water has been circulated in the hole to remove drilling fluid and caked cuttings, a caliper log shall be run by a subcontractor approved by the

Engineer. The subcontractor performing the caliper log shall be the same subcontractor who performed the e-log and shall be West Coast Geophysical, Boredata, or approved equal, subject to approval by Geologist.

D. Casing installation shall be by methods that will ensure no damage to blank casing, perforated casing, or the hole. The casing shall be suspended above the bottom of the hole to insure that it will not be supported from the bottom.

E. Except when drilling is in progress, casing is being installed, or gravel is being placed, the top of the well shall be kept securely capped, both day and night, to effectively prevent tampering or entrance. Upon completion of well casing installation, placing of gravel envelope, and development and testing of well, a steel top plate shall be installed on the top of the well casing. The plate shall be welded around the full circumference.

F. Centralizers shall be welded to the casing at intervals not to exceed 60 feet to center the casing in the bore. Centralizers shall also be installed at 5 feet from top of and bottom of the casing. The centralizers shall be welded at both points which contact the casing. Centralizers shall be constructed of 3/8-inch-thick steel strips at least 2 inches wide so shaped as to form a guide approximately 2-1/2 inches from the casing well. Each strip shall provide at least 1-foot length of bearing surface at the bore interface. At least three strips shall be provided at each centralizer location. Centralizer strips shall be placed on the same vertical alignment so as to minimize interference with placing of gravel or sealing material.

G. 20 feet of blank casing shall be installed at the bottom of the well. The bottom of the casing or screen is to have a 3/8-inch minimum thickness rounded steel cap welded to casing.

H. The welder required for final assembly of well casings and screen shall be qualified in accordance with the latest revision of the section titled "WELDING PROCEDURES" of the ASME Boiler Construction Code or by the AWS Standard Qualifications Procedure.

I. The casing shall be lowered in the well with the collar facing upward. The plain end of the following length shall be inserted in the collar. True contact of the two joints must be verified by observation through the inspection windows. Spot welds shall be placed through the three windows in order to hold the contact position. A filet type weld shall be made covering the top edge of the collar continuously for the entire circumference. Two welding passes shall be applied to 5/16 inch and thicker wall material. The inspection windows on all casing sections shall be seal welded to assure a leak-proof connection.

3.9 FURNISHING AND INSTALLING GRAVEL ENVELOPE

A. Prior to placing the gravel in the well, a granular hypochlorite or similar disinfectant shall be added to the gravel/water mix at the rate of at least 1/2 pound per cubic yard of gravel, based on 70% chlorine content. If a lower strength hypochlorite, or other chlorine product is used, the quantity shall be adjusted accordingly.

B. Prior to placing gravel, the permanent gravel fill pipe shall be placed in the well as shown on the construction drawings and described in these Specifications.

C. The gravel shall be placed using double hopper and tremie pipe equipment. The rate at which gravel is allowed to drop from the upper hopper into the lower hopper, where water is added, shall result in a free-flowing water/gravel mix. Only water from an approved clean water source shall be added during the gravel packing. Water from the above ground mud storage sump will not be used. The water/gravel mix shall be pumped into the tremie pipe from the lower hopper. Placement shall start with the tremie pipe near the bottom of the hole. The tremie pipe shall be withdrawn from the well at such a rate that the bottom of the tremie pipe is within a few feet of the top of the gravel pack. From time to time during the gravel packing operation, the top of the gravel will be measured with the tremie pipe or other device. The tremie pipe may be left in place as the permanent gravel feed pipe or a new gravel feed pipe shall be placed.

D. The quantity of gravel placed in the annulus of the well shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids. Significant differences between the estimated and final volume of gravel installed may be grounds for rejection of the well.

E. During well development and test pumping, gravel pack level shall be measured. If the level of gravel in the well or fill tube drops, additional gravel will be placed as required.

3.10 INSTALLING ANNULAR SEAL

A. A sand cement grout seal shall be installed in the annular space above the gravel pack between the wall of the bore hole and the well casing. The cement grout shall be sand-cement. The well casing shall be filled with water during placement of the grout seal. The Contractor may install the cement grout in sufficient lifts to prevent casing collapse. Contractor shall notify County of Fresno Environmental Health Department 48 hours prior to placing the grout.

B. The bottom five feet of the sealed section shall consist of five feet of fine sand. The sand used shall be approved by the Owner prior to placement, and shall be placed using a tremie pipe.

C. The sand cement grout shall be placed by pressure grouting with the use of a tremie pipe. Grout placement shall start with the tremie pipe at the bottom of the area to be grouted. The cement grout shall be placed through the tremie pipe, and the pipe shall be gradually withdrawn as the cement rises in the annulus. The quantity of cement grout placed in the annulus shall not be less than the computed volume of the annulus. A quantity less than the computed value will be judged as an indication of voids, and measures shall be taken by the Contractor to eliminate the apparent voids.

D. Significant differences between the estimated and final volume of the cement seal may be grounds for rejection of the well.

E. The cement seal will extend from the ground surface to a depth as shown on the Plans, or as indicated by Engineer after completion of the pilot hole.

F. Each cement seal shall be allowed to set for 24 hours prior to further operations.

3.11 PRELIMINARY DEVELOPMENT

A. Preliminary well development will begin by airlifting open-ended at the bottom of the well until the heaviest fluids are removed.

B. Airlift swabbing shall then be used for preliminary development. These shall commence at the top of the perforated casing section and work downward in intervals of no more than 20 feet. The swab shall be repeatedly hoisted at each increment. Upon reaching the bottom of the lowermost perforated section, the swabbing shall begin again at the bottom of the well and proceed upward, in similar manner, to the top of the perforations.

C. During preliminary development the Contractor shall measure the level of gravel in the gravel feed tube and add material as necessary. After preliminary development is complete the gravel level shall be at the depth specified in the Plans or as modified by the Engineer.

D. The well shall then be developed by pumping and surging with a test pump. The pumping equipment shall be clean and in good operating condition upon delivery to the site. Within not more than four (4) days after completion of preliminary development, the Contractor shall commence well development by pumping and surging.

3.12 DEVELOPMENT BY PUMPING AND SURGING

A. The Contractor shall install, operate, and remove a pump for developing the well. The pump shall have a capacity in excess of 700 gpm against an estimated total head of 600 feet measured at the discharge head. The prime mover shall be a variable speed type. The Contractor's shall be responsible for supplying power for the pump. The Contractor's bid proposal shall include all costs for supplying the power for the pump 600 feet of column pipe, tube and shaft shall be provided with the development pump. The development pump setting will be determined by the Geologist after well construction. Contractor shall be responsible for providing means to power the pump. Pump and surge development shall be performed in conformance with these specifications and in consultation with the Geologist.

B. Contractor is responsible for containing and removal of pump and surge development water.

C. The Contractor shall install discharge piping from the pumping unit of sufficient size and length to conduct water to the point of disposal together with a totalizing flow meter that will accurately measure the flow rate. A minimum of 500 feet of discharge piping shall be provided by the Contractor. The Contractor shall provide a manometer to check the accuracy of the totalizing flow meter. The totalizing meter shall be accurate within plus or minus 5% of the flow rate indicated by the manometer. If the totalizing meter is not within this tolerance it will be recalibrated or replaced until it does operate within this tolerance. Gauges, valves, meter, manometer, access tubes, and other equipment required shall be installed prior to start of pump development. The Contractor shall cooperate with the Engineer who will be present periodically during the well development.

D. The initial pumping rate shall be restricted (250 gpm) and as the water clears shall be gradually increased in 100 gpm steps until the maximum rate (700 gpm) is reached. At intervals of approximately 10 to 15 minutes, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump bowls and through the perforated area.

E. Development records shall be maintained on at least a 1/2-hour interval showing pumping rate, pumping level, and sand production. Development shall continue until the following conditions are met:

1. The specific capacity (gpm per foot of drawdown) no longer increases with time.

2. Sand production is no greater than five (5) ppm within 10 minutes after commencement of pumping at the capacity of the

well. Failure to meet this requirement may be sufficient cause for rejection of the well.

F. The Contractor shall be responsible for disposing of all development and test water. Water, including mud, sand and debris pumped from the well during developing and testing shall be disposed of by the Contractor off site and in such a manner as not to damage or interfere with other work. The disposal and discharge sites shall be approved by the Owner.

G. Development pumping and surging (not including pump test) is expected to require 36 total hours of pumping time.

H. The Contractor may submit alternate development methods in writing for approval by the Engineer. However, the submittal must be approved prior to commencement of the production well drilling operation.

3.13 TESTING FOR YIELD AND DRAWDOWN

A. Following development of the well, the Contractor shall perform a step drawdown test. The Contractor shall cooperate with the Geologist who will be present during part of the test pumping procedure. The actual test pumping rates will be furnished by the Geologist upon completion of well development. Well shall remain idle for at least 12 hours overnight prior to commencement of test, and static or non-pumping level shall be determined prior to the pump test.

B. The pumping equipment shall be of the variable speed type and shall be the same equipment as used during the well development procedure. Gauges, valves, meter, manometer, access tubes, and other equipment required shall be installed prior to beginning the pump test procedure.

C. The pump shall be operated continuously for a period of 9 hours at the rates selected by the Engineer. The pumped water shall be disposed of in a manner similar to the development water.

D. During the test, the discharge of the pump shall be measured with an accurate totalizing meter supplied by the Contractor reading in gallons. The pump discharge shall be maintained during the test within plus or minus five (5) percent of the desired pumping rate by means of a gate valve. Prior to the start of the test, the pump shall be adjusted to each of the prescribed pumping rates in order to determine the appropriate motor speeds (rpm) and discharge valve positions to facilitate rapid adjustment of the pump at the commencement of testing.

E. Upon completion of the pump test the well shall remain undisturbed for a period of at least 12 hours to allow water recovery rates to be measured.

After the pump is removed, all sand and debris shall be removed from the bottom of the well.

3.14 COMPLETED WELL WATER SAMPLES

A. Water samples will be collected during the pump test. The Contractor shall cooperate with the Geologist who will collect the samples.

3.15 PLUMBNESS AND ALIGNMENT

A. After completion of the testing for yield and drawdown, the Contractor shall test well for plumbness and alignment by lowering a 40-foot long "dummy" or cage into the well to the bottom. The outer diameter of the dummy shall be not more than one-inch smaller than the inside diameter of the well casing. The dummy shall consist of a rigid spindle with 3-rings, each 12 inches wide and spaced top-middle-bottom. The central member of the dummy shall be sufficiently rigid to maintain the concentric alignment of the 3 rings.

B. Should the dummy fail to move freely throughout the length of the well, the well shall be subject to rejection by the Owner. The Owner may direct the Contractor to abandon the well per County of Fresno and State requirements, and drill a new well per Project specifications at not extra cost to the Owner.

C. The Contractor shall guarantee that the well, when completed, shall be sufficiently straight and plumb to permit the free installation and operation of a deep well turbine pump normally used in similarly sized casings with the pump bowls set at 600 feet.

3.16 VIDEO SURVEY

A. A color video survey of the entire length of the casing will be performed to verify casing integrity, location of perforations, and effectiveness of development. The video survey equipment shall have side scan capability. Video tape shall be submitted to Engineer for review prior to casing closure. If further well cleaning is necessary, Contractor shall do so at his own expense and also pay for an additional video survey after the well is cleaned.

3.17 CASING CLOSURE

A. Upon completion of work on the well, the production well shall be capped by welding a 1/4-inch steel plate over the top of the well casing.

3.18 CLEANUP

A. Material excavated during drilling operations shall be hauled off site and disposed of by Contractor. All temporary fencing shall be removed.

END OF SECTION

Federal Requirements

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 20 2014

OFFICE OF WATER

MEMORANDUM

SUBJECT: Implementation of American Iron and Steel provisions of P.L. 113-76, Consolidated Appropriations Act, 2014

FROM: For Andrew D. Sawyers, Director
Office of Wastewater Management (4201M)

Peter C. Grevatt, Director
Office of Ground Water and Drinking Water (4601M)

TO: Water Management Division Directors
Regions I - X

P.L. 113-76, Consolidated Appropriations Act, 2014 (Act), includes an "American Iron and Steel (AIS)" requirement in section 436 that requires Clean Water State Revolving Loan Fund (CWSRF) and Drinking Water State Revolving Loan Fund (DWSRF) assistance recipients to use iron and steel products that are produced in the United States for projects for the construction, alteration, maintenance, or repair of a public water system or treatment works if the project is funded through an assistance agreement executed beginning January 17, 2014 (enactment of the Act), through the end of Federal Fiscal Year 2014.

Section 436 also sets forth certain circumstances under which EPA may waive the AIS requirement. Furthermore, the Act specifically exempts projects where engineering plans and specifications were approved by a State agency prior to January 17, 2014.

The approach described below explains how EPA will implement the AIS requirement. The first section is in the form of questions and answers that address the types of projects that must comply with the AIS requirement, the types of products covered by the AIS requirement, and compliance. The second section is a step-by-step process for requesting waivers and the circumstances under which waivers may be granted.

Implementation

The Act states:

Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term ‘‘iron and steel products’’ means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the ‘‘Administrator’’) finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out

the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

The following questions and answers provide guidance for implementing and complying with the AIS requirements:

Project Coverage

1) What classes of projects are covered by the AIS requirement?

All treatment works projects funded by a CWSRF assistance agreement, and all public water system projects funded by a DWSRF assistance agreement, from the date of enactment through the end of Federal Fiscal Year 2014, are covered. The AIS requirements apply to the entirety of the project, no matter when construction begins or ends. Additionally, the AIS requirements apply to all parts of the project, no matter the source of funding.

2) Does the AIS requirement apply to nonpoint source projects or national estuary projects?

No. Congress did not include an AIS requirement for nonpoint source and national estuary projects unless the project can also be classified as a 'treatment works' as defined by section 212 of the Clean Water Act.

3) Are any projects for the construction, alteration, maintenance, or repair of a public water system or treatment works excluded from the AIS requirement?

Any project, whether a treatment works project or a public water system project, for which engineering plans and specifications were approved by the responsible state agency prior to January 17, 2014, is excluded from the AIS requirements.

4) What if the project does not have approved engineering plans and specifications but has signed an assistance agreement with a CWSRF or DWSRF program prior to January 17, 2014?

The AIS requirements do not apply to any project for which an assistance agreement was signed prior to January 17, 2014.

5) What if the project does not have approved engineering plans and specifications, but bids were advertised prior to January 17, 2014 and an assistance agreement was signed after January 17, 2014?

If the project does not require approved engineering plans and specifications, the bid advertisement date will count in lieu of the approval date for purposes of the exemption in section 436(f).

6) What if the assistance agreement that was signed prior to January 17, 2014, only funded a part of the overall project, where the remainder of the project will be funded later with another SRF loan?

If the original assistance agreement funded any construction of the project, the date of the original assistance agreement counts for purposes of the exemption. If the original assistance agreement was only for planning and design, the date of that assistance agreement will count for purposes of the exemption only if there is a written commitment or expectation on the part of the assistance recipient to fund the remainder of the project with SRF funds.

7) What if the assistance agreement that was signed prior to January 17, 2014, funded the first phase of a multi-phase project, where the remaining phases will be funded by SRF assistance in the future?

In such a case, the phases of the project will be considered a single project if all construction necessary to complete the building or work, regardless of the number of contracts or assistance agreements involved, are closely related in purpose, time and place. However, there are many situations in which major construction activities are clearly undertaken in phases that are distinct in purpose, time, or place. In the case of distinct phases, projects with engineering plans and specifications approval or assistance agreements signed prior to January 17, 2014 would be excluded from AIS requirements while those approved/signed on January 17, 2014, or later would be covered by the AIS requirements.

8) What if a project has split funding from a non-SRF source?

Many States intend to fund projects with "split" funding, from the SRF program and from State or other programs. Based on the Act language in section 436, which requires that American iron and steel products be used in any project for the construction, alteration, maintenance, or repair of a public water system or treatment works receiving SRF funding between and including January 17, 2014 and September 30, 2014, any project that is funded in whole or in part with such funds must comply with the AIS requirement. A "project" consists of all construction necessary to complete the building or work regardless of the number of contracts or assistance agreements involved so long as all contracts and assistance agreements awarded are closely related in purpose, time and place. This precludes the intentional splitting of SRF projects into separate and smaller contracts or assistance agreements to avoid AIS coverage on some portion of a larger

project, particularly where the activities are integrally and proximately related to the whole. However, there are many situations in which major construction activities are clearly undertaken in separate phases that are distinct in purpose, time, or place, in which case, separate contracts or assistance agreement for SRF and State or other funding would carry separate requirements.

9) What about refinancing?

If a project began construction, financed from a non-SRF source, prior to January 17, 2014, but is refinanced through an SRF assistance agreement executed on or after January 17, 2014 and prior to October 1, 2014, AIS requirements will apply to all construction that occurs on or after January 17, 2014, through completion of construction, unless, as is likely, engineering plans and specifications were approved by a responsible state agency prior to January 17, 2014. There is no retroactive application of the AIS requirements where a refinancing occurs for a project that has completed construction prior to January 17, 2014.

10) Do the AIS requirements apply to any other EPA programs, besides the SRF program, such as the Tribal Set-aside grants or grants to the Territories and DC?

No, the AIS requirement only applies to funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12)

Covered Iron and Steel Products

11) What is an iron or steel product?

For purposes of the CWSRF and DWSRF projects that must comply with the AIS requirement, an iron or steel product is one of the following made primarily of iron or steel that is permanently incorporated into the public water system or treatment works:

Lined or unlined pipes or fittings;
Manhole Covers;
Municipal Castings (defined in more detail below);
Hydrants;
Tanks;
Flanges;
Pipe clamps and restraints;
Valves;
Structural steel (defined in more detail below);
Reinforced precast concrete; and
Construction materials (defined in more detail below).

12) What does the term 'primarily iron or steel' mean?

'Primarily iron or steel' places constraints on the list of products above. For one of the listed products to be considered subject to the AIS requirements, it must be made of greater than 50% iron or steel, measured by cost. The cost should be based on the material costs.

13) Can you provide an example of how to perform a cost determination?

For example, the iron portion of a fire hydrant would likely be the bonnet, body and shoe, and the cost then would include the pouring and casting to create those components. The other material costs would include non-iron and steel internal workings of the fire hydrant (i.e., stem, coupling, valve, seals, etc). However, the assembly of the internal workings into the hydrant body would not be included in this cost calculation. If one of the listed products is not made primarily of iron or steel, United States (US) provenance is not required. An exception to this definition is reinforced precast concrete, which is addressed in a later question.

14) If a product is composed of more than 50% iron or steel, but is not listed in the above list of items, must the item be produced in the US? Alternatively, must the iron or steel in such a product be produced in the US?

The answer to both question is no. Only items on the above list must be produced in the US. Additionally, the iron or steel in a non-listed item can be sourced from outside the US.

15) What is the definition of steel?

Steel means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel and other specialty steels.

16) What does 'produced in the United States' mean?

Production in the United States of the iron or steel products used in the project requires that all manufacturing processes, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating. Further, if a domestic iron and steel product is taken out of the US for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the

material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin.

17) Are the raw materials used in the production of iron or steel required to come from US sources?

No. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-US sources.

18) If an above listed item is primarily made of iron or steel, but is only at the construction site temporarily, must such an item be produced in the US?

No. Only the above listed products made primarily of iron or steel, permanently incorporated into the project must be produced in the US. For example trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

19) What is the definition of 'municipal castings'?

Municipal castings are cast iron or steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and surface infrastructure. They are typically made of grey or ductile iron, or steel. Examples of municipal castings are:

Access Hatches;
Ballast Screen;
Benches (Iron or Steel);
Bollards;
Cast Bases;
Cast Iron Hinged Hatches, Square and Rectangular;
Cast Iron Riser Rings;
Catch Basin Inlet;
Cleanout/Monument Boxes;
Construction Covers and Frames;
Curb and Corner Guards;
Curb Openings;
Detectable Warning Plates;
Downspout Shoes (Boot, Inlet);
Drainage Grates, Frames and Curb Inlets;
Inlets;
Junction Boxes;
Lampposts;
Manhole Covers, Rings and Frames, Risers;

Meter Boxes;
Service Boxes;
Steel Hinged Hatches, Square and Rectangular;
Steel Riser Rings;
Trash receptacles;
Tree Grates;
Tree Guards;
Trench Grates; and
Valve Boxes, Covers and Risers.

20) What is 'structural steel'?

Structural steel is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees and zees. Other shapes include H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

21) What is a 'construction material' for purposes of the AIS requirement?

Construction materials are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered "structural steel". This includes, but is not limited to, the following products: wire rod, bar, angles, concrete reinforcing bar, wire, wire cloth, wire rope and cables, tubing, framing, joists, trusses, fasteners (i.e., nuts and bolts), welding rods, decking, grating, railings, stairs, access ramps, fire escapes, ladders, wall panels, dome structures, roofing, ductwork, surface drains, cable hanging systems, manhole steps, fencing and fence tubing, guardrails, doors, and stationary screens.

22) What is not considered a 'construction material' for purposes of the AIS requirement?

Mechanical and electrical components, equipment and systems are not considered construction materials. Mechanical equipment is typically that which has motorized parts and/or is powered by a motor. Electrical equipment is typically any machine powered by electricity and includes components that are part of the electrical distribution system.

The following examples (including their appurtenances necessary for their intended use and operation) are NOT considered construction materials: pumps, motors, gear reducers, drives (including variable frequency drives (VFDs)), electric/pneumatic/manual accessories used to operate valves (such as electric valve actuators), mixers, gates, motorized screens (such as traveling screens), blowers/aeration equipment, compressors, meters, sensors, controls and switches, supervisory control and

data acquisition (SCADA), membrane bioreactor systems, membrane filtration systems, filters, clarifiers and clarifier mechanisms, rakes, grinders, disinfection systems, presses (including belt presses), conveyors, cranes, HVAC (excluding ductwork), water heaters, heat exchangers, generators, cabinetry and housings (such as electrical boxes/enclosures), lighting fixtures, electrical conduit, emergency life systems, metal office furniture, shelving, laboratory equipment, analytical instrumentation, and dewatering equipment.

23) If the iron or steel is produced in the US, may other steps in the manufacturing process take place outside of the US, such as assembly?

No. Production in the US of the iron or steel used in a listed product requires that all manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives.

24) What processes must occur in the US to be compliant with the AIS requirement for reinforced precast concrete?

While reinforced precast concrete may not be at least 50% iron or steel, in this particular case, the reinforcing bar and wire must be produced in the US and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the US. The cement and other raw materials used in concrete production are not required to be of domestic origin.

If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the US.

Compliance

25) How should an assistance recipient document compliance with the AIS requirement?

In order to ensure compliance with the AIS requirement, specific AIS contract language must be included in each contract, starting with the assistance agreement, all the way down to the purchase agreements. Sample language for assistance agreements and contracts can be found in Appendix 3 and 4.

EPA recommends the use of a step certification process, similar to one used by the Federal Highway Administration. The step certification process is a method to ensure that producers adhere to the AIS requirement and assistance recipients can verify that products comply with the AIS requirement. The process also establishes accountability and better enables States to take enforcement actions against violators.

Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. A step certification is a process under which each handler (supplier, fabricator, manufacturer,

processor, etc) of the iron and steel products certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. A certification can be quite simple. Typically, it includes the name of the manufacturer, the location of the manufacturing facility where the product or process took place (not its headquarters), a description of the product or item being delivered, and a signature by a manufacturer's responsible party. Attached, as Appendix 5, are sample certifications. These certifications should be collected and maintained by assistance recipients.

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the US. While this type of certification may be acceptable, it may not provide the same degree of assurance. Additional documentation may be needed if the certification is lacking important information. Step certification is the best practice.

26) How should a State ensure assistance recipients are complying with the AIS requirement?

In order to ensure compliance with the AIS requirement, States SRF programs must include specific AIS contract language in the assistance agreement. Sample language for assistance agreements can be found in Appendix 3.

States should also, as a best practice, conduct site visits of projects during construction and review documentation demonstrating proof of compliance which the assistance recipient has gathered.

27) What happens if a State or EPA finds a non-compliant iron and/or steel product permanently incorporated in the project?

If a potentially non-compliant product is identified, the State should notify the assistance recipient of the apparent unauthorized use of the non-domestic component, including a proposed corrective action, and should be given the opportunity to reply. If unauthorized use is confirmed, the State can take one or more of the following actions: request a waiver where appropriate; require the removal of the non-domestic item; or withhold payment for all or part of the project. Only EPA can issue waivers to authorize the use of a non-domestic item. EPA may use remedies available to it under the Clean Water Act, the Safe Drinking Water Act, and 40 CFR part 31 grant regulations, in the event of a violation of a grant term and condition.

It is recommended that the State work collaboratively with EPA to determine the appropriate corrective action, especially in cases where the State is the one who identifies the item in noncompliance or there is a disagreement with the assistance recipient.

If fraud, waste, abuse, or any violation of the law is suspected, the Office of Inspector General (OIG) should be contacted immediately. The OIG can be reached at 1-

888-546-8740 or OIG_Hotline@epa.gov. More information can be found at this website: http://www.epa.gov/oig/hotline.htm.

28) How do international trade agreements affect the implementation of the AIS requirements?

The AIS provision applies in a manner consistent with United States obligations under international agreements. Typically, these obligations only apply to direct procurement by the entities that are signatories to such agreements. In general, SRF assistance recipients are not signatories to such agreements, so these agreements have no impact on this AIS provision. In the few instances where such an agreement applies to a municipality, that municipality is under the obligation to determine its applicability and requirements and document the actions taken to comply for the State.

Waiver Process

The statute permits EPA to issue waivers for a case or category of cases where EPA finds (1) that applying these requirements would be inconsistent with the public interest; (2) iron and steel products are not produced in the US in sufficient and reasonably available quantities and of a satisfactory quality; or (3) inclusion of iron and steel products produced in the US will increase the cost of the overall project by more than 25 percent.

In order to implement the AIS requirements, EPA has developed an approach to allow for effective and efficient implementation of the waiver process to allow projects to proceed in a timely manner. The framework described below will allow States, on behalf of the assistance recipients, to apply for waivers of the AIS requirement directly to EPA Headquarters. Only waiver requests received from states will be considered. Pursuant to the Act, EPA has the responsibility to make findings as to the issuance of waivers to the AIS requirements.

Definitions

The following terms are critical to the interpretation and implementation of the AIS requirements and apply to the process described in this memorandum:

Reasonably Available Quantity: The quantity of iron or steel products is available or will be available at the time needed and place needed, and in the proper form or specification as specified in the project plans and design.

Satisfactory Quality: The quality of iron or steel products, as specified in the project plans and designs.

Assistance Recipient: A borrower or grantee that receives funding from a State CWSRF or DWSRF program.

Step-By-Step Waiver Process

Application by Assistance Recipient

Each local entity that receives SRF water infrastructure financial assistance is required by section 436 of the Act to use American made iron and steel products in the construction of its project. However, the recipient may request a waiver. Until a waiver is granted by EPA, the AIS requirement stands, except as noted above with respect to municipalities covered by international agreements.

The waiver process begins with the SRF assistance recipient. In order to fulfill the AIS requirement, the assistance recipient must in good faith design the project (where applicable) and solicit bids for construction with American made iron and steel products. It is essential that the assistance recipient include the AIS terms in any request for proposals or solicitations for bids, and in all contracts (see Appendix 3 for sample construction contract language). The assistance recipient may receive a waiver at any point before, during, or after the bid process, if one or more of three conditions is met:

1. Applying the American Iron and Steel requirements of the Act would be inconsistent with the public interest;
2. Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
3. Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Proper and sufficient documentation must be provided by the assistance recipient. A checklist detailing the types of information required for a waiver to be processed is attached as Appendix 1.

Additionally, it is strongly encouraged that assistance recipients hold pre-bid conferences with potential bidders. A pre-bid conference can help to identify iron and steel products needed to complete the project as described in the plans and specifications that may not be available from domestic sources. It may also identify the need to seek a waiver prior to bid, and can help inform the recipient on compliance options.

In order to apply for a project waiver, the assistance recipient should email the request in the form of a Word document (.doc) to the State SRF program. It is strongly recommended that the State designate a single person for all AIS communications. The State SRF designee will review the application for the waiver and determine whether the necessary information has been included. Once the waiver application is complete, the State designee will forward the application to either of two email addresses. For CWSRF waiver requests, please send the application to: cwsrfwaiver@epa.gov. For DWSRF waiver requests, please send the application to: dwsrfwaiver@epa.gov.

Evaluation by EPA

After receiving an application for waiver of the AIS requirements, EPA Headquarters will publish the request on its website for 15 days and receive informal comment. EPA Headquarters will then use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.

In the event that EPA finds that adequate documentation and justification has been submitted, the Administrator may grant a waiver to the assistance recipient. EPA will notify the State designee that a waiver request has been approved or denied as soon as such a decision has been made. Granting such a waiver is a three-step process:

1. Posting – After receiving an application for a waiver, EPA is required to publish the application and all material submitted with the application on EPA's website for 15 days. During that period, the public will have the opportunity to review the request and provide informal comment to EPA. The website can be found at: http://water.epa.gov/grants_funding/aisrequirement.cfm

2. Evaluation – After receiving an application for waiver of the AIS requirements, EPA Headquarters will use the checklist in Appendix 2 to determine whether the application properly and adequately documents and justifies the statutory basis cited for the waiver – that it is quantitatively and qualitatively sufficient – and to determine whether or not to grant the waiver.

3. Signature of waiver approval by the Administrator or another agency official with delegated authority – As soon as the waiver is signed and dated, EPA will notify the State SRF program, and post the signed waiver on our website. The assistance recipient should keep a copy of the signed waiver in its project files.

Public Interest Waivers

EPA has the authority to issue public interest waivers. Evaluation of a public interest waiver request may be more complicated than that of other waiver requests so they may take more time than other waiver requests for a decision to be made. An example of a public interest waiver that might be issued could be for a community that has standardized on a particular type or manufacturer of a valve because of its performance to meet their specifications. Switching to an alternative valve may require staff to be trained on the new equipment and additional spare parts would need to be purchased and stocked, existing valves may need to be unnecessarily replaced, and portions of the system may need to be redesigned. Therefore, requiring the community to install an alternative valve would be inconsistent with public interest.

EPA also has the authority to issue a public interest waiver that covers categories of products that might apply to all projects.

EPA reserves the right to issue national waivers that may apply to particular classes of assistance recipients, particular classes of projects, or particular categories of iron or steel products. EPA may develop national or (US geographic) regional categorical waivers through the identification of similar circumstances in the detailed justifications presented to EPA in a waiver request or requests. EPA may issue a national waiver based on policy decisions regarding the public's interest or a determination that a particular item is not produced domestically in reasonably available quantities or of a sufficient quality. In such cases, EPA may determine it is necessary to issue a national waiver.

If you have any questions concerning the contents of this memorandum, you may contact us, or have your staff contact Jordan Dorfman, Attorney-Advisor, State Revolving Fund Branch, Municipal Support Division, at dorfman.jordan@epa.gov or (202) 564-0614 or Kiri Anderer, Environmental Engineer, Infrastructure Branch, Drinking Water Protection Division, at anderer.kirsten@epa.gov or (202) 564-3134.

Attachments

Appendix 1: Information Checklist for Waiver Request

The purpose of this checklist is to help ensure that all appropriate and necessary information is submitted to EPA. EPA recommends that States review this checklist carefully and provide all appropriate information to EPA. This checklist is for informational purposes only and does not need to be included as part of a waiver application.

Items	✓	Notes
General • Waiver request includes the following information: — Description of the foreign and domestic construction materials — Unit of measure — Quantity — Price — Time of delivery or availability — Location of the construction project — Name and address of the proposed supplier — A detailed justification for the use of foreign construction materials • Waiver request was submitted according to the instructions in the memorandum • Assistance recipient made a good faith effort to solicit bids for domestic iron and steel products, as demonstrated by language in requests for proposals, contracts, and communications with the prime contractor		
Cost Waiver Requests • Waiver request includes the following information: — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products — Relevant excerpts from the bid documents used by the contractors to complete the comparison — Supporting documentation indicating that the contractor made a reasonable survey of the market, such as a description of the process for identifying suppliers and a list of contacted suppliers		
Availability Waiver Requests • Waiver request includes the following supporting documentation necessary to demonstrate the availability, quantity, and/or quality of the materials for which the waiver is requested: — Supplier information or pricing information from a reasonable number of domestic suppliers indicating availability/delivery date for construction materials — Documentation of the assistance recipient's efforts to find available domestic sources, such as a description of the process for identifying suppliers and a list of contacted suppliers. — Project schedule — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of construction materials • Waiver request includes a statement from the prime contractor and/or supplier confirming the non-availability of the domestic construction materials for which the waiver is sought • Has the State received other waiver requests for the materials described in this waiver request, for comparable projects?		

Appendix 2: HQ Review Checklist for Waiver Request

Instructions: To be completed by EPA. Review all waiver requests using the questions in the checklist, and mark the appropriate box as Yes, No or N/A. Marks that fall inside the shaded boxes may be grounds for denying the waiver. If none of your review markings fall into a shaded box, the waiver is eligible for approval if it indicates that one or more of the following conditions applies to the domestic product for which the waiver is sought:

1. The iron and/or steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality.
2. The inclusion of iron and/or steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Review Items	Yes	No	N/A	Comments
Cost Waiver Requests • Does the waiver request include the following information? — Comparison of overall cost of project with domestic iron and steel products to overall cost of project with foreign iron and steel products				
— Relevant excerpts from the bid documents used by the contractors to complete the comparison				
— A sufficient number of bid documents or pricing information from domestic sources to constitute a reasonable survey of the market				
• Does the Total Domestic Project exceed the Total Foreign Project Cost by more than 25%?				
Availability Waiver Requests • Does the waiver request include supporting documentation sufficient to show the availability, quantity, and/or quality of the iron and/or steel product for which the waiver is requested? — Supplier information or other documentation indicating availability/delivery date for materials — Project schedule — Relevant excerpts from project plans, specifications, and permits indicating the required quantity and quality of materials				
• Does supporting documentation provide sufficient evidence that the contractors made a reasonable effort to locate domestic suppliers of materials, such as a description of the process for identifying suppliers and a list of contacted suppliers?				
• Based on the materials delivery/availability date indicated in the supporting documentation, will the materials be unavailable when they are needed according to the project schedule? (By item, list schedule date and domestic delivery quote date or other relevant information)				
• Is EPA aware of any other evidence indicating the non-availability of the materials for which the waiver is requested? Examples include: — Multiple waiver requests for the materials described in this waiver request, for comparable projects in the same State — Multiple waiver requests for the materials described in this waiver request, for comparable projects in other States — Correspondence with construction trade associations indicating the non-availability of the materials				
• Are the available domestic materials indicated in the bid documents of inadequate quality compared those required by the project plans, specifications, and/or permits?				

Appendix 3: Example Loan Agreement Language

ALL ASSISTANCE AGREEMENT MUST HAVE A CLAUSE REQUIRING COMPLIANCE WITH THE AIS REQUIREMENT. THIS IS AN EXAMPLE OF WHAT COULD BE INCLUDED IN SRF ASSISTANCE AGREEMENTS. EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THIS CLAUSE WITH RESPECT TO STATE LAW:

Comply with all federal requirements applicable to the Loan (including those imposed by the 2014 Appropriations Act and related SRF Policy Guidelines) which the Participant understands includes, among other, requirements that all of the iron and steel products used in the Project are to be produced in the United States ("American Iron and Steel Requirement") unless (i) the Participant has requested and obtained a waiver from the Agency pertaining to the Project or (ii) the Finance Authority has otherwise advised the Participant in writing that the American Iron and Steel Requirement is not applicable to the Project.

Comply with all record keeping and reporting requirements under the Clean Water Act/Safe Drinking Water Act, including any reports required by a Federal agency or the Finance Authority such as performance indicators of program deliverables, information on costs and project progress. The Participant understands that (i) each contract and subcontract related to the Project is subject to audit by appropriate federal and state entities and (ii) failure to comply with the Clean Water Act/Safe Drinking Water Act and this Agreement may be a default hereunder that results in a repayment of the Loan in advance of the maturity of the Bonds and/or other remedial actions.

Appendix 4: Sample Construction Contract Language

ALL CONTRACTS MUST HAVE A CLAUSE REQUIRING COMPLIANCE WITH THE AIS REQUIREMENT. THIS IS AN EXAMPLE OF WHAT COULD BE INCLUDED IN ALL CONTRACTS IN PROJECTS THAT USE SRF FUNDS. EPA MAKES NO CLAIMS REGARDING THE LEGALITY OF THIS CLAUSE WITH RESPECT TO STATE OR LOCAL LAW:

The Contractor acknowledges to and for the benefit of the City of _____ ("Purchaser") and the _____ (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Appendix 5: Sample Certifications

The following information is provided as a sample letter of **step** certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

DAVIS-BACON REQUIREMENTS

The Recipient shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section 5.

Requirements under the Consolidated Appropriations Act, 2014 (P.L. 113-76)

For Recipients That Are Governmental Entities:

If a Recipient has questions regarding when Davis-Bacon (DB) applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State Water Board.

The Recipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/whd/

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2014 Consolidated Appropriation Act, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If the Recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the Recipient must discuss the situation with the State Water Board State before authorizing work on that site.

2. Obtaining Wage Determinations.

   (a) Recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

      (i) While the solicitation remains open, the Recipient shall monitor www.wdol.gov weekly to ensure that the wage determination contained in the solicitation remains current. The Recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the Recipients may request a finding from the State Water Board that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State Water Board will provide a report of its findings to the Recipient.

      (ii) If the Recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State Water Board, at the request of the Recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The Recipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

   (b) If the Recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the Recipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a Recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the Recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the Recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The Recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the Recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal Agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2014 Consolidated Appropriations Act, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b) (2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a) (1) (iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. Recipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The Recipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the Recipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The Recipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b) (2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the Recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the Recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Recipient(s) for transmission to the State or EPA

if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the Recipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a) (3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary

employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Recipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The Recipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The Recipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Recipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Recipient shall insert in any such contract a clause providing hat the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the USEPA, the Department of Labor, and the State Water Board, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The Recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The Recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The Recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB. Recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The Recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The Recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the Recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract . Recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the Recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The Recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/contacts/whd/america2.htm.

General Decision Number: CA180029 06/15/2018 CA29

Superseded General Decision Number: CA20170029

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alameda, Calaveras, Contra Costa, Fresno, Kings, Madera, Mariposa, Merced, Monterey, San Benito, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Stanislaus and Tuolumne Counties in California.

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	01/12/2018
2	01/19/2018
3	01/26/2018
4	02/09/2018
5	03/02/2018
6	04/06/2018
7	04/13/2018
8	05/04/2018
9	06/01/2018
10	06/15/2018

ASBE0016-004 01/01/2018

AREA 1: CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS & TOULMNE COUNTIES

AREA 2: ALAMEDA, CONTRA COSTA, SAN FRANSICO, SAN MATEO & SANTA CLARA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
Area 1	$ 28.20	9.34
Area 2	$ 32.98	9.34

ASBE0016-008 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANSICO, SAN MATEO, SANTA CLARA, & SANTA CRUZ

AREA 2: CALAVERAS, COLUSA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAU, & TUOLUMNE

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)		
Area 1	$ 35.36	22.98
Area 2	$ 49.46	22.98

BOIL0549-001 10/01/2016

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: REMAINING COUNTIES

	Rates	Fringes
BOILERMAKER		
Area 1	$ 43.28	37.91
Area 2	$ 39.68	35.71

BRCA0003-001 08/01/2017

	Rates	Fringes

MARBLE FINISHER.....$ 32.60 15.31

BRCA0003-003 08/01/2017

	Rates	Fringes
MARBLE MASON	$ 44.60	26.83

BRCA0003-005 05/01/2017

	Rates	Fringes
BRICKLAYER		
(1) Fresno, Kings, Madera, Mariposa, Merced	$ 38.45	21.22
(7) San Francisco, San Mateo	$ 42.34	25.83
(8) Alameda, Contra Costa, San Benito, Santa Clara	$ 44.16	21.71
(9) Calaveras, San Joaquin, Stanislaus, Toulumne	$ 39.66	20.76
(16) Monterey, Santa Cruz	$ 39.51	23.49

BRCA0003-008 09/01/2017

	Rates	Fringes
TERRAZZO FINISHER	$ 35.14	16.87
TERRAZZO WORKER/SETTER	$ 44.11	26.36

BRCA0003-011 04/01/2018

AREA 1: Alameda, Contra Costa, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz

AREA 2: Calaveras, San Joaquin, Stanislaus, Tuolumne

AREA 3: Fresno, Kings, Madera, Mariposa, Merced

	Rates	Fringes
TILE FINISHER		
Area 1	$ 28.56	15.87
Area 2	$ 25.60	14.30
Area 3	$ 25.88	15.17
Tile Layer		
Area 1	$ 47.77	18.29
Area 2	$ 42.67	16.81
Area 3	$ 38.15	17.70

CARP0022-001 07/01/2017

San Francisco County

	Rates	Fringes

Carpenters

Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 46.55	28.71
Journeyman Carpenter	$ 46.40	28.71
Millwright	$ 46.50	30.30

CARP0034-001 07/01/2017

	Rates	Fringes
Diver		
Assistant Tender, ROV Tender/Technician	$ 45.65	31.91
Diver standby	$ 50.61	31.91
Diver Tender	$ 49.82	31.91
Diver wet	$ 95.17	31.91
Manifold Operator (mixed gas)	$ 54.82	31.91
Manifold Operator (Standby)	$ 49.82	31.91

DEPTH PAY (Surface Diving):
050 to 100 ft $2.00 per foot
101 to 150 ft $3.00 per foot
151 to 220 ft $4.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2017

	Rates	Fringes

Piledriver	$ 46.65	31.91

CARP0035-007 07/01/2017

AREA 1: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara counties

AREA 2: Monterey, San Benito, Santa Cruz Counties

AREA 3: Calaveras, Fresno, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tuolumne Counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer I	$ 25.61	20.42
Installer II	$ 22.18	20.42
Lead Installer	$ 29.06	20.92
Master Installer	$ 33.28	20.92
Area 2		
Installer I	$ 22.96	20.42
Installer II	$ 20.01	20.42
Lead Installer	$ 25.93	20.92
Master Installer	$ 29.56	20.92
Area 3		
Installer I	$ 22.01	20.42
Installer II	$ 19.24	20.42
Lead Installer	$ 24.81	20.92
Master Installer	$ 31.83	20.92

CARP0035-008 08/01/2017

AREA 1: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara counties

AREA 2: Monterey, San Benito, Santa Cruz Counties

AREA 3: San Joaquin

AREA 4: Calaveras, Fresno, Kings, Madera, Mariposa, Merced, Stanislaus, Tuolumne Counties

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1	$ 46.40	29.15
Area 2	$ 40.52	29.15
Area 3	$ 41.02	29.15
Area 4	$ 39.67	29.15
Drywall Stocker/Scrapper		
Area 1	$ 23.20	16.88
Area 2	$ 20.26	16.88
Area 3	$ 20.51	16.88
Area 4	$ 19.84	16.88

CARP0152-001 07/01/2017

Contra Costa County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 46.55	28.71
Journeyman Carpenter	$ 46.40	28.71
Millwright	$ 46.50	28.71

CARP0152-002 07/01/2017

San Joaquin County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 40.67	28.71
Journeyman Carpenter	$ 40.52	28.71
Millwright	$ 43.02	30.30

CARP0152-004 07/01/2017

Calaveras, Mariposa, Merced, Stanislaus and Tuolumne Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 39.32	28.71
Journeyman Carpenter	$ 39.17	28.71
Millwright	$ 41.67	30.30

CARP0217-001 07/01/2017

San Mateo County

	Rates	Fringes
Carpenters		

Bridge Builder/Highway
Carpenter.....$ 46.40 28.71
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 46.55 28.71
Journeyman Carpenter.....$ 46.40 28.71
Millwright.....$ 46.50 30.30

CARP0405-001 07/01/2017

Santa Clara County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 46.55	28.71
Journeyman Carpenter	$ 46.40	28.71
Millwright	$ 46.50	30.30

CARP0405-002 07/01/2017

San Benito County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 40.58	28.71
Journeyman Carpenter	$ 40.52	28.71
Millwright	$ 43.02	30.30

CARP0505-001 07/01/2017

Santa Cruz County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 40.67	28.71

Journeyman Carpenter	$ 40.52	28.71
Millwright	$ 43.02	30.30

CARP0605-001 07/01/2017

Monterey County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 40.67	28.71
Journeyman Carpenter	$ 40.52	28.71
Millwright	$ 43.02	30.30

CARP0701-001 07/01/2017

Fresno and Madera Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 39.32	28.71
Journeyman Carpenter	$ 39.17	28.71
Millwright	$ 41.67	30.30

CARP0713-001 07/01/2017

Alameda County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 46.55	28.71
Journeyman Carpenter	$ 46.40	28.71
Millwright	$ 46.50	30.30

CARP1109-001 07/01/2017

Kings County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter	$ 46.40	28.71
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer	$ 39.32	28.71
Journeyman Carpenter	$ 39.17	28.71
Millwright	$ 41.67	30.30

ELEC0006-004 12/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.52	3%+18.05
Technician	$ 44.30	3%+18.05

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0006-007 06/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
ELECTRICIAN	$ 66.00	3%+43.40

ELEC0100-002 03/01/2018

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 37.50	22.18

ELEC0100-005 12/01/2016

FRESNO, KINGS, MADERA

	Rates	Fringes
Communications System		
Installer	$ 30.64	3%+17.86
Technician	$ 34.89	3%+17.86

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS Background foreground music, Intercom and telephone interconnect systems, Telephone systems Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage, master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide,

B. FIRE ALARM SYSTEMS Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems, Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems, Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems, VSAT Data Systems Data Communication Systems RF and Remote Control Systems, Fiber Optic Data Systems

WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management

systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

ELEC0234-001 05/28/2018

MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
ELECTRICIAN		
Zone A	$ 44.65	24.44
Zone B	$ 50.77	25.62

Zone A: All of Santa Cruz, Monterey, and San Benito Counties within 25 air miles of Highway 1 and Dolan Road in Moss Landing, and an area extending 5 miles east and west of Highway 101 South to the San Luis Obispo County Line

Zone B: Any area outside of Zone A

ELEC0234-003 12/01/2017

MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	18.69
Technician	$ 43.72	18.86

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for

which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0302-001 01/01/2018

CONTRA COSTA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 56.17	26.59
ELECTRICIAN	$ 49.76	26.59

ELEC0302-003 12/01/2017

CONTRA COSTA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 37.22	18.66
Technician	$ 42.80	18.83

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0332-001 05/29/2017

SANTA CLARA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 69.60	34.318
ELECTRICIAN	$ 60.52	34.046

FOOTNOTES: Work under compressed air or where gas masks are required, orwork on ladders, scaffolds, stacks, "Bosun's

chairs," or other structures and where the workers are not protected by permanent guard rails at a distance of 40 to 60 ft. from the ground or supporting structures: to be paid one and one-half times the straight-time rate of pay. Work on structures of 60 ft. or over (as described above): to be paid twice the straight-time rate of pay.

ELEC0332-003 12/01/2017

SANTA CLARA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	18.69
Technician	$ 43.72	18.86

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

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* ELEC0595-001 06/01/2018

ALAMEDA COUNTY

	Rates	Fringes
CABLE SPLICER	$ 61.03	3%+35.72
ELECTRICIAN	$ 54.25	3%+35.72

ELEC0595-002 06/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
CABLE SPLICER	$ 41.40	3%+28.83
ELECTRICIAN		

(1) Tunnel work.....$ 38.86 3%+28.83
(2) All other work.....$ 36.00 3%+28.83

ELEC0595-006 12/01/2017

ALAMEDA COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	3%+17.96
Technician	$ 43.72	3%+17.96

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0595-008 12/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
Communications System		
Installer	$ 38.02	3%+17.96
Technician	$ 43.72	3%+17.96

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75'

above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0617-001 06/01/2017

SAN MATEO COUNTY

	Rates	Fringes
ELECTRICIAN	$ 57.00	33.59

ELEC0617-003 12/01/2017

SAN MATEO COUNTY

	Rates	Fringes
Sound & Communications		
Installer	$ 38.02	19.27
Technician	$ 43.72	19.27

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0684-001 06/01/2018

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes

ELECTRICIAN.....$ 38.00 3%+21.33

CABLE SPLICER = 110% of Journeyman Electrician

ELEC0684-004 12/01/2016

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
Communications System		
Installer	$ 30.64	3%+17.86
Technician	$ 34.89	3%+17.86

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC1245-001 06/01/2017

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer	$ 55.49	16.62
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)	$ 44.32	3%+17.65
(3) Groundman	$ 33.89	3%+17.65
(4) Powderman	$ 49.55	3%+17.65

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0008-001 01/01/2018

	Rates	Fringes
ELEVATOR MECHANIC	$ 65.45	32.645

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-001 06/26/2017

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (AREA 1:)		
GROUP 1	$ 44.67	30.39
GROUP 2	$ 43.14	30.39
GROUP 3	$ 41.66	30.39
GROUP 4	$ 40.28	30.39
GROUP 5	$ 39.01	30.39
GROUP 6	$ 37.69	30.39
GROUP 7	$ 36.55	30.39
GROUP 8	$ 35.41	30.39
GROUP 8-A	$ 33.20	30.39
OPERATOR: Power Equipment (Cranes and Attachments - AREA 1:)		
GROUP 1		
Cranes	$ 46.30	30.39
Oiler	$ 36.63	30.39
Truck crane oiler	$ 39.20	30.39
GROUP 2		
Cranes	$ 43.79	30.39
Oiler	$ 36.36	30.39
Truck crane oiler	$ 38.98	30.39
GROUP 3		
Cranes	$ 42.05	30.39
Hydraulic	$ 38.32	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Cranes	$ 39.01	30.39
OPERATOR: Power Equipment		

(Piledriving - AREA 1:)

GROUP 1		
Lifting devices	$ 45.89	30.39
Oiler	$ 36.63	30.39
Truck crane oiler	$ 39.20	30.39
GROUP 2		
Lifting devices	$ 44.07	30.39
Oiler	$ 36.36	30.39
Truck Crane Oiler	$ 38.98	30.39
GROUP 3		
Lifting devices	$ 42.39	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Lifting devices	$ 40.62	30.39
GROUP 5		
Lifting devices	$ 39.32	30.39
GROUP 6		
Lifting devices	$ 37.98	30.39

OPERATOR: Power Equipment

(Steel Erection - AREA 1:)

GROUP 1		
Cranes	$ 46.30	30.39
Oiler	$ 36.63	30.39
Truck Crane Oiler	$ 39.20	30.39
GROUP 2		
Cranes	$ 43.79	30.39
Oiler	$ 36.36	30.39
Truck Crane Oiler	$ 38.98	30.39
GROUP 3		
Cranes	$ 42.05	30.39
Hydraulic	$ 38.32	30.39
Oiler	$ 36.14	30.39
Truck Crane Oiler	$ 38.71	30.39
GROUP 4		
Cranes	$ 39.01	30.39
GROUP 5		
Cranes	$ 35.13	30.39

OPERATOR: Power Equipment

(Tunnel and Underground Work - AREA 1:)

SHAFTS, STOPES, RAISES:		
GROUP 1	$ 40.77	30.39
GROUP 1-A	$ 43.24	30.39
GROUP 2	$ 39.51	30.39
GROUP 3	$ 38.18	30.39
GROUP 4	$ 37.04	30.39
GROUP 5	$ 35.90	30.39
UNDERGROUND:		
GROUP 1	$ 40.67	30.39
GROUP 1-A	$ 43.14	30.39
GROUP 2	$ 39.41	30.39
GROUP 3	$ 38.08	30.39
GROUP 4	$ 36.94	30.39
GROUP 5	$ 35.80	30.39

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete)

(Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum

cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

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AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, TUOLUMNE

AREA 2 -NOTED BELOW

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern Part

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MADERA COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MARIPOSA COUNTY:
Area 1: Remainder
Area 2: Eastern Part

MONTEREY COUNTY:
Area 1: Remainder
Area 2: Southwestern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

ENGI0003-008 07/01/2017

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman	$ 44.77	31.25
(2) Dredge Dozer; Heavy duty repairman	$ 39.81	31.25
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator	$ 38.69	31.25
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler	$ 35.39	31.25
AREA 2:		
(1) Leverman	$ 46.77	31.25
(2) Dredge Dozer; Heavy duty repairman	$ 41.81	31.25
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator	$ 40.69	31.25
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler	$ 37.39	31.25

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
  Area 1: All but the Western border with Mendocino & Trinity
  Counties
Area 2: Remainder

TRINITY COUNTY:
  Area 1: East Central part and the Northeastern border with
  Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

ENGI0003-019 07/26/2017

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1	$ 34.05	28.73
AREA 2	$ 36.05	28.73
GROUP 2		
AREA 1	$ 30.45	28.73
AREA 2	$ 32.45	28.73
GROUP 3		
AREA 1	$ 25.84	28.73
AREA 2	$ 27.84	28.73

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
  Area 1: Western part along the Southern portion of border
  with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
  Area 1: All but the Northern portion along the border of
  Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
  Area 1: All but the Western border with mendocino & Trinity
  Counties
Area 2: Remainder

TRINITY COUNTY:
  Area 1: East Central part and the Northeaster border with
  Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

IRON0377-002 01/01/2017

	Rates	Fringes
Ironworkers:		
Fence Erector	$ 29.58	21.59
Ornamental, Reinforcing and Structural	$ 36.00	30.15

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval
Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training
Center-Goldstone, San Clemente Island, San Nicholas Island,
Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine
Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base,
Naval Post Graduate School - Monterey, Yermo Marine Corps
Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0067-002 12/01/2017

AREA "A" - ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND
SANTA CLARA COUNTIES

AREA "B" - CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA,

MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
Asbestos Removal Laborer		
All Counties	$ 23.00	11.31
LABORER (Lead Removal)		
Area A	$ 30.70	22.17
Area B	$ 29.70	22.17

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LABO0073-002 06/26/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.54	22.17
Traffic Control Person I	$ 28.84	22.17
Traffic Control Person II	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0073-003 07/01/2017

SAN JOAQUIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO0073-005 06/26/2017

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72
GROUP 2	$ 36.37	21.72

GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0073-007 06/27/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS)		
(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE)		

GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster;

Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12

inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0073-009 07/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
LABORER (Plaster Tender).....	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0261-003 06/26/2017

SAN FRANCISCO AND SAN MATEO COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 29.54	22.17
Traffic Control Person I	$ 29.84	22.17
Traffic Control Person II	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0261-005 06/26/2017

SAN FRANCISCO AND SAN MATEO COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72
GROUP 2	$ 36.37	21.72
GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-009 06/26/2017

SAN FRANCISCO, AND SAN MATEO COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31
Laborers: (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker

and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work

performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0261-011 05/01/2017

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
MASON TENDER, BRICK	$ 33.18	21.49

FOOTNOTES: Underground work such as sewers, manholes, catch basins, sewer pipes, telephone conduits, tunnels and cut trenches: $5.00 per day additional. Work in live sewage: $2.50 per day additional.

LABO0261-014 07/01/2017

SAN FRANCISCO AND SAN MATEO COUNTIES:

	Rates	Fringes
PLASTER TENDER	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0270-003 06/26/2017

AREA A: SANTA CLARA

AREA B: MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person		
Area A	$ 29.54	22.17

Area B	$ 28.54	22.17
Traffic Control Person I		
Area A	$ 29.84	22.17
Area B	$ 28.84	22.17
Traffic Control Person II		
Area A	$ 27.34	22.17
Area B	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0270-004 06/26/2017

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0270-005 07/01/2017

MONTEREY AND SAN BENITO COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO0270-007 06/27/2017

MONTEREY, SAN BENITO, AND SANTA CRUZ, COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B)		
(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE - AREA B)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING - AREA B)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small

trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling

and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0270-010 06/26/2017

SANTA CLARA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of

type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

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GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair

track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0270-011 07/01/2017

MONTEREY, SAN BENITO, SANTA CRUZ, SANTA CLARA COUNTIES

	Rates	Fringes
LABORER (Plaster Tender).....	$ 34.70	21.22

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0294-001 07/01/2017

FRESNO, KINGS AND MADERA COUNTIES

	Rates	Fringes

LABORER (Brick)
Mason Tender-Brick.....$ 30.45 21.04

LABO0294-002 06/26/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.54	22.17
Traffic Control Person I	$ 28.84	22.17
Traffic Control Person II	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0294-005 06/26/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang -

muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0294-008 06/30/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38
GROUP 2	$ 28.64	22.38
GROUP 3	$ 28.54	22.38
GROUP 4	$ 22.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)		
(1) New Construction	$ 28.54	22.31
(2) Establishment Warranty Period	$ 22.23	22.31
LABORER (GUNITE - AREA B:)		
GROUP 1	$ 29.75	22.31
GROUP 2	$ 29.25	22.31
GROUP 3	$ 28.66	22.31
GROUP 4	$ 28.54	22.31
LABORER (WRECKING - AREA B:)		
GROUP 1	$ 28.79	22.31
GROUP 2	$ 28.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All

employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0294-010 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE

	Rates	Fringes
Plasterer tender	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0294-011 07/01/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
LABORER (Plaster Tender)	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0304-002 06/26/2017

ALAMEDA COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 29.54	22.17
Traffic Control Person I	$ 29.84	22.17
Traffic Control Person II	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash

cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0304-003 06/26/2017

ALAMEDA COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0304-004 06/27/2017

ALAMEDA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38

GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty Period	$ 23.23	22.31
LABORER (GUNITE - AREA A:)		
GROUP 1	$ 30.75	22.31
GROUP 2	$ 30.25	22.31
GROUP 3	$ 29.66	22.31
GROUP 4	$ 29.54	22.31
LABORER (WRECKING - AREA A:)		
GROUP 1	$ 29.79	22.31
GROUP 2	$ 29.64	22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying,

dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0304-005 05/01/2017

ALAMEDA COUNTY

	Rates	Fringes
Brick Tender	$ 33.18	21.49

FOOTNOTES: Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

LABO0304-008 07/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Plasterer tender	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO0324-002 06/26/2017

CONTRA COSTA COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 29.54	22.17
Traffic Control Person I	$ 29.84	22.17
Traffic Control Person II	$ 27.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0324-006 06/26/2017

CONTRA COSTA COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 36.60	21.72

GROUP 2	$ 36.37	21.72
GROUP 3	$ 36.12	21.72
GROUP 4	$ 35.67	21.72
GROUP 5	$ 35.13	21.72
Shotcrete Specialist	$ 37.12	21.72

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0324-012 06/27/2017

CONTRA COSTA COUNTY

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 30.49	22.38
GROUP 1	$ 29.79	22.38
GROUP 1-a	$ 30.01	22.38
GROUP 1-c	$ 29.84	22.38
GROUP 1-e	$ 30.34	22.38
GROUP 1-f	$ 30.37	22.38
GROUP 1-g	$ 29.99	22.38
GROUP 2	$ 29.64	22.38
GROUP 3	$ 29.54	22.38
GROUP 4	$ 23.23	22.38
See groups 1-b and 1-d under laborer classifications.		
LABORER (GARDENERS, HORTICULURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction	$ 29.54	22.31
(2) Establishment Warranty		

Period.....$ 23.23		22.31
LABORER (GUNITE - AREA A:)		
GROUP 1.....$ 30.75		22.31
GROUP 2.....$ 30.25		22.31
GROUP 3.....$ 29.66		22.31
GROUP 4.....$ 29.54		22.31
LABORER (WRECKING - AREA A:)		
GROUP 1.....$ 29.79		22.31
GROUP 2.....$ 29.64		22.31

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller;

Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and

grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade

checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

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LABO0324-014 05/01/2017

CONTRA COSTA COUNTY:

	Rates	Fringes
Brick Tender	$ 33.18	21.49

FOOTNOTES: Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

LABO0324-018 07/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Plasterer tender	$ 34.70	23.11

Work on a swing stage scaffold: $1.00 per hour additional.

LABO1130-002 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person	$ 28.54	22.17
Traffic Control Person I	$ 28.84	22.17
Traffic Control Person II	$ 26.34	22.17

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO1130-003 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		

GROUP 1	$ 36.60	24.83
GROUP 2	$ 36.37	24.83
GROUP 3	$ 36.12	24.83
GROUP 4	$ 35.67	24.83
GROUP 5	$ 35.13	24.83
Shotcrete Specialist	$ 37.12	24.83

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO1130-005 07/01/2017

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 30.45	21.04

LABO1130-007 06/26/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE , COUNTIES

	Rates	Fringes
LABORER (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 29.49	22.38
GROUP 1	$ 28.79	22.38
GROUP 1-a	$ 29.01	22.38
GROUP 1-c	$ 28.84	22.38
GROUP 1-e	$ 29.34	22.38
GROUP 1-f	$ 29.37	22.38

GROUP 2.....$ 28.64 22.38
GROUP 3.....$ 28.54 22.38
GROUP 4.....$ 22.23 22.38

See groups 1-b and 1-d under laborer classifications.

LABORER (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA B:)

(1) New Construction.....$ 28.54 22.31
(2) Establishment Warranty Period.....$ 22.23 22.31

LABORER (GUNITE - AREA B:)

GROUP 1.....$ 29.75 22.31
GROUP 2.....$ 29.25 22.31
GROUP 3.....$ 28.66 22.31
GROUP 4.....$ 28.54 22.31

LABORER (WRECKING - AREA B:)

GROUP 1.....$ 28.79 22.31
GROUP 2.....$ 28.64 22.31

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder;

Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 2: Asphalt shoveler; Cement dumper and handling dry

cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO1130-008 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE

	Rates	Fringes
Plasterer tender	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

LABO1130-009 07/01/2017

MARIPOSA, MERCED, STANISLAUS, AND TUOLUMNE COUNTIES

	Rates	Fringes
LABORER (Plaster Tender)	$ 31.02	22.52

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0016-001 01/01/2018

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN MATEO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Painters:	$ 40.62	23.83

PREMIUMS:

EXOTIC MATERIALS - $0.75 additional per hour.
SPRAY WORK: - $0.50 additional per hour.
INDUSTRIAL PAINTING - $0.25 additional per hour
  [Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:
over 50 feet - $2.00 per hour additional
100 to 180 feet - $4.00 per hour additional
Over 180 feet - $6.00 per houir additional

PAIN0016-003 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO & SANTA CLARA COUNTIES

AREA 2: CALAVERAS, MARIPOA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
Drywall Finisher/Taper		
AREA 1	$ 45.16	26.74
AREA 2	$ 41.03	25.34

PAIN0016-012 01/01/2018

ALAMEDA, CONTRA COSTA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 48.00	26.03

PAIN0016-015 01/01/2018

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
PAINTER		
Brush	$ 32.91	19.26

FOOTNOTES:
SPRAY/SANDBLAST: $0.50 additional per hour.
EXOTIC MATERIALS: $1.00 additional per hour.
HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour. 100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.

PAIN0016-022 01/01/2018

SAN FRANCISCO COUNTY

	Rates	Fringes
PAINTER	$ 44.24	23.83

PAIN0169-001 01/01/2018

FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES:

	Rates	Fringes
GLAZIER	$ 35.00	26.26

PAIN0169-005 01/01/2018

ALAMEDA CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA & SANTA CRUZ COUNTIES

	Rates	Fringes
GLAZIER	$ 46.13	28.04

PAIN0294-004 01/01/2018

FRESNO, KINGS AND MADERA COUNTIES

	Rates	Fringes
PAINTER		
Brush, Roller	$ 29.78	18.11
Drywall Finisher/Taper	$ 34.87	23.68

FOOTNOTE:
Spray Painters & Paperhangers recive $1.00 additional per hour. Painters doing Drywall Patching receive $1.25 additional per hour. Lead Abaters & Sandblasters receive $1.50 additional per hour. High Time - over 30 feet (does not include work from a lift) $0.75 per hour additional.

PAIN0294-005 01/01/2018

FRESNO, KINGS & MADERA

	Rates	Fringes
SOFT FLOOR LAYER	$ 31.49	20.48

PAIN0767-001 01/01/2018

CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
GLAZIER	$ 34.57	28.25

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee rquired to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 01/01/2017

HIGHWAY IMPR0VEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1	$ 34.41	16.31
GROUP 2	$ 29.25	16.31
GROUP 3	$ 29.59	16.31

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-003 01/01/2018

CALAVERAS; SAN JOAQUIN COUNTIES; STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
SOFT FLOOR LAYER	$ 34.81	21.51

PLAS0066-002 07/01/2017

ALAMEDA, CONTRA COSTA, SAN MATEO AND SAN FRANCISCO COUNTIES:

	Rates	Fringes
PLASTERER	$ 40.51	27.13

PLAS0300-001 07/01/2014

	Rates	Fringes
PLASTERER		
AREA 188: Fresno	$ 29.44	22.26
AREA 224: San Benito, Santa Clara, Santa Cruz	$ 31.59	22.26
AREA 295: Calaveras & San Joaquin Couonties	$ 31.41	22.26
AREA 337: Monterey County	$ 30.52	22.26
AREA 429: Mariposa, Merced, Stanislaus, Tuolumne Counties	$ 31.41	22.26

PLAS0300-005 07/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 39.20	19.71

PLUM0038-001 07/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration		

Fitter).....$ 70.00 43.24

PLUM0038-005 07/01/2017

SAN FRANCISCO COUNTY

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter)	$ 59.50	38.24

PLUM0062-001 01/01/2018

MONTEREY AND SANTA CRUZ COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 42.30	31.69

PLUM0159-001 07/01/2017

CONTRA COSTA COUNTY

	Rates	Fringes
Plumber and steamfitter		
(1) Refrigeration	$ 56.92	35.94
(2) All other work	$ 55.92	34.44

PLUM0246-001 01/01/2018

FRESNO, KINGS & MADERA COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 39.40	30.89

PLUM0246-004 01/01/2017

FRESNO, MERCED & SAN JOAQUIN COUNIES

	Rates	Fringes
PLUMBER (PIPE TRADESMAN)	$ 13.00	10.74

PIPE TRADESMAN SCOPE OF WORK:
Installation of corrugated metal piping for drainage, as well as installation of corrugated metal piping for culverts in connection with storm sewers and drains; Grouting, dry packing and diapering of joints, holes or chases including paving over joints, in piping; Temporary piping for dirt work for building site preparation; Operating jack hammers, pavement breakers, chipping guns, concrete saws and spades to cut holes, chases and channels for piping systems; Digging, grading, backfilling and ground preparation for all types of pipe to all points of the jobsite; Ground preparation including ground leveling, layout and planting of shrubbery, trees and ground cover, including watering,

mowing, edging, pruning and fertilizing, the breaking of concrete, digging, backfilling and tamping for the preparation and completion of all work in connection with lawn sprinkler and landscaping; Loading, unloading and distributing materials at jobsite; Putting away materials in storage bins in jobsite secure storage area; Demolition of piping and fixtures for remodeling and additions; Setting up and tearing down work benches, ladders and job shacks; Clean-up and sweeping of jobsite; Pipe wrapping and waterproofing where tar or similar material is applied for protection of buried piping; Flagman

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PLUM0342-001 07/01/2017

ALAMEDA & CONTRA COSTA COUNTIES

	Rates	Fringes
PIPEFITTER		
CONTRA COSTA COUNTY	$ 58.10	42.45
PLUMBER, PIPEFITTER, STEAMFITTER		
ALAMEDA COUNTY	$ 58.10	42.45

PLUM0355-004 07/01/2017

ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, AND TUOLUMNE COUNTIES:

	Rates	Fringes
Underground Utility Worker /Landscape Fitter	$ 26.85	15.05

PLUM0393-001 07/01/2017

SAN BENITO AND SANTA CLARA COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 60.91	39.58

PLUM0442-001 01/01/2018

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS & TUOLUMNE COUNTIES

	Rates	Fringes
PLUMBER & STEAMFITTER	$ 41.00	29.37

PLUM0467-001 07/01/2017

SAN MATEO COUNTY

	Rates	Fringes
Plumber/Pipefitter/Steamfitter	$ 62.70	34.21

ROOF0027-002 01/01/2017

FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
ROOFER	$ 26.01	14.21

FOOTNOTE: Work with pitch, pitch base of pitch impregnated products or any material containing coal tar pitch, on any building old or new, where both asphalt and pitchers are used in the application of a built-up roof or tear off: $2.00 per hour additional.

ROOF0040-002 08/01/2017

SAN FRANCISCO & SAN MATEO COUNTIES:

	Rates	Fringes
ROOFER	$ 37.88	18.22

ROOF0081-001 08/01/2017

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Roofer	$ 38.20	16.81

ROOF0081-004 08/01/2017

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
ROOFER	$ 38.20	16.81

ROOF0095-002 08/01/2017

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES:

	Rates	Fringes
ROOFER		
Journeyman	$ 41.56	17.47
Kettle person (2 kettles); Bitumastic, Enameler, Coal Tar, Pitch and Mastic worker	$ 42.36	16.42

SFCA0483-001 01/01/2018

ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES:

	Rates	Fringes
SPRINKLER FITTER (FIRE)	$ 61.37	29.12

SFCA0669-011 04/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
SPRINKLER FITTER	$ 37.20	15.84

SHEE0104-001 01/01/2018

AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO, SANTA CLARA

AREA 2: MONTEREY & SAN BENITO

AREA 3: SANTA CRUZ

	Rates	Fringes
SHEET METAL WORKER		
AREA 1:		
Mechanical Contracts		
under $200,000	$ 50.29	37.16
All Other Work	$ 57.09	37.79
AREA 2	$ 46.97	32.08
AREA 3	$ 49.31	29.61

SHEE0104-003 07/01/2017

CALAVERAS AND SAN JOAQUIN COUNTIES:

	Rates	Fringes
SHEET METAL WORKER	$ 39.74	31.50

SHEE0104-005 07/01/2017

MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
SHEET METAL WORKER (Excluding metal deck and siding)	$ 37.67	34.10

SHEE0104-007 07/01/2017

FRESNO, KINGS, AND MADERA COUNTIES:

	Rates	Fringes
SHEET METAL WORKER	$ 37.49	34.45

SHEE0104-015 07/01/2017

ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only)	$ 37.53	32.10

SHEE0104-018 07/01/2017

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Sheet metal worker (Metal decking and siding only)	$ 37.53	32.10

TEAM0094-001 07/01/2017

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 30.72	27.47
GROUP 2	$ 31.02	27.47
GROUP 3	$ 31.32	27.47
GROUP 4	$ 31.67	27.47
GROUP 5	$ 32.02	27.47

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.

Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck

(when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this

contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that

classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

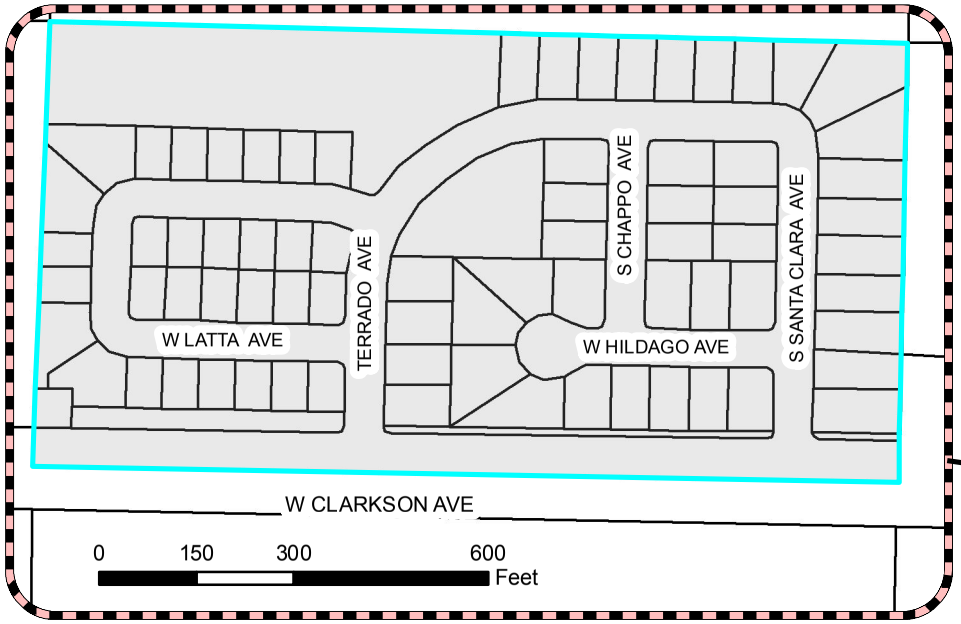
END OF GENERAL DECISION

Project Details

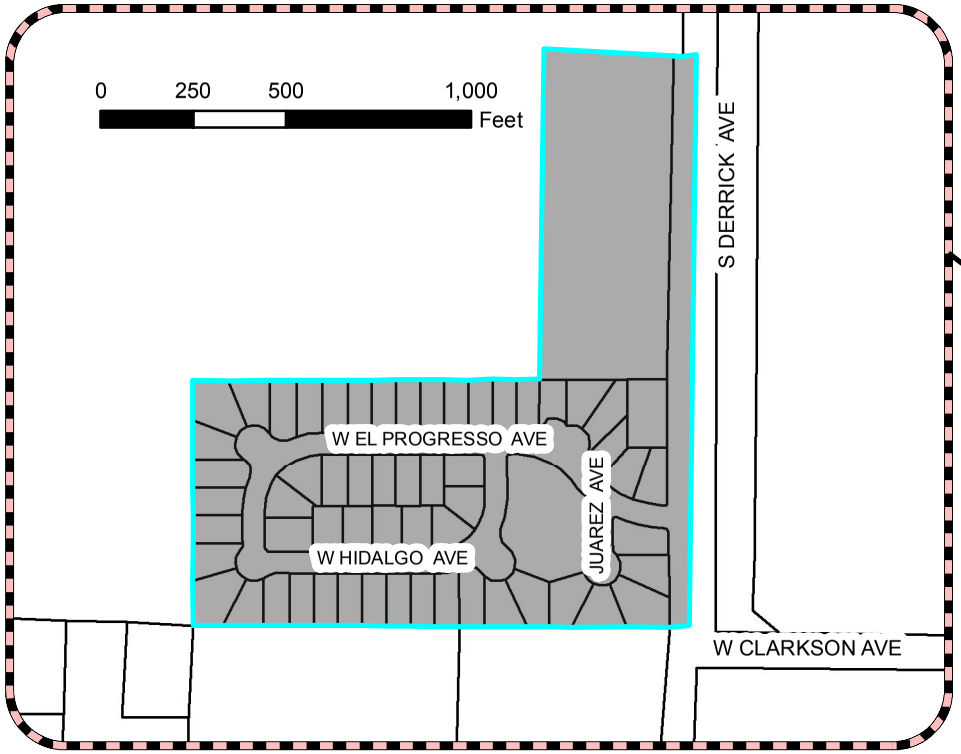
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

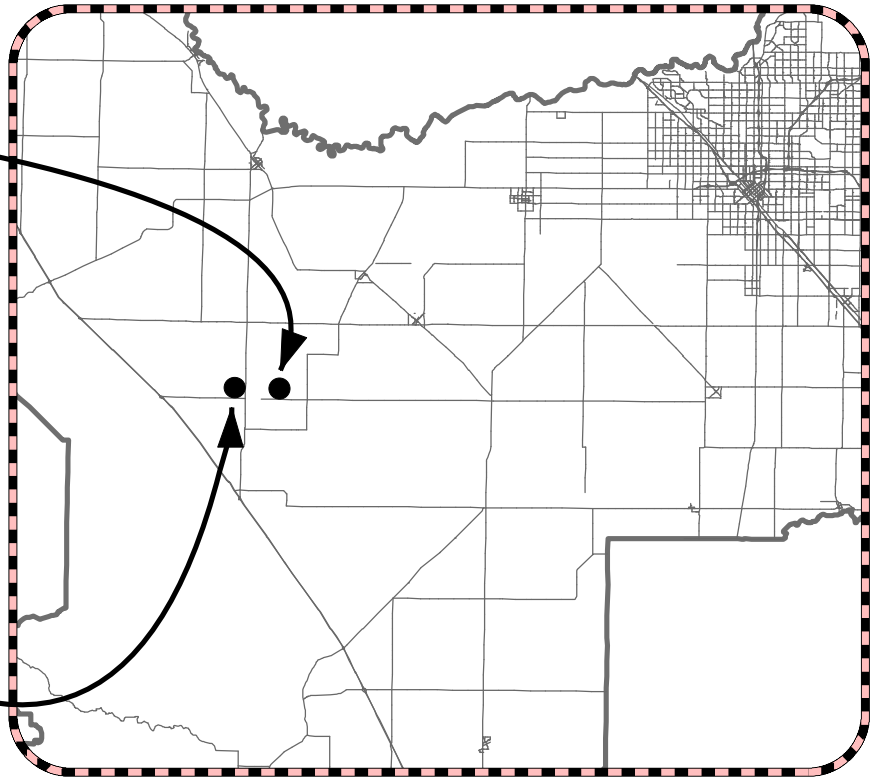
PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1

N
W E
S

DEPARTMENT OF PUBLIC WORKS AND PLANNING

PROJECT SIGNAGE

The Contactor shall place a funding sign at a prominent location, as designated by the County. The sign shall be at least four feet tall by eight feet wide and made of ¾ inch thick exterior grade plywood. The sign shall be supported by two 16 feet tall, 4x4 smooth wood posts, painted white. All logos are available from the California State Water Resources Control Board, Division of Financial Assistance, and are downloadable on their website. The sign shall be prepared in a professional manner. The sign shall be kept in good condition for the duration of construction.

See below for the sign template.

County of Fresno - Westside Groundwater Project

Project No. 1000359-005C

Total Project Cost: $Award$

Funding for this project has been provided in full or in part by the Proposition 1 - the Water Quality, Supply, and Infrastructure Improvement Act of 2014 and the Drinking Water State Revolving Fund through an agreement with the State Water Resources Control Board. California's Drinking Water State Revolving Fund is capitalized through a variety of funding sources, including grants from the United States Environmental Protection Agency and state bond proceeds.

This institution is an equal opportunity provider.

Actual Text size should reflect the text size depicted in the example.
Actual text style shall be Arial (normal) and the text color shall be black on a white background.
Actual Graphic Size should reflect the graphic size depicted in the example.
Project Cost should reflect the awarded bid.

****END OF SECTION****

DEPARTMENT OF PUBLIC HEALTH - ENVIRONMENTAL HEALTH DIVISION
P.O. Box 11867 Zip 93775, 1221 Fulton Mall, Fresno, California 93721
Telephone: (559) 600-3357 Fax: (559) 600-7629 Website: www.fcdph.org/water

PERMIT TO CONSTRUCT, DEEPEN, DESTROY, RECONDITION, OR REPAIR A WELL

_____ _____
Application Date **Estimated Start Date**

T_____ **R**_____ **S**_____

APN _____ - _____ - _____
(*ex### -### -##)*
Contractor _____

License # _____

Phone _____ **FAX** _____

OFFICE USE ONLY

Well Permit# _____**FA#** _____

Specialist _____ **CT**_____

☐ **Corcoran Clay Depth** _____ **Ft**
(see Special Corcoran Clay Annular Seal Requirements on attachment)
☐ **Well Location in Flood Zone.** **(Extend Casing above known flood level; Flood Elevation Certificate required to be submitted to the Fresno Co. Public Works. Dept. prior to approval of the well electrical permit.)**

Approved _____ **Date**_____ **Seal Insp.** _____ **Date** _____

Final Insp._____**Date** _____ **Supervisor**_____

Job Address/Location _____ **Parcel Size** _____

Owner Name _____ **Owner Phone** _____

Owner Address _____ **City** _____ **State** _____ **Zip** _____

Type of Work
☐ New Well
☐ Replacement Well
☐ Reconstruction/Deepening
☐ Test Hole
☐ Destruction

Type of Well
☐ Casing Driven
☐ Cable Tool
☐ Hardrock
☐ Auger
☐ Direct Rotary
☐ Reverse Rotary

Intended Use
☐ Domestic Private
☐ Domestic Public
☐ Agricultural
☐ Industrial
☐ Cathodic
☐ Test Hole
☐ Monitoring
☐ Other

Well Construction
Well Casing Material_____
Well Casing Diameter_____ in
Well Casing Gauge_____
Conductor Casing Material_____
Conductor Casing Diameter_____ in
Conductor Casing Depth_____ Ft
Annular Seal Depth_____ Ft
Borehole Diameter_____ in
Gravel Pack ☐ Yes ☐ No

Well Destruction
Type ☐ Gravel Pack ☐ Open Bottom ☐ Uncased ☐ Other_____
Well Diameter_____ In Total Depth_____ Ft
Depth to Water_____ Ft
Casing to be Perforated_____ Ft to _____Ft
☐ Casing cut off_____ Ft Below Grade (6ft max allowed)
☐ Oil lubricated pump **(Any oil in the well shall be removed and properly disposed of prior to destruction)**

Sealing Material/Seal Placement Method
☐ Neat Cement ☐ Sand Cement ☐ Concrete
☐ Bentonite – Product Name_____
☐ Pumped ☐ Free Fall **(allowed only when the interval to be sealed is dry and less than 30 Ft depth)**

Setbacks ☐ All setbacks exceed 300 Feet ☐ Other Wells _____ Ft
☐ Leach Lines _____ Ft ☐ Septic Tank _____ Ft ☐ Cesspool _____Ft ☐ Seepage Pits _____ Ft
☐ Sewer Lines _____ Ft ☐ Animal/Fowl Enclosure _____ Ft ☐ Designated Sewage Replacement Area _____ Ft
☐ Flood Control Basins _____Ft ☐ Waste Water Disposal Ponds _____ Ft ☐ Lakes/Streams _____ Ft

FEE ☐ **$605** (Domestic/Agricultural/ Cathodic/Test Hole **PE4650,** Public/Industrial **PE4652**) ☐ **$407** (Well Destruction **PE4651**)
☐ **No Charge** (Monitoring Well/Soil Boring **PE4653**)
PAYMENT METHOD ☐ Cash ☐ Check ☐ Credit Card (Authorization on file with Dept. of Public Health, Env. Health Division)

I hereby certify that the information described herein is correct. I understand that all work is to be done in accordance with the California Well Standards Ordinance and the conditions of this permit application, including any conditions which are added by the Environmental Health Division upon review of this application and issuance of the permit. I certify that I have a current C-57 Contractor's License and, if I employ workers, a current certificate of Workers' Compensation Insurance. I further understand that any permit issued pursuant to this application is subject to such further conditions as may be deemed necessary to ensure compliance with the Ordinance. **Note: This permit is non-transferable and is valid for 180 days.**

CONTRACTOR SIGNATURE:

DATE:

OFFICE USE ONLY - ENVISION CLERICAL:

Account# _____ **Invoice#** _____
Entered By _____ **Date** _____
SPECIAL REQUIREMENTS: **Faxed by** _____

Dummy Permit

DEPARTMENT OF PUBLIC HEALTH - ENVIRONMENTAL HEALTH DIVISION
P.O. Box 11867 Zip 93775, 1221 Fulton Mall, Fresno, California 93721
Telephone: (559) 600-3357 Fax: (559) 600-7629 Website: www.fcdph.org/water

PLOT PLAN TO ACCOMPANY PERMIT TO CONSTRUCT, DEEPEN, DESTROY, RECONDITION, OR REPAIR A WELL

Note: This permit is non-transferable and is valid for 180 days

Job Address / Location: _____ APN: ____/____/____ PERMIT # _____

Indicate distances in feet. Provide the names of streets or roads nearest to the property. Provide dimensions of the property and all existing or proposed structures. Provide locations of existing or proposed sewage disposal systems, including expansion or repair areas, within 250 feet of the new well. Provide locations of all other wells within 300 feet of the new well. Location information shall include all adjacent parcels, if within setbacks.

Dummy Permit

N

SELF-DEALING TRANSACTION DISCLOSURE FORM

(1) Company Board Member Information:

Name: _____ Date: _____

Job Title: _____

(2) Company/Agency Name and Address:

_____

_____

_____

_____

(3) Disclosure (Please describe the nature of the self-dealing transaction you are a party to)

_____

_____

_____

_____

(4) Explain why this self-dealing transaction is consistent with the requirements of Corporations Code 5233 (a)

_____

_____

_____

_____

_____

_____

_____

(5) Authorized Signature

Signature: _____ Date: _____

SELF-DEALING TRANSACTION DISCLOSURE FORM INSTRUCTIONS

In order to conduct business with the County of Fresno (hereinafter referred to as "County"), members of a contractor's board of directors (hereinafter referred to as "County Contractor"), must disclose any self-dealing transactions that they are a party to while providing goods, performing services, or both for the County. A self-dealing transaction is defined below:

"A self-dealing transaction means a transaction to which the corporation is a party and which one or more of its directors has a material financial interest"

The definition above will be utilized for purposes of completing the disclosure form.

(1) Enter board member's name, job title (if applicable), and date this disclosure is being made.

(2) Enter the board member's company/agency name and address.

(3) Describe in detail the nature of the self-dealing transaction that is being disclosed to the County. At a minimum, include a description of the following:

   a. The name of the agency/company with which the corporation has the transaction; and

   b. The nature of the material financial interest in the Corporation's transaction that the board member has.

(4) Describe in detail why the self-dealing transaction is appropriate based on applicable provisions of the Corporations Codes.

(5) Form must be signed by the board member that is involved in the self-dealing transaction described in Sections (3) and (4).

CONTRACTOR REQUEST FOR CLARIFICATION

Fresno County Westside Groundwater Project

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

CONTRACT NUMBER: 18-07-C

Requests for clarification of the plans and specifications regarding this project shall be submitted on this form. Any change or clarification of the project plans and specifications shall be in the form of a written addendum issued to planholders of record. Contractors requesting clarification shall complete the following:

Fax form to (559) 600-4399 or e-mail to DesignServices@co.fresno.ca.us

FIRM NAME: _____

SENDER / CONTACT NAME: _____

MAILING ADDRESS: _____
Zip Code

BUSINESS PHONE: (_____)_____ FAX NUMBER: (____)_____

Drawing No.:	Spec Section:

Question Type or print one question below

Response

The following section is for County use only.

Response By:_____ Date:_____

Included in Addendum No._____ Date:_____

Date Received:_____ Time Received:_____ am / pm RFC Number:_____

This form may be removed from the project specifications and/or reproduced as needed.

REVISED STANDARD SPECIFICATIONS DATED 09-02-16

ORGANIZATION

Revised standard specifications are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

07-15-16

Add to the 1st table of section 1-1.06:

07-15-16

APCD	air pollution control district
AQMD	air quality management district
CISS	cast-in-steel shell
CSL	crosshole sonic logging
GGL	gamma-gamma logging

^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

07-15-16

Replace the paragraphs in section 7-1.02I(2) with:

05-06-16

Under 2 CA Code of Regs § 11105:

1. During the performance of this contract, the recipient, contractor, and its subcontractors shall not deny the contract's benefits to any person on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender

expression, age, sexual orientation, or military and veteran status. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination.

2. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code, § 12900 et seq.), the regulations promulgated thereunder (Cal. Code Regs., tit. 2, § 11000 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Gov. Code, §§ 11135-11139.5), and the regulations or standards adopted by the awarding state agency to implement such article.
3. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding state agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, and all other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause.
4. Recipient, contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
5. The contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Under 2 CA Code of Regs § 11122:

STANDARD CALIFORNIA NONDISCRIMINATION CONSTRUCTION CONTRACT SPECIFICATIONS (GOV. CODE SECTION 12990)

These specifications are applicable to all state contractors and subcontractors having a construction contract or subcontract of $5,000 or more.

1. As used in the specifications:
   a. "Act" means the Fair Employment and Housing Act.
   b. "Administrator" means Administrator, Office of Compliance Programs, California Department of Fair Employment and Housing, or any person to whom the Administrator delegates authority;
2. Whenever the contractor or any subcontractor subcontracts a portion of the work, it shall include in each subcontract of $5,000 or more the nondiscrimination clause in this contract directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California Construction Contract Specifications, either directly or through incorporation by reference.
3. The contractor shall implement the specific nondiscrimination standards provided in paragraphs 6(a) through (e) of these specifications.
4. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer members of any group protected by the Act shall excuse the contractor's obligations under these specifications, Government Code section 12990, or the regulations promulgated pursuant thereto.5. In order for the nonworking training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor or the California Department of Industrial Relations.
5. In order for the nonworking training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor or the California Department of Industrial Relations.
6. The contractor shall take specific actions to implement its nondiscrimination program. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor must be able to demonstrate fully its efforts under steps a. through e. below:
   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and at all facilities at which the contractor's employees are assigned to work. The contractor shall specifically ensure that all foremen, superintendents, and other on-site

supervisory personnel are aware of and carry out the contractor's obligations to maintain such a working environment.

b. Provide written notification within seven days to the director of the DFEH when the referral process of the union or unions with which the contractor has a collective bargaining agreement has impeded the contractor's efforts to meet its obligations.

c. Disseminate the contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment and outreach programs and requesting their cooperation in assisting the contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction work is performed.

d. Ensure all personnel making management and employment decisions regarding hiring, assignment, layoff, termination, conditions of work, training, rates of pay or other employment decisions, including all supervisory personnel, superintendents, general foremen, on-site foremen, etc., are aware of the contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.

e. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the equal employment opportunity policy and the contractor's obligations under these specifications are being carried out.

7. Contractors are encouraged to participate in voluntary associations that assist in fulfilling their equal employment opportunity obligations. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on equal employment opportunity in the industry, ensures that the concrete benefits of the program are reflected in the contractor's workforce participation, and can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's.
8. The contractor is required to provide equal employment opportunity for all persons. Consequently, the contractor may be in violation of the Fair Employment and Housing Act (Government Code section 12990 et seq.) if a particular group is employed in a substantially disparate manner.
9. The contractor shall not use the nondiscrimination standards to discriminate against any person because race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status.
10. The contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to Government Code section 12990.
11. The contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Government Code section 12990 and its implementing regulations by the awarding agency. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Government Code section 12990.
12. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by OCP and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, status, (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

Add to the end of the 2nd sentence in the 1st paragraph of section 7-1.02K(1):

04-22-16

, and hauling and delivery of ready-mixed concrete.

Add between the 4th and 5th paragraphs of section 7-1.02K(3):

04-22-16

Submitted certified payrolls for hauling and delivering ready-mixed concrete must be accompanied by a written time record. The time record must include:

1. Truck driver's full name and address
2. Name and address of the factory or batching plant
3. Time the concrete was loaded at the factory or batching plant
4. Time the truck returned to the factory or batching plant
5. Truck driver's signature certifying under penalty of perjury that the information contained in this written time record is true and correct

Add between the 9th and 10th paragraphs of section 7-1.03:

07-15-16

If a height differential of more than 0.04 foot is created by construction activities at a joint transverse to the direction of traffic on the traveled way or a shoulder subject to public traffic, construct a temporary taper at the joint with a slope complying with the requirements shown in the following table:

Temporary Tapers

Height differential (foot)	Slope (horizontal:vertical)	
	Taper use of 14 days or less	Taper use of more than 14 days
Greater than 0.08	100:1 or flatter	200:1 or flatter
0.04–0.08	70:1 or flatter	70:1 or flatter

For a taper on existing asphalt concrete or concrete pavement, construct the taper with minor HMA under section 39-2.07.

Grind existing surfaces to accommodate a minimum taper thickness of 0.10 foot under either of the following conditions:

1. HMA material such as rubberized HMA, polymer-modified bonded wearing course, or open-graded friction course is unsuitable for raking to a maximum 0.02 foot thickness at the edge
2. Taper will be in place for more than 14 days

For a taper on a bridge deck or approach slab, construct the taper with polyester concrete under section 60-3.04B.

The completed surface of the taper must be uniform and must not vary more than 0.02 foot from the lower edge of a 12-foot straightedge when placed on its surface parallel and perpendicular to traffic.

If authorized, you may use alternative materials or methods to construct the required taper.

Replace *§ 337.15* in the 3rd item in the list in the paragraph of section 7-1.06B with:

05-06-16

§ 337.1

Add between the 1st and 2nd paragraphs of section 7-1.11A:

02-12-16

Comply with 46 CFR 381.7(a)–(b).

^^

8 PROSECUTION AND PROGRESS

07-15-16

Replace the table in the 3rd paragraph of section 8-1.10A with:

07-15-16

Liquidated Damages

Total bid		Liquidated damages per day
From over	To	
$0	$60,000	$1,400
$60,000	$200,000	$2,900
$200,000	$500,000	$3,200
$500,000	$1,000,000	$3,500
$1,000,000	$2,000,000	$4,000
$2,000,000	$5,000,000	$4,800
$5,000,000	$10,000,000	$6,800
$10,000,000	$20,000,000	$10,000
$20,000,000	$50,000,000	$13,500
$50,000,000	$100,000,000	$19,200
$100,000,000	$250,000,000	$25,300

^^^

9 PAYMENT

01-15-16

Replace *may withhold* in the 1st paragraph of section 9-1.16E(4) with:

01-15-16

withholds

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

04-15-16

Replace section 10-1.02B with:

04-15-16

10-1.02B Traffic Elements

Before starting the operational test of a traffic management system that directly impacts traffic, the system must be ready for operation, and all signs, pavement delineation, and pavement markings must be in place at the system's location.

If maintaining existing traffic management system elements during construction is shown on the Bid Item List, a list of the systems shown within the project limits and their operational status is included in the *Information Handout*. Before starting job site activities, conduct a preconstruction operational status check of the existing system's elements and each element's communication status with the transportation management center to which it communicates. If an existing system element is discovered and has not been identified, the Department adds the element to the list of systems. The pre- and postconstruction operational status check of the discovered elements is change order work.

If maintaining existing traffic management system elements during construction is not shown on the Bid Item List and an existing system element is discovered during the work, notify the Engineer. The Engineer orders a pre- and postconstruction operational status check of the discovered elements. The status check of the discovered elements is change order work.

Conduct the status check with the Engineer and an electrical representative from the traffic operations office of the district in which the work is located. The Department provides you a list of the preconstruction operational status-check results, including:

1. Existing traffic management system elements and their locations within the project limits
2. Fully functioning elements
3. Nonoperational elements

Before Contract acceptance, conduct a postconstruction operational status check of all elements shown on the list with the Engineer and an electrical representative from the traffic operations office of the district in which the work is located.

Replace 10-3 of section 10 with:

04-15-16

10-2–10-3 RESERVED

^^

12 TEMPORARY TRAFFIC CONTROL

07-15-16

Replace section 12-3.32 with:

04-15-16

12-3.32 PORTABLE CHANGEABLE MESSAGE SIGNS

12-3.32A General

12-3.32A(1) Summary

Section 12-3.32A includes specifications for placing portable changeable message signs.

12-3.32A(2) Definitions

Reserved

12-3.32A(3) Submittals

If requested, submit a certificate of compliance for each PCMS.

Submit your cell phone number before starting the first activity that requires a PCMS.

12-3.32A(4) Quality Assurance

Reserved

12-3.32B Materials

Each PCMS must have a message board, controller unit, power supply, and a structural support system. The unit must be assembled to form a complete self-contained PCMS that can be delivered to the job site and placed into immediate operation. The sign unit must be capable of operating at an ambient air temperature from -4 to 158 degrees F and must be unaffected by mobile radio transmissions other than those required to control the PCMS.

A PCMS must be permanently mounted on a trailer, truck bed, or truck cab under the manufacturer's instructions. The PCMS must be securely mounted on the support vehicle such that it remains attached during any impact to the vehicle. If it is mounted on a trailer, the trailer must be capable of being leveled and plumbed.

A minimum of 3 feet of retroreflective material must be permanently affixed on all 4 sides of the trailer. The retroreflective material need not be continuous but must be visible on the same plane.

The sign panel must be capable of displaying a 3-line message with at least 7 characters per line. The characters must be at least 18 inches in height where the useable shoulder area is at least 15 feet wide.

To prevent encroachment onto the traveled way where the useable shoulder area is less than 15 feet wide, you may use a smaller message panel with at least 12-inch-high characters.

The message displayed on the sign must be visible from a distance of 1,500 feet and legible from a distance of 750 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20.

The characters on a sign panel may be 10 inches in height if:

1. PCMS is mounted on a service patrol truck or other incident response vehicle or used for traffic control operations on a highway facility where the posted speed limit is less than 40 mph
2. Message is legible from a distance of at least 650 feet at noon on a cloudless day and during the night by persons with 20/20 vision or vision corrected to 20/20

A matrix sign must provide a complete alphanumeric selection.

A PCMS must automatically adjust its brightness under varying light conditions to maintain the legibility of the message. The sign must be equipped with an automatic-dimming mode that automatically compensates for the influence of temporary light sources or abnormal lighting conditions. The sign must have 3 or more manual dimming modes of different intensities.

During the hours of darkness, a matrix sign not using lamps must be either internally or externally illuminated.

The controller must be an all solid-state unit containing the necessary circuitry for the storage of at least 5 preprogrammed messages. The controller must be installed at a location that allows the operator to perform all functions from a single position. The controller must have a keyboard entry system that allows the operator to generate an infinite number of additional messages in addition to the preprogrammed stored messages. The keyboard must be equipped with a security lockout feature to prevent unauthorized use of the controller.

The controller must have:

1. Nonvolatile memory that stores keyboard-created messages during periods when the power is not activated
2. Variable display rate that allows the operator to match the information display to the speed of approaching traffic
3. Screen upon which messages may be reviewed before being displayed on the sign

The flashing-off time must be adjustable from within the control cabinet.

12-3.32C Construction

Place a PCMS as far from the traveled way as practicable where it is legible to approaching traffic without encroaching on the traveled way. Where the vertical roadway curvature restricts the sight distance of approaching traffic, place the sign on or before the crest of the curvature where it is most visible to the approaching traffic. Where the horizontal roadway curvature restricts the sight distance of approaching traffic, place the sign at or before the curve where it is most visible to approaching traffic. Where practicable, place the sign behind guardrail or Type K temporary railing.

Make a taper consisting of 9 traffic cones placed 25 feet apart to delineate the location of a PCMS except where the sign is placed behind guardrail or Type K temporary railing.

When in full operation, the bottom of a sign must be at least 7 feet above the roadway in areas where pedestrians are anticipated and 5 feet above the roadway elsewhere, and the top of the sign must be not more than 14.5 feet above the roadway.

Operate the PCMS under the manufacturer's instructions.

Keep the PCMS clean to provide maximum visibility.

If multiple signs are needed, place each sign on the same side of the road at least 1,000 feet apart on freeways and expressways and at least 500 feet apart on other types of highways.

If more than one PCMS is simultaneously visible to traffic, only 1 sign may display a sequential message at any time. Do not use dynamic message displays, such as animation, rapid flashing, dissolving, exploding, scrolling, horizontal movement, or vertical movement of messages. The message must be centered within each line of the display.

You may use an additional PCMS if more than 2 phases are needed to display a message.

Display only messages shown or ordered.

Repeat the entire message continuously in not more than 2 phases of at least 3 seconds per phase. The sum of the display times for both of the phases must be a maximum of 8 seconds. If more than 2 phases are needed to display a message, use an additional PCMS.

You must be available by cell phone during activities that require a sign. Be prepared to immediately change the displayed message if ordered. You may operate the sign with a 24-hour timer control or remote control if authorized.

After the initial placement, move a sign from location to location as ordered.

When a PCMS is not in use, move it to an area at least 15 feet from the edge of the traveled way or remove it from the job site away from traffic.

12-3.32D Payment

Not Used

Add between the 1st sentence and 2nd sentences in the 1st paragraph of section 12-4.02A(3)(a):

07-15-16

For a project in District 7, submit the request at least 15 days before the proposed closure date.

Replace section 12-4.02C(2) with:

01-15-16

12-4.02C(2) Lane Closure System

12-4.02C(2)(a) General

The Department provides LCS training. Request the LCS training at least 30 days before submitting the 1st closure request. The Department provides the training within 15 days after your request.

LCS training is web-based or held at a time and location agreed upon by you and the Engineer. For web-based training, the Engineer provides you the website address to access the training.

With 5 business days after completion of the training, the Department provides LCS accounts and user IDs to your assigned, trained representatives.

Each representative must maintain a unique password and current user information in the LCS.

04-15-16

The project is not accessible in LCS after Contract acceptance.

01-15-16

12-4.02C(2)(b) Status Updates for Authorized Closures

Update the status of authorized closures using the LCS Mobile web page.

For a stationary closure, use code:

1. 10-97 immediately before you place the 1st advance warning sign
2. 10-98 immediately after you remove all of the advance warning signs

For a moving closure, use code:

1. 10-97 immediately before the actual start time of the closure
2. 10-98 immediately after the actual end time of the closure

Cancel an authorized closure by using code 10-22 within 2 hours after the authorized start time.

If you are unable to access the LCS Mobile web page, immediately notify the Engineer of the closure's status.

Replace the 1st sentence in the 3rd paragraph of section 12-6.03A with:

07-15-16

When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement delineation, including any underlying adhesive for temporary pavement markers, from the final layer of surfacing and from the pavement to remain in place.

^^

13 WATER POLLUTION CONTROL

09-02-16

Replace *General Industrial Permit* in the 2nd item in the list in the paragraph of section 13-1.01C(3) with:

05-06-16

Industrial General Permit

Replace the 2nd paragraph of section 13-1.01D(2) with:

05-06-16

Discharges from manufacturing facilities, such as batch plants and crushing plants, must comply with the discharge requirements in the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities; Order No. 2014-0057-DWQ, CAS000001 (Industrial General Permit), issued by the SWRCB. For the Industrial General Permit, go to the SWRCB website.

Replace *General Industrial Permit* in the 3rd paragraph of section 13-1.01D(2) with:

05-06-16

Industrial General Permit

Replace the 2nd paragraph of section 13-3.01D(2) with:

09-02-16

For a project in the Lake Tahoe Hydrologic Unit, discharges of stormwater from the project must comply with the NPDES General Permit for General Waste Discharge Requirements and National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity in the Lake Tahoe Hydrologic Unit, Counties of Alpine, El Dorado, and Placer, (Order No. R6T-2016-0010 and NPDES No. CAG616002). You may view the General Permit for the Lake Tahoe Hydrologic Unit at the Construction Storm Water Program page of the SWRCB website.

Replace the 2nd paragraph of section 13-8.01D(2) with:

09-02-16

For a project within the Lake Tahoe Hydrologic Unit, the design, installation, operation, and monitoring of the temporary ATS and monitoring of the treated effluent must comply with Attachment E of the NPDES General Permit for General Waste Discharge Requirements and National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity in the Lake Tahoe Hydrologic Unit, Counties of Alpine, El Dorado, and Placer, (Order No. R6T-2016-0010 and NPDES No. CAG616002). You may view the General Permit for the Lake Tahoe Hydrologic Unit at the Construction Storm Water Program page of the SWRCB website.

^^

16 TEMPORARY FACILITIES

04-15-16

Add between the 1st and 2nd sentences of section 16-2.03A(1):

04-15-16

Constructing a high-visibility fence includes the installation of any signs specified in the special provisions.

^^^^^^^^^^^^^^^^^^^

Replace section 20-2.07B(5) with:

04-15-16

20-2.07B(5) PVC Pipe Conduit Sleeve

PVC pipe conduit sleeves must be schedule 40 complying with ASTM D1785.

Fittings must be schedule 80.

Replace section 20-2.07C(3) with:

04-15-16

20-2.07C(3) PVC Pipe Conduit Sleeve

Where PVC pipe conduit sleeves 2 inches or less in outside diameter is installed under surfacing, you may install by directional boring under section 20-2.07C(2)(b).

For sleeves 2 inches or less in diameter, the top of the conduit must be a minimum of 18 inches below surfacing.

Extend sleeves 6 inches beyond surfacing. Cap ends of conduit until used.

Replace sections 20-2.09B and 20-2.09C with:

07-15-16

20-2.09B Materials

20-2.09B(1) General

Swing joints must match the inlet connection size of the riser.

Where shown, a sprinkler assembly must include a check valve.

Threaded nipples for swing joints and risers must be schedule 80, PVC 1120 or PVC 1220 pipe, and comply with ASTM D1785. Risers for sprinkler assemblies must be UV resistant.

Fittings for sprinkler assemblies must be injection-molded PVC, schedule 40, and comply with ASTM D2466.

Flexible hose for sprinkler assemblies must be leak-free, non-rigid and comply with ASTM D2287, cell Type 6564500. The hose must comply with ASTM D2122 and have the thickness shown in the following table:

Nominal hose diameter (inch)	Minimum wall thickness (inch)
1/2	0.127
3/4	0.154
1	0.179

Solvent cement and fittings for flexible hose must comply with section 20-2.08B(5).

20-2.09B(2) Pop-Up Sprinkler Assemblies

Each pop-up sprinkler assembly must include a body, nozzle, swing joint, pressure reducing device, fittings, and sprinkler protector where shown.

20-2.09B(3) Riser Sprinkler Assemblies

Each riser sprinkler assembly must include a body, flexible hose, threaded nipple, nozzle, swing joint (except for a Type V riser), pressure reducing device, fittings, and riser support where shown.

20-2.09B(4) Tree Well Sprinkler Assemblies

Each tree well sprinkler assembly must include a threaded nipple, nozzle, swing joint, fittings, perforated drainpipe, and drain grate.

The perforated drainpipe must be commercial-grade, rigid PVC pipe with holes spaced not more than 6 inches on center on 1 side of the pipe.

The drain grate must be a commercially-available, 1-piece, injection-molded grate manufactured from structural foam polyolefins with UV light inhibitors. Drain grate must be black.

Gravel for filling the drainpipe must be graded such that 100 percent passes the 3/4-inch sieve and 100 percent is retained on the 1/2-inch sieve. The gravel must be clean, washed, dry, and free from clay or organic material.

20-2.09C Construction

Where shown, install a flow shut-off device under the manufacturer's instructions, unless you use equipment with a preinstalled flow shut-off device.

Where shown, install a pressure reducing device under the manufacturer's instructions, unless you use equipment with a preinstalled pressure reducing device.

Install pop-up and riser sprinkler assembly:

1. From 6-1/2 to 8 feet from curbs, dikes, and sidewalks
2. At least 10 feet from paved shoulders
3. At least 3 feet from fences and walls

If sprinkler assembly cannot be installed within these limits, the location will be determined by the Engineer.

Set sprinkler assembly riser on slopes perpendicular to the plane of the slope.

Replace the paragraph of section 20-2.10B(3) with:

07-15-16

Each check valve must be one of the following:

1. Schedule 80 PVC with a factory setting to withstand a minimum 7-foot head on risers
2. Class 200 PVC if used on a nonpressurized plastic irrigation supply line
3. Internal to the sprinkler body with a factory setting to withstand a minimum 7-foot head

Replace the paragraph of section 20-2.10C(3) with:

07-15-16

Install check valves as necessary to prevent low-head drainage.

Replace the paragraphs of section 20-3.01B(10) with:

07-15-16

Each plant stake for vines must be nominal 1 by 1 inch and 18 inches long.

Each plant stake for trees must be nominal 2 by 2 inches or nominal 2 inches in diameter and long enough to keep the tree in an upright position.

Replace the paragraph of section 20-3.01B(11) with:

07-15-16

Each plant tie for vines must be extruded vinyl-based tape, 1 inch wide and at least 8 mils thick.

Each plant tie for trees must be a (1) minimum 3/4-inch-wide, UV-resistant, flexible vinyl tie complying with ASTM D412 for tensile and elongation strength, or (2) lock-stitch, woven polypropylene with a minimum 900 lb tensile strength.

Add between the 7th and 8th paragraphs of section 20-3.02C(3)(b):

07-15-16

Spread the vine shoots and tie them with a plant tie to each stake above the crossing point.

Replace the 8th paragraph of section 20-3.02C(3)(b) with:

07-15-16

Tie trees to the stakes with 2 tree ties, 1 tie to each stake. Each tie must form a figure eight by crossing the tie between the tree and the stake. Install ties at the lowest position that will support the tree in an upright position. Install the ties such that they provide trunk flexibility but do not allow the trunk to rub against the stakes. Wrap each end of the tie 1-1/2 turns around the stake and securely tie or nail it to the stake.

Replace the 1st paragraph of section 20-5.02C(1) with:

07-15-16

Where edging is used to delineate the limits of inert ground cover or wood mulch areas, install the edging before installing the inert ground cover or wood mulch.

07-15-16

Delete *AND MULCHES* in the heading of section 20-5.03.

07-15-16

Delete *and mulches* in the paragraph of section 20-5.03A(1)(a).

Replace the paragraph of section 20-5.03A(3)(a) with:

07-15-16

Before installing inert ground cover, remove plants and weeds to the ground level.

07-15-16

Delete *or mulch* at each occurrence in sections 20-5.03A(3)(c) and 20-5.03A(3)(d).

Replace section 20-5.03E with:

07-15-16

20-5.03E Reserved

Replace section 20-5.04 with:

07-15-16

20-5.04 WOOD MULCH

20-5.04A General

20-5.04A(1) Summary

Section 20-5.04 includes specifications for placing wood mulch.

20-5.04A(2) Definitions

Reserved

20-5.04A(3) Submittals

Submit a certificate of compliance for wood mulch.

Submit a 2 cu ft mulch sample with the mulch source shown on the bag. Obtain authorization before delivering the mulch to the job site.

20-5.04A(4) Quality Assurance

Reserved

20-5.04B Materials

20-5.04B(1) General

Mulch must not contain more than 0.1 percent of deleterious materials such as rocks, glass, plastics, metals, clods, weeds, weed seeds, coarse objects, sticks larger than the specified particle size, salts, paint, petroleum products, pesticides or chemical residues harmful to plant or animal life.

20-5.04B(2) Tree Bark Mulch

Tree bark mulch must be derived from cedar, Douglas fir, or redwood species.

The mulch must be ground such that at least 95 percent of the material by volume is less than 2 inches long in any dimension and no more than 30 percent by volume is less than 1 inch long in any dimension.

20-5.04B(3) Wood Chip Mulch

Wood chip mulch must:

1. Be derived from clean wood
2. Not contain leaves or small twigs
3. Contain at least 95 percent by volume of wood chips with a width and thickness from 1/16 to 3/8 inch and a length from 1/2 to 3 inches

20-5.04B(4) Shredded Bark Mulch

Shredded bark mulch must:

1. Be derived from trees
2. Be a blend of loose, long, thin wood, or bark pieces
3. Contain at least 95 percent by volume of wood strands with a width and thickness from 1/8 to 1-1/2 inches and a length from 2 to 8 inches

20-5.04B(5) Tree Trimming Mulch

Tree trimming mulch must:

1. Be derived from chipped trees and may contain leaves and small twigs
2. Contain at least 95 percent by volume of material less than 3 inches long for any dimension and not more than 30 percent by volume of material less than 1 inch long for any dimension

20-5.04B(6)–20-5.04B(11) Reserved

20-5.04C Construction

Before placing wood mulch, remove plants and weeds to the ground level.

Maintain the planned flow lines, slope gradients, and contours of the job site. Grade the subgrade to a smooth and uniform surface.

Place mulch after the plants have been planted.

Place mulch in the plant basin at the rate described. Mulch must not come in contact with the plant crown and stem.

Place mulch as shown in areas outside of plant basins to a uniform thickness.

Spread mulch from the outside edge of the plant basin to the adjacent edges of shoulders, paving, retaining walls, dikes, edging, curbs, sidewalks, walls, fences, and existing plantings. If the plant is 12 feet or more from the adjacent edges of any of these elements, spread the mulch 6 feet beyond the outside edge of the plant basin.

Do not place mulch within 4 feet of:

1. Flow line of earthen drainage ditches
2. Edge of paved ditches
3. Drainage flow lines

20-5.04D Payment

The payment quantity for wood mulch is the volume measured in the vehicle at the point of delivery.

^^^

If the independent third party determines the Department's test results are valid, the Engineer deducts the independent third party testing costs from payments. If the independent third party determines your test results are valid, the Department pays the independent third party testing costs.

23-1.01D(2) Quality Control

23-1.01D(2)(a) General

Provide a QC manager when the quantity of subbase or base is as shown in the following table:

QC Manager Requirements

Subbase or base	Requirement
Stabilized soil (sq yd)	≥ 20,000
Aggregate subbases (cu yd)	≥ 20,000
Aggregate bases (cu yd)	≥ 20,000
CTB (cu yd)	≥ 10,000
Lean concrete base (cu yd)	≥ 2,000
Rapid strength concrete base (cu yd)	≥ 1,000
Lean concrete base rapid setting (cu yd)	≥ 1,000
Concrete base (cu yd)	≥ 1,000
Treated permeable bases (cu yd)	≥ 2,000
Reclaimed pavements (sq yd)	≥ 10,000

Provide a testing laboratory to perform quality control tests. Maintain sampling and testing equipment in proper working condition.

You are not entitled to compensation for the suspension of work resulting from noncompliance with quality control requirements, including those identified within the QC plan.

23-1.01D(2)(b) Quality Control Plan

The QC plan must describe the organization and procedures used to:

1. Control the production process
2. Determine if a change to the production process is needed
3. Implement a change

The QC plan must include action and suspension limits and details of corrective action to be taken if any process is outside of those limits. Suspension limits must not exceed specified acceptance criteria.

The QC plan must describe how test results will be submitted including times for sampling and testing for each quality characteristic.

23-1.01D(2)(c) Qualifications

Testing laboratories and testing equipment must comply with the Department's Independent Assurance Program.

Personnel performing sampling and testing must be qualified under the Department's Independent Assurance Program for the sampling and testing performed.

23-1.01D(3) Department Acceptance

Reserved

23-1.02 MATERIALS

Not Used

23-1.03 CONSTRUCTION

Not Used

23-1.04 PAYMENT

Not Used

23-2–23-7 RESERVED

^^

24 STABILIZED SOILS

07-15-16

Add to section 24-1.01C(1):

07-15-16

Submit a stabilized soil quality control plan.

Add to section 24-1.01D(1):

07-15-16

Construct test pads for compaction tests by scraping away material to the depth ordered. If a compaction test fails, corrective action must include the layers of material already placed above the test pad elevation.

Replace section 24-1.01D(2) with:

07-15-16

24-1.01D(2) Quality Control

24-1.01D(2)(a) General

Reserved

24-1.01D(2)(b) Quality Control Plan

Reserved

24-1.01D(2)(c) Qualifications

Reserved

24-1.01D(2)(d) Preparing Basement Material

After preparing an area for soil stabilization, verify the surface grades.

24-1.01D(2)(e) Mixing

Except for clods larger than 1 inch, randomly test the adequacy of the mixing with a phenolphthalein pH indicator solution.

Replace the 1st paragraph of section 24-1.03C with:

07-15-16

The Engineer orders the application rate as pounds of stabilizing agent per square yard of basement material to be stabilized.

07-15-16

Delete section 24-2.01D(1)(c)

Replace *250* in the 2nd sentence in the 2nd paragraph of section 24-2.01D(2)(c) with:

07-15-16

500

Add to section 24-2.01D(2):

07-15-16

24-2.01D(2)(d) Quality Control Testing

Lime stabilized soil quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
Ground surface temperature before adding lime and full depth ground temperature during mixing operations	--	Each temperature location	1 test per 20,000 sq ft, minimum 1 per day
Lime application rate	Calibrated tray or equal	Roadway	1 test per 40,000 sq ft, minimum 2 per day
Gradation on mixed material	California Test 202	Roadway	1 per 500 cu yd, minimum 1 per day
Moisture content	California Test 226	Roadway	1 per 500 cu yd on each layer, each day during mixing and mellowing periods, minimum 1 per day
Relative compaction	California Test 231	Roadway	1 per 500 cu yd on each layer, minimum 1 per day

^^

25 AGGREGATE SUBBASES

07-15-16

Replace *Reserved* in section 25-1.01C with:

07-15-16

Submit an aggregate subbase QC plan.

Replace *Reserved* in section 25-1.01D(2) with:

07-15-16

25-1.01D(2)(a) General

Reserved

25-1.01D(2)(b) Quality Control Plan

Reserved

25-1.01D(2)(c) Qualifications

Reserved

25-1.01D(2)(d) Quality Control Testing

AS quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
R-value	California Test 301	Stockpiles, transportation units, windrows, or roadways	1 test before beginning work and every 2000 cu yd thereafter[a]
Aggregate gradation	California Test 202	Stockpiles, transportation units, windrows, or roadways	1 per 500 cu yd but at least one per day of placement
Sand equivalent	California Test 217	Stockpiles, transportation units, windrows, or roadways	
Relative compaction	California Test 231	Roadway	1 per 500 sq yd on each layer

[a]Additional R-value frequency testing will not be required when the average of 4 consecutive sand equivalent tests is 4 or more above the specified operating range value.

Add between the 2nd and 3rd paragraphs of section 25-1.01D(3):

07-15-16

The Engineer takes aggregate subbase samples for R-value, aggregate gradation, and sand equivalent from any of the following locations:

1. Windrow
2. Roadway

07-15-16

Delete *for each noncompliant test result* in the 4th paragraph of section 25-1.01D(3).

07-15-16

Delete *a* in the 5th paragraph of section 25-1.01D(3).

^^^

Replace *Reserved* in section 26-1.01D(2) with:

07-15-16

26-1.01D(2)(a) General

Reserved

26-1.01D(2)(b) Quality Control Plan

Reserved

26-1.01D(2)(c) Qualifications

Reserved

26-1.01D(2)(d) Quality Control Testing

AB quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
R-value	California Test 301	Stockpiles, transportation units, windrows, or roadways	1 test before starting work and every 2,000 cu yd thereafter[a]
Aggregate gradation	California Test 202	Stockpiles, transportation units, windrows, or roadways	1 per 500 cu yd but at least one per day of placement
Sand equivalent	California Test 217	Stockpiles, transportation units, windrows, or roadways	
Durability index[b]	California Test 229	Stockpiles, transportation units, windrows, or roadways	1 per project
Relative compaction	California Test 231	Roadway	1 per 500 sq yd on each layer

[a]Additional R-value frequency testing will not be required when the average of 4 consecutive sand equivalent tests is 29 or greater for Class 2 AB or 25 or greater for Class 3 AB.
[b]Applies if section 26-1.02 contains an applicable requirement for durability index

Add between *requirements,* and *and* in the 1st paragraph of section 26-1.01D(3):

07-15-16

durability,

Add between the 2nd and 3rd paragraphs of section 26-1.01D(3):

07-15-16

The Engineer takes aggregate base samples for R-value, aggregate gradation, sand equivalent, and durability index from any of the following locations:

1. Windrow
2. Roadway

07-15-16

Delete the 3rd paragraph of section 26-1.01D(3).

^^

27 CEMENT TREATED BASES

07-15-16

Add to section 27-1.01C:

07-15-16

Submit cement treated base QC plan.

Replace the headings and paragraphs in section 27-1.01D with:

07-15-16

27-1.01D Quality Assurance

27-1.01D(1) General

After the CTB has been spread on the subgrade and before initial compaction, the cement content of the completed mixture of CTB must not vary from the specified cement content by more than 0.6 percent of the weight of the dry aggregate when tested under California Test 338.

For Class A CTB, compaction is tested under California Test 312 or 231.

The relative compaction of CTB must be at least 95 percent. Each layer of CTB may be tested for compaction, or all layers may be tested together at the option the Engineer. If all layers are tested together, you are not relieved of the responsibility to achieve the required compaction in each layer placed.

27-1.01D(1)(a) Aggregate

When tested under California Test 301, aggregate for Class B CTB must have (1) an R-value of at least 60 before mixing with cement and (2) an R-value of at least 80 when aggregate is mixed with an amount of cement that does not exceed 2.5 percent by weight of the dry aggregate.

Before sand equivalent testing, aggregate samples must not be treated with lime, cement, or chemicals.

If the aggregate gradation test results, the sand equivalent test results, or both comply with contract compliance requirements but not operating range requirements, you may continue placing CTB for the remainder of the work day. Do not place additional CTB until you demonstrate to the Engineer that the CTB to be placed complies with the operating range requirements.

If the aggregate gradation test results, sand equivalent test results, or both do not comply with contract compliance requirements, remove the CTB or request a payment deduction. If your request is authorized, $2.50/cu yd is deducted. If CTB is paid for by weight, the Engineer converts tons to cubic yards for the purpose of reducing payment for noncompliant CTB left in place. An aggregate gradation and a sand equivalent test represents up to (1) 500 cu yd or (2) 1 day's production if less than 500 cu yd.

27-1.01D(1)(b) Road-Mixed Cement Treated Base Moisture Content

Just before initial compaction the moisture content of the completed mixture must be at least the optimum moisture content less 1 percent. The moisture content is determined under California Test 226 and optimum moisture content is determined under California Test 312.

27-1.01D(1)(c) Plant-Mixed Cement Treated Base Moisture Content

At the point of delivery to the work, the moisture content of the completed mixture must be at least the optimum moisture content less 1 percent. The moisture content is determined under California Test 226 and optimum moisture content under California Test 312.

27-1.01D(2) Quality Control

27-1.01D(2)(a) General

Reserved

27-1.01D(2)(b) Quality Control Plan

Reserved

27-1.01D(2)(c) Qualifications

Reserved

27-1.01D(2)(d) Quality Control Testing

CTB quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
Aggregate gradation	California Test 202 modified	Stockpiles, plant, transportation units, windrow, or roadway	1 per 500 cu yd but at least one per day of placement
Sand equivalent	California Test 217	Stockpiles, plant, transportation units, windrow, or roadway	
R-value[a]	California Test 301	Stockpiles, plant, transportation units, windrows, or roadway	1 test before starting work and every 2000 cu yd thereafter[b]
Optimum moisture content	California Test 312	Plant, transportation units, windrow, or roadway	1 per day of placement
Moisture content	California Test 226	Roadway	1 per 500 cu yd but at least one per day of placement
Cement content	California Test 338	Windrows or roadway	1 per 1000 cu yd but at least one per day of placement
Relative compaction	California Test 312 or 231	Roadway	1 per 2000 sq yd but at least one per day of placement
Compressive strength[c]	California Test 312	Windrow or roadways	1 per day of placement

[a]R-value is required for Class B CTB only

[b]Additional R-value frequency testing will not be required while the average of 4 consecutive sand equivalent tests is 4 or more above the specified operating range value.

[c]Compressive strength is required for Class A CTB only when specified

27-1.01D(3) Department Acceptance

The Department's acceptance testing includes testing the CTB quality characteristics shown in the following table:

CTB Requirements for Acceptance

Quality characteristic	Test method
Aggregate gradation	California Test 202 modified
Sand equivalent	California Test 217
R-value[a]	California Test 301
Optimum moisture content	California Test 312
Moisture content	California Test 226
Cement content	California Test 338
Relative compaction	California Test 312 or 231
Compressive strength[b]	California Test 312

[a]R-value is required for Class B CTB only

[b]Compressive strength is required for Class A CTB only when specified

The Engineer takes samples for aggregate gradation and sand equivalent from any of the following locations:

1. Plant

2. Truck
3. Windrow, for road-mixed only
4. Roadbed, for road-mixed only

Add to section 27-1.02:

07-15-16

Water must comply with section 90-1.02D.

Add to section 27-1.03F:

07-15-16

The relative compaction of CTB must be at least 95 percent.

^^

28 CONCRETE BASES

07-15-16

Replace the headings and paragraphs in section 28-1.01D with:

07-15-16

28-1.01D Quality Assurance

28-1.01D(1) General

Aggregate samples must not be treated with lime, cement, or chemicals before testing for sand equivalent.

Stop concrete base activities and immediately notify the Engineer whenever:

1. Any QC or QA test result does not comply with the specifications
2. Visual inspection shows a noncompliant concrete base

If concrete base activities are stopped, before resuming activities:

1. Notify the Engineer of the adjustments you will make
2. Remedy or replace the noncompliant concrete base
3. Field qualify or construct a new test strip as specified for the concrete base involved to demonstrate compliance with the specifications
4. Obtain authorization

28-1.01D(2) Quality Control

28-1.01D(2)(a) General

Reserved

28-1.01D(2)(b) Quality Control Plan

Reserved

28-1.01D(2)(c) Qualifications

Reserved

28-1.01D(3) Department Acceptance

Reserved

Add to section 28-2.01C(1):

07-15-16

Submit a lean concrete base QC plan.

Replace the headings and paragraphs in section 28-2.01D with:

07-15-16

28-2.01D Quality Assurance

28-2.01D(1) General

28-2.01D(1)(a) General

The molds for compressive strength testing under ASTM C31 or ASTM C192 must be 6 by 12 inches.

If the aggregate gradation test results, sand equivalent test results or both comply with the contract compliance requirements but not the operating range requirements, you may continue placing LCB for the remainder of the work day. Do not place additional LCB until you demonstrate the LCB to be placed complies with the operating range requirements.

28-2.01D(1)(b) Qualifications

Field qualification tests and calculations must be performed by an ACI certified "Concrete Laboratory Technician, Grade I.

28-2.01D(1)(c) Aggregate Qualification Testing

Qualify the aggregate for each proposed aggregate source and gradation. The qualification tests include (1) a sand equivalent and (2) an average 7-day compressive strength under ASTM C39 of 3 cylinders manufactured under ASTM C192 except cure cylinders in molds without lids after initial curing.

For the compressive strength test, the cement content for each cylinder must be 300 lb/cu yd. The 7-day average compressive strength must be at least 610 psi. The cement must be Type II portland cement.

LCB must have from 3 to 4 percent air content during aggregate qualification testing.

28-2.01D(1)(d) Field Qualification Testing

Before placing LCB, you must perform field qualification testing and obtain authorization for each mix design. Retest and obtain authorization for changes to the authorized mix designs.

Notify the Engineer at least 5 business days before field qualification. Perform the field qualification at the job site or an authorized location.

Field qualification testing includes tests for compressive strength, air content, and penetration or slump.

For compressive strength field qualification testing:

1. Prepare 12 cylinders under ASTM C31 except final cure cylinders in molds without lids from a single batch.
2. Perform 3 tests; each test consists of determining the average compressive strength of 2 cylinders at 7 days under ASTM C39. The average compressive strength for each test must be at least 530 psi

If you submitted a notice to produce LCB qualifying for a transverse contraction joint waiver, manufacture additional specimens and test the LCB for compressive strength at 3 days. Prepare the compressive strength cylinders under ASTM C31 except final cure cylinders in molds without lids at the same time using the same material and procedures as the 7-day compressive strength cylinders except do not submit 6 additional test cylinders. The average 3-day compressive strength for each test must be not more than 500 psi.

28-2.01D(2) Quality Control

28-2.01D(2)(a) General

Reserved

28-2.01D(2)(b) Quality Control Manager

Reserved

28-2.01D(2)(c) Quality Control Testing

Test the LCB under the test methods and at the locations and frequencies shown in the following table:

LCB Sampling Location and Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum sampling and testing frequency
Sand equivalent	ASTM D2419	Source	1 per 500 cubic yards but at least 1 per day of production
Aggregate gradation	ASTM C136		
Air content	ASTM C231	Job site	
Penetration[a]	ASTM C360		
Slump[a]	ASTM C143		
Compressive strength	ASTM C39[b]		

[a]Test for either penetration or slump

[b]Prepare cylinders under ASTM C31 except final cure cylinders in molds without lids.

28-2.01D(3) Department Acceptance

The Department accepts LCB based on compliance with the requirements shown in the following table:

LCB Requirements for Acceptance

Quality characteristic	Test method	Requirement
Compressive strength (min, psi at 7 days)	ASTM C39[a]	530[b]

[a] Cylinders prepared under ASTM C31 except final cure cylinders in molds without lids.

[b] A compressive strength test represents up to (1) 1,000 cu yd or (2) 1 day's production if less than 1,000 cu yd.

Replace *section 28-2.01D(4)* in item 3 of the 5th paragraph in section 28-2.03D with:

07-15-16

section 28-2.01D(1)(c)

Replace the 1st paragraph in section 28-2.03F with:

07-15-16

After finishing LCB, cure LCB with pigmented curing compound under section 90-1.03B(3) and 40-1.03I. Apply curing compound:

1. In 2 separate applications
2. Before the atmospheric temperature falls below 40 degrees F
3. At a rate of 1 gal/150 sq ft for the first application
4. At a rate of 1 gal/200 sq ft for the second application

Replace *Reserved* in section 28-3.01C(3) with:

07-15-16

Submit a rapid strength concrete base QC plan.

Replace the headings and paragraphs in section 28-3.01D with:

07-15-16

28-3.01D Quality Assurance

28-3.01D(1) General

28-3.01D(1)(a) General

At the preconstruction meeting be prepared to discuss the project specifications and methods of performing each item of work. Items discussed must include the processes for:

1. Production
2. Transportation

3. Placement
4. QC plan, if specified in the special provisions
5. Contingency plan
6. QC sampling and testing
7. Acceptance criteria

Beams for modulus of rupture testing must be fabricated and tested under California Test 524. The beams may be fabricated using an internal vibrator under ASTM C31. For each test, 3 beam must be fabricated and the test results averaged. No single test represents more than that day's production or 130 cu yd, whichever is less.

For early age testing, beams must be cured so the monitored temperatures in the beams and the test strip are always within 5 degrees F. The internal temperatures of the RSC base and early age beams must be monitored and recorded at intervals of at least 5 minutes. Thermocouples or thermistors connected to strip-chart recorders or digital data loggers must be installed to monitor the temperatures. Temperature recording devices must be accurate to within ±2 degrees F. Until early age testing is completed, internal temperatures must be measured at 1 inch from the top, 1 inch from the bottom, and no closer than 3 inches from any edge.

For other age testing, beams must be cured under California Test 524 except beams must be placed into sand at a time that is the earlier of either from 5 to 10 times the final set time, or 24 hours.

RSC base must have an opening age modulus of rupture of not less than 400 psi and a 7-day modulus of rupture of not less than 600 psi.

28-3.01D(1)(b) Preconstruction Meeting

Reserved

28-3.01D(1)(c) Test Strip

Reserved

28-3.01D(2) Quality Control

28-3.01D(2)(a) General

Reserved

28-3.01D(2)(b) Quality Control Manager

Reserved

28-3.01D(2)(c) Quality Control Testing

Test the rapid strength concrete base under the test methods and at the locations and frequencies shown in the following table:

Rapid Strength Concrete Base Sampling Location and Testing Frequencies

Quality characteristic	Test method	Sample Location	Minimum testing frequency[a]
Cleanness value	California Test 227	Source	1 per 500 cubic yards but at least 1 per shift
Sand equivalent	California Test 217		
Aggregate gradation	California Test 202		
Air content	California Test 504	Job site	1 per 130 cu yd but at least 1 per shift
Yield	California Test 518		1 per shift
Slump or penetration	ASTM C143 or California Test 533		1 per 2 hours of placement
Density	California Test 518		1 per shift
Aggregate moisture meter calibration[b]	California Test 223 or California Test 226		1 per shift
Modulus of rupture	California Test 524		1 per 130 cu yd but at least 1 per shift

[a]Test at the most frequent interval.

[b]Check calibration of the plant moisture meter by comparing moisture meter readings with California Test 223 or California Test 226 test results.

Notify the Engineer at least 2 business days before any sampling and testing. Submit testing results within 15 minutes of testing completion. Record inspection, sampling, and testing on the forms accepted with the QC plan and submit them within 48 hours of completion of each day of production and within 24 hours of 7-day modulus of rupture tests.

During the placement of RSC base, fabricate beams and test for the modulus of rupture:

1. At opening age
2. At 7 days after placing the first 30 cu yd
3. At least once every 130 cu yd
4. Within the final truckload

Opening age tests must be performed in the presence of the Engineer.

28-3.01D(3) Department Acceptance

The Department accepts RSC base based on compliance with the requirements shown in the following table:

RSC Base Requirements for Acceptance

Quality characteristic	Test method	Requirement
Modulus of rupture (min, psi at 7 days)	California Test 524	600

The Engineer adjust payment for RSC base for the 7-day modulus of rupture as follows:

1. Payment for a base with a modulus of rupture of 600 psi or greater is not adjusted.
2. Payment for a base with a modulus of rupture of less than 600 and greater than or equal to 550 psi is reduced by 5 percent.
3. Payment for a base with a modulus of rupture of less than 550 and greater than or equal to 500 psi is reduced by 10 percent.
4. Payment for a base with a modulus of rupture of less than 500 psi is not adjusted and no payment is made. Remove and replace this base.

Add to section 28-4.01C(1):

07-15-16

Submit a lean concrete base rapid setting QC plan.

Replace the headings and paragraphs in section 28-4.01D with:

07-15-16

28-4.01D Quality Assurance

28-4.01D(1) General

28-4.01D(1)(a) General

For compressive strength testing, prepare 6 cylinders under California Test 540. Test cylinders must be 6 by 12 inches. As an alternative to rodding, a vibrator may be used under California Test 524. Test cylinders under California Test 521 and perform 3 tests with each test consisting of 2 cylinders. The test result is the average from the 2 cylinders.

28-4.01D(1)(b) Field Qualification

Before placing lean concrete base rapid setting, you must perform field qualification testing and obtain authorization for each mix design. Retest and obtain authorization for changes to authorized mixed designs.

Proposed mix designs must be field qualified before you place the base represented by those mix designs. The technician performing the field test must hold current ACI certification as a Concrete Field Testing Technician-Grade I.

Notify the Engineer at least 5 days before field qualification. Perform field qualification within the job site or a location authorized.

Field qualification testing includes compressive strength, air content, and penetration or slump in compliance with the table titled "Lean Concrete Base Rapid Setting Requirements."

Field qualification must comply with the following:

1. Test for compressive strength at opening age and 7 days of age
2. At opening age, the compressive strength for each test must be at least 180 psi and the average strength for the 3 tests must be at least 200 psi
3. At 7 days age, the compressive strength for each test must be at least 600 psi and the average strength for the 3 tests must be at least 725 psi

28-4.01D(2) Quality Control

28-4.01D(2)(a) General

Reserved

28-4.01D(2)(b) Quality Control Manager

Reserved

28-4.01D(2)(c) Quality Control Testing

Test the base under the test methods and at the locations and frequencies shown in the following table:

LCB Rapid Setting Sampling Location and Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum sampling and testing frequency
Sand equivalent	ASTM D2419	Source	1 per 500 cu yd, minimum 1 per day of production
Aggregate gradation	ASTM C136		
Air content	ASTM C231	Job site	1 per 4 hours of placement work, plus one in the last hour of placement work
Penetration[a]	ASTM C360		
Slump[a]	ASTM C143		
Compressive strength	California Test 521		

[a]Test either penetration or slump

During placement of lean concrete base rapid setting, fabricate cylinders and test compressive strength for opening age and 7 days. Opening age tests must be performed in the presence of the Engineer.

28-4.01D(3) Department Acceptance

The Department accepts LCB rapid setting based on compliance with the requirement shown in the following table:

LCB Rapid Setting Requirements for Acceptance

Quality characteristic	Test method	Requirement
Compressive strength (min, psi at 7 days)	California Test 521[a]	725

[a]Cylinders made under California Test 540

Replace the 2nd and 3rd paragraphs in section 28-4.03A with:

07-15-16

Concrete paving operations with equipment not supported by the base may start before opening age. Do not open pavement for traffic before opening age of the LCB rapid setting.

Any other paving operations must start after the final set time of the base. The base must have a compressive strength of at least 450 psi under California Test 521 before:

1. Placing HMA
2. Placing other base material
3. Operating equipment on the base

Replace *Reserved* in section 28-5.01C with:

07-15-16

Submit a concrete base QC plan.

Replace the headings and paragraphs in section 28-5.01D(2) with:

07-15-16

28-5.01D(2) Quality Control

28-5.01D(2)(a) General

Reserved

28-5.01D(2)(b) Quality Control Manager

Reserved

28-5.01D(2)(c) Quality Control Testing

Test the concrete base under the test methods and at the locations and frequencies shown in the following table:

Concrete Base Sampling Location and Testing Frequencies

Quality characteristic	Test method	Sample location	Minimum testing frequency[a]
Cleanness value	California Test 227	Source	1 per 500 cubic yards but at least 1 per shift
Sand equivalent	California Test 217		
Aggregate gradation	California Test 202		
Air content	California Test 504	Job site	1 per 500 cu yd but at least 1 per shift
Yield	California Test 518		1 per shift
Slump or penetration	ASTM C143 or California Test 533		1 per 2 hours of placement
Density	California Test 518		1 per shift
Aggregate moisture meter calibration[b]	California Test 223 or California Test 226		1 per shift
Modulus of rupture	California Test 524		1 per 500 cu yd but at least 1 per shift

[a]Test at the most frequent interval.

[b]Check calibration of the plant moisture meter by comparing moisture meter readings with California Test 223 or California Test 226 test results.

28-5.01D(3) Department Acceptance

The Department accepts a concrete base based on compliance with the requirements shown in the following table:

Concrete Base Requirements for Acceptance

Quality characteristic	Test method	Requirement
Modulus of rupture (min, psi at 28 days)	California Test 523	570

Acceptance for the modulus of rupture is on a lot basis. The Department provides the molds and machines for the modulus of rupture acceptance testing. Provide any material and labor the Engineer may require for the testing.

^^

29 TREATED PERMEABLE BASES

07-15-16

Replace the headings and paragraphs in section 29-1.01 with:

07-15-16

29-1.01 GENERAL

29-1.01A Summary

Section 29-1 includes general specifications for constructing treated permeable bases.

29-1.01B Definitions

Reserved

29-1.01C Submittals

Submit a treated permeable base quality control plan.

29-1.01D Quality Assurance

29-1.01D(1) General

Reserved

29-1.01D(2) Quality Control

29-1.01D(2)(a) General

Reserved

29-1.01D(2)(b) Quality Control Plan

Reserved

29-1.01D(2)(c) Qualifications

Reserved

29-1.01D(3) Department Acceptance

Reserved

Replace the headings and paragraphs in section 29-2.01D with:

07-15-16

29-2.01D Quality Assurance

29-2.01D(1) General

The Engineer determines the asphalt content of the asphalt mixture under California Test 382. The bitumen ratio, pounds of asphalt per 100 lb of dry aggregate, must not vary more than 0.5 lb of asphalt above or below the quantity designated by the Engineer. Samples used to determine the bitumen ratio are obtained from trucks at the plant or from the mat behind the paver before rolling. If the sample is taken from the mat behind the paver, the bitumen ratio must not be less than the quantity designated by the Engineer, less 0.7 lb of asphalt per 100 lb of dry aggregate.

29-2.01D(2) Quality Control

29-2.01D(2)(a) General

Reserved

29-2.01D(2)(b) Quality Control Testing

ATPB quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
Gradation	California Test 202	Stockpiles or plant	1 for every 4 hours of production but at least one per day of placement
Cleanness value	California Test 227	Stockpiles or plant	1 for every 4 hours of production but at least one per day
Percentage of crushed particles	California Test 205	Stockpiles or plant	1 test before production and one every 5,000 cu yd thereafter
Los Angeles rattler loss at 500 rev	California Test 211	Stockpiles or plant	1 test before production and one every 5,000 cu yd thereafter
Film stripping	California Test 302	Plant	1 test before production and one every 5000 cu yd thereafter
Asphalt content of the asphalt mixture	California Test 382	Plant, transportation units, windrows, or roadway	1 for every 4 hours of production but at least one per day

29-2.01D(3) Department Acceptance

The Department accepts ATPB based on aggregate gradation, cleanness value, percent of crushed particles, Los Angeles rattler, film stripping and asphalt content requirements specified in section 29-2.02 and section 29-2.01D(1).

The Engineer takes samples for aggregate gradation, cleanness value, percent of crushed particles, Los Angeles rattler, and film stripping from the plant.

The Engineer takes samples for asphalt content of the asphalt mixture from any of the following locations:

1. Plant
2. Truck
3. Windrow
4. Roadbed

Replace the headings and paragraphs in section 29-3.01 with:

07-15-16

29-3.01 GENERAL

29-3.01A Summary

Section 29-3 includes specifications for constructing cement treated permeable bases.

29-3.01B Definitions

Reserved

29-3.01C Submittals

Reserved

29-3.01D Quality Assurance

29-3.01D(1) General

Reserved

29-3.01D(2) Quality Control

29-3.01D(2)(a) General

Reserved

29-3.01D(2)(b) Quality Control Testing

CTPB quality control must include testing the quality characteristics at the frequencies shown in the following table:

QC Testing Frequencies

Quality characteristic	Test method	Sampling location	Minimum frequency
Gradation	California Test 202	Stockpiles or plant	1 for every 4 hours of production but at least one per day of placement
Cleanness value	California Test 227	Stockpiles or plant	1 for every 4 hours of production but at least one per day
Los Angeles rattler loss at 500 rev	California Test 211	Stockpiles or plant	1 test before production and one every 5,000 cu yd thereafter
Soundness	California Test 214	Stockpiles or plant	1 test before production and one every 5,000 cu yd thereafter

29-3.01D(3) Department Acceptance

The Department accepts CTPB based on aggregate gradation, cleanness value, Los Angeles rattler and soundness requirements in section 29-3.02.

The Engineer takes samples for aggregate gradation, cleanness value, Los Angeles rattler and soundness from the plant.

Add to section 29-3.02A:

07-15-16

Water must comply with section 90-1.02D.

Replace *3rd* in the 2nd paragraph in section 29-3.03 with:

07-15-16

4th

^^

30 RECLAIMED PAVEMENT

07-15-16

Replace *section 30-1.01C(2)(c)* in the 1st paragraph of section 30-3.01C(2)(c) with:

07-15-16

section 30-1.01C(3)(c)

Replace the table in section 30-3.02A with:

07-15-16

FDR—Foamed Asphalt Quality Characteristic Requirements

Quality characteristic	Test method	Requirement
Moisture content before HMA paving	California Test 226	< 50% of OMC
Asphalt binder expansion ratio (min, %)	Note a	10
Asphalt binder half-life (seconds, min)		12
Gradation (%, passing) Sieve Size: 3 inch 2 inch 1-1/2 inch	California Test 202	 100 95–100 85–100
Moisture content Maximum Minimum	California Test 226	 OMC OMC - 2%
In-place wet density (lb/cu ft)	California Test 216	Report only
Relative compaction (min, %)	California Test 231	98
Indirect dry tensile strength (psi)[b]	California Test 371	90% of mix design value
Indirect wet tensile strength (psi)[b]	California Test 371	90% of mix design value
Tensile strength ratio (%)	California Test 371	90% of mix design value

[a]Test at the foaming temperature and percentage of foaming water by dry weight of FDR—foamed asphalt material designated in the mix design. To test asphalt binder expansion ratio and half-life, use a pail of known volume and a dipstick calibrated for the pail. From the inspection nozzle on the asphalt binder spray bar, inject foamed asphalt into the pail without exceeding the pail's capacity.
With the dipstick, immediately measure and record the level of foamed asphalt in the pail. Record the half-life in seconds from the time the injection of foamed asphalt in the pail is turned off to half the dip stick reading after peak. Calculate the expansion ratio as the volume of the foamed asphalt upon injection divided by the volume of the unfoamed asphalt binder.
[b]From material passing the 1-inch sieve, compact 6 specimens under California Test 304, Part 2. Cure the specimens at 100 °F for 72 hours and allow the specimens to cool to room temperature. Test 3 specimens for dry tensile strength under California Test 371. Test 3 specimens for wet tensile strength under California Test 371 after moisture conditioning.

Replace *section 30-4.01D(3)* in the 2nd paragraph of section 30-4.01D(1) with:

07-15-16

section 30-4.01D(4)

Replace *section 30-4.01D(1)(a)* in the table in section 30-4.02A with:

07-15-16

section 30-4.01D(2)

^^

DIVISION V SURFACINGS AND PAVEMENTS

37 BITUMINOUS SEALS

07-15-16

Replace section 37 with:

07-15-16

37 SEAL COATS

37-1 GENERAL

37-1.01 GENERAL

37-1.01A Summary

Section 37-1 includes general specifications for applying seal coats.

37-1.01B Definitions

Reserved

37-1.01C Submittals

At least 10 days before the preconstruction meeting submit a list of participants in the preconstruction meeting. Provide each participant's name, employer, title, and role in the production and placement of the seal coats.

At least 10 days before starting seal coat activities, submit the names of the authorized laboratories for quality control testing.

For each delivery of asphalt binder or asphaltic emulsion to the job site, submit a certificate of compliance and a copy of the specified test results.

For a seal coat that uses crumb rubber modifier, submit a Crumb Rubber Usage Report form monthly and at the end of project.

37-1.01D Quality Assurance

37-1.01D(1) General

For aggregate testing, quality control laboratories must be in compliance with the Department's Independent Assurance Program to be an authorized laboratory. Quality control personnel must be qualified under the Department's Independent Assurance Program.

For emulsion testing, quality control laboratories must participate in the AASHTO Material's Reference Laboratory proficiency sample program.

37-1.01D(2) Preconstruction Meeting

Hold a preconstruction meeting within 5 days before start of seal coat work at a mutually agreed time and place with the Engineer and your:

1. Project superintendent
2. Project foreman
3. Traffic control foreman

Make arrangements for the conference facility. Preconstruction meeting participants must sign an attendance sheet provided by the Engineer. Be prepared to discuss:

1. Quality control testing
2. Acceptance testing
3. Seal coat placement
4. Proposed application rates for asphaltic emulsion or asphalt binder and aggregate.
5. Training on placement methods
6. Checklist of items for proper placement
7. Unique issues specific to the project, including:
    7.1. Weather
    7.2. Alignment and geometrics
    7.3. Traffic control requirements

7.4. Haul distances
7.5. Presence and absence of shaded areas
7.6. Any other local conditions
8. Contingency plan for material deliveries, equipment breakdowns, and traffic handling
9. Who in the field has authority to adjust application rates and how adjustments will be documented
10. Schedule of sweepings

37-1.02 MATERIALS

Not Used

37-1.03 CONSTRUCTION

37-1.03A General

If seal coat activities affect access to public parking, residential property, or commercial property, post signs at 100-foot intervals on the affected streets. Signs must display *No Parking – Tow Away*. Signs must state the dates and hours parking or access will be restricted. Notify residents, businesses, and local agencies at least 24 hours before starting activities. The notice must:

1. Describe the work to be performed
2. Detail streets and limits of activities
3. Indicate dates and work hours
4. Be authorized

Asphaltic emulsion or asphalt binder for seal coats may be reheated if necessary. After loading the asphaltic emulsion or asphalt binder into a truck for transport to the job site, do not heat asphaltic emulsion above 160 degrees F and asphalt rubber binder above 425 degrees F. During reheating, circulate or agitate the asphaltic emulsion or asphalt binder to prevent localized overheating.

Except for fog seals, apply quick setting Grade 1 asphaltic emulsions at a temperature from 75 to 130 degrees F and apply quick setting Grade 2 asphaltic emulsions at a temperature from 110 to 185 degrees F.

You determine the application rates for asphaltic emulsion or asphalt binder and aggregate and the Engineer authorizes the application rates.

37-1.03B Equipment

A self-propelled distributor truck for applying asphaltic emulsion or asphalt binder must be equipped with:

1. Pressure-type system with insulated tanks with circulating unit
2. Spray bars:
   2.1. With minimum length of 9 feet and full-circulating type
   2.2. With full-circulating-type extensions if needed to cover a greater width
   2.3. Adjustable to allow positioning at various heights above the surface to be treated
   2.4. Operated by levers such that 1 or all valves may be quickly opened or closed in one operation
3. Devices and charts to provide for accurate and rapid determination and control of asphaltic emulsion or asphalt binder quantities being applied. Include an auxiliary wheel type meter that registers:
   3.1. Speed in ft/min
   3.2. Trip by count
   3.3. Total distance in feet
4. Distribution system:
   4.1. Capable of producing a uniform application of asphaltic emulsion or asphalt binder in controlled quantities ranging from 0.02 to 1 gal/sq yd of surface and at a pressure ranging from 25 to 75 psi
   4.2. Pumps that spray asphaltic emulsion or asphalt binder within 0.02 gal/sq yd of the set rate
   4.3. With a hose and nozzle for application of asphaltic emulsion to areas inaccessible to the spray bar
   4.4. With pressure gauges and a thermometer for determining temperatures of the asphaltic emulsion or asphalt binder

You may use cab-controlled valves for the application of asphaltic emulsion or asphalt binder. The valves controlling the flow from nozzles must act positively to provide a uniform unbroken application of asphaltic emulsion or asphalt binder.

Maintain distributor and storage tanks at all times to prevent dripping.

37-1.04 PAYMENT

Not Used

37-2 CHIP SEALS

37-2.01 GENERAL

37-2.01A General

37-2.01A(1) Summary

Section 37-2.01 includes general specifications for applying chip seals.

37-2.01A(2) Definitions

Reserved

37-2.01A(3) Submittals

At least 15 days before starting placement of chip seal, submit:

1. Samples for:
   1.1. Asphaltic emulsion chip seal, two 1-quart wide mouth plastic containers with screw top lid of asphaltic emulsion
   1.2. Polymer modified asphaltic emulsion chip seal, two 1-quart wide mouth plastic containers with screw top lid of polymer modified asphaltic emulsion
   1.3. Asphalt rubber binder chip seal, two 1-quart cans of base asphalt binder
   1.4. Asphalt rubber binder chip seal, five 1-quart cans of asphalt rubber binder
2. Asphaltic emulsion, polymer modified asphaltic emulsion, asphalt binder or asphalt rubber binder data as follows:
   2.1. Supplier and Type/Grade of asphaltic emulsion or asphalt binder
   2.2. Type of modifier used including polymer or crumb rubber or both
   2.3. Percent of crumb rubber, if used as modifier
   2.4. Copy of the specified test results for asphaltic emulsion or asphalt binder
3. 50 lb of uncoated aggregate
4. Aggregate test results for the following:
   4.1. Gradation
   4.2. Los Angeles Rattler
   4.3. Percent of crushed particles
   4.4. Flat and elongated particles
   4.5. Film stripping
   4.6. Cleanness value
   4.7. Durability
5. Vialit test results

Submit quality control test results for the quality characteristics within the reporting times allowance after sampling shown in the following table:

Quality Control Test Result Reporting

Quality characteristic	Maximum reporting time allowance
Los Angeles Rattler loss (max, %)	48 hours
Percent of crushed particles (min, %)	48 hours
Flat and elongated particles (max by weight at 3:1, %)	48 hours
Film stripping (max, %)	48 hours
Durability (min)	48 hours
Gradation (percentage passing)	24 hours
Cleanness value (min)	24 hours
Asphaltic emulsion spread rate (gal/sq yd)	24 hours

Within 3 days after taking asphaltic emulsion or asphalt binder quality control samples, submit the authorized laboratory's test results.

37-2.01A(4) Quality Assurance

37-2.01A(4)(a) General

Reserved

37-2.01A(4)(b) Quality Control

37-2.01A(4)(b)(i) General

Reserved

37-2.01A(4)(b)(ii) Aggregate

All tests must be performed on uncoated aggregate except for film stripping which must be performed on precoated aggregate.

For aggregate, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Aggregate Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Los Angeles Rattler loss (max, %) At 100 revolutions At 500 revolutions	California Test 211	1st day of production	See California Test 125
Percent of crushed particles Coarse aggregate (min, %) One-fractured face Two-fractured faces Fine aggregate (min, %) (Passing No. 4 sieve and retained on No. 8 sieve) One fractured face	AASHTO T 335	1st day of production	See California Test 125
Flat and elongated particles (max by weight at 3:1, %)	ASTM D4791	1st day of production	See California Test 125
Film stripping (max, %)	California Test 302	1st day of production	See California Test 125
Durability (min)	California Test 229	1st day of production	See California Test 125
Gradation (% passing)	California Test 202	2 per day	See California Test 125
Cleanness value (min)	California Test 227	2 per day	See California Test 125

37-2.01A(4)(b)(iii) Chip Seals

For a chip seal, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Chip Seal Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Asphaltic emulsion binder spread rate (gal/sq yd)	California Test 339	1 per day per distributor truck	Pavement surface

37-2.01A(4)(c) Department Acceptance

Department Acceptance shall not apply to identified areas where the existing surfacing before application of chip seal, contains defective areas as determined by the Engineer and Contractor. At least 7 days

before starting placement of the chip seal, the Contractor shall submit a written list of existing defective areas, identifying the lane direction, lane number, starting and ending highway post mile locations, and defect type. The Engineer must agree on which of the identified areas are defective.

Defective areas are defined as one of the following:

1. Areas with wheel path rutting in excess of 3/8 inch when measured by placing a straightedge 12 feet long on the finished surface perpendicular to the center line and measuring the vertical distance between the finished surface and the lower edge of the straightedge
2. Areas exhibiting flushing

For a chip seal, acceptance is based on visual inspection for the following:

1. Uniform surface texture
2. Raveling, which consists of the separation of the aggregate from the asphaltic emulsion or asphalt binder
3. Flushing, which consists of the occurrence of a film of asphaltic material on the surface of the chip seal.
4. Streaking, which consists of alternating longitudinal bands of asphaltic emulsion or asphalt binder without uniform aggregate retention, approximately parallel with the lane line.

Areas of raveling, flushing or streaking that are greater than 0.5 sq ft shall be considered defective and must be repaired.

Raveling and streaking must be repaired by placing an additional layer of chip seal over the defective area.

For asphaltic emulsion or asphalt binder, acceptance is based on the Department's sampling and testing for compliance with the requirements for the quality characteristics specified.

For aggregate, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Chip Seal Aggregate Acceptance Criteria

Quality characteristic	Test method	Requirements
Los Angeles Rattler loss (max, %) At 100 revolutions At 500 revolutions	California Test 211	 10 40
Percent of crushed particles: Coarse aggregate (min, %) One-fractured face Two-fractured faces Fine aggregate (min, %) (Passing No. 4 sieve and retained on No. 8 sieve) One fractured face	AASHTO T 335	 95 90 70
Flat and elongated particles (max by weight at 3:1, %)	ASTM D4791	10
Film stripping (max, %)	California Test 302	25
Durability (min)	California Test 229	52
Gradation (% passing by weight)	California Test 202	Aggregate Gradation table shown under Materials for the chip seal type specified.
Cleanness value (min)	California Test 227	80

If test results for the aggregate gradation do not comply with specifications, you may remove the chip seal represented by these tests or request that it remain in place with a payment deduction. The deduction is $1.75 per ton for the aggregate represented by the test results.

If test results for aggregate cleanness value do not comply with the specifications, you may remove the chip seal represented by these tests or you may request that the chip seal remain in place with a pay deduction corresponding to the cleanness value shown in the following table:

Chip Seal Cleanness Value Deductions

Cleanness value	Deduction
80 or over	None
79	$2.00 /ton
77–78	$4.00 /ton
75–76	$6.00 /ton

If the aggregate cleanness value is less than 75, remove the chip seal.

37-2.01B Materials

37-2.01B(1) General

Reserved

37-2.01B(2) Asphaltic Emulsions and Asphalt Binders

Reserved

37-2.01B(3) Aggregate

37-2.01B(3)(a) General

Aggregate must be broken stone, crushed gravel, or both.

Aggregate must comply with the requirements shown in the following table:

Chip Seal Aggregate Requirements

Quality characteristic	Test method	Requirements
Los Angeles Rattler loss (max, %) At 100 revolutions At 500 revolutions	California Test 211	 10 40
Percent of crushed particles Coarse aggregate (min, %) One-fractured face Two-fractured faces Fine aggregate (min, %) (Passing No. 4 sieve and retained on No. 8 sieve) One fractured face	AASHTO T 335	 95 90 70
Flat and elongated particles (max by weight at 3:1, %)	ASTM D4791	10
Film stripping (max, %)	California Test 302	25
Durability (min)	California Test 229	52
Gradation (% passing by weight)	California Test 202	Aggregate Gradation table shown under Materials for the chip seal type specified.
Cleanness value (min)	California Test 227	80

The authorized laboratory must conduct the Vialit test using the proposed asphaltic emulsion or asphalt binder and aggregate for compliance with the requirements shown in the following table:

Chip Retention Requirements

Quality characteristic	Test method	Requirement
Chip retention (%)	Vialit test method for aggregate in chip seals, French chip (Modified)[a]	95

[a]The asphaltic emulsion or asphalt binder must be within the field placement temperature range and application rate during specimen preparation. For asphalt binder cure the specimen for first 2 hours at 100 °F.

37-2.01B(3)(b) Precoated Aggregate

Precoating of aggregate must be performed at a central mixing plant. The plant must be authorized under the Department's *MPQP*.

When precoating aggregate, do not recombine fine materials collected in dust control systems.

Precoated aggregate must be preheated from 260 to 325 degrees F. Coat with any of the asphalts specified in the table titled "Performance Graded Asphalt Binder" in section 92. The asphalt must be from 0.5 to 1.0 percent by weight of dry aggregate. You determine the exact asphalt rate for precoating of aggregate.

Do not stockpile precoated aggregate.

37-2.01C Construction

37-2.01C(1) General

For chip seals on 2-lane, 2-way roadways, place a W8-7 (LOOSE GRAVEL) sign and a W13-1 (35) plaque at 2,000-foot maximum intervals along each side of the traveled way where aggregate is spread on a traffic lane and at public roads or streets entering the chip seal area. Place the 1st W8-7 sign in each direction where traffic first encounters the loose aggregate, regardless of which lane the aggregate is spread on. A W13-1 (35) plaque is not required where the posted speed limit is less than 40 mph.

For chip seals on freeways, expressways, and multilane conventional highways, place a W8-7, (LOOSE GRAVEL) sign and a W13-1 (35) plaque at 2,000-foot maximum intervals along the outside edge of the traveled way nearest to the lane worked on, at on ramps, and at public roads or streets entering the chip seal area. Place the 1st W8-7 sign where the aggregate starts with respect to the direction of travel on that lane. A W13-1 (35) plaque is not required where the posted speed limit is less than 40 mph.

Pilot cars must have cellular or radio contact with other pilot cars and personnel in the work zone. The maximum speed of the pilot cars convoying or controlling traffic through the traffic control zone must be 15 mph on 2-lane, two-way highways and 25 mph on multilane divided and undivided highways. Pilot cars must only use traffic lanes open to traffic.

On the days that closures are not allowed, you may use a moving closure to maintain the seal coat surface. The moving closure is only allowed during daylight hours when traffic will be the least inconvenienced and delayed. The Engineer determines the hours for the moving closure.

Maintain signs in place at each location until the final sweeping of the chip seal surface for that location is complete. Signs may be set on temporary portable supports with the W13-1 sign below the W8-7 sign or on barricades with the W13-1 sign alternating with the W8-7 sign.

Schedule chip seal activities so that the chip seals are placed on both lanes of the traveled way each work shift.

If traffic is routed over a surface where a chip seal application is intended, the chip seal must not be applied to more than half the width of the traveled way at a time, and the remaining width must be kept free of obstructions and open to traffic until the previously applied width is ready for traffic use.

Wherever maintenance sweeping of the chip seal surface is complete, place permanent traffic stripes and pavement markings within 10 days.

If you fail to place the permanent traffic stripes and pavement markings within the specified time, the Department withholds 50 percent of the estimated value of the chip seal work completed that has not received permanent traffic stripes and pavement markings.

37-2.01C(2) Equipment

Equipment for chip seals must include and comply with the following:

1. Aggregate haul trucks must have:
   1.1. Tailgate that discharge aggregate
   1.2. Device to lock onto the rear aggregate spreader hitch
   1.3. Dump bed that will not push down on the spreader when fully raised
   1.4. Dump bed that will not spill aggregate on the roadway when transferred to the spreader hopper
   1.5. Tarpaulin to cover precoated aggregate when haul distance exceeds 30 minutes or ambient temperature is less than 65 degrees F
2. Self-propelled aggregate spreaders must have:
   2.1. Aggregate hopper in the rear
   2.2. Belt conveyor that carries the aggregate to the front
   2.3. Spreading hopper capable of providing a uniform aggregate spread rate over the entire width of the traffic lane in 1 application.
3. Self-propelled power brooms must:
   3.1. Not be steel-tined brooms on emulsion chip seals
   3.2. Be capable of removing loose aggregate adjacent to barriers that prevent aggregate from being swept off the roadway, including curbs, gutters, dikes, berms, and railings
4. Pneumatic or foam filled rubber tired rollers must:
   4.1. Be an oscillating type at least 4 feet wide
   4.2. Be self-propelled and reversible
   4.3. Have tires of equal size, diameter, type, and ply
   4.4. Carry at least 3,000 lbs of load on each wheel
   4.5 Have tires with an air pressure of 100 ± 5 psi or be foam filled

37-2.01C(3) Surface Preparation

Before applying chip seals, cover manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured by tape or adhesive to the facility being covered. Reference the covered facilities with enough control points to relocate the facilities after the application of the chip seal.

Immediately before applying chip seals, clean the surface to receive a chip seal by removing any extraneous material affecting adhesion of the chip seal with the existing surface and drying. Use self-propelled power brooms to clean the existing pavement.

37-2.01C(4) Placement

37-2.01C(4)(a) General

Schedule the operations so that chip seals are placed on both lanes of the traveled way each work shift. At the end of the work shift, the end of the chip seals on both lanes must generally match.

37-2.01C(4)(b) Applying Asphaltic Emulsions or Asphalt Binders

Prevent spraying on existing pavement not intended for chip seals or on previously applied chip seals using a material such as building paper. Remove the material after use.

Align longitudinal joints between chip seal applications with designated traffic lanes.

For asphaltic emulsion or asphalt binder, overlap longitudinal joints by not more than 4 inches. You may overlap longitudinal joints up to 8 inches if authorized.

For areas not accessible to a truck distributor bar apply:

1. Asphaltic emulsions by hand spraying
2. Asphalt binders with a squeegee or other authorized means

You may overlap the asphaltic emulsion or asphalt binder applications before the application of aggregate at longitudinal joints.

Do not apply the asphaltic emulsion or asphalt binder unless there is sufficient aggregate at the job site to cover the asphaltic emulsion or asphalt binder.

Discontinue application of asphaltic emulsion or asphalt binder early enough to comply with lane closure requirements. Apply to 1 lane at a time and cover the lane width entirely in 1 operation.

37-2.01C(4)(c) Spreading Aggregates

37-2.01C(4)(c)(i) General

Prevent vehicles from driving on asphaltic emulsion or asphalt binder before spreading aggregate.

Spread aggregate within 10 percent of your determined rate.

Spread aggregate at a uniform rate over the full lane width in 1 application. Apply to 1 lane at a time.

Sweep excess aggregate at joints before spreading adjacent aggregate.

Operate the spreader at speeds slow enough to prevent aggregate from rolling over after dropping.

If the spreader is not moving, aggregate must not drop. If you stop spreading and aggregate drops, remove the excess aggregate before resuming activities.

37-2.01C(4)(c)(ii) Precoated Aggregate Application

During transit, cover precoated aggregate with tarpaulins if the ambient air temperature is below 65 degrees F or the haul time exceeds 30 minutes.

When applied, precoated aggregate must be from 225 to 325 degrees F.

37-2.01C(4)(d) Finishing

37-2.01C(4)(d)(i) General

Remove piles, ridges, or unevenly distributed aggregate. Repair permanent ridges, bumps, streaks or depressions in the finished surface. Spread additional aggregate and roll if aggregate is picked up by rollers or vehicles.

Chip seal joints between adjacent applications of a chip seal must be smooth, straight, uniform, and completely covered.

A coverage is 1 roller movement over the entire width of lane. A pass is 1 roller movement parallel to the chip seal application in either direction. Overlapping passes are part of the coverage being made and are not part of a subsequent coverage. Do not start a new coverage until completing the previous coverage.

Before opening to traffic, finish the chip seals in the following sequence:

1. Perform initial rolling consisting of 1 coverage with a pneumatic-tired roller
2. Perform final rolling consisting of 2 coverages with a pneumatic-tired roller
3. Sweep excess aggregate from the roadway and adjacent abutting areas
4. Apply a flush coat if specified
5. Remove covers from the facilities

37-2.01C(4)(d)(ii) Traffic Control With Pilot Car

For 2-lane 2-way roadways under 1-way traffic control, upon completion of final rolling, traffic must be controlled with pilot cars and routed over the new chip seal for a period of 2 to 4 hours before opening the lane to traffic not controlled with pilot cars.

For multilane roadways, when traffic is controlled with pilot cars, a maximum of 1 lane in the direction of travel must be open to traffic. Traffic must be controlled with pilot cars and be routed on the new chip seal surface of the lane for a minimum of 2 hours after completion of the initial sweeping and before opening the lane to traffic not controlled with pilot cars. Once traffic controlled with pilot cars is routed over the chip seal at a particular location, continuous control must be maintained at that location until the chip seal placement and sweeping on adjacent lanes to receive a chip seal is completed.

37-2.01C(4)(d)(iii) Sweeping

Sweeping must be performed after the chip seal has set and there is no damage or dislodging of aggregate from the chip seal surface. As a minimum, sweeping is required at the following times:

1. On 2-lane 2-way roadways, from 2 to 4 hours after traffic, controlled with pilot cars, has been routed on the chip seal
2. On multilane roadways, from 2 to 4 hours after aggregate have been placed
3. In addition to previous sweeping, perform final sweeping immediately before opening any lane to public traffic, not controlled with pilot cars

37-2.01C(4)(d)(iv) Excess Aggregate

Dispose of excess aggregate. If ordered, salvaging and stockpiling of excess aggregate is change order work.

37-2.01C(4)(e) Chip Seal Maintenance

Perform sweeping on the morning following the application of aggregate on any lane that has been open to traffic not controlled with pilot cars and before starting any other activities.

Chip seal surfaces must be maintained for 4 consecutive days from the day aggregate is applied. Maintenance must include sweeping to maintain a surface free of loose aggregate and to prevent formation of corrugations. Sweeping must not dislodge aggregate set in asphaltic emulsion or asphalt binder.

After 4 consecutive days, excess aggregate must be removed from the paved areas.

37-2.01D Payment

If there is no bid item for traffic control system, furnishing and using a pilot car is included in the various items of the work involved in applying the chip seal.

The payment quantity for precoated aggregate is the weight measured after the aggregate is preheated and precoated with asphalt binder.

If recorded batch weights are printed automatically, the payment quantity for aggregate is the weight determined from the printed batch weights if:

1. Total weight for the precoated aggregate per batch is printed
2. Total asphalt binder weight per batch is printed
3. Zero tolerance weight is printed before weighing the first batch and after weighing the last batch for each truckload
4. Time, date, mix number, load number, and truck identification are correlated with a load slip
5. Copy of the recorded batch weights is certified by a licensed weighmaster

37-2.02 ASPHALTIC EMULSION CHIP SEALS

37-2.02A General

37-2.02A(1) Summary

Section 37-2.02 includes specifications for applying asphaltic emulsion chip seals. An asphaltic emulsion chip seal includes applying an asphaltic emulsion, followed by aggregate, and then a flush coat.

A double asphaltic emulsion chip seal is the application of an asphaltic emulsion followed by aggregate, applied twice in sequence and then a flush coat.

37-2.02A(2) Definitions

Reserved

37-2.02A(3) Submittals

Immediately after sampling, submit two 1-quart plastic containers of asphaltic emulsion taken in the presence of the Engineer. Samples must be submitted in insulated shipping container.

37-2.02A(4) Quality Assurance

37-2.02A(4)(a) General

Reserved

37-2.02A(4)(b) Quality Control

37-2.02A(4)(b)(i) General

Reserved

37-2.02A(4)(b)(ii) Asphaltic Emulsions

Circulate asphaltic emulsion in the distributor truck before sampling. Take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer, take two 1-quart samples in a plastic container with lined sealed lid for acceptance testing.

For asphaltic emulsion, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphaltic Emulsion

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Saybolt Furol Viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Distributor truck
Sieve Test (%)			
Storage stability, 1 day (%)			
Residue by distillation (%)			
Particle charge[a]			
Tests on Residue from Distillation Test:			
Penetration, 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Distributor truck
Ductility	AASHTO T 51		
Solubility in trichloroethylene	AASHTO T 44		

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS1h asphaltic emulsion must have a maximum pH of 6.7.

37-2.02A(4)(c) Department Acceptance

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Aggregate Gradation Acceptance Criteria

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve size:	California Test 202	3/8"	5/16"	1/4"
3/4"		--	--	--
1/2"		100	--	--
3/8"		85–100	100	100
No. 4		0–15	0–50	60–85
No. 8		0–5	0–15	0–25
No. 16		--	0–5	0–5
No. 30		--	0–3	0–3
No. 200		0–2	0–2	0–2

37-2.02B Materials

37-2.02B(1) General

Reserved

37-2.02B(2) Asphaltic Emulsions

Reserved

37-2.02B(3) Aggregate

Aggregate gradation for an asphaltic emulsion chip seal must comply with the requirements shown in the following table:

Asphaltic Emulsion Chip Seal Aggregate Gradation

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve size:	California Test 202	3/8"	5/16"	1/4"
3/4"		--	--	--
1/2"		100	--	--
3/8"		85–100	100	100
No. 4		0–15	0–50	60–85
No. 8		0–5	0–15	0–25
No. 16		--	0–5	0–5
No. 30		--	0–3	0–3
No. 200		0–2	0–2	0–2

37-2.02C Construction

37-2.02C(1) General

Reserved

37-2.02C(2) Asphaltic Emulsions

Asphaltic emulsions must be applied within the application rate ranges shown in the following table:

Asphaltic Emulsion Application Rates

Aggregate gradation	Application rate range (gal/sq yd)
3/8"	0.30–0.45
5/16"	0.25–0.35
1/4"	0.20–0.30

For double asphaltic emulsion chip seals, the asphaltic emulsions must be applied within the application rates shown in the following table:

Asphaltic Emulsion Application Rates

Double chip seals	Application rate range (gal/sq yd)
1st application 2nd application	0.30–0.45 0.20–0.30

When applied, the temperature of the asphaltic emulsions must be from 130 to 180 degrees F.

Apply asphaltic emulsions when the ambient air temperature is from 65 to 110 degrees F and the pavement surface temperature is at least 80 degrees F.

Do not apply asphaltic emulsions when weather forecasts predict the ambient air temperature will fall below 39 degrees F within 24 hours after application.

37-2.02C(3) Spreading Aggregates

Aggregate must be spread within the spread rate ranges shown in the following table:

Aggregate Spread Rates

Aggregate gradation	Spread rate range (lb/sq yd)
3/8"	20–30
5/16"	16–25
1/4"	12–20

For double asphaltic emulsion chip seals, aggregate must be spread within the spread rate ranges shown in the following table:

Aggregate Spread Rates

Double chip seal	Spread rate range (lb/sq yd)
1st application	23–30
2nd application	12–20

Remove excess aggregate on the 1st application before the 2nd application of asphaltic emulsion.

You may stockpile aggregate for asphaltic emulsion chip seals if you prevent contamination. Aggregate must have a damp surface at spreading. If water visibly separates from the aggregate, do not spread. You may re-dampen aggregate in the delivery vehicle.

Spread aggregate before an asphaltic emulsion sets or breaks.

Do not spread aggregate more than 2,500 feet ahead of the completed initial rolling.

37-2.02D Payment

Not Used

37-2.03 POLYMER MODIFIED ASPHALTIC EMULSION CHIP SEALS

37-2.03A General

37-2.03A(1) Summary

Section 37-2.03 includes specifications for applying polymer modified asphaltic emulsion chip seals. A polymer modified asphaltic emulsion chip seal includes applying a polymer modified asphaltic emulsion, followed by aggregate, and then a flush coat.

A double polymer modified asphaltic emulsion chip seal is the application of a polymer modified asphaltic emulsion followed by aggregate, applied twice in sequence and then a flush coat.

37-2.03A(2) Definitions

Reserved

37-2.03A(3) Submittals

Immediately after sampling, submit two 1-quart cans of polymer modified asphaltic emulsion taken in the presence of the Engineer. A sample must be submitted in an insulated shipping container.

37-2.03A(4) Quality Assurance

37-2.03A(4)(a) General

Reserved

37-2.03A(4)(b) Quality Control

37-2.03A(4)(b)(i) General

Reserved

37-2.03A(4)(b)(ii) Polymer Modified Asphaltic Emulsions

Circulate polymer modified asphaltic emulsions in the distributor truck before sampling. Take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer, take two 1-quart samples for acceptance testing.

For polymer modified asphaltic emulsions, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Polymer Modified Asphaltic Emulsion

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Saybolt Furol Viscosity, at 50 °C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Distributor truck
Settlement, 5 days (max, %)			
Storage stability test, 1 day (max, %)			
Sieve test (max, %)			
Demulsibility (min, %)			
Particle charge			
Ash content (max, %)	ASTM D3723		
Residue by evaporation (min, %)	California Test 331		
Tests on residue from evaporation test:			
Penetration, 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Distributor truck
Penetration, 4 °C, 200g for 60 seconds	AASHTO T 49		
Ductility, 25 °C (min, mm)	AASHTO T 51		
Torsional recovery (min, %)	California Test 332		
Ring and Ball Softening Point (min, °F)	AASHTO T 53		

37-2.03A(4)(c) Department Acceptance

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Aggregate Gradation Acceptance Criteria

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve size:	California Test 202	3/8"	5/16"	1/4"
3/4"		--	--	--
1/2"		100	--	--
3/8"		85–100	100	100
No. 4		0–15	0–50	60–85
No. 8		0–5	0–15	0–25
No. 16		--	0–5	0–5
No. 30		--	0–3	0–3
No. 200		0–2	0–2	0–2

37-2.03B Materials

37-2.03B(1) General

Reserved

37-2.03B(2) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must include elastomeric polymer.

A polymer modified asphaltic emulsion must be Grade PMRS2, PMRS2h, PMCRS2, or PMCRS2h. Polymer content in percent by weight does not apply.

A polymer modified asphaltic emulsion must comply with section 94 and the quality characteristic requirements in the following table:

Polymeric Asphaltic Emulsion

Quality characteristic	Test method	Requirement
Penetration, 4 °C, 200g for 60 seconds (min)	AASHTO T 49	6
Ring and Ball Softening Point (min, °F)	AASHTO T 53	135

37-2.03B(3) Aggregate

The aggregate gradation for a polymer modified asphaltic emulsion chip seal must comply with the requirements shown in the following table:

Asphaltic Emulsion Chip Seal Aggregate Gradation

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve Size	California Test 202	3/8"	5/16"	1/4"
3/4"		--	--	--
1/2"		100	--	--
3/8"		85–100	100	100
No. 4		0–15	0–50	60–85
No. 8		0–5	0–15	0–25
No. 16		--	0–5	0–5
No. 30		--	0–3	0–3
No. 200		0–2	0–2	0–2

37-2.03C Construction

Polymer modified asphaltic emulsions must be applied within the application rate ranges shown in the following table:

Polymer Modified Asphaltic Emulsion Application Rates

Aggregate gradation	Application rate range (gal/sq yd)
3/8"	0.30–0.45
5/16"	0.25–0.35
1/4"	0.20–0.30

For double polymer modified asphaltic emulsion chip seals, polymer modified asphaltic emulsions must be applied within the application rates shown in the following table:

Polymer Modified Asphaltic Emulsion Application Rates

Double application	Application rate range (gal/sq yd)
1st application	0.30–0.45
2nd application	0.20–0.30

Apply polymer modified asphaltic emulsions when the ambient air temperature is from 60 to 105 degrees F and the pavement surface temperature is at least 80 degrees F.

Do not apply polymer modified asphaltic emulsions when weather forecasts predict the ambient air temperature will fall below 39 degrees F within 24 hours after application.

Aggregate must be spread within the spread rate ranges shown in the following table:

Aggregate Spread Rates

Chip seal type	Spread rate range (lb/sq yd)
3/8"	20–30
5/16"	16–25
1/4"	12–20

For double chip seals, aggregate must be spread within spread rate ranges shown in the following table:

Aggregate Spread Rates

Double application	Spread rate range (lb/sq yd)
1st application	23–30
2nd application	12–20

Remove excess aggregate on the 1st application before the 2nd application of asphaltic emulsion.

You may stockpile aggregate for the polymer modified asphaltic emulsion chip seals if you prevent contamination. Aggregate must have damp surfaces at spreading. If water visibly separates from the aggregate, do not spread. You may redampen aggregate in the delivery vehicle.

Spread aggregate before the polymer modified asphaltic emulsion sets or breaks.

Do not spread aggregate more than 2,500 feet ahead of the completed initial rolling.

37-2.03D Payment

Not Used

37-2.04 ASPHALT RUBBER BINDER CHIP SEALS

37-2.04A General

37-2.04A(1) Summary

Section 37-2.04 includes specifications for applying asphalt rubber binder chip seals.

An asphalt rubber binder chip seal consists of applying asphalt rubber binder followed by heated aggregate precoated with asphalt binder followed by a flush coat.

37-2.04A(2) Definitions

crumb rubber modifier: Combination of ground or granulated high natural scrap tire crumb rubber and scrap tire crumb rubber derived from waste tires described in Pub Res Code § 42703.

descending viscosity reading: Subsequent viscosity reading at least 5 percent lower than the previous viscosity reading.

high natural scrap tire crumb rubber: Material containing 40 to 48 percent natural rubber.

scrap tire crumb rubber: Any combination of vehicle tires or tire buffing.

37-2.04A(3) Submittals

At least 5 business days before use, submit the permit issued by the local air district for asphalt rubber binder field blending equipment and application equipment. If an air quality permit is not required by the local air district for producing asphalt rubber binder, submit verification from the local air district that an air quality permit is not required.

For each delivery of asphalt rubber binder ingredients to the job site, submit a certificate of compliance with a copy of the specified test results.

Submit a certified volume or weight slip for each delivery of asphalt rubber binder ingredients and asphalt rubber binder.

Submit a SDS for each asphalt rubber binder ingredient and the asphalt rubber binder.

At least 15 days before use, submit:

1. Samples of each asphalt rubber binder ingredient:
   1.1. 2 lbs of scrap tire crumb rubber
   1.2. 2 lbs of high natural scrap tire crumb rubber
   1.3. Two 1-quart cans of base asphalt binder
   1.4. Two 1-quart cans of asphalt modifier
2. Asphalt rubber binder formulation and data as follows:
   2.1. For asphalt modifier, include:
      2.1.1. Source of asphalt modifier
      2.1.2. Type of asphalt modifier
      2.1.3. Percentage of asphalt modifier by weight of asphalt binder
      2.1.4. Percentage of combined asphalt binder and asphalt modifier by weight of asphalt rubber binder
      2.1.5. Test results for the specified quality characteristics
   2.2. For crumb rubber modifier, include:
      2.2.1. Each source and type of scrap tire crumb rubber and high natural scrap tire crumb rubber
      2.2.2. Percentage of scrap tire crumb rubber and high natural scrap tire crumb rubber by total weight of asphalt rubber binder
      2.2.3. Test results for the specified quality characteristics
   2.3. For asphalt rubber binder, include minimum reaction time and temperature

Immediately after sampling, submit five 1-quart cans of asphalt rubber binder taken in the presence of the Engineer. Sample must be submitted in insulated shipping containers.

Submit notification 15 minutes before each viscosity test or submit a schedule of testing times.

Submit the log of asphalt rubber binder descending viscosity test results within 1 business day after sampling.

Submit asphalt rubber binder quality control viscosity test results within 1 business day after sampling.

37-2.04A(4) Quality Assurance

37-2.04A(4)(a) General

The equipment used in producing asphalt rubber binder and the equipment used in spreading asphalt rubber binder must be permitted for use or exempted by the local air district.

37-2.04A(4)(b) Quality Control

37-2.04A(4)(b)(i) General

Reserved

37-2.04A(4)(b)(ii) Asphalt Modifiers

For asphalt modifiers, the authorized laboratory must perform quality control sampling and testing at the specified frequency for the following quality characteristics:

Asphalt Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Frequency
Viscosity Flash point	ASTM D445 ASTM D92	1 per shipment
Molecular Analysis:		
Asphaltenes Aromatics	ASTM D2007 ASTM D2007	1 per shipment

37-2.04A(4)(b)(iii) Crumb Rubber Modifiers

Sample and test scrap tire crumb rubber and high natural scrap tire crumb rubber separately.

Perform quality control sampling and testing at the specified frequency for the following quality characteristics:

Crumb Rubber Modifier

Quality characteristic	Test method	Frequency
Scrap tire crumb rubber gradation	California Test 385	1 per 10,000
High natural scrap tire crumb rubber gradation	California Test 385	1 per 3,400 lb
Wire in CRM	California Test 385	1 per 10,000 lb
Fabric in CRM	California Test 385	
CRM particle length	--	
CRM specific gravity	California Test 208	
Natural rubber content in high natural scrap tire crumb rubber	ASTM D297	1 per 3,400 lb

37-2.04A(4)(b)(iv) Asphalt Rubber Binders

For asphalt rubber binders, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphalt Rubber Binder Quality Control Requirements

Quality characteristic	Test method	Sampling location	Frequency
Descending viscosity[a] at 375 °F (Pa•s x 10^{-3})	ASTM D7741	Reaction vessel	1 per lot[b]
Viscosity at 375 °F (Pa•s x 10^{-3})	ASTM D7741	Distribution truck	15 minutes before use per lot[b]
Cone penetration at 25 °C (0.10 mm)	ASTM D217	Distribution truck	1 per lot[b]
Resilience at 25 °C (% rebound)	ASTM D5329		
Softening point (°C)	ASTM D36		

[a]Start taking viscosity readings at least 45 minutes after adding crumb rubber modifier and continue taking viscosity readings every 30 minutes until 2 consecutive descending viscosity readings have been obtained and the final viscosity complies with the specification requirement.
[b]A lot is defined in the *MPQP*.

Retain samples from each lot. Test samples for cone penetration, resilience, and softening point for the first 3 lots and if all 3 lots pass, the testing frequency may be reduced to once for every 3 lots.

If QC test results indicate that the asphalt rubber binder does not comply with the specifications, take corrective action and notify the Engineer.

37-2.04A(4)(c) Department Acceptance

37-2.04A(4)(c)(i) General

Reserved

37-2.04A(4)(c)(ii) Asphalt Modifiers

The Department accepts asphalt modifier based on compliance with the requirements shown in the following table:

Asphalt Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Viscosity at 100 °C (m^2/s x 10^{-6})	ASTM D445	X ± 3[a]
Flash point (min, °C)	ASTM D92	207
Molecular Analysis:		
Asphaltenes (max, % by mass)	ASTM D2007	0.1
Aromatics (min, % by mass)	ASTM D2007	55

[a]The symbol "X" is the asphalt modifier viscosity.

37-2.04A(4)(c)(iii) Crumb Rubber Modifiers

Scrap tire CRM and high natural CRM are sampled and tested separately.

The Department accepts scrap tire CRM and high natural CRM based on compliance with the requirements shown in the following table:

Crumb Rubber Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Wire in CRM (max, %)	California Test 385	0.01
Fabric in CRM (max, %)	California Test 385	0.05
CRM particle length (max, in)	--	3/16
CRM specific gravity	California Test 208	1.1–1.2
Natural rubber content in high natural CRM (%)	ASTM D297	40.0–48.0

The Department accepts CRM gradation based on the requirements shown in the following table:

Crumb Rubber Modifier Gradation Requirements

Quality characteristic	Test method	Requirement			
Gradation (% passing by weight) Sieve size:	California Test 385	Scrap tire crumb rubber		High natural scrap tire crumb rubber	
		Operating range	Contract compliance	Operating range	Contract compliance
No. 8		100	100	--	--
No. 10		95–100	90–100	100	100
No. 16		35–85	32–88	92–100	85–100
No. 30		2–25	1–30	25–95	20–98
No. 50		0–10	0–15	6–35	2–40
No. 100		0–5	0–10	0–7	0–10
No. 200		0–2	0–5	0–3	0–5

If a test result for CRM gradation does not comply with the specifications, the Department deducts the corresponding amount for each gradation test as shown in the following table:

Material	Gradation test result[a]	Deduction
Scrap tire crumb rubber	Operating range < TR < Contract compliance	$250
Scrap tire crumb rubber	TR > Contract compliance	$1,100
High natural scrap tire crumb rubber	Operating range < TR < Contract compliance	$250
High natural scrap tire crumb rubber	TR > Contract compliance	$600

[a]Test Result = TR

Each gradation test for scrap tire crumb rubber represents 10,000 lb or the quantity used in that day's production, whichever is less.

Each gradation test for high natural scrap tire crumb rubber represents 3,400 lb or the quantity used in that day's production, whichever is less.

37-2.04A(4)(c)(iv) Asphalt Rubber Binders

For Department acceptance testing, take a sample of asphalt rubber binder in the Engineer's presence every 5 lots or once a day, whichever is greater. Each sample must be in five 1-quart cans with an open top and friction lid.

For an asphalt rubber binder, acceptance is based on the Department’s sampling and testing for compliance with the requirements shown in the following table:

Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Cone penetration at 25 °C (0.10 mm)	ASTM D217	25–60
Resilience at 25 °C (% rebound)	ASTM D5329	18–50
Softening point (°C)	ASTM D36	55–88
Viscosity at 375 °F (Pa•s x 10^{-3})[a]	ASTM D7741	1,500–2,500

[a]Prepare sample for viscosity test under California Test 388.

37-2.04A(4)(c)(v) Precoated Aggregate

The Department accepts precoated aggregate based on compliance with the requirements shown in the following table:

Precoated Aggregate Gradation Acceptance Criteria

Quality Characteristic	Test method	Requirement
1/2" gradation (% passing by weight)	California Test 202	
Sieve size:		
3/4"		100
1/2"		85–90
3/8"		0–30
No. 4		0–5
No. 8		--
No. 200		0–1
3/8" gradation (% passing by weight)	California Test 202	
Sieve size:		
3/4"		100
1/2"		95–100
3/8"		70–85
No. 4		0–15
No. 8		0–5
No. 200		0–1

37-2.04B Materials

37-2.04B(1) General

Reserved

37-2.04B(2) Asphalt Binders

Asphalt binder used as the base binder for asphalt rubber binder must comply with the specifications for asphalt binder. Do not modify asphalt binder with polymer.

37-2.04B(3) Asphalt Modifiers

An asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon. An asphalt modifier must comply with the requirements shown in the following table:

Asphalt Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Viscosity at 100 °C (m^2/s x 10^{-6})	ASTM D445	X ± 3[a]
Flash point (min, CL.O.C., °C)	ASTM D92	207
Molecular analysis:		
Asphaltenes by mass (max, %)	ASTM D2007	0.1
Aromatics by mass (min, %)	ASTM D2007	55

[a]*X* denotes the proposed asphalt modifier viscosity from 19 to 36. A change in *X* requires a new asphalt rubber binder submittal.

37-2.04B(4) Crumb Rubber Modifiers

The CRM to be used must be on the Authorized Materials List for crumb rubber modifier.

The CRM must be ground or granulated at ambient temperature.

Scrap tire crumb rubber and high natural scrap tire crumb rubber must be delivered to the asphalt rubber binder production site in separate bags.

Steel and fiber must be separated. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Cryogenically-produced CRM particles must be large enough to be ground or granulated.

The CRM must be dry, free-flowing particles that do not stick together. A maximum of 3 percent calcium carbonate or talc by weight of CRM may be added. The CRM must not cause foaming when combined with the asphalt binder and asphalt modifier.

The CRM must comply with the requirements shown in the following table:

Crumb Rubber Modifier for Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Wire in CRM (max, %)	California Test 385	0.01
Fabric in CRM (max, %)	California Test 385	0.05
CRM particle length (max, in)	--	3/16
CRM specific gravity	California Test 208	1.1–1.2

The CRM must comply with the requirements shown in the following table:

Crumb Rubber Modifier Requirements

Quality characteristic	Test method	Requirement	
		Scrap tire crumb rubber	High natural scrap tire crumb rubber
Acetone extract (%)	ASTM D297	6.0–16.0	4.0–16.0
Rubber hydrocarbon (min, %)		42.0–65.0	50.0
Natural rubber content (%)		22.0–39.0	40.0–48.0
Carbon black content (%)		28.0–38.0	--
Ash content (max, %)		8.0	--

Scrap tire crumb rubber gradation must comply with the gradation requirements shown in the following table:

Scrap Tire Crumb Rubber Gradation

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve size:	California Test 385	Gradation limit	Operating range	Contract compliance
No. 8		100	100	100
No. 10		98–100	95–100	90–100
No. 16		45–75	35–85	32–88
No. 30		2–20	2–25	1–30
No. 50		0–6	0–10	0–15
No. 100		0–2	0–5	0–10
No. 200		0	0–2	0–5

High natural scrap tire crumb rubber gradation must comply with the gradation requirements shown in the following table:

High Natural Scrap Tire Crumb Rubber Gradation

Quality characteristic	Test method	Requirement		
Gradation (% passing by weight) Sieve size:	California Test 385	Gradation limit	Operating range	Contract compliance
No. 10		100	100	100
No. 16		95–100	92–100	85–100
No. 30		35–85	25–95	20–98
No. 50		10–30	6–35	2–40
No. 100		0–4	0–7	0–10
No. 200		0–1	0–3	0–5

37-2.04B(5) Asphalt Rubber Binders

An asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier

Asphalt rubber binder blending equipment must be authorized under the Department's *MPQP*.

The blending equipment must allow the determination of weight percentages of each asphalt rubber binder ingredient.

An asphalt rubber binder must be 79 ± 1 percent by weight asphalt binder and 21 ± 1 percent by weight of CRM. The minimum percentage of CRM must be 20.0 percent and lower values must not be rounded up.

The CRM must be 75 ± 2 percent by weight scrap tire crumb rubber and 25 ± 2 percent by weight high natural scrap tire crumb rubber.

An asphalt modifier and asphalt binder must be blended at the production site. An asphalt modifier must be from 2.5 to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder. The asphalt rubber binder supplier determines the exact percentage.

If blended before adding CRM, the asphalt binder must be from 375 to 440 degrees F when an asphalt modifier is added and the mixture must circulate for at least 20 minutes. An asphalt binder, asphalt modifier, and CRM may be proportioned and combined simultaneously.

The blend of an asphalt binder and an asphalt modifier must be combined with the CRM at the asphalt rubber binder production site. The asphalt binder and asphalt modifier blend must be from 375 to 440 degrees F when the CRM is added. Combined ingredients must be allowed to react at least 45 minutes at temperatures from 375 to 425 degrees F except the temperature must be at least 10 degrees F below the flash point of the asphalt rubber binder.

After reacting, the asphalt rubber binder must comply with the requirements shown in the following table:

Asphalt Rubber Binder

Quality characteristic	Test method	Requirement
Cone penetration at 25 °C (0.10 mm)	ASTM D217	25–60
Resilience at 25 °C (% rebound)	ASTM D5329	18–50
Softening point (°C)	ASTM D36	55–88
Viscosity at 375 °F (Pa•s x 10^{-3})[a]	ASTM D7741	1,500–2,500

[a]Prepare sample for viscosity test under California Test 388.

Maintain asphalt rubber binder at a temperature from 375 to 415 degrees F.

Stop heating unused asphalt rubber binder 4 hours after the 45-minute reaction period. Reheating asphalt rubber binder that cools below 375 degrees F is a reheat cycle. Do not exceed 2 reheat cycles. If reheating, the asphalt rubber binder must be from 375 to 415 degrees F before use.

During reheating, you may add CRM. The CRM must not exceed 10 percent by weight of the asphalt rubber binder. Allow added CRM to react for at least 45 minutes. Reheated asphalt rubber binder must comply with the specifications for asphalt rubber binder.

37-2.04B(6) Precoated Aggregate

Before precoating with asphalt binder, aggregate for an asphalt rubber binder chip seal must comply with the gradation requirements shown in the following table:

Asphalt Rubber Binder Chip Seal Aggregate Gradation

Quality characteristic	Test method	Requirement	
Gradation (% passing by weight) Sieve size:	California Test 202	1/2"	3/8"
3/4"		100	100
1/2"		85–90	95–100
3/8"		0–30	70–85
No. 4		0–5	0–15
No. 8		--	0–5
No. 200		0–1	0–1

37-2.04C Construction

37-2.04C(1) General

Reserved

37-2.04C(2) Equipment

Distributor trucks must be equipped with:

1. Mixing and heating unit
2. Observation platform on the rear of the truck for an observer on the platform to see the nozzles and unplug them if needed

37-2.04C(3) Asphalt Rubber Binder Application

Apply the asphalt rubber binder when the ambient temperature is from 60 to 105 degrees F and the pavement surface temperature is at least 55 degrees F.

Do not apply the asphalt rubber binder unless enough aggregate is available at the job site to cover the asphalt rubber binder within 2 minutes. Intersections, turn lanes, gore points, and irregular areas must be covered within 15 minutes.

Do not apply asphalt rubber binder when pavement is damp or during high wind conditions. If authorized, you may adjust the distributor bar height and distribution speed and use shielding equipment during high wind conditions.

When applied, the temperature of the asphalt rubber binder must be from 385 to 415 degrees F.

Apply the asphalt rubber binder at a rate from 0.55 to 0.65 gal/sq yd. You may reduce the application rate by 0.050 gal/sq yd in the wheel paths.

37-2.04C(4) Precoated Aggregate Spreading

Spread aggregate at a rate from 28 to 40 lb/sq yd. Do not spread aggregate more than 200 feet ahead of the completed initial rolling.

37-2.04C(5) Rolling and Sweeping

Perform initial rolling within 90 seconds of spreading aggregate. If authorized for final rolling, you may use a steel-wheeled roller weighing from 8 to 10 tons in static mode only.

Perform a final sweeping before Contract acceptance. The final sweeping must not dislodge aggregate.

37-2.04D Payment

Asphalt rubber binder is measured as specified for asphalt binder.

37-2.05 STRESS ABSORBING MEMBRANE INTERLAYERS

37-2.05A General

Section 37-2.05 includes specifications for placing stress absorbing membrane interlayers (SAMI).

Comply with section 37-2.04 except a flush coat is not required.

Traffic must not be allowed on a SAMI.

37-2.05B Materials

For a SAMI, aggregate must comply with the 3/8-inch gradation.

37-2.05C Construction

If a SAMI is overlaid in the same work shift, section 37-2.01C(4)(e) does not apply.

Final sweeping is not required for a SAMI.

37-2.05D Payment

Not Used

37-2.06 MODIFIED ASPHALT BINDER CHIP SEALS

Reserved

37-2.07 SCRUB SEALS

Reserved

37-3 SLURRY SEALS AND MICRO-SURFACINGS

37-3.01 GENERAL

37-3.01A General

37-3.01A(1) Summary

Section 37-3.01 includes general specifications for applying slurry seals and micro-surfacings.

37-3.01A(2) Definitions

Reserved

37-3.01A(3) Submittals

At least 15 days before starting placement of a slurry seal or micro-surfacing, submit:

1. Samples for:
   1.1. Asphaltic emulsion slurry seal, two 1-quart wide mouth plastic containers with screw top lid of asphaltic emulsion
   1.2 Polymer modified asphaltic emulsion slurry seal, two 1-quart wide mouth plastic containers with screw top lid of polymer modified asphaltic emulsion
   1.3. Micro-surfacing, two 1-quart wide mouth plastic containers with screw top lid of micro-surfacing emulsion
2. Asphaltic emulsion, polymer modified asphaltic emulsion, or micro-surfacing emulsion data as follows:
   2.1. Supplier and Type/Grade of asphaltic emulsion
   2.2. Type of modifier polymer for polymer modified asphaltic emulsion or micro-surfacing emulsion
   2.3. Copy of the specified test results for asphaltic emulsion, polymer modified asphaltic emulsion, or micro-surfacing emulsion
3. 50 lb of aggregate
4. Aggregate test results for the followings:
   4.1. Gradation
   4.2. Los Angeles Rattler
   4.3. Percent of crushed particles

4.4 Sand equivalent
4.5 Durability

At least 10 days before starting placement of a slurry seal or micro-surfacing, submit a laboratory report of test results and the proposed mix design from an authorized laboratory. The authorized laboratory must sign the laboratory report and mix design.

The report must include:

1. Test results used in the mix design compared with specification requirements
2. Proportions based on the dry weight of aggregate, including ranges, for:
   2.1. Aggregate
   2.2. Water
   2.3. Additives
   2.4. Mineral filler
   2.5. Slurry seal emulsion or micro-surfacing emulsion residual asphalt content
3. Recommended changes to the proportions based on heating the mixture to 100 degrees F and mixing for 60 seconds, if atmospheric temperatures during application will be 90 degrees F or above, for:
   3.1. Water
   3.2. Additives
   3.3. Mineral filler
4. Quantitative moisture effects on the aggregate's unit weight determined under ASTM C29M

If the mix design consists of the same materials covered by a previous laboratory report, you may submit the previous laboratory report that must include material testing data performed within the previous 12 months for authorization.

If you change any of the materials in the mix design, submit a new mix design and laboratory report at least 10 days before starting slurry seal or micro-surfacing work.

Submit a certificate of compliance as specified for asphaltic emulsion in section 94-1.01C with each shipment of asphaltic emulsion, polymer modified asphaltic emulsion or micro-surfacing emulsion.

Submit quality control test results for the quality characteristics within the reporting times allowance after sampling shown in the following table:

Quality Control Test Reporting Requirements

Quality characteristic	Maximum reporting time allowance
Los Angeles Rattler loss (max, %)	2 business days
Percent of crushed particles (min, %)	2 business days
Durability (min)	2 business days
Resistance of fine aggregate to degradation by abrasion in the Micro-Deval Apparatus (% loss by weight)	2 business days
Gradation (% passing by weight)	48 hours
Sand equivalent (min)	48 hours
Moisture content (%)	48 hours

Within 3 days after taking asphaltic emulsion, polymer modified asphaltic emulsion or micro-surfacing emulsion quality control samples, submit the authorized laboratory's test results.

37-3.01A(4) Quality Assurance

37-3.01A(4)(a) General

Your authorized laboratory must be able to perform International Slurry Surfacing Association tests and mix design.

37-3.01A(4)(b) Quality Control

37-3.01A(4)(b)(i) General

Reserved

37-3.01A(4)(b)(ii) Aggregate

For aggregate, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Aggregate Quality Control

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Los Angeles Rattler loss (max, %) At 500 revolutions	California Test 211	1st day of production	See California Test 125
Percent of crushed particles (min, %)	AASHTO T 335	1st day of production	See California Test 125
Sand equivalent (min)	California Test 217	1 per working stockpile per day	See California Test 125
Resistance of fine aggregate to degradation by abrasion in the Micro-Deval Apparatus (% loss by weight)	ASTM D7428	1 per working stockpile per day	See California Test 125
Gradation (% passing by weight)	California Test 202	1 per working stockpile per day	See California Test 125
Moisture content, from field stockpile (%)	AASHTO T 255[a]	1 per working stockpile per day	See California Test 125

[a]Test aggregate moisture at field stockpile every 2 hours if you are unable to maintain the moisture content to within a maximum daily variation of ±0.5 percent.

37-3.01A(4)(b)(iii) Slurry Seals and Micro-surfacings

Reserved

37-3.01A(4)(c) Department Acceptance

Slurry Seal and micro-surfacing acceptance is based on:

1. Visual inspection for the following:
   - 1.1. Uniform surface texture throughout the work limits.
   - 1.2. Marks in the surface:
     - 1.2.1. Up to 4 marks in the completed slurry seal or micro-surfacing surface that are up to 1 inch wide and up to 6 inches long per 1000 square feet of slurry seal or micro-surfacing placed.
     - 1.2.2. No marks in the completed slurry seal or micro-surfacing surface that are over 1 inch wide or 6 inches long.
   - 1.3. Excessive raveling consisting of the separation of the aggregate from the asphaltic emulsion, polymer modified asphaltic emulsion or micro-surfacing emulsion.
   - 1.4. Bleeding consists of the occurrence of a film of asphaltic material on the surface of the slurry seal or micro-surfacing.
   - 1.5. Delaminating of slurry seal or micro-surfacing from the existing pavement.
   - 1.6. Rutting or wash-boarding.
2. Department's sampling and testing for compliance with the requirements for aggregate shown in the following table:

Aggregate Gradation Acceptance Criteria

Quality characteristic	Test method	Requirements		
Gradation (% passing by weight) Sieve Size:	California Test 202	Type I	Type II	Type III
3/8"		--	100	100
No. 4		100	94–100	70–90
No. 8		90–100	65–90	45–70
No. 16		60–90	40–70	28–50
No. 30		40–65	25–50	19–34
No. 200		10–20	5–15	5–15

An aggregate gradation test represents 300 tons or 1 day's production, whichever is less.

If test results for aggregate gradation do not comply with the specifications, you may remove the slurry seal or micro-surfacing represented by the test results or request it remain in place with a payment deduction. If your request is authorized, the Department deducts:

1. $1.75 per ton of slurry seal for each noncompliant aggregate gradation
2. $2.00 per ton of micro-surfacing for each noncompliant aggregate gradation

37-3.01B Materials

37-3.01B(1) General

Additional water must not cause separation of the asphaltic emulsion, polymer modified asphaltic emulsion or micro-surfacing emulsion from the aggregate before placement.

You may use an additive that does not adversely affect the slurry seal or micro-surfacing.

37-3.01B(2) Aggregate

Aggregate must be rock dust. Aggregate must be free from vegetable matter, deleterious substances, caked or clay lumps, and oversized particles.

Aggregate for a slurry seal and micro-surfacing must comply with the gradations shown in the following table:

Aggregate Gradation

Quality characteristic	Test method	Requirements		
Gradation (% passing by weight) Sieve size:	California Test 202	Type I	Type II	Type III
3/8”		--	100	100
No. 4		100	94-100	70-90
No. 8		90-100	65-90	45-70
No. 16		60-90	40-70	28-50
No. 30		40-65	25-50	19-34
No. 200		10-20	5-15	5-15

37-3.01C Construction

37-3.01C(1) General

Before applying slurry seals or micro-surfacings, cover manholes, valve and monument covers, grates, and other exposed facilities located within the area of application using plastic or oil resistant construction paper secured by tape or adhesive to the facility being covered. Reference the covered facilities with enough control points to relocate the facilities after application of the slurry seals or micro-surfacings.

37-3.01C(2) Proportioning

Proportion slurry seal and micro-surfacing ingredients in compliance with the authorized mix design.

37-3.01C(3) Mixing and Spreading Equipment

37-3.01C(3)(a) General

Mixing and spreading equipment for slurry seals and micro-surfacings must proportion the asphaltic emulsions, water, aggregate, and any additives by volume and mix them in continuous pug mill mixers.

Introduce emulsions into the mixer with a positive displacement pump. If you use a variable-rate pump, the adjusting unit must be sealed in its calibrated position.

Introduce water into the mixer through a meter that measures gallons.

Choose a truck mounted mixer-spreader or continuous self-loading mixer spreader.

37-3.01C(3)(b) Truck Mounted Mixer Spreaders

Truck mounted mixer spreaders must comply with:

1. Rotating and reciprocating equipment must be covered with metal guards.
2. Proportion aggregate using a belt feeder with an adjustable cutoff gate. The Engineer verifies the height of the gate opening.
3. Belt feeder must have a depth monitor device. The depth monitor device must automatically shut down power to the belt feeder when the aggregate depth is less than 70 percent of the target depth.
4. Separate monitor device must detect the revolutions of the belt feeder. This device must automatically shut down power to the belt feeder if it detects no revolutions. If the belt feeder is an integral part of the equipment's drive chain, the monitor device is not required.
5. Aggregate belt feeder must be connected directly to the drive on the emulsion pump. The aggregate feeder drive shaft must have a revolution counter reading the nearest 0.10 revolution for micro-surfacing, and nearest 1 revolution for slurry seal.
6. Emulsion storage must be equipped with a device that automatically shuts down power to the emulsion pump and aggregate belt feeder when the level of stored emulsion is lowered. To allow for normal fluctuations, there may be a delay of 3 seconds between detection of low emulsion storage levels or low aggregate depths and automatic power shut down.
7. Emulsion storage must be located immediately before the emulsion pump.
8. Emulsion storage tank must have a temperature indicator at the pump suction level. The indicator must be accurate to ±5 degrees F.
9. No-flow and revolution warning devices must be in working condition. Low-flow indicators must be visible while walking alongside the equipment.

37-3.01C(3)(c) Continuous Self-Loading Mixer Spreaders

Continuous self-loading mixer spreaders must be automatically sequenced and self-propelled. The mixing machine must deliver each material to a double shafted mixer and discharge the mixed material on a continuous flow basis. The mixing machines must have sufficient storage capacity to maintain a continuous supply of material to the proportioning controls. The mixing machine operators must have full control of forward and reverse speeds during placement.

37-3.01C(3)(d) Spreader Boxes

The spreader boxes used to spread slurry seals and micro-surfacings must be:

1. Capable of spreading the slurry seal or micro-surfacing a minimum of 12 feet wide and preventing the loss of slurry seal or micro-surfacing.
2. Equipped with flexible rubber belting on each side. The belting must contact the pavement to prevent the loss of slurry seal or micro-surfacing from the box.
3. Equipped to uniformly apply the slurry seal or micro-surfacing on superelevated sections and shoulder slopes. Micro-surfacing spreader box must be equipped with reversible motor driven augers.
4. Equipped with a series of strike-off devices at its rear.
    - 4.1. The leading strike off device must be:
        - 4.1.1. Fabricated of a suitable material such as steel or stiff rubber
        - 4.1.2. Designed to maintain close contact with the pavement during spreading
        - 4.1.3. Capable of obtaining the specified thickness
        - 4.1.4. Capable of being adjusted to the various pavement cross sections
    - 4.2. The final strike-off device must be:
        - 4.2.1. Fabricated of flexible material that produces a uniform texture in the finished surface

4.2.2. Cleaned daily and changed if longitudinal scouring occurs in the slurry seal of micro-surfacing

5. Clean and free of slurry seal or micro-surfacing at the start of each work shift.

37-3.01C(3)(e) Shoulder Equipment

Spread the slurry seal or micro-surfacing on shoulders with a device such as an edge box that forms clean and straight joints and edges.

37-3.01C(3)(f) Equipment Calibration

Equipment calibration must comply with the *MPQP*. Notify the Engineer at least 5 business days before calibrating.

If the Department authorizes a truck or continuous mixer spreader, its calibration is valid for 6 months provided you:

1. Use the same truck or continuous mixer spreader verified with a unique identifying number
2. Use the same materials in compliance with the authorized mix design
3. Do not perform any repair or alteration to the proportioning systems

Calibrate the adjustable cut-off gate settings of each truck or continuous mixer spreader on the project to achieve the correct delivery rate of aggregate and emulsion per revolution of the aggregate feeder under the *MPQP*.

Checks must be performed for each aggregate source using an authorized vehicle scale.

Individual checks of the aggregate belt feeder's delivery rate to the pug mill mixer must not vary more than 2 percent from the average of 3 runs of at least 3 tons each.

Before using a variable-rate emulsion pump, the pump must be calibrated and sealed in the calibrated condition under the *MPQP*.

Individual checks of the emulsion pump's delivery rate to the pug mill mixer must not vary more than 2 percent from the average of 3 runs of at least 500 gal each.

37-3.01C(4) Surface Preparation

Immediately before applying slurry seals or micro-surfacings, clean the surface to receive slurry seals or micro-surfacings by removing any extraneous material affecting adhesion of the slurry seal or micro-surfacing with the existing surface. Use self-propelled power brooms or other methods such as flushing to clean the existing pavement.

37-3.01C(5) Placement

37-3.01C(5)(a) General

If truck-mounted mixer-spreaders are used, keep at least 2 operational spreaders at the job site during placement.

Spread slurry seals and micro-surfacings uniformly and do not spot, rehandle, or shift the mixture. However in areas inaccessible to spreading equipment, spread the slurry seal or micro-surfacing mixtures with hand tools or other authorized methods. If placing with hand tools, lightly dampen the area first.

You may fog the roadway surface with water ahead of the spreader box. The fog spray must be adjusted for pavement:

1. Temperature
2. Surface texture
3. Dryness

You determine the application rates for slurry seals or micro-surfacings and the Engineer authorizes the application rates. Spread within 10 percent of authorized rate.

The mixtures must be uniform and homogeneous after spreading, and there must not be separation of the emulsion and aggregate after setting.

37-3.01C(5)(b) Weather Conditions

Only place slurry seals or micro-surfacings if both the pavement and air temperatures are at least 50 degrees F and rising. The expected high temperature must be at least 65 degrees F within 24 hours after placement.

Do not place slurry seals or micro-surfacings if rain is imminent or the air temperature is expected to be below 36 degrees F within 24 hours after placement.

37-3.01C(5)(c) Joints

Transverse and longitudinal joints must be:

1. Uniform
2. Straight
3. Neat in appearance
4. Without material buildup
5. Without uncovered areas

Transverse joints must be butt-type joints.

Prevent double placement at transverse joints over previously placed slurry seals or micro-surfacings.

Place longitudinal joints:

1. On centerlines, lane lines, edge lines, or shoulder lines
2. With overlaps not more than 4 inches

You may request other longitudinal joint patterns if they do not adversely affect the slurry seals or micro-surfacings.

The maximum difference between the pavement surface and the bottom edge of a 12-foot straightedge placed perpendicular to the longitudinal joint must be 0.04 foot.

37-3.01C(5)(d) Finished Surfaces

Finished slurry seals or micro-surfacings must be smooth and free of irregularities such as scratch or tear marks. You may leave up to 4 marks that are up to 1 inch wide and 6 inches long per 75 linear feet of slurry seal or micro-surfacing placed. Do not leave any marks that are over 1 inch wide or 6 inches long.

37-3.01C(5)(e) Maintenance Sweeping

Sweep the slurry seals or micro-surfacings 24 hours after placement without damaging the slurry seals or micro-surfacings. For 4 days afterwards, sweep the slurry seals or micro-surfacings daily unless determined otherwise by the Engineer.

37-3.01C(5)(f) Repair of Early Distress

The slurry seals or micro-surfacings must not show bleeding, raveling, separation, or other distresses for 15 days after placing. If bleeding, raveling, delaminating, rutting, or wash-boarding occurs after placing the slurry seals or micro-surfacings, make repairs using an authorized method.

37-3.01D Payment

Not Used

37-3.02 SLURRY SEALS

37-3.02A General

37-3.02A(1) Summary

Section 37-3.02 includes specifications for applying slurry seals.

Applying a slurry seal consists of spreading a mixture of asphaltic emulsion or polymer modified asphaltic emulsion, aggregate, additives, and water on a surface or pavement.

37-3.02A(2) Definitions

Reserved

37-3.02A(3) Submittals

Immediately after sampling, submit two 1-quart wide mouth plastic containers of asphaltic emulsion or polymer modified asphaltic emulsion taken in the presence of the Engineer. Samples must be submitted in insulated shipping containers.

37-3.02A(4) Quality Assurance

37-3.02A(4)(a) General

Reserved

37-3.02A(4)(b) Quality Control

37-3.02A(4)(b)(i) General

Take samples of asphaltic emulsion and polymer modified asphaltic emulsion from the tank truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer take two 1-quart samples in wide mouth plastic containers with lined, sealed lids for acceptance testing.

37-3.02A(4)(b)(ii) Asphaltic Emulsion

For asphaltic emulsions, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphaltic Emulsion

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Saybolt Furol Viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Delivery truck
Sieve Test (%)			
Storage stability, 1 day (%)			
Residue by distillation (%)			
Particle charge[a]			
Tests on Residue from Distillation Test:			
Penetration, 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Delivery truck
Ductility	AASHTO T 51		
Solubility in tricloroethylene	AASHTO T 44		

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS1h asphaltic emulsion must have a maximum pH of 6.7.

37-3.02A(4)(b)(iii) Polymer Modified Asphaltic Emulsion

For polymer modified asphaltic emulsions, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Polymer Modified Asphaltic Emulsion

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling Location
Tests on emulsion:			
Saybolt Furol Viscosity at 25 °C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Delivery truck
Sieve test (%)	AASHTO T 59		
Storage stability after 1 day (%)	AASHTO T 59		
Residue by evaporation (min, %)	California Test 331		
Particle charge	AASHTO T 59		
Tests on residue by evaporation:			
Penetration at 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Delivery truck
Ductility at 25 °C (min, mm)	AASHTO T 51		
Torsional recovery (min, %) Or Polymer content based on residual asphalt (min, %)	California Test 332 California Test 401		

37-3.02A(4)(c) Department Acceptance

For a slurry seal asphaltic emulsion and polymer modified asphaltic emulsion, acceptance is based on the Department's sampling and testing for compliance with the requirements for the quality characteristics specified.

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Aggregate Acceptance Criteria

Quality characteristic	Test method	Requirement
Los Angeles Rattler loss (max, %) At 500 revolutions	California Test 211[a]	 35
Percent of crushed particles (min, %)	California Test 205	95
Durability (min)	California Test 229	55
Sand equivalent (min) Type I Type II Type III	California Test 217	 45 55 60

[a]California Test 211 must be performed on the source aggregate before crushing.

A sand equivalent test represents 300 tons or 1 day's production, whichever is less.

If test results for sand equivalent do not comply with the specifications, you may remove the slurry seal represented by the test results or request it remain in place with a payment deduction. If your request is authorized, the Department deducts $1.75 per ton of slurry seal for each noncompliant sand equivalent test.

37-3.02B Materials

37-3.02B(1) General

Reserved

37-3.02B(2) Asphaltic Emulsions

An asphaltic emulsion must comply with the requirements in Section 94. The asphaltic emulsion must be Grade CQS1h.

37-3.02B(3) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must:

1. Consist of an elastomeric polymer mixed with an asphaltic material uniformly emulsified with water and an emulsifying or stabilization agent.
2. Use either neoprene polymer or butadiene and styrene copolymer. The polymer must be homogeneous and milled into the asphaltic emulsion at the colloid mill.
3. Be Grade PMCQS1h and must comply with the requirements shown in the following table:

Polymer Modified Asphaltic Emulsion Requirements

Quality characteristic	Test method	Requirement
Tests on emulsion:		
Saybolt Furol Viscosity at 25 °C (Saybolt Furol seconds)	AASHTO T 59	15–90
Sieve test (%)	AASHTO T 59	0–0.3
Storage stability after 1 day (%)	AASHTO T 59	0–1
Residue by evaporation (min, %)	California Test 331	60
Particle charge	AASHTO T 59	Positive
Tests on residue by evaporation:		
Penetration at 25 °C	AASHTO T 49	40–90
Ductility at 25 °C (min, mm)	AASHTO T 51	400
Torsional recovery (min, %) Or Polymer content based on residual asphalt (min, %)	California Test 332 California Test 401	18 2.5

37-3.02B(4) Aggregate

Aggregate must comply with the quality characteristic requirements shown in the following table:

Aggregate Requirements

Quality characteristic	Test method	Requirement
Los Angeles Rattler loss (max, %) At 500 revolutions	California Test 211[a]	 35
Percent of crushed particles (min, %)	California Test 205	95
Durability (min)	California Test 229	55
Sand equivalent (min) Type I Type II Type III	California Test 217	 45 55 60

[a]California Test 211 must be performed on the source aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the project is manufactured from the source aggregate complying with the LA rattler requirements.

37-3.02B(5) Slurry Seal Mix Design

The slurry seal mix design, using project source aggregate, an asphaltic emulsion, and set-control agents if any, must comply with the requirements shown in the following table:

Slurry Seal Mix Design Requirements

Quality characteristic	Test method[a]	Requirement
Consistency (max, mm)	Technical Bulletin 106	30
Wet stripping	Technical Bulletin 114	Pass
Compatibility	Technical Bulletin 115	Pass[b]
Cohesion test, within 1 hour (min, kg-mm)	Technical Bulletin 139	200
Wet track abrasion (max, g/m^2)	Technical Bulletin 100	810

[a]Test methods are by the International Slurry Surfacing Association.

[b]Mixing test must pass at the maximum expected air temperature at the job site during placement.

The mix design must have the percent of asphaltic residue, based on percentage by weight of the dry aggregate, within the ranges shown in the following table:

Slurry seal type	Residue range
Type I	10–16
Type II	7.5–13.5
Type III	6.5–12.0

Determine the exact percentage based on the design asphalt binder content and the asphalt residual content of the asphaltic emulsion furnished.

37-3.02C Construction

37-3.02C(1) General

Reserved

37-3.02C(2) Proportioning

After proportioning, slurry seal mixtures must be workable.

37-3.02C(3) Mixing and Spreading Equipment

Reserved

37-3.02C(4) Placement

The slurry seal spread rates must be within the ranges shown in the following table:

Slurry Seal Spread Rates

Slurry seal type	Application range (lb of dry aggregate/sq yd)
Type I	8–12
Type II	10–18
Type III	20–25

Within 4 hours after placement, slurry seals must be set enough to allow traffic without pilot cars. Protect slurry seals from damage until it has set and will not adhere or be picked up by vehicle tires. Slurry seals must not exhibit distress from traffic such as bleeding, raveling, separation or other distresses.

37-3.02D Payment

The payment quantity for slurry seal is the weight determined by combining the weights of the aggregate and asphaltic emulsion or polymeric asphaltic emulsion. The payment quantity for slurry seal does not include the weights of the added water and set-control additives.

37-3.03 MICRO-SURFACINGS

37-3.03A General

37-3.03A(1) Summary

Section 37-3.03 includes specifications for applying micro-surfacings.

Applying a micro-surfacing consists of spreading a mixture of a micro-surfacing emulsion, water, additives, mineral filler, and aggregate on the pavement.

37-3.03A(2) Definitions

Reserved

37-3.03A(3) Submittals

Immediately after sampling, submit two 1-quart wide mouth plastic containers of micro-surfacing emulsion taken in the presence of the Engineer. Samples must be submitted in insulated shipping container.

37-3.03A(4) Quality Assurance

37-3.03A(4)(a) General

Reserved

37-3.03A(4)(b) Quality Control

37-3.03A(4)(b)(i) General

Reserved

37-3.03A(4)(b)(ii) Micro-surfacing Emulsions

Take samples from the truck tank at mid load from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer, take two 1-quart wide mouth plastic containers for acceptance testing.

For a micro-surfacing emulsion, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the quality characteristics shown in the following table:

Micro-Surfacing Emulsion

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Tests on emulsion:			
Saybolt Furol Viscosity, at 25°C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Delivery truck
Storage stability, 1 day (max, %)[a]			
Sieve test (max, %)			
Residue by evaporation (min, %)	California Test 331	Minimum 1 per day per delivery truck	Delivery truck
Tests on residue from evaporation test:			
Penetration at 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Delivery truck
Softening point (min, ºC)	AASHTO T 53		

[a]Storage stability test will be run if the storage exceeds 48 hours

37-3.03A(4)(c) Department Acceptance

For micro-surfacing emulsions, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Micro-surfacing Emulsion Acceptance Criteria

Quality characteristic	Test method	Requirement
Tests on emulsion:		
Saybolt Furol Viscosity at 25 °C (Saybolt Furol seconds)	AASHTO T 59	15–90
Sieve test (%)	AASHTO T 59	0.30
Storage stability, 1 day (max, %) Settlement[a], 5 days (max, %)	AASHTO T 59 ASTM D244	0–1 5
Residue by evaporation (min, %)	California Test 331	62
Tests on residue by evaporation:		
Penetration at 25 °C	AASHTO T 49	40–90
Softening point (min, ºC)	AASHTO T 53	57

[a]Settlement test on emulsion is not required if used within 48 hours of shipment.

Acceptance of aggregate, except mineral filler, is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Aggregate Acceptance Criteria

Quality characteristic	Test method	Requirement
Los Angeles Rattler loss (max, %) At 500 revolutions	California Test 211[a]	 35
Percent of crushed particles (min, %)	California Test 205	95
Durability (min)	California Test 229	65
Sand equivalent (min) Type II Type III	California Test 217	 65 65

[a]California Test 211 must be performed on the aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the project is manufactured from the source aggregate complying with the LA rattler requirements.

An aggregate sand equivalent test represents 300 tons or 1 day's production, whichever is less.

If the test results for aggregate sand equivalent do not comply with the specifications, you may remove the micro-surfacing represented by the test results or request it remain in place with a payment deduction. If your request is authorized, the Department deducts $2.00 per ton of micro-surfacing for each noncompliant aggregate sand equivalent test.

37-3.03B Materials

37-3.03B(1) General

Reserved

37-3.03B(2) Micro-surfacing Emulsions

A micro-surfacing emulsion must be a homogeneous mixture of asphalt, an elastomeric polymer and an emulsifier solution.

Add an elastomeric polymer modifier to asphalt or emulsifier solution before emulsification. An elastomeric polymer solid must be a minimum of 3 percent by weight of the micro-surfacing emulsion's residual asphalt.

A micro-surfacing emulsion must comply with the requirements shown in the following table:

Micro-surfacing Emulsion Requirements

Quality characteristic	Test method	Requirement
Tests on emulsion:		
Saybolt Furol Viscosity at 25 °C (Saybolt Furol seconds)	AASHTO T 59	15–90
Sieve test (%)	AASHTO T 59	0.30
Storage stability, 1 day (max, %)	AASHTO T 59	0–1
Settlement[a], 5 days (max, %)	ASTM D244	5
Residue by evaporation (min, %)	California Test 331	62
Tests on residue by evaporation:		
Penetration at 25 °C	AASHTO T 49	40–90
Softening point (min, ºC)	AASHTO T 53	57

[a]Settlement test on emulsion is not required if used within 48 hours of shipment.

37-3.03B(3) Aggregate

Aggregate must comply with the quality characteristic requirements shown in the following table:

Aggregate Requirements

Quality characteristic	Test method	Requirement
Los Angeles Rattler loss (max, %) At 500 revolutions	California Test 211[a]	35
Percent of crushed particles (min, %)	California Test 205	95
Durability (min)	California Test 229	65
Sand equivalent (min) Type II Type III	California Test 217	 65 65

[a]California Test 211 must be performed on the source aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the project is manufactured from the source aggregate complying with the LA rattler requirements.

37-3.03B(4) Mineral Fillers

If a mineral filler is used, it must be type I or type II Portland cement. A mineral filler used during mix design must be used during production.

37-3.03B(5) Micro-Surfacing Mix Designs

The micro-surfacing mix design must have the material proportion limits shown in the following table:

Micro-surfacing Mix Design Proportion Limits

Material	Proportion limits
Micro-surfacing emulsion asphalt residual content (% of dry weight of aggregate)	5.5–10.5
Water and additives	As Required
Mineral filler (% of dry weight of aggregate)	0–3

The micro-surfacing mix design must comply with the requirements shown in the following table:

Micro-surfacing Mix Design Requirements

Quality characteristics	Test method[a]	Requirement
Wet cohesion At 30 minutes (set) (min, kg-cm) At 60 minutes (traffic) (min, kg-cm)	Technical Bulletin 139	 12 20
Excess asphalt (max, g/m^2)	Technical Bulletin 109	540
Wet stripping (min, %)	Technical Bulletin 114	90
Wet track abrasion loss 6-day soak (max, g/m^2)	Technical Bulletin 100	 810
Displacement Lateral (max, %) Specific gravity after 1000 cycles of 57 kg (max)	Technical Bulletin 147A	 5 2.10
Classification compatibility (min, grade points)	Technical Bulletin 144	(AAA, BAA) 11
Mix time at 25 °C (min)	Technical Bulletin 113	Controllable to 120 seconds

[a]Test methods are by the International Slurry Surfacing Association.

37-3.03B(6) Tack Coats

If there is a bid item for tack coat, you must coat the pavement surface with an asphaltic emulsion mixed with additional water before applying a micro-surfacing. The maximum ratio of water to asphaltic emulsion must be 2 to 1. Apply the tack coat at a rate from 0.08 to 0.15 gal/sq yd. The exact rate must be authorized.

You determine the grade of slow-setting or quick setting asphaltic emulsion to be used.

37-3.03C Construction

37-3.03C(1) General

Reserved

37-3.03C(2) Proportioning

Field conditions may require adjustments to the proportions within the authorized mix design during construction.

37-3.03C(3) Mixing and Spreading Equipment

37-3.03C(3)(a) General

Reserved

37-3.03C(3)(b) Scratch Course Boxes

Spread the scratch courses with the same type of spreader box used to spread micro-surfacings except use an adjustable steel strike-off device instead of a final strike-off device.

37-3.03C(3)(c) Wheel Path Depression Boxes

Each wheel path depression box must have adjustable strike-off device between 5 and 6 feet wide to regulate depth. The wheel path depression box must also have devices such as hydraulic augers capable of:

1. Moving the mixed material from the rear to the front of the filling chamber
2. Guiding larger aggregate into the deeper section of the wheel path depression
3. Forcing the finer material towards the outer edges of the spreader box

37-3.03C(4) Test Strips

If micro-surfacing placement will require more than 1 day, you must construct a test strip. The test strip must be:

1. From 300 to 450 feet long
2. The same as the full production micro-surfacing
3. On 1 of the application courses specified at an authorized location

4. At the same time of day or night the full production micro-surfacing is to be applied

If multiple application courses are specified, you may construct test strips over 2 days or nights.

The Engineer evaluates the test strip after traffic has used it for 12 hours. If the Engineer determines the mix design or placement procedure is unacceptable, make modifications and construct a new test strip for the Engineer's evaluation.

37-3.03C(5) Placement

37-3.03C(5)(a) General

Reserved

37-3.03C(5)(b) Repair Wheel Path Depressions

If repairing wheel path depressions is shown in plans, fill wheel path depressions and irregularities with micro-surfacing material before spreading micro-surfacing. If the depressions are less than 0.04 foot deep, fill with a scratch course. If the depressions are 0.04 foot deep or more, fill the depressions using a wheel path depression box.

Spread scratch courses by adjusting the steel strike-off of a scratch course box until it is directly in contact with the pavement surface.

Spread micro-surfacings with a wheel path depression box leaving a slight crown at the surface. Use multiple applications to fill depressions more than 0.12 foot deep. Do not apply more than 0.12 foot in a single application.

Allow traffic to compact each filled wheel path depression for a minimum of 12 hours before placing additional micro-surfacings.

37-3.03C(5)(c) Micro-surfacing Pavement Surfaces

The micro-surfacing spread rates must be within the ranges shown in the following table:

Micro-surfacing type	Application range (lb of dry aggregate/sq yd)
Type II	10–20
Type III[a]	20–32
Type III[b]	30–32

[a]Over asphalt concrete pavement

[b]Over concrete pavement and concrete bridge decks

Within 2 hours after placement, micro-surfacings must be set enough to allow traffic without pilot cars. Protect the micro-surfacings from damage until it has set and will not adhere or be picked up by vehicle tires. Micro-surfacings must not exhibit distress from traffic such as bleeding, raveling, separation or other distresses.

37-3.03D Payment

The payment quantity for micro-surfacing is the weight determined by combining the weights of the aggregate and micro-surfacing emulsion. The payment quantity for micro-surfacing does not include the weights of added water, mineral filler, and additives.

37-3.04 RUBBERIZED AND MODIFIED SLURRY SEALS

Reserved

37-4 FOG SEALS AND FLUSH COATS

37-4.01 GENERAL

37-4.01A General

37-4.01A(1) Summary

Section 37-4.01 includes general specifications for applying fog seals and flush coats.

37-4.01A(2) Definitions

Reserved

37-4.01A(3) Submittals

At least 15 days before use, submit:

1. Sample of asphaltic emulsion in two 1-quart plastic container with lined, sealed lid
2. Asphaltic emulsion information and test data as follows:
   2.1. Supplier
   2.2. Type/Grade of asphalt emulsion
   2.3. Copy of the specified test results for asphaltic emulsion

37-4.01B Materials

Not Used

37-4.01C Construction

37-4.01C(1) General

Reserved

37-4.01C(2) Weather Conditions

Only place a fog seal or flush coat if both the pavement and ambient temperatures are at least 50 degrees F and rising. Do not place a fog seal or flush coat within 24 hours of rain or within 24 hours of forecast rain or freezing temperatures.

37-4.01D Payment

Not Used

37-4.02 FOG SEALS

37-4.02A General

37-4.02A(1) Summary

Section 37-4.02 includes specifications for applying fog seals.

Applying a fog seal includes applying a diluted slow-setting or quick setting asphaltic emulsion.

37-4.02A(2) Definitions

Reserved

37-4.02A(3) Submittals

Immediately after sampling, submit two 1-quart plastic container of asphaltic emulsion taken in the presence of the Engineer. Samples must be submitted in insulated shipping container.

37-4.02A(4) Quality Assurance

37-4.02A(4)(a) General

Reserved

37-4.02A(4)(b) Quality Control

37-4.02A(4)(b)(i) General

Reserved

37-4.02A(4)(b)(ii) Asphaltic Emulsions

Circulate asphaltic emulsions in the distributor truck before sampling. Take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer, take asphalt emulsion sample in two 1-quart plastic container with lined, sealed lid.

For asphaltic emulsions, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphaltic Emulsion

Quality characteristic	Test Method	Minimum sampling and testing frequency	Sampling location
Saybolt Furol Viscosity, at 25 °C (Saybolt Furl seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Distributor truck
Sieve Test (%)			
Storage stability, 1 day (%)			
Residue by distillation (%)			
Particle charge[a]			
Tests on Residue from Distillation Test:			
Penetration, 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Distributor truck
Ductility	AASHTO T 51		
Solubility in tricloroethylene	AASHTO T 44		

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS1h asphaltic emulsion must have a maximum pH of 6.7.

37-4.02A(4)(b)(iii) Asphaltic Emulsion Spread Rates

For fog seals, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Fog Seal Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Asphaltic emulsion spread rate (gal/sq yd)	California Test 339	2 per day	Pavement surface

37-4.02A(4)(c) Department Acceptance

Fog seal acceptance is based on:

1. Visual inspection for the following:
   1.1. Uniform surface texture throughout the work limits
   1.2. Flushing consisting of the occurrence of a film of asphaltic material on the surface
   1.4 Streaking consisting of alternating longitudinal bands of asphaltic emulsion approximately parallel with the lane line
2. The Department's sampling and testing for compliance with the requirements for the quality characteristics specified in section 94 for asphaltic emulsion
3. Department's sampling and testing for compliance with the requirements for fog seal shown in the following table:

Fog Seal Acceptance Criteria

Quality Characteristic	Test Method	Requirement
Asphaltic emulsion spread rate (gal/sq yd)	California Test 339	TV ± 10%

37-4.02B Materials

You determine the grade of slow-setting or quick setting asphaltic emulsion to be used.

37-4.02C Construction

Apply asphaltic emulsions for fog seals at a residual asphalt rate from 0.02 to 0.06 gal/sq yd.

If additional water is added to the asphaltic emulsions, the resultant mixture must not be more than 1 part asphaltic emulsion to 1 part water. You determine the dilution rate.

If the fog seals become tacky, sprinkle water as required.

If fog seals and chip seals are on the same project, the joint between the seal coats must be neat and uniform.

37-4.02D Payment

The Department does not adjust the unit price for an increase or decrease in the asphaltic emulsion quantity.

37-4.03 FLUSH COATS

37-4.03A General

37-4.03A(1) Summary

Section 37-4.03 includes specifications for applying flush coats.

Applying a flush coat includes applying a fog seal coat followed by sand.

37-4.03A(2) Definitions

Reserved

37-4.03A(3) Submittals

At least 15 days before use, submit:

1. Proposed target X values for sand gradation.
2. Gradation test results for sand

Submit quality control test results for sand gradation within 2 business days of sampling.

37-4.03A(4) Quality Assurance

37-4.03A(4)(a) General

Reserved

37-4.03A(4)(b) Quality Control

For sand, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Sand Quality Control

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Gradation (% passing by weight)	California Test 202	1 per day	See California Test 125

37-4.03A(4)(c) Department Acceptance

Flush coat acceptance is based on fog seal acceptance and the following:

1. Visual inspection for uniform application of sand.
2. Sand acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Sand Gradation Acceptance Criteria

Quality characteristic	Test method	Requirement
Gradation (% passing by weight) Sieve size:	California Test 202	
3/8"		100
No. 4		93–100
No. 8		61–99
No. 16		X ± 13
No. 30		X ± 12
No. 50		X ± 9
No.100		1–15
No. 200		0–10

NOTE: "X" is the gradation that you propose to furnish for the specific sieve size.

37-4.03B Material

37-4.03B(1) General

Reserved

37-4.03B(2) Sand

Sand must be free from deleterious coatings, clay balls, roots, bark, sticks, rags, and other extraneous material.

Sand for a flush coat must comply with the gradations shown in the following table:

Sand Gradation

Quality characteristic	Test method	Requirement
Gradation (% passing by weight) Sieve size:	California Test 202	
3/8"		100
No. 4		93–100
No. 8		61–99
No. 16		X ± 13
No. 30		X ± 12
No. 50		X ± 9
No.100		1–15
No. 200		0–10

NOTE: "X" is the gradation that you propose to furnish for the specific sieve size.

Fine aggregate sizes must be distributed such that the difference between the total percentage passing the No. 16 and No. 30 sieves is from 10 to 40, and the difference between the percentage passing the No. 30 and No. 50 sieves is from 10 to 40.

37-4.03C Construction

37-4.03C(1) General

During flush coat activities, close adjacent lanes to traffic. Do not track asphaltic emulsion on existing pavement surfaces.

Apply sand immediately after applying asphaltic emulsions.

Spread sand aggregate with a mechanical device that spreads sand at a uniform rate over the full width of a traffic lane in a single application. Spread sand at a rate from 2 to 6 lb/sq yd. You determine the application rates for sand and the Engineer authorizes the application rate.

37-4.03C(2) Sweeping

Sweep loose sand material remaining on the surface 24 hours after application.

37-4.03D Payment

The Department does not adjust the unit price for an increase or decrease in the sand cover (seal) quantity.

37-5 PARKING AREA SEALS

37-5.01 GENERAL

37-5.01A Summary

Section 37-5 includes specifications for applying parking area seals. Sealing a parking area consists of spreading a mixture of asphaltic emulsion, aggregate, polymer, and water.

37-5.01B Definitions

Reserved

37-5.01C Submittals

At least 15 days before starting placement, submit a 20 lb sample of the aggregate to be used.

At least 10 days before starting placement, submit:

1. Name of the authorized laboratory to perform testing and mix design.
2. Laboratory report of test results and a proposed mix design. The report and mix design must include the specific materials to be used and show a comparison of test results and specifications. The mix design report must include the quantity of water allowed to be added at the job site. The authorized laboratory performing the tests must sign the original laboratory report and mix design.
3. Manufacturer's data for oil seal primer and polymer.

If the mix design consists of the same materials covered by a previous laboratory report, you may submit the previous laboratory report that must include material testing data performed within the previous 12 months for authorization.

If you request substitute materials, submit a new laboratory report and mix design at least 10 days before starting placement.

Submit a certificate of compliance for the parking area seal material.

Immediately after sampling, submit two 1-quart plastic containers of parking area seal taken in the presence of the Engineer. Samples must be submitted in insulated shipping containers.

37-5.01D Quality Assurance

37-5.01D(1) General

Reserved

37-5.01D(2) Quality Control

37-5.01D(2)(a) General

Reserved

37-5.01D(2)(b) Asphaltic Emulsions

For an asphaltic emulsion, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

Asphaltic Emulsion

Quality characteristic	Test Method	Minimum sampling and testing frequency	Sampling location
Saybolt Furol Viscosity, at 25 °C (Saybolt Furol seconds)	AASHTO T 59	Minimum 1 per day per delivery truck	Distributor truck
Sieve Test (%)			
Storage stability, 1 day (%)			
Residue by distillation (%)			
Particle charge[a]			
Tests on Residue from Distillation Test			
Penetration, 25 °C	AASHTO T 49	Minimum 1 per day per delivery truck	Distributor truck
Ductility	AASHTO T 51		
Solubility in trichloroethylene	AASHTO T 44		

[a]If the result of the particle char is inconclusive, the asphaltic emulsion must be tested for pH under ASTM E70. Grade QS1h asphaltic emulsion must have a minimum pH of 7.3. Grade CQS1h asphaltic emulsion must have a maximum pH of 6.7.

37-5.01D(2)(c) Sand

For sand, the authorized laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

Sand Quality Control

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of sampling
Gradation (% passing by weight)	California Test 202	One per project	See California Test 125

37-5.01D(2)(d) Parking Area Seals

For a parking area seal, the authorized laboratory must perform quality control sampling and testing at the specified frequency for the following quality characteristics:

Parking Area Seal Requirements

Quality characteristic	Test method	Frequency
Mass per liter (kg)	ASTM D244	One per project
Cone penetration (mm)	California Test 413	
Nonvolatile (%)	ASTM D2042[a]	
Nonvolatile soluble in trichloroethylene (%)		
Wet track abrasion (g/m^2)	ASTM D3910	
Dried film color	--	
Viscosity (KU)[b]	ASTM D562	

[a]Weigh 10 g of homogenous material into a previously tarred, small can. Place in a constant temperature oven at 165 ± 5 °C for 90 ± 3 minutes. Cool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]Krebs units

37-5.01D(3) Department Acceptance

Parking area seal acceptance is based on:

1. Visual inspection for:
   1.1. Uniform surface texture throughout the work limits
   1.2 Marks in the surface:
      1.2.1. Up to 4 marks in the completed parking area seal that are up to 1 inch wide and up to 6 inches long per 1,000 square feet of parking area seal placed.
      1.2.2. No marks in the completed parking area seal surface that are over 1 inch wide or 6 inches long.

1.2. Raveling consisting of the separation of the aggregate from the asphaltic emulsion
1.3. Bleeding consisting of the occurrence of a film of asphaltic material on the surface of the parking area seal
1.4 Delaminating of the parking area seal from the existing pavement
1.5 Rutting or wash-boarding

2. The Department's sampling and testing of aggregate for compliance with 100 percent passing no. 16 sieve under California Test 202
3. The Department's sampling and testing for compliance with the requirements shown in the following table:

Parking Area Seal Acceptance Criteria

Quality characteristic	Test method	Requirement
Mass per liter (min, kg)	ASTM D244	1.1
Cone penetration (mm)	California Test 413	340–700
Nonvolatile (min, %)	ASTM D2042[a]	50
Nonvolatile soluble in trichloroethylene (%)		10–35
Wet track abrasion (max, g/m^2)	ASTM D3910	380
Dried film color	--	Black
Viscosity (min, KU)[b]	ASTM D562	75

[a]Weigh 10 g of homogenous material into a previously tared, small ointment can. Place in a constant temperature oven at 165 ± 5 °C for 90 ± 3 minutes. Cool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]Krebs units

37-5.02 MATERIALS

37-5.02A General

Aggregate must be clean, hard, durable, uncoated, and free from organic and deleterious substances. One hundred percent of the aggregate must pass the no. 16 sieve.

Asphaltic emulsion must be either Grade SS1h or CSS1h, except the values for penetration at 25 degrees C for tests on residue from distillation must be from 20 to 60.

Polymer must be either neoprene, ethylene vinyl acetate, or a blend of butadiene and styrene.

Oil seal primer must be a quick-drying emulsion with admixtures. Oil seal primer must be manufactured to isolate the parking area seal from pavement with residual oils, petroleum grease, and spilled gasoline.

Crack sealant must comply with section 37-6.

Water must be potable and not separate from the emulsion before the material is placed.

37-5.02B Mix Design

The proposed mix design for a parking area seal must comply with the requirements shown in the following table:

Parking Area Seal Mix Design Requirements

Quality characteristic	Test method	Requirement
Mass per liter (min, kg)	ASTM D244	1.1
Cone penetration (mm)	California Test 413	340–700
Nonvolatile (min, %)	ASTM D2042[a]	50
Nonvolatile soluble in trichloroethylene (%)		10–35
Wet track abrasion (max, g/m^2)	ASTM D3910	380
Dried film color	--	Black
Viscosity (min, KU)[b]	ASTM D562	75

[a]Weigh 10 g of homogenous material into a previously tarred, small ointment can. Place in a constant temperature oven at 165 ± 5 °C for 90 ± 3 minutes. Cool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]Krebs units

A parking area seal must contain a minimum of 2 percent polymer by volume of undiluted asphaltic emulsion.

37-5.02C Proportioning

Parking area seal ingredients must be mixed at a central plant. The plant must include mechanical or electronic controls that consistently proportion the ingredients. Mix an asphaltic emulsion with the other ingredients mechanically.

Store the parking area seal in a tank equipped with mixing or agitation devices. Keep stored materials thoroughly mixed. Protect stored materials from freezing conditions.

37-5.03 CONSTRUCTION

37-5.03A General

Request that the Engineer shut off the irrigation control system at least 5 days before placing the seal. Do not water plants adjacent to the seal at least 24 hours before and after the seal coat placement.

37-5.03B Surface Preparations

If cracks in the existing pavement are from 1/4 to 1 inch wide, treat the cracks under section 37-6. Do not place the parking area seals until the Engineer determines that the crack treatments are cured.

If cracks in the existing pavement are greater than 1 inch wide, the Engineer orders the repair. This work is change order work.

After any crack treatment and before placing parking area seals, clean the pavement surface, including removal of oil and grease spots. Do not use solvents.

If cleaning the pavement with detergents, thoroughly rinse with water. Allow all water to dry before placing parking area seals.

You must seal oil and grease spots that remain after cleaning. Use an oil seal primer and comply with the manufacturer's instructions.

If the existing pavement has oil and grease spots that do not come clean and sealing is insufficient, the Engineer orders the repair of the pavement. This work is change order work.

Before placing the parking area seals, dampen the pavement surface using a distributor truck. Place the seal on the damp pavement but do not place it with standing water on the pavement.

37-5.03C Placement

If adding water at the job site based on the manufacturer's instructions for consistency and spreadability, do not exceed 15 percent by volume of undiluted asphaltic emulsion.

Place the parking area seals in 1 or more application. The seals must be uniform and smooth, free of ridges or uncoated areas.

If placing in multiple applications, allow the last application to thoroughly dry before the subsequent application.

Do not allow traffic on the parking area seals for at least 24 hours after placement.

Do not stripe over the parking area seals until it is dry.

37-5.04 PAYMENT

The payment quantity for parking area seal is the weight determined by combining the weights of the aggregate and asphaltic emulsion. The payment quantity for parking area seal does not include the added water and set-control additive.

37-6 CRACK TREATMENTS

37-6.01 GENERAL

37-6.01A Summary

Section 37-6 includes specifications for treating cracks in asphalt concrete pavement.

37-6.01B Definitions

Reserved

37-6.01C Submittals

If your selected crack treatment material is on the Authorized Material List for flexible pavement crack treatment material, submit a certificate of compliance including:

1. Manufacturer's name
2. Production location
3. Brand or trade name
4. Designation
5. Batch or lot number
6. Crack treatment material type
7. Contractor or subcontractor name
8. Contract number
9. Lot size
10. Shipment date
11. Manufacturer's signature

If your selected crack treatment material is not on the Authorized Material List for flexible pavement crack treatment material, submit a sample and test results from each batch or lot 20 days before use. Testing must be performed by an authorized laboratory and test results must show compliance with the specifications. Test reports must include the information specified for the certificate of compliance submittal. Each hot-applied crack treatment material sample must be a minimum of 3 lb and submitted in a silicone release container. Each cold-applied crack treatment material sample must be a minimum of 2 quarts and submitted in a plastic container.

At least 10 days before the start of work, submit sand gradation test results under California Test 202.

Submit the following with each delivery of crack treatment material to the job site:

1. Manufacturer's heating and application instructions
2. Manufacturer's SDS
3. Name of the manufacturer's recommended detackifying agent

37-6.01D Quality Assurance

37-6.01D(1) General

Hot-applied crack treatment material must be sampled at least once per project in the Engineer's presence. Collect two 3-pounds-minimum samples of crack treatment material from the dispensing wand into silicone release boxes.

Cold-applied crack treatment material must be sampled at least once per project in the Engineer's presence. Collect 2 samples of crack treatment material from the dispensing wand into 1-quart containers.

37-6.01D(2) Quality Control

Reserved

37-6.01D(3) Department Acceptance

Crack treatment acceptance is based on:

1. Visual inspection for uniform filling of cracks throughout the work limits including:
   1.2. Crack treatment is not more than a 1/4 inch below the specified level
   1.3. Sealant failures
   1.4. Crack re-opening
   1.5. Crack overbanding is less than 3 inches wide
2. The Department's sampling and testing for compliance with the requirements shown in the following table:

Crack Treatment Acceptance Criteria

Quality characteristic[a]	Test method[b]	Requirement				
		Type 1	Type 2	Type 3	Type 4	Type 5
Softening point (min, °C)	ASTM D36	102	96	90	84	84
Cone penetration at 77 °F (max)	ASTM D5329	35	40	50	70	90
Resilience at 77 °F, unaged (%)	ASTM D5329	20–60	25–65	30–70	35–75	40–80
Flexibility (°C)[c]	ASTM D3111	0	0	0	-11	-28
Tensile adhesion (min, %)	ASTM D5329	300	400	400	500	500
Specific gravity (max)	ASTM D70	1.25	1.25	1.25	1.25	1.25
Asphalt compatibility	ASTM D5329	Pass	Pass	Pass	Pass	Pass
Sieve test (% passing)	See note d	100	100	100	100	100

[a]Cold-applied crack treatment material residue collected under ASTM D6943, Method B and sampled under ASTM D140 must comply with the grade specified.
[b]Except for viscosity, cure each specimen at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 10 percent for 24 ± 2 hours before testing.
[c]For the flexibility test, the specimen size must be 6.4 ± 0.2 mm thick by 25 ± 0.2 mm wide by 150 ± 0.5 mm long. The test mandrel diameter must be 6.4 ± 0.2 mm. The bend arc must be 180 degrees. The bend rate must be 2 ± 1 seconds. At least 4 of 5 test specimens must pass at the specified test temperature without fracture, crazing, or cracking.
[d]For hot-applied crack treatment, dilute with toluene and sieve through a no. 8 sieve. For cold-applied crack treatment, sieve the material as-received through a no. 8 sieve. If the manufacturer provides a statement that added components passed the no. 16 sieve before blending, this requirement is void.

37-6.02 MATERIALS

37-6.02A General

Reserved

37-6.02B Crack Treatment Material

A crack treatment material must comply with the requirements shown in the following table:

Crack Treatment Material

Quality characteristic[a]	Test method[b]	Requirement				
		Type 1	Type 2	Type 3	Type 4	Type 5
Softening point (min, °C)	ASTM D36	102	96	90	84	84
Cone penetration at 77 °F (max)	ASTM D5329	35	40	50	70	90
Resilience at 77 °F, unaged (%)	ASTM D5329	20–60	25–65	30–70	35–75	40–80
Flexibility (°C)[c]	ASTM D3111	0	0	0	-11	-28
Tensile adhesion (min, %)	ASTM D5329	300	400	400	500	500
Specific gravity (max)	ASTM D70	1.25	1.25	1.25	1.25	1.25
Asphalt compatibility	ASTM D5329	Pass	Pass	Pass	Pass	Pass
Sieve test (% passing)	See note d	100	100	100	100	100

[a]Cold-applied crack treatment material residue collected under ASTM D6943, Method B and sampled under ASTM D140 must comply with the grade specifications.
[b]Except for viscosity, cure each specimen at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 10 percent for 24 ± 2 hours before testing.
[c]For the flexibility test, the specimen size must be 6.4 ± 0.2 mm thick by 25 ± 0.2 mm wide by 150 ± 0.5 mm long. The test mandrel diameter must be 6.4 ± 0.2 mm. The bend arc must be 180 degrees. The bend rate must be 2 ± 1 seconds. At least 4 of 5 test specimens must pass at the specified test temperature without fracture, crazing, or cracking.
[d]For hot-applied crack treatment, dilute with toluene and sieve through a no. 8 sieve. For cold-applied crack treatment, sieve the material as-received through a no. 8 sieve. If the manufacturer provides a statement that added components passed the no. 16 sieve before blending, this requirement is void.

A crack treatment material must be delivered to the job site with the information listed below. If crack treatment material is delivered to the job site in containers, each container must be marked with the following information.

1. Manufacturer's name
2. Production location
3. Brand or trade name
4. Designation
5. Crack treatment trade name
6. Batch or lot number
7. Maximum heating temperature
8. Expiration date for cold application only

Hot-applied crack treatment must be delivered to the job site premixed in cardboard containers with meltable inclusion liners or in a fully meltable package.

Cold-applied crack treatment must have a minimum shelf life of 3 months from the date of manufacture.

37-6.02C Sand

Sand applied to tacky crack treatment material must be clean, free of clay, and comply with the gradation shown in the following table:

Sand Gradation

Quality characteristic	Test method	Requirement
Gradation (% passing by weight) Sieve size:	California Test 202	
No. 4		100
No. 50		0–30
No. 200		0–5

37-6.03 CONSTRUCTION

Treat cracks from 1/4 to 1 inch in width for the entire length of the crack. Fill or repair cracks wider than 1 inch as ordered. Filling cracks wider than 1 inch is change order work.

If treating cracks on a traffic lane adjacent to a shoulder, treat the cracks on the shoulder.

For hot-applied crack treatment material, rout cracks or saw cut to form a reservoir.

Cracks must be clean and dry before treating. Before treating, blast cracks with oil-free compressed air at a pressure of at least 90 psi.

If the pavement temperature is below 40 degrees F or if there is evidence of moisture in the crack, use a hot air lance immediately before applying crack treatment. The hot air lance must not apply flame directly on the pavement.

Heat and apply hot-applied crack treatment material under with the manufacturer's instructions.

Apply cold-applied crack treatment material with a distributor kettle, a piston, or a diaphragm barrel pump that can deliver from 50 to 75 psi. The application line must have a pressure gauge and a filter. The pressure in the application line must not exceed 20 psi. The pressure gauge must have a regulator. Use a high-pressure hose with a 1/2-inch NPT swivel connection and a dispensing wand.

Apply crack treatment with a nozzle inserted into the crack. Fill the crack flush. If after 2 days the crack treatment is more than 1/4 inch below the specified level, the sealant fails, or the crack re-opens, re-treat the crack.

Immediately remove crack treatment material that is spilled or deposited on the pavement surface.

Before opening to traffic, apply sand or the manufacturer's recommended detackifying agent to tacky crack treatment material on the traveled way.

Sweep up excess sand before opening to traffic.

37-6.04 PAYMENT

The payment quantity for crack treatment is the length measured in lane miles along the edge of each paved lane parallel to the pavement's centerline. The payment for a lane includes crack treatment of the adjacent shoulder.

37-7–37-10 RESERVED

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39 ASPHALT CONCRETE

07-15-16

Replace *SP-2* at each occurrence in section 39 with:

01-15-16

MS-2

Replace the 3rd paragraph of section 39-2.01A(1) with:

07-15-16

WMA technologies must be on the Authorized Material List for WMA authorized technologies.

Add between the 3rd and 4th paragraphs of section 39-2.01A(1):

04-15-16

For HMA that uses asphalt binder containing crumb rubber modifier, submit a Crumb Rubber Usage Report form monthly and at the end of the project.

Add to the table in the 4th paragraph of section 39-2.01A(1):

01-15-16

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Add to item 8 in the 4th paragraph of section 39-2.01A(3)(b)(i):

07-15-16

, except lime supplier and source

Replace the headings and paragraphs of section 39-2.01A(3)(i) with:

01-15-16

39-2.01A(3)(i) Reserved

Replace the 2nd sentence in the 3rd paragraph of section 39-2.01A(4)(b) with:

01-15-16

Submit 3 parts and keep 1 part.

Add between *single* and *test* in the 7th paragraph of section 39-2.01A(4)(i)(i):

07-15-16

aggregate or HMA

Replace the 1st paragraph of section 39-2.01B(2)(b) with:

07-15-16

If the proposed JMF indicates that the aggregate is being treated with dry lime or lime slurry with marination, or the HMA with liquid antistrip, then testing the untreated aggregate under AASHTO T 283 and AASHTO T 324 is not required.

If HMA treatment is required or being used by the Contractor, determine the plasticity index of the aggregate blend under California Test 204.

Add between *aggregate* and *with dry lime* in the 3rd and 4th paragraphs of section 39-2.01B(2)(b):

07-15-16

blend

Replace the 9th through 11th paragraphs of section 39-2.01B(8)(a) with:

07-15-16

HMA must be produced at the temperatures shown in the following table:

HMA Production Temperatures

HMA compaction	Temperature (°F)
HMA	
Density based	≤ 325
Method	305–325
HMA with WMA technology	
Density based	240–325
Method	260–325

04-15-16

Delete the 1st paragraph of section 39-2.01B(11).

Add after the 2nd paragraph of section 39-2.01B(11):

04-15-16

For miscellaneous areas and dikes:

1. Choose the aggregate gradation from:
   1.1. 3/8-inch Type A HMA aggregate gradation
   1.2. 1/2-inch Type A HMA aggregate gradation
   1.3. 1/2-inch dike mix aggregate gradation
2. Choose asphalt binder Grade PG 64-10, PG 64-16 or PG 70-10.
3. Minimum asphalt binder content must be:
   3.1. 6.40 percent for 3/8-inch Type A HMA aggregate gradation
   3.2. 5.70 percent for 1/2-inch Type A HMA aggregate gradation
   3.3. 6.40 percent for 1/2-inch dike mix aggregate gradation

If you request and the Engineer authorizes, you may reduce the minimum asphalt binder content.

Aggregate gradation for 1/2-inch dike mix must be within the TV limits for the specified sieve size shown in the following table:

Aggregate Gradation for 1/2-inch Dike Mix
(Percentage Passing)

Sieve size	Target value limit	Allowable tolerance
3/4"	100	--
1/2"	90–95	TV ± 5
No. 4	70–75	TV ± 5
No. 8	23–25	TV ± 5
No. 50	15–35	TV ± 5
No. 200	7.0–13.0	TV ± 2.0

Replace item 4 in the 2nd paragraph of section 39-2.01C(1) with:

07-15-16

4. For method compaction:
   4.1. The temperature of the HMA and the HMA produced with WMA water injection technology in the windrow does not fall below 260 degrees F
   4.2. The temperature of the HMA produced using WMA additive technology in the windrow does not fall below 250 degrees F

07-15-16

Delete item 3 in the 8th paragraph of section 39-2.01C(1).

Replace *39-2.01A(3)(m)(iv)* in the 6th paragraph of section 39-2.01C(3)(e) with:

01-15-16

36-3.01C(3)

Replace *2.06* in the 4th paragraph of section 39-2.01C(3)(f) with:

07-15-16

2.05

Add to the end of section 39-2.01C(15)(b):

07-15-16

The compacted lift thickness must not exceed 0.25 foot.

Add between *rectangles* and *with* in the 4th paragraph of section 39-2.01C(16):

04-15-16

, half the lane width,

Add between *to* and *the* in item 1 of the 4th paragraph of section 39-2.01C(16):

04-15-16

and along

07-15-16

Delete *coat* in the 5th paragraph of section 39-2.01C(16).

Replace *37* in the 5th paragraph of section 39-2.01C(16) with:

07-15-16

37-4.02

Replace section 39-2.02A(3)(b) with:

01-15-16

The JMF must be based on the superpave HMA mix design as described in *MS-2 Asphalt Mix Design Methods* by the Asphalt Institute.

Add between the 1st and 2nd paragraphs of section 39-2.02C:

07-15-16

If the ambient air temperature is below 60 degrees F, cover the loads in trucks with tarpaulins. If the time for HMA discharge to truck at the HMA plant until transfer to paver's hopper is 90 minutes or greater and if the ambient air temperature is below 70 degrees F, cover the loads in trucks with tarpaulins, unless the time from discharging to the truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or the pavement surface.

Replace the table in the 2nd paragraph of section 39-2.02C with:

07-15-16

Minimum Ambient Air and Surface Temperatures

Lift thickness (feet)	Ambient air (°F)		Surface (°F)	
	Unmodified asphalt binder	Modified asphalt binder	Unmodified asphalt binder	Modified asphalt binder
Type A HMA and Type A HMA produced with WMA water injection technology				
<0.15	55	50	60	55
≥0.15	45	45	50	50
Type A HMA produced with WMA additive technology				
<0.15	45	45	50	45
≥0.15	40	40	40	40

07-15-16

Delete the 3rd paragraph of section 39-2.02C.

Add between *HMA* and *placed* in the 1st sentence of the 4th paragraph of section 39-2.02C:

07-15-16

and Type A HMA produced with WMA water injection technology

Add between the 4th and the 5th paragraphs of section 39-2.02C:

07-15-16

For Type A HMA produced with WMA additive technology placed under method compaction, if the asphalt binder is:

1. Unmodified, complete:
   - 1.1 1st coverage of breakdown compaction before the surface temperature drops below 240 degrees F
   - 1.2. Breakdown and intermediate compaction before the surface temperature drops below 190 degrees F
   - 1.3. Finish compaction before the surface temperature drops below 140 degrees F
   - 1.4 You may continue static rolling below 140 degrees F to remove roller marks.
2. Modified, complete:
   - 2.1. 1st coverage of breakdown compaction before the surface temperature drops below 230 degrees F
   - 2.2. Breakdown and intermediate compaction before the surface temperature drops below 170 degrees F
   - 2.3. Finish compaction before the surface temperature drops below 130 degrees F
   - 2.4. You may continue static rolling below 130 degrees F to remove roller marks.

Replace the 2nd paragraph of section 39-2.03A(3)(b) with:

01-15-16

The JMF must be based on the superpave HMA mix design as described in *MS-2 Asphalt Mix Design Methods* by the Asphalt Institute.

Replace the requirement in the row for *Voids in mineral aggregate on plant produced HMA* in the 2nd table in section 39-2.03A(4)(e)(i) with:

01-15-16

18.0-23.0

Add before the 1st paragraph of section 39-2.03A(4)(e)(ii)(C):

04-15-16

CRM used must be on the Authorized Materials List for Crumb Rubber Modifier.

CRM must be a ground or granulated combination of scrap tire crumb rubber and high natural scrap tire crumb rubber, CRM must be 75.0 ± 2.0 percent scrap tire crumb rubber and 25.0 ± 2.0 percent high natural scrap tire crumb rubber by total weight of CRM. Scrap tire crumb rubber and high natural scrap tire crumb rubber must be derived from waste tires described in Pub Res Code § 42703.

Replace the row for *Hamburg wheel track* in the table in section 39-2.03B(2) with:

01-15-16

Hamburg wheel track (min, number of passes at the inflection point) Binder grade: PG 58 PG 64 PG 70	AASHTO T 324 (Modified)[d]	 10,000 12,500 15,000

Replace *RHMA-G* in the 3rd and 5th paragraphs of section 39-2.03C with:

07-15-16

RHMA-G and RHMA-G produced with WMA water injection technology

Add between the 5th and 6th paragraphs of section 39-2.03C:

07-15-16

For RHMA-G produced with WMA additive technology placed under method compaction:

1. Complete the 1st coverage of breakdown compaction before the surface temperature drops below 260 degrees F
2. Complete breakdown and intermediate compaction before the surface temperature drops below 230 degrees F
3. Complete finish compaction before the surface temperature drops below 180 degrees F
4. You may continue static rolling below 140 degrees F to remove roller marks

Replace the 6th and 7th paragraphs of section 39-2.04C with:

07-15-16

For HMA-O and HMA-O produced with WMA water injection technology:

1. With unmodified asphalt binder:
   1.1. Spread and compact only if the atmospheric temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F.
   1.2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
   1.3. Complete all compaction before the surface temperature drops below 200 degrees F.
2. With modified asphalt binder, except asphalt rubber binder:
   2.1. Spread and compact only if the atmospheric temperature is at least 50 degrees F and the surface temperature is at least 50 degrees F.
   2.2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 240 degrees F.
   2.3. Complete all compaction before the surface temperature drops below 180 degrees F.

For HMA-O produced with WMA additive technology:

1. With unmodified asphalt binder:
   1.1. Spread and compact only if the atmospheric temperature is at least 45 degrees F and the surface temperature is at least 50 degrees F.
   1.2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 230 degrees F.
   1.3. Complete all compaction before the surface temperature drops below 190 degrees F.
2. With modified asphalt binder, except asphalt rubber binder:
   2.1. Spread and compact only if the atmospheric temperature is at least 40 degrees F and the surface temperature is at least 40 degrees F.
   2.2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 230 degrees F.

2.3. Complete all compaction before the surface temperature drops below 170 degrees F.

Replace *RHMA-O and RHMA-O-HB* in the 8th paragraph of section 39-2.04C with:

07-15-16

RHMA-O and RHMA-O produced with WMA water injection technology, and RHMA-O-HB and RHMA-O-HB produced with WMA water injection technology

Add between the 8th and 9th paragraphs of section 39-2.04C:

07-15-16

For RHMA-O produced with WMA additive technology and RHMA-O-HB produced with WMA additives technology:

1. Spread and compact if the ambient air temperature is at least 45 degrees F and the surface temperature is at least 50 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 270 degrees F
3. Complete all compaction before the surface temperature drops below 240 degrees F

Add to the 2nd paragraph of section 39-2.05A(3)(b):

01-15-16

The material transfer vehicle must receive HMA directly from the truck.

Replace *Table 6.1* at each occurrence in the table in section 39-2.05B(2) with:

01-15-16

Table 8.1

Replace *SP-2 Asphalt Mixture* in the 1st footnote in the table in the 2nd paragraph of section 39-2.05B(2)(b) with:

01-15-16

MS-2 Asphalt Mix Design Methods

Replace *Manual Series No. 2 (MS-2)* in the 1st footnote in the table in the 2nd paragraph of section 39-2.05B(2)(b) with:

01-15-16

MS-2 Asphalt Mix Design Methods

Replace *39-3.05* in the 1st paragraph of section 39-3.04A with:

01-15-16

39-3.04

Add to the end of section 39-3.04A:

07-15-16

Schedule cold planing activities such that the pavement is cold planed, the HMA is placed, and the area is opened to traffic during the same work shift.

07-15-16

Delete the 2nd sentence of the 1st paragraph in section 39-3.04C(4).

Replace *39-3.06* in the 1st paragraph of section 39-3.05A with:

01-15-16

39-3.05

^^

DIVISION VI STRUCTURES

47 EARTH RETAINING SYSTEMS

07-15-16

Replace the 6th paragraph in section 47-2.02A with:

07-15-16

Rock for rock slope protection at drain pipe outlets must be small-rock slope protection and must comply with the gradation specified for 7-inch-thick layer in section 72-4.02.

^^

49 PILING

07-15-16

04-15-16

Delete the 2nd paragraph of section 49-1.01A.

Replace the 1st sentence in the 5th paragraph of section 49-1.01D(3) with:

07-15-16

Load test and anchor piles must comply with the specifications for piling as described and Class N steel pipe piling.

Add to the list in 7th paragraph of section 49-1.01D(3):

07-15-16

5. Welds that connect the anchor pile and the anchor pile head must be tested under section 49-2.02A(4)(b)(iii)(C)

Replace the 10th paragraph of section 49-1.01D(3) with:

07-15-16

Furnish labor, materials, tools, equipment, and incidentals as required to assist the Department in the transportation, installation, operation, and removal of Department-furnished steel load test beams, jacks, bearing plates, drills, and other test equipment. This is change order work.

Replace the 7th paragraph of section 49-1.01D(4) with:

07-15-16

Piles to be dynamically monitored must:

1. Have an additional length of 2 times the pile diameter plus 2 feet.
2. Be available to the Department at least 2 business days before driving.
3. Be safely supported at least 6 inches off the ground in a horizontal position on at least 2 support blocks. If requested, rotate the piles on the blocks.
4. Be positioned such that the Department has safe access to the entire pile length and circumference for the installation of anchorages and control marks for monitoring.

07-15-16

Delete *business* in item 6 in the list in the 8th paragraph of section 49-1.01D(4).

Add to the list in 9th paragraph of section 49-1.01D(4):

07-15-16

3. Cut pile to the specified cut-off elevation after bearing acceptance criteria is provided by the Department

04-15-16

Delete the 3rd paragraph of section 49-1.03.

04-15-16

Delete the 2nd paragraph of section 49-1.04.

01-15-16

Delete the 4th paragraph of section 49-2.01C(5).

Replace item 3 in the list in the 2nd paragraph of section 49-3.01A with:

07-15-16

3. CISS concrete piles

Add between *undisturbed material* and *in a dry* in the 1st paragraph of section 49-3.01C:

07-15-16

, casing, or steel shell

Replace the 2nd and 3rd paragraphs of section 49-3.01C with:

07-15-16

Place and secure reinforcement. Securely block the reinforcement to provide the minimum clearance shown between the reinforcing steel cage and the sides of the drilled hole, casing, or steel shell.

Steel shells, casings, and drilled holes must be clean and free of debris before reinforcement and concrete are placed.

Replace *dewatered* in the 4th paragraphs of section 49-3.01C with:

07-15-16

drilled

Add to section 49-3.02A(1):

07-15-16

Permanent steel casing and driven steel shell must comply with section 49-2.02.

Replace the paragraph of section 49-3.02A(2) with:

07-15-16

dry hole: A drilled hole that requires no work to keep it free of water.

dewatered hole: A drilled hole that:

1. Accumulates no more than 12 inches of water at the bottom during a 1 hour period without any pumping from the hole.

2. Has no more than 3 inches of water at the bottom immediately before placing concrete.
3. Does not require temporary casing to control the groundwater.

Replace item 8 in the list in the 1st paragraph of section 49-3.02A(3)(b) with:

07-15-16

8. Drilling plan and sequence
9. Concrete sequence and placement plan
10. If inspection pipes are required, methods for ensuring the inspection pipes remain straight, undamaged, and properly aligned during concrete placement

Replace *1 business day* in the paragraph of section 49-3.02A(3)(d) with:

07-15-16

2 business days

Add to section 49-3.02A(3)(d):

07-15-16

The log must:

1. Show the pile location, tip elevation, cutoff elevation, dates of excavation and concrete placement, total quantity of concrete placed, length and tip elevation of any casing, and details of any hole stabilization method and materials used.
2. Include an 8-1/2 by 11 inch graph of concrete placed versus depth of hole filled as follows:
   2.1. Plot the graph continuously throughout concrete placement. Plot the depth of drilled hole filled vertically with the pile tip at the bottom and the quantity of concrete placed horizontally.
   2.2. Take readings at each 5 feet of pile depth, and indicate the time of the reading on the graph.

Add after the sentence in the paragraph of section 49-3.02A(3)(e):

07-15-16

Allow 10 days for the review.

Replace the 3rd sentence in the paragraph of section 49-3.02A(3)(f) with:

07-15-16

Allow 10 days for the review and analysis of this report.

Add after *rejected pile* in the 1st sentence in the 1st paragraph of section 49-3.02A(3)(g):

07-15-16

to be mitigated

07-15-16

Delete the 2nd paragraph of section 49-3.02A(3)(g).

Replace item 3 in the list in the 3rd paragraph of section 49-3.02A(3)(g) with:

07-15-16

3. Step by step description of the mitigation work to be performed, including drawings if necessary. If the *ADSC Standard Mitigation Plan* is an acceptable mitigation method, include the most recent version. For the most recent version of the *ADSC Standard Mitigation Plan*, go to:
   http://www.dot.ca.gov/hq/esc/geotech/ft/adscmitplan.htm

Replace the 2nd sentence in the paragraph of section 49-3.02A(3)(i) with:

07-15-16

Allow 10 days for the review.

Add to section 49-3.02A(3):

07-15-16

49-3.02A(3)(j) Certifications

If synthetic slurry is used, submit as an informational submittal the names and certifications of your employees who are trained and certified by the synthetic slurry manufacturer.

Add after *excavated hole* in the 1st sentence in the 3rd paragraph of section 49-3.02A(4)(c):

07-15-16

lined with plastic

Replace the 1st paragraph of section 49-3.02A(4)(d)(i) with:

07-15-16

Section 49-3.02A(4)(d) applies to CIDH concrete piles except for piles (1) less than 24 inches in diameter or (2) constructed in dry or dewatered holes.

Replace *gamma-gamma logging* in the 2nd paragraph of section 49-3.02A(4)(d)(i) with:

07-15-16

GGL

Replace the 1st sentence in the 3rd paragraph of section 49-3.02A(4)(d)(i) with:

07-15-16

After notification by the Engineer of pile acceptance, fill the inspection pipes and cored holes with grout.

Replace *gamma-gamma logging* in section 49-3.02A(4)(d)(ii) with:

07-15-16

GGL

Replace the 3rd and 4th paragraphs of section 49-3.02A(4)(d)(iii) with:

07-15-16

The Department may perform CSL to determine the extent of the anomalies identified by GGL and to further evaluate a rejected pile for the presence of anomalies not identified by GGL. The pile acceptance test report will indicate if the Department intends to perform CSL and when the testing will be performed. Allow the Department 20 additional days for a total of 50 days to perform CSL and to provide supplemental results.

If authorized, you may perform testing on the rejected pile.

07-15-16

Delete the 8th paragraph of section 49-3.02A(4)(d)(iii).

Add to the end of section 49-3.02A(4)(d)(iii):

07-15-16

If the Engineer determines it is not feasible to repair the rejected pile, submit a mitigation plan for replacement or supplementation of the rejected pile.

Add to section 49-3.02A(4):

07-15-16

49-3.02A(4)(e) Certifications

If synthetic slurry is used, your employees who will be providing technical assistance in the slurry activities must be trained and certified by the synthetic slurry manufacturer to show their competency to perform inspection of slurry operations.

Replace section 49-3.02B(4) with:

07-15-16

49-3.02B(4) Reserved

Replace *near* in the 3rd, 4th, and 5th paragraphs of section 49-3.02B(6)(b) with:

07-15-16

within 2 feet of

Replace *twice per shift* in item 2 in the 3rd paragraph of section 49-3.02B(6)(b) with:

07-15-16

every 4 hours

07-15-16

Delete the 7th and 8th paragraphs of section 49-3.02B(6)(b).

07-15-16

Delete the 3rd paragraph of section 49-3.02B(6)(c).

Replace *near* in item 2 in the 4th paragraph of section 49-3.02B(6)(c) with:

07-15-16

within 2 feet of

Replace item 5 in the 4th paragraph of section 49-3.02B(6)(c) with:

07-15-16

5. After final cleaning and immediately before placing concrete.

Replace section 49-3.02B(9) with:

07-15-16

49-3.02B(9) Inspection Pipes

Inspection pipes must be schedule 40 PVC pipe complying with ASTM D1785 with a nominal pipe size of 2 inches.

Watertight PVC couplers complying with ASTM D2466 are allowed to facilitate pipe lengths in excess of those commercially available.

Add to the beginning of section 49-3.02C(1):

07-15-16

Unless otherwise authorized, drilling the hole and placing reinforcement and concrete in the hole must be performed in a continuous operation.

Replace the 5th paragraph of section 49-3.02C(2) with:

07-15-16

If slurry is used during excavation, maintain the slurry level at a height required to maintain a stable hole, but not less than 10 feet above the piezometric head.

Replace the 1st sentence in the 9th paragraph of section 49-3.02C(2) with:

07-15-16

Remove water that has infiltrated the dewatered hole before placing concrete, as required for dewatered hole.

Replace the 1st sentence in the 10th paragraph of section 49-3.02C(2) with:

07-15-16

If authorized, to control caving or water seepage, you may enlarge portions of the hole, backfill the hole with slurry cement backfill, concrete, or other material, and redrill the hole to the diameter shown.

Replace the 4th paragraph of section 49-3.02C(3) with:

07-15-16

Remove the temporary casing during concrete placement. Maintain the concrete in the casing at a level required to maintain a stable hole, but not less than 5 feet above the bottom of the casing, to prevent displacement of the concrete by material from outside the casing.

Replace the 5th paragraph of section 49-3.02C(4) with:

07-15-16

For a single CIDH concrete pile supporting a column:

1. If the pile and the column share the same reinforcing cage diameter, this cage must be accurately placed as shown
2. If the pile reinforcing cage is larger in diameter than the column cage:
    2.1. Maintain a clear horizontal distance of at least 3.5 inches between the two cages, if the concrete is placed under dry conditions
    2.2. Maintain a clear horizontal distance of at least 5 inches between the two cages if the concrete is placed under slurry
    2.3. The offset between the centerlines of the two cages must not exceed 6 inches

Replace the paragraphs in section 49-3.02C(5) with:

07-15-16

For acceptance testing, install and test vertical inspection pipes as follows:

1. Log the location of the inspection pipe couplers with respect to the plane of pile cutoff.
2. Cap each inspection pipe at the bottom. Extend the pipe from 3 feet above the pile cutoff to the bottom of the reinforcing cage. Provide a temporary top cap or similar means to keep the pipes clean before testing. If pile cutoff is below the ground surface or working platform, extend inspection pipes to 3 feet above the ground surface or working platform.
3. If any changes are made to the pile tip, extend the inspection pipes to the bottom of the reinforcing cage.
4. Install inspection pipes in a straight alignment and parallel to the main reinforcement. Securely fasten inspection pipes in place and provide protective measures to prevent misalignment or damage to the inspection pipes during installation of the reinforcement and placement of concrete in the hole. Construct CIDH concrete piles such that the relative distance of inspection pipes to vertical steel reinforcement remains constant.
5. After concrete placement is complete, fill inspection pipes with water to prevent debonding of the pipe.
6. Provide safe access to the tops of the inspection pipes.

7. After placing concrete and before requesting acceptance testing, test each inspection pipe in the Engineer's presence by passing a rigid cylinder through the length of pipe. The rigid cylinder must be 1-1/4-inch diameter by 4.5-foot long, weigh 12 pounds or less, and be able to freely pass down through the entire length of the pipe under its own weight and without the application of force.
8. When performing acceptance testing, inspection pipes must provide a 2-inch-diameter clear opening and be completely clean, unobstructed, and either dry or filled with water as authorized.
9. After acceptance testing is complete, completely fill the inspection pipes with water.

If the rigid cylinder fails to pass through the inspection pipe:

1. Completely fill the inspection pipes in the pile with water immediately.
2. Core a nominal 2-inch-diameter hole through the concrete for the entire length of the pile for each inspection pipe that does not pass the rigid cylinder. Coring must not damage the pile reinforcement.
3. Locate cored holes as close as possible to the inspection pipes they are replacing and no more than 5 inches clear from the reinforcement.

Core holes using a double wall core barrel system with a split tube type inner barrel. Coring with a solid type inner barrel is not allowed.

Coring methods and equipment must provide intact cores for the entire length of the pile.

Photograph and store concrete cores as specified for rock cores in section 49-1.01D(5).

The coring operation must be logged by an engineering geologist or civil engineer licensed in the State and experienced in core logging. Coring logs must comply with the Department's *Soil and Rock Logging, Classification, and Presentation Manual* for rock cores. Coring logs must include core recovery, rock quality designation of the concrete, locations of breaks, and complete descriptions of inclusions and voids encountered during coring.

The Department evaluates the portion of the pile represented by the cored hole based on the submitted coring logs and concrete cores. If the Department determines a pile is anomalous based on the coring logs and concrete cores, the pile is rejected.

Replace item 2 in the list in the 2nd paragraph of section 49-3.02C(7) with:

07-15-16

2. Extend at least 5 feet below the construction joint. If placing casing into rock or a dry hole, the casing must extend at least 2 feet below the construction joint.

Add to the beginning of section 49-3.02C(9):

07-15-16

49-3.02C(9)(a) General

Replace the 2nd sentence of the 3rd paragraph of section 49-3.02C(9) with:

04-15-16

Do not vibrate the concrete.

Add after *concrete pump* in the 8th paragraph of section 49-3.02C(9):

07-15-16

and slurry pump

Replace item 3 in the list in the 11th paragraph of section 49-3.02C(9) with:

07-15-16

3. Maintain the slurry level at a height required to maintain a stable hole, but not less than 10 feet above the piezometric head.

Replace the 13th paragraph of section 49-3.02C(9) with:

07-15-16

Maintain a log of concrete placement for each drilled hole.

Replace 14th and 15th paragraphs of section 49-3.02C(9) with:

07-15-16

If a temporary casing is used, maintain concrete placed under slurry at a level required to maintain a stable hole, but not less than 5 feet above the bottom of the casing. The withdrawal of the casing must not cause contamination of the concrete with slurry.

The equivalent hydrostatic pressure inside the casing must be greater than the hydrostatic pressure on the outside of the casing to prevent intrusion of water, slurry, or soil into the column of freshly placed concrete.

Remove scum, laitance, and slurry-contaminated concrete from the top of the pile.

Add to section 49-3.02C(9):

07-15-16

49-3.02C(9)(b) Mineral Slurry

Remove any caked slurry on the sides or bottom of hole before placing reinforcement.

If concrete is not placed immediately after placing reinforcement, the reinforcement must be removed and cleaned of slurry, the sides of the drilled hole must be cleaned of caked slurry, and the reinforcement again placed in the hole for concrete placement.

49-3.02C(9)(c) Synthetic Slurry

A manufacturer's representative must:

1. Provide technical assistance for the use of their material
2. Be at the job site before introduction of the synthetic slurry into the drilled hole
3. Remain at the job site until released by the Engineer

After the manufacturer's representative has been released by the Engineer, your employee certified by the manufacturer must be present during the construction of the pile under slurry.

Replace the heading of section 49-3.03 with:

07-15-16

CAST-IN-STEEL SHELL CONCRETE PILING

Replace the 1st paragraph of section 49-3.03A(1) with:

07-15-16

Section 49-3.03 includes specifications for constructing CISS concrete piles consisting of driven open-ended or closed-ended steel shells filled with reinforcement and concrete.

Add to the end of section 49-3.03A(1):

07-15-16

CISS concrete piles include Class 90 Alternative V and Class 140 Alternative V piles.

Add to section 49-3.03A(3):

01-15-16

Submit a Pile and Driving Data Form under section 49-2.01A(3)(a) if specified in the special provisions.

Replace the paragraph of section 49-3.03D with:

07-15-16

Furnish piling is measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff.

Replace section 49-4.03 with:

01-15-16

49-4.03 CONSTRUCTION

49-4.03A General

Reserved

49-4.03B Drilled Holes

Drill holes for steel soldier piles into natural foundation material. Drilled holes must be accurately located, straight, and true.

Furnish and place temporary casings or tremie seals where necessary to control water or to prevent caving of the hole.

Before placing the steel soldier pile, remove loose materials existing at the bottom of the hole after drilling operations have been completed.

Do not allow surface water to enter the hole. Remove all water in the hole before placing concrete.

If temporary casings are used, they must comply with section 49-3.02C(3).

49-4.03C Steel Soldier Piles

Plumb and align the pile before placing concrete backfill and lean concrete backfill. The pile must be at least 2 inches clear of the sides of the hole for the full length of the hole to be filled with concrete backfill and lean concrete backfill. Ream or enlarge holes that do not provide the clearance around steel piles.

Maintain alignment of the pile in the hole while placing backfill material.

Clean and prepare piles in anticipated heat affected areas before splicing steel piles or welding concrete anchors.

^^

50 PRESTRESSING CONCRETE

07-15-16

Add to the end of section 50-1.01C:

07-15-16

50-1.01C(8) Post-tensioning Jack Calibration Chart

Submit the post-tensioning jack calibration plot.

50-1.01C(9) Pretensioning Jack Calibration Chart

For any pretensioning jack calibrated by an authorized laboratory, submit a certified calibration plot.

Replace section 50-1.01D(2)(b) with:

07-15-16

50-1.01D(2)(b) Equipment and Calibration

50-1.01D(2)(b)(i) General

Each jack body must be permanently marked with the ram area.

Each pressure gauge must be fully functional and have an accurately reading, clearly visible dial or display. The dial must be at least 6 inches in diameter and graduated in 100 psi increments or less.

Each load cell must be calibrated and have an indicator that can be used to determine the force in the prestressing steel.

The range of each load cell must be such that the lower 10 percent of the manufacturer's rated capacity is not used in determining the jacking force.

Each jack must be calibrated equipped with its gauges.

Mechanically calibrate the gauges with a dead weight tester or other authorized means before calibration of the jacking equipment.

50-1.01D(2)(b)(ii) Post-tensioning

Equip each hydraulic jack used to tension prestressing steel with 2 pressure gauges or 1 pressure gauge and a load cell. Only 1 pressure gauge must be connected to the jack during stressing.

Each jack used to tension prestressing steel permanently anchored at 25 percent or more of its specified minimum ultimate tensile strength must be calibrated by METS within 1 year of use and after each repair. You must:

1. Schedule the calibration of the jacking equipment with METS.
2. Verify that the jack and supporting systems are complete, with proper components, and are in good operating condition.
3. Provide labor, equipment, and material to (1) install and support the jacking and calibration equipment and (2) remove the equipment after the calibration is complete.
4. Plot the calibration results.

Each jack used to tension prestressing steel permanently anchored at less than 25 percent of its specified minimum ultimate tensile strength must be calibrated by an authorized laboratory within 180 days of use and after each repair.

50-1.01D(2)(b)(iii) Pretensioning

Each jack used to pretension prestressing steel must be calibrated, equipped with its gauges, by a laboratory on the Authorized Laboratory List within 1 year of use and after each repair.

Calibrate pretensioning jacks:

1. Under ASTM E4 using an authorized laboratory. Certification that the calibration is performed to ASTM accuracy is not required.
2. In the presence of the Engineer. Notify the Engineer at least 2 business days before calibrating the jack.
3. Using 3 test cycles. Average the forces from each test cycle at each increment.
4. To cover the load range used in the work.

Gauges for pretensioning jacks may:

1. Be electronic pressure indicators that display either:
   1.1. Pressure in 100 psi increments or less
   1.2. Load to 1 percent of the maximum sensor/indicator capacity or 2 percent of the maximum load applied, whichever is smaller
2. Have a dial less than 6 inches in diameter

Gauges displaying pressure must have been calibrated within 1 year of the jack calibration.

Each hydraulic jack used for pretensioning must be equipped with either 2 gauges or 1 gauge and a load cell or you must have a calibrated standby jack with its gauge present on site during stressing.

^^

51 CONCRETE STRUCTURES

07-15-16

Add to the list in the 2nd paragraph of section 51-1.01A:

04-15-16

8. Pile extensions

07-15-16

9. Drainage inlets

Add to the list in the 6th paragraph of section 51-1.01A:

07-15-16

7. Drainage inlets

Add to section 51-1.02I:

07-15-16

Metal frames, covers, grates, and other miscellaneous iron and steel used with drainage inlets must comply with section 75-2.

Add to section 51-1.03B:

07-15-16

You may use PC drainage inlets as an alternative to CIP drainage inlets.

Add between the 10th and 11th paragraphs of section 51-1.03C(2)(a):

07-15-16

For drainage inlets, extend the outside forms at least 12 inches below the top of the inlet. You may place concrete against excavated earth below this depth except:

1. You must use full-depth outside forms or other protection when work activities or unstable earth may cause hazardous conditions or contamination of the concrete.
2. You must increase the wall thickness 2 inches if placing concrete against the excavated surface. The interior dimensions must be as shown.

Add to section 51-1.03C(2)(b):

07-15-16

For drainage inlets, remove exterior forms to at least 12 inches below the final ground surface. Exterior forms below this depth may remain if their total thickness is not more than 1 inch.

Add to the list in the 2nd paragraph of section 51-1.03F(2):

07-15-16

4. Interior and top surfaces of drainage inlets

Add to section 51-1.04:

07-15-16

The payment quantity for structural concrete, drainage inlet is the volume determined from the dimensions shown for CIP drainage inlets.

Add to section 51-4.01C(1):

07-15-16

For PC drainage inlets, submit field repair procedures and a patching material test sample before repairs are made. Allow 10 days for the Engineer’s review.

Add to section 51-4.01C(2)(a):

07-15-16

For drainage inlets with oval or circular cross sections, submit shop drawings with calculations. Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State. Allow 15 days for the Engineer's review.

Add to section 51-4.01D(3):

07-15-16

The Engineer may reject PC drainage inlets exhibiting any of the following:

1. Cracks more than 1/32 inch wide
2. Nonrepairable honeycombed or spalled areas of more than 6 square inches
3. Noncompliance with reinforcement tolerances or cross sectional area shown
4. Wall, inlet floor, or lid less than minimum thickness
5. Internal dimensions less than dimensions shown by 1 percent or 1/2 inch, whichever is greater
6. Defects affecting performance or structural integrity

Add to section 51-4.02C:

07-15-16

Materials for PC drainage inlets must comply with the following:

1. Preformed flexible joint sealant must be butyl-rubber complying with ASTM C990
2. Resilient connectors must comply with ASTM C923
3. Sand bedding must comply with section 19-3.02F(2)
4. Bonding agents must comply with ASTM C1059/C1059, Type II

Add to section 51-4.02D:

07-15-16

51-4.02D(8) Drainage Inlets

PC units for drainage inlets must be rectangular, round, or oval in cross section, or any combination. Transitions from a rectangular grate opening to a round or oval basin must be made in not less than 8 inches. Provide means for field adjustment to meet final grade, paving, or surfacing.

If oval or circular shape cross-sections are furnished, they must comply with *AASHTO LRFD Bridge Design Specifications, Sixth Edition with California Amendments*.

Wall and slab thicknesses may be less than the dimensions shown by at most 5 percent or 3/16 inch, whichever is greater.

Reinforcement placement must not vary more than 1/2 inch from the positions shown.

Add to section 51-4.03:

07-15-16

51-4.03H Drainage Inlets

Repair PC drainage inlet sections to correct damage from handling or manufacturing imperfections before installation.

Center pipes in openings to provide a uniform gap. Seal gaps between the pipe and the inlet opening with nonshrink grout under the grout manufacturer's instructions. For systems designated as watertight, seal these gaps with resilient connectors.

Match fit keyed joints to ensure uniform alignment of walls and lids. Keys are not required at the inlet floor level if the floor is precast integrally with the inlet wall. Seal keyed joint locations with preformed butyl rubber joint sealant. You may seal the upper lid and wall joint with nonshrink grout.

Clean keyed joint surfaces before installing sealant. Joint surfaces must be free of imperfections that may affect the joint. Use a primer if surface moisture is present. Use a sealant size recommended by the sealant manufacturer. Set joints using sealant to create a uniform bearing surface.

Flat drainage inlet floors must have a field-cast topping layer at least 2 inches thick with a slope of 4:1 (horizontal:vertical) toward the outlet. Use a bonding agent when placing the topping layer. Apply the bonding agent under the manufacturer's instructions.

Replace the 2nd paragraph of section 51-7.01A with:

07-15-16

Minor structures include structures described as minor structures.

07-15-16

Delete the 4th paragraph of section 51-7.01B.

07-15-16

Delete the 1st and 3rd paragraphs of section 51-7.01C.

07-15-16

Delete the heading and paragraph of section 51-7.02.

**^^^

Replace item 2 in the list in the 3rd paragraph of section 53-1.02 with:

01-15-16

2. You may substitute a maximum of 30 percent coarse aggregate for the fine aggregate. Coarse aggregate must comply with section 90-1, except section 90-1.02C(4)(d) does not apply. The gradation for the coarse aggregate must comply with the gradation specified in section 90-1.02C(4)(b) for the 1/2 inch x No. 4 or the 3/8 inch x No. 8 primary aggregate nominal size.

Replace *shotcrete* in the 2nd sentence of the 4th paragraph of section 53-1.02 with:

01-15-16

concrete

^^

56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

07-15-16

Replace section 56-1.01 with:

07-15-16

56-1.01 GENERAL

56-1.01A Summary

Section 56-1 includes general specifications for constructing overhead sign structures, standards, and poles.

56-1.01B Definitions

Reserved

56-1.01C Submittals

Reserved

56-1.01D Quality Assurance

56-1.01D(1) General

Reserved

56-1.01D(2) Quality Control

56-1.01D(2)(a) General

Reserved

56-1.01D(2)(b) Nondestructive Testing

56-1.01D(2)(b)(i) General

Perform NDT of steel members under AWS D1.1 and the requirements shown in the following table:

Nondestructive Testing for Steel Standards and Poles

Weld location	Weld type	Minimum required NDT
Circumferential splices around the perimeter of tubular sections, poles, and arms	CJP groove weld with backing ring	100% UT or RT
Longitudinal seam	CJP or PJP groove weld	Random 25% MT
Longitudinal seam within 6 inches of a circumferential splice	CJP groove weld	100% UT or RT
Welds attaching base plates, flange plates, pole plates, or mast arm plates to poles or arm tubes	CJP groove weld with backing ring and reinforcing fillet	t≥ 5/16 inch: 100% UT and 100% MT t< 5/16 inch: 100% MT after root weld pass and final weld pass
	External (top) fillet weld for socket-type connections	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all standards and poles

NOTE: t = pole or arm thickness

Nondestructive Testing for Overhead Sign Structures

Weld location	Weld type	Minimum required NDT
Base plate to post	CJP groove weld with backing ring and reinforcing fillet	100% UT and 100% MT
Base plate to gusset plate	CJP groove weld	100% UT
Circumferential splices of pipe or tubular sections	CJP groove weld with backing ring	100% UT or RT
Split post filler plate welds	CJP groove weld with backing bar	100% UT or RT
Longitudinal seam weld for pipe posts	CJP groove weld	t < 1/4 inch: 100% MT t ≥ 1/4 inch: 100% UT or RT
	PJP groove weld	Random 25% RT
Chord angle splice weld	CJP groove weld with backing bar	100% UT or RT
Truss vertical, diagonal, and wind angles to chord angles	Fillet weld	Random 25% MT
Upper junction plate to chord (cantilever type truss)	Fillet weld	Random 25% MT
Bolted field splice plates (tubular frame type)	CJP groove weld	100% UT and 100% MT
Cross beam connection plates (lightweight extinguishable message sign)	Fillet weld	Random 25% MT
Arm connection angles (lightweight extinguishable message sign)	Fillet weld	100% MT
Mast arm to arm plate (lightweight extinguishable message sign)	CJP groove weld with backing ring	t ≥ 5/16 inch: 100% UT and 100% MT t < 5/16 inch: 100% MT after root weld pass and final weld pass
Post angle to post (lightweight extinguishable message sign)	Fillet weld	100% MT
Hand holes and other appurtenances	Fillet and PJP welds	MT full length on random 25% of all sign structures

NOTE: t = pole or arm thickness

56-1.01D(2)(b)(ii) Ultrasonic Testing

For UT of welded joints with any members less than 5/16 inch thick or tubular sections less than 13 inches in diameter, the acceptance and repair criteria must comply with Clause 6.13.3.1 of AWS D1.1.

For UT of other welded joints, the acceptance and repair criteria must comply with Table 6.3 of AWS D1.1 for cyclically loaded nontubular connections.

After galvanization, perform additional inspection for toe cracks along the full length of all CJP groove welds at tube-to-transverse plate connections using UT.

When performing UT, use an authorized procedure under AWS D1.1, Annex S.

56-1.01D(2)(b)(iii) Radiographic Testing

The acceptance criteria for radiographic or real time image testing must comply with AWS D1.1 for tensile stress welds.

56-1.01D(2)(b)(iv) Longitudinal Seam Welds

The Engineer selects the random locations for NDT.

Grind the cover pass smooth at the locations to be tested.

If repairs are required in a portion of a tested weld, perform NDT on the repaired portion and on 25 percent of the untested portions of the weld. If more repairs are required, perform NDT on the entire weld.

56-1.01D(3) Department Acceptance

Reserved

Replace section 56-2.01D(2)(b) with:

07-15-16

Reserved

Replace the 2nd sentence of the 1st paragraph of section 56-2.02F with:

07-15-16

Manufactured pipe posts must comply with one of the following:

Add to the list in the 1st paragraph of section 56-2.02F:

07-15-16

4. ASTM A1085, Grade A

Replace the 2nd paragraph of section 56-2.02F with:

07-15-16

You may fabricate pipe posts from structural steel complying with ASTM A36/A36M, ASTM A709/A709M, Grade 36, or ASTM A572/A572M, Grades 42 or 50.

07-15-16

Delete the last sentence in the 1st paragraph of section 56-2.02K(2).

07-15-16

Delete the 3rd paragraph of section 56-2.02K(2).

Replace the 2nd paragraph of section 56-2.02K(4) with:

07-15-16

Safety cable at walkways must not be kinked, knotted, deformed, frayed, or spliced.

Replace the 1st sentence of the paragraph in section 56-2.02K(5) with:

07-15-16

The edges of handholes and other large post and arm openings must be ground smooth.

Replace the heading of section 56-3 with:

07-15-16

56-3 STANDARDS, POLES, PEDESTALS, AND POSTS

Replace the paragraph in section 56-3.01A with:

07-15-16

Section 56-3 includes general specifications for fabricating and installing standards, poles, pedestals, and posts.

Replace section 56-3.01B(2)(b) with:

07-15-16

Standards with handholes must comply with the following:

1. Include a UL-listed lug and 3/16-inch or larger brass or bronze bolt for attaching the bonding jumper for non-slip-base standards.
2. Attach a UL-listed lug to the bottom slip base plate with a 3/16-inch or larger brass or bronze bolt for attaching the bonding jumper for slip-base standards.

Replace the 1st sentence of the 3rd paragraph of section 56-3.01C(2)(a) with:

07-15-16

After each standard, pole, pedestal, and post is properly positioned, place mortar under the base plate.

Replace the 2nd sentence of the 4th paragraph of section 56-3.01C(2)(a) with:

07-15-16

The top of the foundation at curbs or sidewalks must be finished to curb or sidewalk grade.

Replace the 10th paragraph of section 56-3.01C(2)(a) with:

07-15-16

Except when located on a structure, construct foundations monolithically.

Replace the 13th paragraph of section 56-3.01C(2)(a) with:

07-15-16

Do not erect standards, poles, pedestals, or posts until the concrete foundation has cured for at least 7 days.

Replace the 14th paragraph in section 56-3.01C(2)(a) with:

07-15-16

The Engineer selects either the plumbing or raking technique for standards, poles, pedestals, and posts. Plumb or rake by adjusting the leveling nuts before tightening nuts. Do not use shims or similar devices. After final adjustments of both top nuts and leveling nuts on anchorage assemblies have been made and each standard, pole, pedestal, and post on the structure is properly positioned, tighten nuts as follows:

1. Tighten leveling nuts and top nuts, following a crisscross pattern, until bearing surfaces of all nuts, washers, and base plates are in firm contact.
2. Use an indelible marker to mark the top nuts and base plate with lines showing relative alignment of the nut to the base plate.
3. Tighten top nuts following a crisscross pattern:
   3.1. Additional 1/6 turn for anchor bolts greater than 1-1/2 inches in diameter.
   3.2. Additional 1/3 turn for other anchor bolts.
   3.3. Tightening tolerance for all top nuts is ± 1/8 turn.

Replace the 1st sentence of the 4th paragraph of section 56-3.01C(2)(b) with:

07-15-16

If shown, use sleeve nuts on Type 1 standards.

Add to section 56-3.01C(2)(b):

07-15-16

Spiral reinforcement must be continuous above the bottom of the anchor bolts. The top termination must be either:

1. 1'-6" lap beyond the end of pitch with a 90-degree hook extending to the opposite side of the cage, or
2. 1'-6" lap beyond the end of pitch with 2 evenly spaced authorized mechanical couplers

Replace the 1st sentence of the paragraph in section 56-3.02A(4)(b) with:

07-15-16

For cast slip bases for standards and poles with shaft lengths of 15 feet or more, perform RT on 1 casting from each lot of a maximum of 50 castings under ASTM E94.

Replace the 2nd paragraph of section 56-3.02B(1) with:

07-15-16

Material for push button posts, pedestrian barricades, and guard posts must comply with ASTM A53/A53M or ASTM A500/A500M.

Add to section 56-3.02B(1):

07-15-16

Steel pipe standards and mast arms must be hot dip galvanized after manufacturing. Remove spikes from galvanized surfaces.

Replace the 2nd paragraph of section 56-3.02B(2) with:

07-15-16

HS anchor bolts, nuts, and washers must comply with section 55-1.02D(1) and the following:

1. Bolt threads must be rolled
2. Hardness of HS anchor bolts must not exceed 34 HRC when tested under ASTM F606
3. Galvanization must be by mechanical deposition
4. Nuts must be heavy-hex type
5. Each lot of nuts must be proof load tested

Replace the 2nd sentence of the 9th paragraph of section 56-3.02B(2) with:

07-15-16

During manufacturing, properly locate the position of the luminaire arm on the arm plate to avoid interference with the cap screw heads.

Add to section 56-3.02B(3)(a):

07-15-16

Steel having a nominal thickness greater than 2 inches that is used for tube-to-transverse plate connections must have a minimum CVN impact value of 20 ft-lb at 20 degrees F when tested under ASTM E23.

Add to section 56-3.02B(3)(c):

07-15-16

The length of telescopic slip-fit splices must be at least 1.5 times the inside diameter of the exposed end of the female section.

For welds connecting reinforced handholes or box-type pole plate connections to a tubular member, the start and stop points must be at points located on a longitudinal axis of symmetry of the tube coinciding with the axis of symmetry of the hand hole or pole plate.

Replace the table in the 1st paragraph of section 56-3.02C with:

07-15-16

Slip Base Bolt Tightening Requirements

Standard type	Torque (ft-lb)
15-SB	150
15-SBF	150
30	150
31	200

Replace the 1st sentence of the 2nd paragraph of section 56-3.02C with:

07-15-16

Bolted connections attaching signal or luminaire arms to standards, poles, and posts are considered slip critical.

Add to section 56-3.06B:

07-15-16

Manufacture the mast arm from standard pipe, free from burrs. Each mast arm must have an insulated wire inlet and wood pole mounting brackets for the mast arm and tie-rod cross arm. Manufacture tie rod from structural steel and pipe.

07-15-16

Delete the 2nd paragraph of section 56-3.06C.

Replace the 1st sentence of the 3rd paragraph of section 56-3.06C with:

07-15-16

Mount the mast arm for luminaires to provide a 34-foot mounting height for a 165 W LED luminaire and a 40-foot mounting height for a 235 W LED luminaire.

^^

59 STRUCTURAL STEEL COATINGS

07-15-16

Replace *Type S* in the 2nd paragraph of section 59-1.02A with:

01-15-16

Type M or Type S

Add to the list in the 2nd paragraph of section 59-1.02B:

07-15-16

5. Manufactured abrasives.

Replace *Mineral and slag* in the 3rd paragraph of section 59-1.02B with:

07-15-16

Mineral, manufactured, and slag

07-15-16

Delete the 4th paragraph of section 59-2.01C(1).

^^

60 EXISTING STRUCTURES

07-15-16

07-15-16

Delete the 2nd sentence in the 11th paragraph of section 60-3.04B(3)(c).

^^

64 PLASTIC PIPE

07-15-16

Replace *Reserved* in section 64-3 with:

07-15-16

64-3.01 GENERAL

64-3.01A Summary

Section 64-3 includes specifications for constructing slotted plastic pipe.

Slotted plastic pipe includes structure excavation, concrete backfill, connecting new pipe to new or existing facilities, concrete collars, reinforcement, and other connecting devices.

64-3.01B Definitions

Reserved

64-3.01C Submittals

If an *or* equal slotted plastic pipe is being considered, it must be submitted 30 days before installation for approval.

If RSC is used for concrete backfill for slotted plastic pipe, submit the concrete mix design and test data from an authorized laboratory 10 days before excavating the pipe trench. The laboratory must specify the cure time required for the concrete mix to attain 2,000 psi compressive strength when tested under California Test 521.

Heel-resistant grates if specified must be submitted 30 days before installation for approval. Anchorage details must be included in the submittal.

64-3.01D Quality Assurance

Reserved

64-3.02 MATERIALS

64-3.02A General

Not Used

64-3.02B Slotted Plastic Pipes

Slotted plastic pipe must be one of the following or equal:

Slotted Plastic Pipe

12" diameter	18" diameter
Zurn Z888-12	Zurn Z888-18
ACO Qmax 350	ACO Qmax 365
ADS Duraslot-12	ADS Duraslot-18

64-3.02C Concrete Backfill

Concrete for concrete backfill for slotted plastic pipe must comply with the specifications for minor concrete. You may use RSC instead of minor concrete for concrete backfill.

If RSC is used for concrete backfill, the RSC must:

1. Contain at least 590 pounds of cementitious material per cubic yard
2. Comply with section 90-3.02A, except section 90-1 does not apply
3. Comply with section 90-2

64-3.02D Heel-Resistant Grates

Heel-resistant grate must:

1. Be designed to carry traffic loadings
2. Comply with ADA requirements
3. Be constructed of steel or cast iron
4. Be provided by the same manufacturer of the slotted plastic pipe
5. Comply with the manufacturer's instructions

64-3.02E Bar Reinforcement

Bar reinforcement must comply with ASTM A615/A615M, Grade 60 or ASTM A706/A706M, Grade 60.

64-3.02F Miscellaneous Metal

Ductile iron, nuts, bolts, and washers must comply with section 75.

64-3.02G Grout

Grout must be non-shrink grout complying with ASTM C1107/C1107M.

64-3.02H Curing Compound

Non-pigmented curing compound must comply with ASTM C309, Type 1, Class B.

64-3.02I End Caps

End cap must:

1. Be provided by the same manufacturer of the slotted plastic pipe
2. Prevent concrete backfill from entering the pipe

64-3.03 CONSTRUCTION

64-3.03A General

Cover the grate slots with heavy-duty tape or other authorized covering during paving and concrete backfilling activities to prevent material from entering the slots.

64-3.03B Preparation

Pave adjacent traffic lanes before installing slotted plastic pipes.

Excavation must comply with section 19-3.

64-3.03C Installation

Lay and join slotted plastic pipes under the pipe manufacturer’s instructions.

Lay pipes to line and grade with sections closely jointed and adequately secured to prevent separation during placement of the concrete backfill. If the pipes do not have a positive interlocking mechanism like a slot and tongue connection, secure the sections together with nuts, bolts, and washers before backfilling.

The top of slotted plastic pipes must not extend above the completed surface. Position the pipes so that the concrete backfill is flush with the surrounding grade and above the top of the grate from 1/8 to 1/4 inch.

Place channels with the male and female ends facing each other.

Place lateral support bar reinforcement on both sides of the grate slots. The support bar reinforcement must run the full length of the slots.

Anchor heel-resistant grates to the concrete backfill under the manufacturer's instructions.

64-3.03D Concrete Backfill

Wherever minor concrete is used for concrete backfill for slotted plastic pipe, do not allow traffic on top of the backfill within 7 days of placement.

Wherever RSC is used for concrete backfill for slotted plastic pipe, do not allow traffic on top of the backfill before the required cure time of 2,000 psi is achieved.

Place concrete backfill where shown.

Consolidate the concrete backfill with high-frequency internal vibrators.

Texture the concrete backfill surface with a broom or burlap drag to produce a durable skid-resistant surface.

Apply a non-pigmented curing compound to the exposed concrete backfill surface whenever the atmospheric temperature is 90 degrees F or greater after placement.

64-3.03E Transition Fittings

Use transition fittings to connect slotted plastic pipes to drainage inlets. The transition fittings must be supplied by the same pipe manufacturer.

Where welds are required in transition fittings, welds must comply with the pipe manufacturer's instructions. The completed welds must not have visible pinholes.Fill the gaps around the pipes in the inlet structure wall with non-shrink grout where the pipes connect to an existing drainage structure. Install the grout under the pipe manufacturer's instructions.

Cut the pipes as shown after the grout used to seal the transition fitting has cured for at least 24 hours.

64-3.04 PAYMENT

Slotted plastic pipe is measured along the centerline of the pipe and parallel with the slope line. If the pipe is cut to fit a structure or slope, the payment quantity is the length of pipe necessary to be placed before cutting, measured in 2-foot increments.

^^

DIVISION VII DRAINAGE FACILITIES

71 EXISTING DRAINAGE FACILITIES

01-15-16

Replace items 5 and 6 in the list in the 1st paragraph of section 71-3.01D with:

01-15-16

5. Performing postrehabilitation inspection

Add after the 4th paragraph of section 71-3.01D:

01-15-16

Record the quantity of grout that is installed and submit this quantity. The Department does not pay for grout that leaks through to the inside of the culvert. The Department does not pay for grout material that is wasted, disposed of, or remaining on hand after the completion of the work.

Replace the 2nd heading in section 71-5.03 with:

01-15-16

71-5.03B Frames, Covers, Grates, and Manholes

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

07-15-16

Replace the 1st and 2nd paragraphs of section 72-2.02B with:

07-15-16

For method A and B placement and the class of RSP described, comply with the rock gradation shown in the following table:

Rock Gradation

Nominal RSP class by median particle diameter[b]		Nominal median particle weight W_{50}[c,d]	d_{15}[c] (inches)		d_{50}[c] (inches)		d_{100}[c] (inches)	Placement
Class[a]	Diameter (inches)		Min	Max	Min	Max	Max	Method
I	6	20 lb	3.7	5.2	5.7	6.9	12.0	B
II	9	60 lb	5.5	7.8	8.5	10.5	18.0	B
III	12	150 lb	7.3	10.5	11.5	14.0	24.0	B
IV	15	300 lb	9.2	13.0	14.5	17.5	30.0	B
V	18	1/4 ton	11.0	15.5	17.0	20.5	36.0	B
VI	21	3/8 ton	13.0	18.5	20.0	24.0	42.0	A or B
VII	24	1/2 ton	14.5	21.0	23.0	27.5	48.0	A or B
VIII	30	1 ton	18.5	26.0	28.5	34.5	48.0	A or B
IX	36	2 ton	22.0	31.5	34.0	41.5	52.8	A
X	42	3 ton	25.5	36.5	40.0	48.5	60.5	A
XI	46	4 ton	28.0	39.4	43.7	53.1	66.6	A

[a]For RSP Classes I–VIII, use Class 8 RSP fabric. For RSP Classes IX–XI, use Class 10 RSP fabric.
[b]Intermediate or B dimension (i.e., width) where A dimension is length and C dimension is thickness.
[c]d%, where % denotes the percentage of the total weight of the graded material.
[d]Values shown are based on the minimum and maximum particle diameters shown and an average specific gravity of 2.65. Weight will vary based on specific gravity of rock available for the project.

Replace the table in section 72-2.02C with:

07-15-16

Fabric Class

Class	Largest rock gradation class used in slope protection
8	Classes I–VIII
10	Classes IX–XI

Replace the table in the 1st paragraph of section 72-3.02C with:

07-15-16

Concreted-Rock Gradation

Nominal RSP class by median particle diameter[b]		Nominal median particle weight W_{50}[c,d] Weight[a]	d_{15}[c]		d_{50}[c]		d_{100}[c]
Class[a]	Size (inches)		Min	Max	Min	Max	Max
I	6	20 lb	3.7	5.2	5.7	6.9	12.0
II	9	60 lb	5.5	7.8	8.5	10.5	18.0
III	12	150 lb	7.3	10.5	11.5	14.0	24.0
V	18	1/4 ton	11.0	15.5	17.0	20.5	36.0
VII	24	1/2 ton	14.5	21.0	23.0	27.5	48.0

[a]Use Class 8 RSP fabric.
[b]Intermediate or B dimension (i.e., width) where A dimension is length and C dimension is thickness.
[c]d%, where % denotes the percentage of the total weight of the graded material.
[d]Values shown are based on the minimum and maximum particle diameters shown and an assumed specific gravity of 2.65. Weight will vary based on specific gravity of rock available for the project.

Replace the table in section 72-3.03E with:

07-15-16

Minimum Concrete Penetration

	Rock class				
	VII	V	III	II	I
Penetration (inches)	18	14	10	8	6

^^

73 CONCRETE CURBS AND SIDEWALKS

07-15-16

Replace section 73-3.01A with:

07-15-16

Section 73-3 includes specifications for constructing sidewalks, gutter depressions, island paving, curb ramps, and driveways.

^^

74 PUMPING EQUIPMENT AND CONTROLS

04-15-16

Replace *87-1.03K* in the 4th paragraph of section 74-3.03B(2) with:

04-15-16

87

^^

80 FENCES

07-15-16

Replace section 80-4 with:

07-15-16

80-4 WILDLIFE EXCLUSION FENCES

80-4.01 GENERAL

80-4.01A General

Section 80-4 includes specifications for constructing wildlife exclusion fences.

Constructing a wildlife exclusion fence includes the installation of any signs specified in the special provisions.

80-4.01B Materials

Each T post must:

1. Comply with ASTM A702
2. Be metal and have an anchor plate
3. Be painted black or galvanized

80-4.01C Construction

Not Used

80-4.01D Payment

Not Used

80-4.02 DESERT TORTOISE FENCES

80-4.02A General

Section 80-4.02 includes specifications for constructing desert tortoise fences.

80-4.02B Materials

80-4.02B(1) Permanent Desert Tortoise Fences

80-4.02B(1)(a) General

Each wire tie and hog ring for a permanent desert tortoise fence must comply with section 80-2.02F.

Each hold down pin must:

1. Be U-shaped, with 2 minimum 6-inch long legs
2. Have pointed ends
3. Be at least 11-gauge wire
4 Be galvanized
5. Be commercial quality

80-4.02B(1)(b) Hardware Cloth

The hardware cloth must:

1. Comply with ASTM A740
2. Be welded or woven galvanized steel wire fabric
3. Be made of at least 14-gauge wire
4. Be 36 inches wide

80-4.02B(1)(c) Barbless Wire

The barbless wire must:

1. Comply with ASTM A641/A641M
2. Be at least 14-gauge wire
3. Have a Class 1 zinc coating

80-4.02B(1)(d) Posts

Each post must:

1. Comply with ASTM F1083
2. Be standard weight, schedule 40 steel pipe with a nominal pipe size of 1 inch
3. Be galvanized steel fence post conforming to ASTM A702

80-4.02B(2) Temporary Desert Tortoise Fences

The materials for a temporary desert tortoise fence must comply with section 80-4.02B(1), except the hardware cloth must be made of at least 16-gauge wire.

80-4.02C Construction

80-4.02C(1) General

Extend the hardware cloth a minimum of 24 inches above the ground.

Plumb the posts and pull the hardware cloth taut. Correct any alignment issues.

80-4.02C(2) Permanent Desert Tortoise Fences

Excavate the ground to form a trench before installing the posts and hardware cloth. Embed the posts at maximum 5-foot intervals into the ground. If T posts are used, use 5-foot lengths and embed the posts to match the above-ground height shown for the posts.

Securely fasten the hardware cloth to the posts with wire ties and to barbless wire with hog rings as shown. Pass the wire ties through the hardware cloth. Encircle the posts and barbless wire with the ties and tie them by twisting a minimum of 3 complete turns.

Bend the twisted ends of the ties down to prevent possible snagging. Close hog rings with their ends overlapping.

Bury the hardware cloth a minimum of 12 inches into the ground. Install the cloth in 1 continuous piece. You may cut the cloth into shorter segments if authorized.

Overlap the hardware cloth segments at posts, with a minimum overlap of 6 inches centered at a post. Wire tie the overlapped cloth to posts as shown. Prevent fraying by threading barbless wire along the vertical edges of the hardware cloth on either side of the post or use 3 equally spaced hog rings (6 hog rings per location) along each wire cloth edge.

Where bedrock or caliche substrate is encountered, use the bent hardware cloth detail if authorized. Transitions from buried-to-bent or bent-to-buried configuration must occur at a post location with a minimum 6-inch overlap of the hardware cloth as shown. The maximum spacing for hold down pins is 24 inches on center. Anchor in place with hold down pins the beginning and end corners of the hardware cloth placed on the ground.

Backfill the removed earth material into the trench created to install the hardware cloth and posts. Use an 8 lb or heavier hand tamper to compact the backfill around the posts and hardware cloth. Install a post at each corner of the cloth segments.

If a gate must be installed, attach the hardware cloth to the gate frame such that there is contact along the entire length of the gate between the finished ground surface and the lower edge of the cloth. Install the gate under section 80-10.

80-4.02C(3) Temporary Desert Tortoise Fences

Fold the horizontal edge of the hardware cloth at a 90° angle toward the tortoise habitat area. Ensure the clearance to the ground at the bend is from 0 to 2 inches.

Where the hardware cloth overlaps, secure the bend piece with one of the following:

1. Barbless wire threaded along the width of the cloth
2. Minimum of 4 hog rings equally spaced along the edge

Fasten the bent piece to the ground with hold down pins pushed completely into the ground.

When the temporary fence is no longer needed, compact soil into post holes with an 8 lb or heavier hand tamper.

80-4.02D Payment

Not Used

80-4.03–80-4.09 RESERVED

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DIVISION IX TRAFFIC CONTROL DEVICES

83 RAILINGS AND BARRIERS

04-15-16

04-15-16

Delete *to* in the 4th paragraph of section 83-1.02B.

^^

84 MARKINGS

07-15-16

Add to the beginning of section 84-8.03A:

07-15-16

Select the method and equipment for constructing ground-in indentations.

Replace the 1st paragraph of section 84-8.03A with:

07-15-16

Do not construct rumble strips:

1. On structures, approach slabs, or concrete weigh-in-motion slabs
2. At intersections
3. Bordering two-way left turn lanes, driveways, or other high-volume turning areas
4. Within 6 inches of any concrete pavement joint

Add between the 2nd and 3rd paragraphs of section 84-8.03A:

07-15-16

Modify rumble strip spacing to avoid locating a groove on a concrete pavement joint.

Replace the 3rd paragraph of section 84-8.03A with:

07-15-16

Indentations must comply with the dimensions shown and not vary more than:

1. 10 percent in length
2. 0.06 inch in depth
3. 10 percent in width
4. 1 inch in center-to-center spacing between rumble strips

Add to the end of section 84-8.03A:

07-15-16

The noise level created by the combined grinding activities must not exceed 86 dBA when measured at a distance of 50 feet at right angles to the direction of travel.

Break rumble strips before and after intersections, driveways, railroad crossings, freeway gore areas, and freeway ramps. Place breaks and break distances as shown. You may adjust breaks and the break distances as needed at low-volume driveways or other locations if authorized.

07-15-16

Delete *new* in the 1st paragraph of section 84-8.03B.

07-15-16

Add to the end of section 84-8.03B:

Remove grinding residue under section 13-4.03E(7).

Replace the 1st paragraph of section 84-8.03C with:

07-15-16

Construct rumble strips in the top layer of HMA and asphalt concrete surfacing by the ground-in method.

Add between the 2nd and 3rd paragraphs of section 84-8.03C:

07-15-16

Dispose of the removed material.

07-15-16

Delete the 2nd paragraph of section 84-8.03C.

Replace *37-2* in the 3rd paragraph of section 84-8.03C with:

07-15-16

37-4.02

Replace section 84-8.04 with:

07-15-16

The payment quantity for any type of rumble strip is the length measured by the station along the length of the rumble strip without deductions for gaps between indentations.

Replace the 2nd paragraph of section 84-9.03B with:

04-15-16

Completely remove traffic stripes and pavement markings, including any paint in the gaps, by methods that do not remove pavement to a depth of more than 1/8 inch.

Add between the 2nd and 3rd paragraphs of section 84-9.03B:

04-15-16

Submit your proposed method for removing traffic stripes and pavement markings at least 7 days before starting the removal work. Allow 2 business days for the review.

Remove pavement marking such that the old message cannot be identified. Make any area removed by grinding rectangular. Water must not puddle in the ground areas. Fog seal ground areas on asphalt concrete pavement.

04-15-16

Delete *materially* in the 1st paragraph of section 84-9.03D.

^^

DIVISION X ELECTRICAL WORK

Replace section 86 with:

04-15-16

86 GENERAL

04-15-16

86-1.01 GENERAL

86-1.01A Summary

Section 86 includes general specifications for furnishing electrical equipment and materials.

Electrical equipment and materials must comply with part 4 of the *California MUTCD* and 8 CA Code of Regs, chapter 4, subchapter 5, "Electrical Safety Orders."

Galvanized equipment and materials must comply with section 75-1.02B.

86-1.01B Definitions

accessible pedestrian signal: Accessible pedestrian signal as defined in the *California MUTCD*.

accessible walk indication: Activated audible and vibrotactile action during the walk interval.

actuation: Actuation as defined in the *California MUTCD*.

ambient sound level: Background sound level in dB at a given location.

ambient sound sensing microphone: Microphone that measures the ambient sound level in dB and automatically adjusts the accessible pedestrian signal speaker's volume.

audible speech walk message: Audible prerecorded message that communicates to pedestrians which street has the walk interval.

channel: Discrete information path.

CALiPER: Commercially Available LED Product Evaluation and Reporting. A U.S. Department of Energy program that individually tests and provides unbiased information on the performance of commercially available LED luminaires and lights.

controller assembly: Assembly for controlling a system's operations, consisting of a controller unit and auxiliary equipment housed in a waterproof cabinet.

controller unit: Part of the controller assembly performing the basic timing and logic functions.

correlated color temperature: Absolute temperature in kelvin of a blackbody whose chromaticity most nearly resembles that of the light source.

detector: Detector as defined in the *California MUTCD*.

electrolier: Assembly of a lighting standard and luminaire.

flasher: Device for opening and closing signal circuits at a repetitive rate.

flashing beacon control assembly: Assembly of switches, circuit breakers, terminal blocks, flasher, wiring, and other necessary electrical components housed in a single enclosure for operating a beacon.

house side lumens: Lumens from a luminaire directed to light up areas between the fixture and the pole, such as sidewalks at intersection or areas off the shoulders on freeways.

illuminance gradient: Ratio of the minimum illuminance on a 1-foot square of sign panel to that on an adjacent 1-foot square of sign panel.

inductive loop detector: Detector capable of being actuated by an inductance change caused by a vehicle passing or standing over the loop. An inductive loop detector includes a loop or group of loops installed in the roadway and a lead-in cable installed and connected inside a controller cabinet.

junction temperature: Temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

L70: Extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from the initial values.

lighting standard: Pole and mast arm supporting the luminaire.

LM-79: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing solid state lighting devices, including LED luminaires.

LM-80: Test method from the Illumination Engineering Society of North America specifying the test conditions, measurements, and report format for testing and estimating the long-term performance of LEDs for general lighting purposes.

luminaire: Assembly that houses the light source and controls the light emitted from the light source.

National Voluntary Laboratory Accreditation Program: U.S. Department of Energy program that accredits independent testing laboratories.

powder coating: Coating applied electrostatically using exterior-grade, UV-stable, polymer powder.

power factor: Ratio of the real power component to the complex power component.

pretimed controller assembly: Assembly operating traffic signals under a predetermined cycle length.

programming mechanism: Device to program the accessible pedestrian signal operation.

pull box: Box with a cover that is installed in an accessible place in a conduit run to facilitate the pulling in of wires or cables.

push button information message: Push button information message as defined in the *California MUTCD.*

push button locator tone: Push button locator tone as defined in the *California MUTCD*.

signal face: Signal face as defined in the *California MUTCD*.

signal head: Signal head as defined in the *California MUTCD*.

signal indication: Signal indication as defined in the *California MUTCD*.

signal section: Signal section as defined in the *California MUTCD*.

signal standard: Pole with or without mast arms carrying 1 or more signal faces.

street side lumens: Lumens from a luminaire directed to light up areas between the fixture and the roadway, such as traveled ways and freeway lanes.

surge protection device: Subsystem or component that protects equipment against short-duration voltage transients in power line.

total harmonic distortion: Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a complex waveform.

traffic-actuated controller assembly: Assembly for operating traffic signals under the varying demands of traffic as registered by detector actuation.

traffic phase: Traffic phase as defined in the *California MUTCD*.

vehicle: Vehicle as defined in the *California Vehicle Code*.

vibrotactile pedestrian device: Vibrotactile pedestrian device as defined in the *California MUTCD*.

86-1.01C Submittals

86-1.01C(1) General

Within 15 days after Contract approval, submit a list of equipment and materials you propose to install.

Submit the list before shipping equipment and materials to the job site. The list must include:

1. Manufacturer's name
2. Make and model number
3. Month and year of manufacture
4. Lot and serial numbers
5. Contract number
6. Your contact information

Submit confirmation of the vendor's acceptance of the order for the electrical equipment and materials as an informational submittal.

Submit 3 sets of computer-generated, schematic wiring diagrams for each cabinet.

Diagrams, plans, and drawings must be prepared using graphic symbols in IEEE 315, "Graphic Symbols for Electrical and Electronic Diagrams."

Submit a schedule of values within 15 days after Contract approval.

Do not include costs for the traffic control system in the schedule of values.

Submit a manufacturer's maintenance manual or combined maintenance and operation manual as an informational submittal. The manual must have a master item index that includes:

1. Specifications
2. Design characteristics
3. General operation theory
4. Function of all controls
5. Troubleshooting procedure
6. Parts list, descriptions, stock numbers, and settings
7. Block circuit diagram
8. Layout of components
9. Schematic diagrams

86-1.01C(2) Pull Boxes

Submit the manufacturer's installation instructions for pull boxes, including:

1. Quantity and size of entries that can be made without degrading the strength of the pull box below the load rating
2. Locations where side entries can be made
3. Acceptable method for creating the entry

Submit load-rating test reports for pull boxes from a NRTL.

86-1.01C(3) LED Luminaires

Submit for an LED luminaire:

1. Maximum power in watts
2. Maximum designed junction temperature
3. Heat sink area in square inches

4. Designed junction-to-ambient thermal resistance calculation with thermal resistance components clearly defined
5. L70 in hours when extrapolated for the average nighttime operating temperature
6. Life expectancy based on the junction temperature
7. Manufacturer's data sheet for the power supply, including the rated life

Submit the manufacturer's QC test data for LED luminaires as an informational submittal.

86-1.01C(4) Low-Pressure Sodium Luminaires

Submit the manufacturer's QC test data for low-pressure sodium luminaires as an informational submittal.

86-1.01C(5) Service Equipment Enclosures

Submit shop drawings for a service equipment enclosure to METS.

86-1.01C(6) Signal Heads

Submit a certificate of compliance and the manufacturer's QC test data for signal heads as an informational submittal.

86-1.01C(7) LED Signal Modules

Submit the manufacturer's QC test data for LED signal modules as an informational submittal.

86-1.01C(8) Visors

Submit a certificate of compliance and the manufacturer's QC test data for visors as an informational submittal.

86-1.01C(9) LED Countdown Pedestrian Signal Face Modules

Submit the manufacturer's QC test data for LED countdown pedestrian signal face modules as an informational submittal.

86-1.01C(10) Accessible Pedestrian Signals

Submit the manufacturer's QC test data for accessible pedestrian signals as an informational submittal.

86-1.01D Quality Assurance

86-1.01D(1) General

Electrical equipment must comply with one or more of the following standards:

1. ANSI
2. ASTM
3. EIA/ECIA
4. NEMA
5. NETA
6. UL/NRTL
7. TIA

Materials must comply with:

1. FCC rules
2. ITE standards
3. NEC
4. California Electrical Code

86-1.01D(2) Source Quality Control

Service equipment enclosures and cabinets must be inspected and tested at the source.

86-1.01D(3) Department Acceptance

Deliver material and equipment for testing to METS.

Allow 30 days for testing. The Department notifies you when testing is complete.

If the Department accepts the material or equipment, you must pick it up from the test site and deliver it to the job site.

If the Department rejects material or equipment, remove it within 5 business days after you are notified it is rejected. If it is not removed within that period, the Department may remove it and ship it to you and deduct the costs of labor, material and shipping.

Resubmit a new sample and allow 30 days for retesting. The retesting period starts when the replacement material or equipment is delivered to METS.

86-1.02 MATERIALS

86-1.02A General

Anchor bolts, anchor bars or studs, and nuts and washers must comply with section 75-1.02.

Bolt threads must accept galvanized standard nuts without requiring tools or causing removal of protective coatings.

86-1.02B Conduit and Accessories

86-1.02B(1) General

Conduit and fittings must comply with the requirements shown in the following table:

Conduit and Fitting Requirements

Type	Requirement
1	Must be hot-dip galvanized rigid steel complying with UL 6 and ANSI C80.1. The zinc coating must comply with copper sulfate test requirements in UL 6. Fittings must be electrogalvanized and certified under UL 514B.
2	Must comply with requirements for Type 1 conduit and be coated with PVC or polyethylene. The exterior thermoplastic coating must have a minimum thickness of 35 mils. The internal coating must have a minimum thickness of 2 mils. Coated conduit must comply with NEMA RN 1, or NRTL PVC-001.
3	Must be Type A, extruded, rigid PVC conduit complying with UL 651 or must be HDPE conduit complying with UL 651A.
4	Must have an inner, flexible metal core covered by a waterproof, nonmetallic, sunlight-resistant jacket, and must be UL listed for use as a grounding conductor. Fittings must be certified under UL 514B.
5	Must be intermediate steel complying with UL 1242 and ANSI C80.6. The zinc coating must comply with copper sulfate test requirements specified in UL 1242. Fittings must be electrogalvanized and certified under UL 514B.

Bonding bushings installed on metal conduit must be insulated and either a galvanized or zinc-alloy type.

86-1.02B(2) Structures Accessories

Steel hangers, steel brackets, and other fittings used to support conduit in or on a wall or bridge superstructure must comply with section 75-3.

Precast concrete cradles for conduit must be made of minor concrete and commercial-quality welded wire fabric. The minor concrete must contain a minimum of 590 lb of cementitious material per cubic yard. The cradles must be moist cured for a minimum of 3 days.

86-1.02C Pull Boxes

86-1.02C(1) General

Pull box cover must have a marking on the top that is:

1. Clearly defined
2. Uniform in depth
3. Parallel to either side
4. 1 to 3 inches in height

Cover marking must be:

1. *SERVICE* for service circuits between a service point and service disconnect
2. *SERVICE IRRIGATION* for circuits from a service equipment enclosure to an irrigation controller
3. SERVICE BOOSTER PUMP for circuits from a service equipment enclosure to the booster pump
4. *TDC POWER* for circuits from a service equipment enclosure to telephone demarcation cabinet
5. *LIGHTING* for a lighting system
6. *SIGN ILLUMINATION* for a sign illumination system
7. *SIGNAL AND LIGHTING* for a signal and lighting system
8. *RAMP METER* for a ramp metering system
9. *TMS* for a traffic monitoring station
10. *FLASHING BEACON* for a flashing beacon system
11. *CMS* for a changeable message sign system
12. *INTERCONNECT* for an interconnect conduit and cable system

The load rating must be stenciled on the inside and outside of the pull box and the cover.

If a transformer or other device must be placed in the pull box, include recesses for a hanger.

The hardware must be stainless steel with 18 percent chromium and 8 percent nickel content.

86-1.02C(2) Nontraffic Pull Boxes

A nontraffic pull box and cover must comply with ANSI/SCTE 77, "Specification for Underground Enclosure Integrity," for Tier 22 load rating and must be gray or brown.

Each new pull box must have a cover with an electronic marker cast inside.

A pull box extension must be made of the same material as the pull box. The extension may be another pull box if the bottom edge of the pull box fits into the opening for the cover.

The bolts, nuts, and washers must be a captive design and galvanized. Captive bolts for securing the cover of nontraffic pull boxes must be capable of withstanding a torque from 55 to 60 ft-lb and a minimum pull-out strength of 750 lb.

86-1.02C(3) Traffic Pull Boxes

A traffic pull box and cover must comply with ASTM C857 for HS20-44 loading.

The frame must be anchored to the box with 2-1/4-inch-long concrete anchors with a 1/4 inch diameter. A no. 3-1/2(T) pull box must have 4 concrete anchors, one placed in each corner. No. 5(T) and no. 6(T) pull boxes must have 6 concrete anchors, one placed in each corner and one near the middle of each of the longer sides.

Nuts must be vibration-resistant, zinc-plated, carbon steel and have a wedge ramp at the root of the thread.

Before galvanizing a steel or cast iron cover, the manufacturer must apply the cover marking by one of the following methods:

1. Use a cast iron strip at least 1/4 inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover with 1/4-inch, flathead, stainless steel machine bolts and nuts. Peen the bolts after tightening.
2. Use a sheet steel strip at least 0.027 inch thick with letters raised a minimum of 1/16 inch. Fasten the strip to the cover by spot welding, tack welding, or brazing with 1/4-inch stainless steel rivets or 1/4-inch, roundhead, stainless steel machine bolts and nuts. Peen the bolts after tightening.

The steel cover must be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the bolt head must be no more than 1/8 inch above the top of the cover.

86-1.02C(4) Reserved

86-1.02D Tapes

86-1.02D(1) General

Reserved

86-1.02D(2) Pull Tape

Pull tape must be a flat, woven, lubricated, soft-fiber, polyester tape with a minimum tensile strength of 1,800 lb. The tape must have sequential measurement markings every 3 feet.

86-1.02D(3) Reserved

86-1.02E Reserved

86-1.02F Conductors and Cables

86-1.02F(1) Conductors

86-1.02F(1)(a) General

Reserved

86-1.02F(1)(b) Reserved

86-1.02F(1)(c) Copper Conductors

86-1.02F(1)(c)(i) General

Copper wire must comply with ASTM B3 and B8.

Conductor must be clearly and permanently marked the entire length of its outer surface with:

1. Manufacturer's name or trademark
2. Insulation-type letter designation
3. Conductor size
4. Voltage
5. Temperature rating
6. Number of conductors for a cable

The minimum insulation thickness and color code requirements must comply with NEC.

A conductor must be UL listed or NRTL certified and rated for 600 V(ac).

Insulation for no. 14 to no. 4 conductors must be one of the following:

1. Type TW PVC under ASTM D2219
2. Type THW PVC
3. Type USE, RHH, or RHW cross-linked polyethylene

The insulation for no. 2 and larger conductors must be one of the above or THWN.

Conductors must be identified as shown in the following table:

Conductor Identification

Circuit	Signal phase or function	Identification			Size
		Insulation color[d]			
		Base	Stripe[a]	Band symbols	
Signals (vehicle)[a, b]	2, 6	Red, yel, brn	Blk	2, 6	14
	4, 8	Red, yel, brn	Ora	4, 8	14
	1, 5	Red, yel, brn	None	1, 5	14
	3, 7	Red, yel, brn	Pur	3, 7	14
	Ramp meter 1	Red, yel, brn	None	NBR	14
	Ramp meter 2	Red, yel, brn	Blk	NBR	14
Pedestrian signals	2p, 6p	Red, brn	Blk	2p, 6p	14
	4p, 8p	Red, brn	Ora	4p, 8p	14
	1p, 5p	Red, brn	None	1p, 5p	14
	3p, 7p	Red, brn	Pur	3p, 7p	14
Pedestrian push buttons	2p, 6p	Blu	Blk	P-2, P-6	14
	4p, 8p	Blu	Ora	P-4, P-8	14
	1p, 5p	Blu	None	P-1, P-5	14
	3p, 7p	Blu	Pur	P-3, P-7	14
Traffic signal controller cabinet	Ungrounded circuit conductor	Blk	None	CON-1	6
	Grounded circuit conductor	Wht	None	CON-2	6
Highway lighting pull box to luminaire	Ungrounded - line 1	Blk	None	NBR	14
	Ungrounded - line 2	Red	None	NBR	14
	Grounded	Wht	None	NBR	14
Multiple highway lighting	Ungrounded - line 1	Blk	None	ML1	10
	Ungrounded - line 2	Red	None	ML2	10
Lighting control	Ungrounded - PEU	Blk	None	C1	14
	Switching leg from PEU unit or SM transformer	Red	None	C2	14
Service	Ungrounded - line 1 (signals)	Blk	None	NBR	6
	Ungrounded - line 2 (lighting)	Red	None	NBR	8
Sign lighting	Ungrounded - line 1	Blk	None	SL-1	10
	Ungrounded - line 2	Red	None	SL-2	10
Flashing beacons	Ungrounded between flasher and beacons	Red or yel	None	F-Loc.[c]	14
Grounded circuit conductor	Pedestrian push buttons	Wht	Blk	NBR	14
	Signals and multiple lighting	Wht	None	NBR	10
	Flashing beacons and sign lighting	Wht	None	NBR	12
	Lighting control	Wht	None	C-3	14
	Service	Wht	None	NBR	14
Railroad preemption		Blk	None	R	14
Spares		Blk	None	NBR	14

NBR = No band required PEU=Photoelectric unit

[a]On overlaps, the insulation is striped for the 1st phase in the designation, e.g., phase (2+3) conductor is striped as for phase 2.

[b]Band for overlap and special phases as required

[c]Flashing beacons having separate service do not require banding.

[d]Color Code: Yel-Yellow, Brn-Brown, Blu-Blue, Blk-Black, Wht-White, Ora-Orange, Pur-Purple

The insulation color must be homogeneous throughout the full depth of the insulation. The identification stripe must be continuous throughout the length of the conductor.

86-1.02F(1)(c)(ii) Bonding Jumpers and Equipment Grounding Conductors

A bonding jumper must be copper wire or copper braid of the same cross-sectional area as a no. 8 conductor or larger.

An equipment grounding conductor may be bare or insulated.

86-1.02F(1)(c)(iii) Inductive Loop Conductors

Inductive loop conductor must comply with the requirements shown in the following table:

Conductor Requirements for Inductive Loop Detectors

Loop wire	Requirement
Type 1	Type RHW-USE neoprene-jacketed or Type USE cross-linked polyethylene, insulated, no. 12, stranded copper wire with a minimum 40-mils insulation thickness at any point.
Type 2	Type THWN or Type XHHW, no. 14, stranded copper wire in a plastic tubing. The plastic tubing must be polyethylene or vinyl rated for use at 105 °C and resistant to oil and gasoline. The outside diameter of the tubing must be at most 0.27 inch with a wall thickness of at least 0.028 inch.

86-1.02F(1)(d) Reserved

Reserved

86-1.02F(2) Cables

86-1.02F(2)(a) General

Reserved

86-1.02F(2)(b) Reserved

Reserved

86-1.02F(2)(c) Reserved

86-1.02F(2)(d) Copper Cables

86-1.02F(2)(d)(i) General

The conductor wire size for a detector lead-in cable must comply with the requirements of ASTM B286.

Cable, except a detector lead-in cable, must be clearly and permanently marked the entire length of its outer surface with:

1. Manufacturer's name or trademark
2. Insulation-type letter designation
3. Conductor size
4. Voltage
5. Temperature rating
6. Number of conductors for a cable

86-1.02F(2)(d)(ii) Conductors Signal Cables

A conductors signal cable must have a black polyethylene jacket with an inner polyester binder sheath. The cable jacket must be rated for 600 V(ac) and 75 degrees C. Filler material, if used, must be polyethylene.

The individual conductors in the cable must be solid copper complying with ASTM B286 with Type THWN insulation. The minimum thickness of insulation must comply with NEC for conductor sizes no. 14 to no.10. The minimum thickness of the nylon jacket must be 4 mils.

Cable must comply with the requirements shown in the following table:

Cable type[a]	Conductor quantity and type	Cable jacket thickness (mils)		Maximum nominal outside diameter (inch)	Conductor color code
		Average	Minimum		
3CSC	3 no. 14	44	36	0.40	Blue/black, blue/orange, white/black stripe
5CSC	5 no. 14	44	36	0.50	Red, yellow, brown, black, white
9CSC	8 no. 14 1 no. 12	60	48	0.65	No. 12 - white, no. 14 - red, yellow, brown, black, and red/black, yellow/black, brown/black, white/black stripe
12CSC	11 no. 14 1 no. 12	60	48	0.80	No. 12 - white, no. 14 - red, yellow, brown, red/black stripe, yellow/black stripe, brown/black stripe, black/red stripe, black/white stripe, black, red/white stripe, brown/white stripe
28CSC	27 no. 14 1 no. 10	80	64	0.90	No. 10 - white no. 14 - red/black stripe, yellow/black stripe, brown/black stripe, red/orange stripe, yellow/orange stripe, brown/orange stripe, red/silver stripe, yellow/silver stripe, brown/silver stripe, red/purple stripe, yellow/purple stripe, brown/purple stripe, red/2 black stripes, brown/2 black stripes, red/2 orange stripes, brown/2 orange stripes, red/2 silver stripes, brown/2 silver stripes, red/2 purple stripes, brown/2 purple stripes, blue/black stripe, blue/orange stripe, blue/silver stripe, blue/purple stripe, white/black stripe, black/red stripe, black

86-1.02F(2)(d)(iii) Detector Lead-in Cables

Conductors for a loop detector lead-in cable must be two no. 16, 19-by-29, stranded, tinned copper wires with calculated cross-sectional areas complying with ASTM B286, table 1 and must comply with the requirements shown in the following table:

Conductor Requirements for Loop Detector Lead-In Cables

Lead-in cable	Requirement
Type B	Insulated with 20 mils of high-density polyethylene. Conductors must be twisted together with at least 2 turns per foot, and the twisted pair must be protected with a copper or aluminum polyester shield. A minimum no. 20 copper drain wire must be connected to the equipment ground within the cabinet. Cable must have a high-density polyethylene or high-density polypropylene outer jacket with a nominal thickness of 32 mils. Include an amorphous, interior, moisture penetration barrier of nonhydroscopic polyethylene or polypropylene fillers.
Type C	Comply with International Municipal Signal Association Specification no. 50-2. A minimum no. 20 copper drain wire must be connected to the equipment ground within the cabinet.

86-1.02F(2)(d)(iv) Reserved

86-1.02F(2)(d)(v) Signal Interconnect Cables

A signal interconnect cable must be a 6-pair type with stranded, tinned, copper no. 20 conductors. The insulation for each conductor must be color-coded polypropylene with a minimum 13-mils nominal thickness. The conductors must be in color-coded, twisted pairs. Each pair must be wrapped with an aluminum polyester shield and have a no. 22 or larger, stranded, tinned, copper drain wire inside the shielded pair.

The cable jacket must be black HDPE rated for a minimum of 300 V(ac) and 60 degrees C. The jacket must have a minimum nominal wall thickness of 40 mils.

86-1.02F(2)(e) Reserved

86-1.02G Equipment Identification Characters

Equipment identification characters must be 2-1/2 inch, series D lettering, except on wood poles, they must be 3-inch lettering.

The characters must be self-adhesive reflective labels or paint, except on wood poles, they must be embossed on aluminum.

86-1.02H Splicing Materials

Splicing materials include:

1. Connectors
2. Electrical insulating coating
3. PVC electrical tape
4. Butyl rubber stretchable tape
5. PVC pressure-sensitive adhesive tape
6. Heat shrink tubing

Connectors must be C-shaped compression or butt type.

Electrical insulating coating must be a fast drying sealant with low nontoxic fumes.

PVC electrical tape must have a minimum thickness of 80 mils.

Butyl rubber stretchable tape with liner must have a minimum thickness of 120 mils.

PVC pressure-sensitive adhesive electrical tape must have a minimum thickness of 6 mils.

Electrical tapes must be self-fusing, oil- and flame-resistant, synthetic rubber and be UL listed or NRTL certified.

Heat-shrink tubing must be made of irradiated polyolefin tubing with a minimum wall thickness of 40 mils before contraction and an adhesive mastic inner wall. When heated, the inner wall must melt and fill the crevices and interstices of the covered splice area and the outer wall must shrink to form a waterproof insulation.

Heat-shrink tubing must comply with the requirements for extruded, insulating tubing at 600 V(ac) specified in UL Standard 468D and ANSI C119.1 and the requirements shown in the following table:

Heat-Shrink Tubing Requirements

Quality characteristic	Requirement
Shrinkage ratio of supplied diameter[a] (max, %)	33
Dielectric strength (min, kV/in) Resistivity (min, Ω/in)	350 25×10^{13}
Tensile strength (min, psi)	2,000
Operating temperature (°C)	-40–90 (135 °C in emergency)
Water absorption (max, %)	0.5

[a]When heated to 125 °C and allowed to cool to 25 °C

86-1.02I Connectors and Terminals

A connector and terminal must comply with SAE-AS7928 and be a crimp type, rated for 600 V(ac) and either UL listed or NRTL certified.

86-1.02J Standards, Poles, Pedestals, and Posts

Standards for signals, lighting, and flashing beacons, poles for closed circuit television, pedestals for cabinets, posts for extinguishable message sign and posts for pedestrian push button assemblies must comply with section 56-3.

86-1.02K Luminaires

86-1.02K(1) General

Luminaire must be either LED or low-pressure-sodium type.

86-1.02K(2) LED Luminaires

LED luminaire must be on the Authorized Material List for LED luminaires and must:

1. Be self-contained, not requiring assembly.
2. Comply with UL 1598 for luminaires in wet locations.
3. Have a power supply with:
   3.1. ANSI/IEC rating of at least IP65.
   3.2. 2 leads to accept standard 0-10 V(dc).
   3.3. Dimming control compatible with IEC 60929, Annex E. If the control leads are open or the analog control signal is lost, the circuit must default to 100-percent power.
   3.4. Case temperature self rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.
4. Weigh no more than 35 lb.
5. Have a minimum operating life of 63,000 hours when operated for an average time of 11.5 hours at an average temperature of 70 degrees F.
6. Be designed to operate over a temperature range from -40 to 130 degrees F.
7. Be operationally compatible with photoelectric controls.
8. Have a correlated color temperature range from 3,500 to 6,500 K and a color rendering index of 65 or greater.
9. Have a maximum-effective projected area of 1.4 sq ft when viewed from either side or end.
10. Have a housing color that matches a color no. 26152 to 26440, 36231 to 36375, or 36440 of FED-STD-595.
11. Have an ANSI C136.41-compliant, locking-type, photocontrol receptacle with dimming connections and a watertight shorting cap.
12. Comply with LM-79, LM-80 and California Test 611.

The individual LEDs must be connected such that a catastrophic loss or a failure of 1 LED does not result in the loss of more than 20 percent of the luminous output of the luminaire.

The luminaire must be permanently marked inside the unit and outside of its packaging box. Marking consists of:

1. Manufacturer's name or trademark

2. Month and year of manufacture
3. Model, serial, and lot numbers
4. Rated voltage, wattage, and power in VA

An LED luminaire's onboard circuitry must include a surge protection device to withstand high-repetition noise transients caused by utility line switching, nearby lightning strikes, and other interferences. The device must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and 4 of ANSI/IEEE C64.41.2 for location category C-High. The surge protection device must comply with UL 1449 and ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High.

An LED luminaire and its associated onboard circuitry must comply with the Class A emission limits under 47 CFR 15(B) for the emission of electronic noise.

The fluctuations of line voltage must have no visible effect on the luminous output.

The operating voltage may range from 120 to 480 V(ac), 60 ± 3 Hz. Luminaire must operate over the entire voltage range or the voltage range must be selected from one of the following:

1. Luminaire must operate over a voltage range from 95 to 277 V(ac). The operating voltages for this option are 120 V(ac) and 240 V(ac).
2. Luminaire must operate over a voltage range from 347 to 480 V(ac). The operating voltage for this option is 480 V(ac).

LED luminaire must have a power factor of 0.90 or greater. The total harmonic distortion, current, and voltage induced into a power line by a luminaire must not exceed 20 percent. The L70 of the luminaire must be the minimum operating life or greater. Illuminance measurements must be calibrated to standard photopic calibrations.

The maximum power consumption and maintained illuminance of the LED luminaires must comply with the isofootcandle curves as shown.

LED luminaire must not allow more than 10 percent of the rated lumens to project above 80 degrees from vertical and 2.5 percent of the rated lumens to project above 90 degrees from vertical.

Luminaire must have passive thermal management with enough capacity to ensure proper heat dissipation and functioning of the luminaire over its minimum operating life. The maximum junction temperature for the minimum operating life must not exceed 221 degrees F.

The junction-to-ambient thermal resistance must be 95 degrees F per watt or less. The use of fans or other mechanical devices is not allowed for cooling the luminaire. The heat sink must be made of aluminum or other material of equal or lower thermal resistance. The luminaire must contain circuitry that automatically reduces the power to the LEDs so the maximum junction temperature is not exceeded when the ambient temperature is 100 degrees F or greater.

The luminaire's housing must be fabricated from materials designed to withstand a 3,000-hour salt spray test under ASTM B117. All aluminum used in housings and brackets must be made of a marine-grade alloy with less than 0.2 percent copper. All exposed aluminum must be anodized. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

The housing must be designed to prevent the buildup of water on its top surface. Exposed heat sink fins must be oriented to allow water to run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an UL 60529 rating of IP66. The power supply enclosure must be protected to at least an UL 60529 rating of IP43.

The housing must have a slip fitter capable of being mounted on a 2-inch-diameter pipe tenon. Slip fitter must:

1. Fit on mast arms with outside diameters from 1-5/8 to 2-3/8 inches
2. Be adjustable to a minimum of ±5 degrees from the axis of the tenon in a minimum of 5 steps: +5, +2.5, 0, -2.5, -5
3. Have clamping brackets that:

3.1. Are made of corrosion-resistant materials or treated to prevent galvanic reactions
3.2. Do not bottom out on the housing bosses when adjusted within the designed angular range
3.3. Do not permanently set in excess of 1/32 inch when tightened

Each refractor or lens must be made of UV-inhibiting high-impact plastic, such as acrylic or polycarbonate, or heat- and impact-resistant glass. The refractor or lens must be resistant to scratching. Polymeric materials, except for the lenses of enclosures containing either the power supply or electronic components of the luminaire, must be made of UL94 V-0 flame-retardant materials.

An LED luminaire and its internal components must be able to withstand mechanical shock and vibration.

If the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire's housing separately from the refractor or flat lens frame. The door must be secured to the housing to prevent accidental opening. A safety cable must mechanically connect the door to the housing.

An LED luminaire must have a barrier-type terminal block secured to the housing to connect field wires. The terminal screws must be captive and equipped with wire grips for conductors up to no. 6.

The conductors and terminals must be identified and marked.

86-1.02K(3) Low-Pressure Sodium Luminaires

A low-pressure sodium luminaire must be an enclosed cutoff or semi-cutoff type and be self-contained, not requiring assembly.

The housing must be either (1) a minimum 1/16-inch-thick, corrosion-resistant, die-cast aluminum sheet and plate with concealed continuous welds or (2) a minimum 3/32-inch-thick, acrylonitrile-butadiene-styrene sheet material on a cast aluminum frame. The housing must provide mounting for all electrical components and a slip fitter. The housing must be divided into optical and power compartments that are individually accessible for service and maintenance.

The painted exterior surface of the luminaire must be finished with a fused coating of electrostatically applied polyester powder paint or other UV-inhibiting film. The color must be aluminum gray.

A sealing ring must be installed in the pipe tenon opening to prevent the entry of water and insects into the power and optical compartments. The ring must be made of high-temperature neoprene or equal material.

The power unit assembly must be accessible through a weather-tight, hinged cover secured to the housing with spring latches or captive screws.

The luminaire's hardware must be stainless steel or cadmium plated. Removable components must be secured with machine screws or bolts instead of sheet metal screws.

A semi-cutoff luminaire or a molded refractor-style cutoff luminaire must include a refractor. Other cutoff luminaires must include a flat lens. The refractor assembly and flat lens assembly must be designed to rigidly maintain their shape and be hinged and secured to the housing with spring latches.

The refractor must be either a 1-piece injection-molded polycarbonate with a minimum thickness of 3/32 inch or a 1-piece injection-molded acrylic with a minimum thickness of 1/8 inch. Alternate methods of manufacturing the refractor may be authorized provided minimum specified thicknesses are maintained.

The flat lens must be a 1-piece polycarbonate with a minimum thickness of 3/32 inch, mounted to a metal frame.

The lamp socket must be made of high-temperature, flame-retardant, thermoset material with self-wiping contacts or an equal. The socket must be rated for 660 W and 1,000 V(ac). The position of the socket and support must maintain the lamp in the correct relationship with the reflector and refractor for the designed light distribution pattern. The reflector may be an integral part of the housing.

The luminaire must comply with the isofootcandle curves as shown.

Low-pressure sodium lamp must:

1. Be a 180 W, single-ended, bayonet-base, tubular, gas-discharge lamp

2. Maintain a minimum of 93 percent of its initial lumens over its rated life
3. Reach 80 percent of its light output within 10 minutes
4. Restrike within 1 minute after a power outage or voltage drop at the lamp socket
5. Have ANSI L74/E designation

The lamp operating position must be at ±20 degrees from the horizontal.

Lamp must comply with the minimum performance requirements shown in the following table:

Minimum Performance Requirements

Quality characteristic	Requirement
Initial lumens (lm)	33,000
Rated average life at 10 h/start (h)	18,000

The low-pressure sodium lamp ballast must be an autotransformer or high-reactance type. The power factor must be not less than 90 percent when the ballast is operated at the nominal line voltage with a nominally-rated reference lamp. The lamp wattage regulation spread must not vary by more than ±6 percent for ±10 percent input voltage variation from nominal through life.

At the line voltage, the ballast must have a lamp current crest factor not exceeding 1.8 and ballast loss not exceeding 24 percent for a 180 W ballast.

The ballast must include a multi-circuit connector for quick disconnection.

86-1.02K(4) Reserved

86-1.02L Reserved

86-1.02M Photoelectric Controls

Photoelectric control types are as shown in the following table:

Photoelectric Control Types

Control type	Description
I	Pole-mounted photoelectric unit. Test switch housed in an enclosure.
II	Pole-mounted photoelectric unit. Contactor and test switch located in a service equipment enclosure.
III	Pole-mounted photoelectric unit. Contactor and a test switch housed in an enclosure.
IV	A photoelectric unit that plugs into a NEMA twist-lock receptacle, integral with the luminaire.
V	A photoelectric unit, contactor, and test switch located in a service equipment enclosure.

The pole-mounted adaptor for Type I, II, and III photoelectric controls must include a terminal block and cable supports or clamps to support the wires.

The enclosure for Type I and III photoelectric controls must be a NEMA 3R type. The enclosure must have a factory-applied, rust-resistant prime coat and finish coat. The enclosure must be hot-dip galvanized or painted to match the color of the lighting standard.

Photoelectric unit must:

1. Have a screen to prevent artificial light from causing cycling.
2. Have a rating of 60 Hz, 105-130 V(ac), 210-240 V(ac), or 105-240 V(ac).
3. Operate at a temperature range from -20 to 55 degrees C.
4. Consume less than 10 W.
5. Be a 3-prong, twist-lock type with a NEMA IP 65 rating, ANSI C136.10-compliant
6. Have a fail-on state
7. Fit into a NEMA-type receptacle
8. Turn on from 1 to 5 footcandles and turn off from 1.5 to 5 times the turn-on level. Measurements must be made by procedures in *EEI-NEMA Standards for Physical and Electrical Interchangeability of Light-Sensitive Control Devices Used in the Control of Roadway Lighting.*

Type I, II, III, and V photoelectric controls must have a test switch to allow manual operation of the lighting circuit. Switch must be:

1. Single-hole mounting, toggle type
2. Single pole and single throw
3. Labeled *Auto-Test* on a nameplate

Photoelectric control's contactor must be:

1. Normally open
2. Mechanical-armature type with contacts of fine silver, silver alloy, or equal or better material
3. Installed to provide a minimum space of 2-1/2 inches between the contactor terminals and the enclosure's sides

The terminal blocks must be rated at 25 A, 600 V(ac), molded from phenolic or nylon material, and be the barrier type with plated-brass screw terminals and integral marking strips.

86-1.02N Fused Splice Connectors

The fused splice connector for 240 and 480 V(ac) circuits must simultaneously disconnect both ungrounded conductors. The connector must not have exposed metal parts except for the head of the stainless steel assembly screw. The head of the assembly screw must be recessed a minimum of 1/32 inch below the top of the plastic boss that surrounds the head.

The connector must protect the fuse from water or weather damage. Contact between the fuse and fuse holder must be spring loaded.

Fuses must:

1. Be standard, midget, ferrule type
2. Have a nontime-delay feature
3. Be 3/32 by 1-1/2 inches

86-1.02O Grounding Electrodes

Grounding electrode must be:

1. 1 piece
2. Minimum 10-foot length of one of the following:
   2.1. Galvanized steel rod or pipe not less than 3/4 inch in diameter
   2.2. Copper clad steel rod not less than 5/8 inch in diameter

86-1.02P Enclosures

86-1.02P(1) General

The enclosures must be rated NEMA 3R and include a dead front panel and a hasp with a 7/16-inch-diameter hole for a padlock.

The enclosure's machine screws and bolts must not protrude outside the cabinet wall.

The fasteners on the exterior of an enclosure must be vandal resistant and not be removable. The exterior screws, nuts, bolts, and washers must be stainless steel.

86-1.02P(2) Service Equipment Enclosures

A service equipment enclosure must be factory wired and manufactured from steel and galvanized or have factory-applied, rust-resistant prime and finish coats, except Types II and III.

Type II and III service equipment enclosures must:

1. Be made of 0.125-inch minimum thickness 5052-H32 aluminum sheet complying with ASTM B209.
2. Be manufactured using gas metal arc welding with bare aluminum welding electrodes. The electrodes must comply with AWS A5.10 Class ER5356.

3. Be manufactured using welding procedures, welders, and welding operators that comply with the requirements for welding procedures, welders, and welding operators in in AWS B2.1, "Specification for Welding Procedure and Performance Qualification."
4. Have full-seal weld exterior seams.
5. Exterior welds must be ground smooth and edges filed to a radius of at least 0.03 inch.
6. Have a surface finish that complies with MIL-A-8625 for a Type II, Class I coating, except the anodic coating must have a minimum thickness of 0.0007 inch and a minimum coating weight of 0.001 oz/sq in.

If a Type III enclosure houses a transformer of more than 1 kVA, the enclosure must have effective screened ventilation louvers of no less than 50 sq. in for each louver. The framed screen must be stainless no. 304 with a no. 10 size mesh and secured with at least 4 bolts.

The dead front panel on a Type III service equipment enclosure must have a continuous stainless steel or aluminum piano hinge. The panel must be secured with a latch or captive screws. No live part must be mounted on the panel.

The enclosure must be watertight and marked as specified in NEC to warn of potential electric-arc flash hazards.

Internal conductors for the photoelectric control unit must be 600 V(ac), 14 AWG (THHN) stranded machine tool wire. Where subject to flexing, 19 stranded wire must be used.

The meter area must be have a sealable, lockable, weather-tight cover that can be removed without the use of tools.

For Type III-A, III-B, and III-C enclosures, the meter socket must be a 5-clip type, and the landing lug must be suitable for multiple conductors.

For a Type III-D enclosure, the meter socket must be a 7-clip type, and the landing lug must be suitable for multiple conductors. The pedestal must comply with the Electric Utility Service Equipment Requirements Committee drawing no. 308 or 309.

Landing lugs must be (1) sized for the incoming service utility conductors, (2) compatible with either copper or aluminum conductors, and (3) made of copper or tin-plated aluminum. Live parts of the electrical equipment must be guarded against accidental contact.

The main and neutral busses of the enclosure must be made of tin-plated copper, be rated for 125 A, and be suitable for copper or aluminum conductors.

Each service equipment enclosure must have up to 2 main circuit breakers that will simultaneously disconnect ungrounded service-entrance conductors.

Circuit breaker for a service equipment enclosure must:

1. Be quick-break on either automatic or manual operation
2. Be trip indicating
3. Be internal-trip type
4. Be UL listed or NRTL certified and comply with UL 489 or equal
5. Be clearly marked with the frame size
6. Have an operating mechanism that is enclosed and trip-free from the operating handle on overload
7. Have the trip rating clearly marked on the operating handle
8. Have an interior made of copper

Circuit breakers used as disconnects must have a minimum interrupting capacity of 10,000 A, rms.

The interior of the enclosure must accept plug-in circuit breakers. A minimum of 6 standard single-pole circuit breakers, 3/4" nominal, must be provided for branch circuits.

Identify each circuit breaker and component by description using an engraved phenolic nameplate attached with stainless steel rivets or screws.

Nameplate must be installed:

1. Adjacent to the breaker on the dead front panel. The characters must be a minimum of 1/8 inch high.
2. Adjacent to the component on the back panel. The characters must be a minimum of 1/8 inch high.
3. At the top exterior of the door panel. The nameplate must include the system number, voltage, and number of phases engraved in minimum 3/16-inch-high characters.

A plastic-laminated wiring diagram must be attached inside the enclosure with brass eyelets by a UL-listed or NRTL-certified method.

86-1.02P(3) Lighting and Sign Illumination Enclosures

A lighting and sign illumination enclosure must be manufactured from steel and either galvanized, cadmium plated, or powder coated.

86-1.02Q Cabinets

86-1.02Q(1) General

Cabinets must be factory wired except for battery backup system cabinets.

The fasteners on the exterior of a cabinet, except for battery backup system cabinets, must be removable and vandal resistant. The exterior screws, nuts, bolts, and washers must be stainless steel.

Terminal blocks, circuit breakers, and a power supply must be UL approved.

86-1.02Q(2) Department-Furnished Controller Cabinets

A Department-furnished controller assembly consists of a Model 170E or 2070E controller unit, a wired controller cabinet, and all auxiliary equipment required to operate the system. The Department does not furnish anchor bolts.

86-1.02Q(3) Controller Cabinets

The controller cabinet must be a Model 334L, comply with TEES, and be on the Authorized Material List for traffic signal control equipment. The cabinet must have 3 drawer shelves. Each shelf must be attached to the tops of 2 supporting angles with 4 screws.

86-1.02Q(4) Telephone Demarcation Cabinets

86-1.02Q(4)(a) General

The doors of a telephone demarcation cabinet must be attached using continuous stainless steel piano hinges.

86-1.02Q(4)(b) Type A Telephone Demarcation Cabinets

Reserved

86-1.02Q(4)(c) Type B Telephone Demarcation Cabinets

A Type B telephone demarcation cabinet consists of a mounting panel, outlets, circuit breaker, fan, dead front plates, and fuse.

The mounting panel must be made of 3/4-inch-thick ACX-grade plywood.

The mounting panel must be fastened to the cabinet with nuts, lock washers, and flat washers to 10 welded studs.

The cabinet must be made of 0.125-inch-thick anodized aluminum.

The cabinet door must be hung and secured with drawn latches, lockable with a padlock. The padlock latches must each have a minimum 7/16-inch-diameter hole.

Ventilation louvers must be located on the door.

The fan must be located in a ventilator housing and be controlled thermostatically. The thermostat control must have a range from 80 to 130 degrees F.

The thermostat and fan circuit must be protected with a fuse rated for 175 percent of the motor capacity. The fan capacity must be a minimum 25 cfm.

86-1.02Q(4)(d) Type C Telephone Demarcation Cabinets

Reserved

86-1.02Q(5) Battery Backup System Cabinets

The cabinet for a battery backup system must comply with TEES and be on the Authorized Material List for traffic signal control equipment.

86-1.02R Signal Heads

86-1.02R(1) General

A signal head consists of a signal mounting assembly, backplate, and signal face.

The head must have a terminal block attached to the back of one housing. The terminal block must have enough positions to accommodate all indications. Each position must be permanently labeled for the indications used.

The metal signal heads must not fracture or deflect more than half the lens diameter when tested under California Test 666.

The plastic signal heads must not fracture or deflect when tested under California Test 605.

The deflection must not be more than 10 degrees in either the vertical or horizontal plane after the wind load has been removed from the front of the signal face or more than 6 degrees in either the vertical or horizontal plane after the wind load has been removed from the back of the signal face.

86-1.02R(2) Signal Mounting Assemblies

Signal mounting assembly must include:

1. 1-1/2-inch-diameter steel pipe or galvanized conduit
2. Pipe fitting made of ductile iron, galvanized steel, bronze, or aluminum alloy, Type AC-84B, no. 380
3. Mast arm and post-top slip fitters and terminal compartments made of cast bronze or hot-dip galvanized ductile iron

The horizontal distance between the vertical centerlines of the terminal compartment or slip fitter and of each signal face must not exceed 11 inches except where required for proper signal face alignment or to allow programming of programmed visibility signal sections.

The mounting assembly must be watertight and free of sharp edges or protrusions that might damage conductor insulation. The assembly must have positive-locking serrated fittings that prevent signal faces from rotating when the fittings are mated with similar fittings on the faces.

Each terminal compartment must be fitted with a terminal block having a minimum of 12 positions, each with 2 screw-type terminals. Each terminal must accommodate at least five no. 14 conductors. The terminal compartment must have a cover for easy access to the terminal block.

86-1.02R(3) Backplates

The backplate material must be a homogeneous black color with a lusterless finish.

A metal backplate must be made of a minimum 1/16-inch-thick 3001-14 aluminum.

A plastic backplate must have a minimum thickness of 1/16 inch and be formed from sheet plastic or assembled from extruded, molded, or cast plastic sections. Sections must be factory joined using one of the following:

1. Appropriate solvent cement.
2. Aluminum rivets and washers painted or permanently colored to match the backplate.
3. No. 10 machine screws with flat washers, lock washers, and nuts painted to match the backplate.

Each plastic backplate must be secured to the plastic signal face such that it resists removal or permanent deformation.

86-1.02R(4) Signal Faces

Signal face consists of signal sections with signal housings, LED modules, and visors.

Signal face must:

1. Be adjustable and allow for 360-degree rotation about the vertical axis
2. Comply with ITE publications ST-052-E, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST-054, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement*
3. Be sealed with a neoprene gasket at the top opening

A metal signal face must have a metal backplate and visor.

A plastic signal face must have a plastic backplate and visor.

If a signal face is supported by a Type MAS slip fitter, spacers are required between the 2 sections. The spacers must be made of the same material as the housing. The vertical dimension of the spacers must allow proper seating of the serrations between the slip fitter and the 2 sections. The 2 sections must be joined with at least two no. 10 minimum machine screws through holes near the front of the housing and the spacers and matching holes in a reinforcing plate installed in the housing.

86-1.02R(4)(a) Signal Sections

86-1.02R(4)(a)(i) General

Signal section must have:

1 Opening at the top and bottom for a 1-1/2-inch pipe
2. Maximum height of 10-1/4 inches for an 8-inch section and 14-3/4 inches for a 12-inch section
3. Hinge pins, door-latching devices, and other exposed hardware manufactured of Type 304/304L or 305 stainless steel
4. Interior screws and fittings manufactured of stainless steel or steel with a corrosion-resistant plating or coating
5. Gaskets made of a material that is not degraded if installed in a section with metal or plastic housing

Sections must be capable of being joined together to form a signal face in any combination. This interchangeability is not required between metal and plastic sections.

Each section must be joined to an adjacent section by one of the following:

1. Minimum of 3 machine screws for 8-inch sections and 4 machine screws for 12-inch sections, installed through holes near the front and back of the housing. Each screw must be a no. 10 and have a nut, flat washer, and lock washer.
2. 2 machine screws, each with a nut, flat washer, and lock washer, installed through holes near the front of the housing and a fastener through the 1-1/2-inch pipe opening. The fastener must have 2 large, flat washers to distribute the load around the pipe's opening and 3 carriage bolts, each with a nut and lock washer. The minimum screw size must be no. 10, and the carriage bolt size must be 1/4 inch.

The holes for the machine screws must be either cast or drilled during signal section fabrication. Each hole must be surrounded by a minimum 1/8-inch-wide boss to allow contact between signal sections about the axis of the hole.

A serrated nylon washer must be inserted between each plastic signal section and the metal mounting assembly. Each serrated nylon washer must be from 3/16 to 1/4 inch thick. The serrations must match those on the signal section and the mounting assembly.

86-1.02R(4)(a)(ii) Programmed Visibility Signal Sections

Programmed visibility signal section must have:

1. Nominal 12-inch-diameter circular or arrow indication
2. Cap visor
3. Adjustable connection that:
   3.1. Provides incremental tilting from 0 to 10 degrees above or below the horizontal
   3.2. Maintains a common vertical axis through couplers and mountings

The terminal connection must allow external adjustment about the mounting axis in 5-degree increments.

The visibility of each signal section must be capable of adjustment or programming within the section.

The adjustment for the section must be preset at 4 degrees below the horizontal.

86-1.02R(4)(a)(iii) Signal Housings

The signal housing must:

1. Be die-cast aluminum, permanent mold-cast aluminum, or if specified, structural plastic
2. Comply with ITE publications ST-052-E, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST-054, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement* if made of die-cast or permanent mold-cast aluminum
3. Have a 1-piece, hinged, square-shaped door that is:
   3.1. Designed to allow access for replacement of modules without the use of tools
   3.2. Secured such that it remains closed during loading tests
4. Have a watertight module or lens mounted in the door
5. Have a terminal block attached to the back, with the terminals permanently labeled for conductors to facilitate field wiring

Each housing must have reinforcement plates. Reinforcement plates must be either sheet aluminum, galvanized steel, or cast aluminum. Each plate must have a minimum thickness of 0.11 inch and a hole concentric with a 1-1/2-inch pipe-mounting hole in the housing. Reinforcement plates must be placed as specified in the following table:

Reinforcement Plate Placement

Material	Placement
Sheet aluminum	Inside and outside of housing
Galvanized steel	Inside of housing
Cast aluminum	Outside of housing

Reinforcement plates placed outside of the housing must be finished to match the signal housing color and be designed to allow a proper serrated coupling between the signal face and the mounting hardware. A minimum of three no. 10 machine screws must be installed through holes in each plate and matching holes in the housing. Each screw must have a round or binder head, a nut, and a lock washer.

A metal housing must have a metal visor.

Plastic housing must:

1. Be molded in a single piece or fabricated from 2 or more pieces joined into a single piece
2. Be a black color throughout, including the door, matching color no. 17038, 27038, or 37038 of FED-STD-595
3. Have UV stability
4. Be self-extinguishing

If reinforcing webs are used to connect the back of the housing to the top, bottom, and sides of the adjacent housing, reinforcement plates are not required.

The exterior of the housing must be painted as specified in sections 78-4.08 and 59.

86-1.02R(4)(b) LED Signal Modules

An LED signal module must be on the Authorized Material List for LED traffic signal modules.

An LED signal module must comply with ITE publications ST-052-E, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST-054, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement*, except:

1. Maximum module weight must be 4 lb
2. Module must be a sealed unit with:

2.1. 2 color-coded conductors for the power connection except lane control modules must use 3 color-coded conductors
2.2. Printed circuit board that complies with TEES, chapter 1, section 6
2.3. Lens that is:
2.3.1. Convex or flat with a smooth outer surface
2.3.2. Made of UV-stabilized plastic or glass
2.4. 1-piece EPDM gasket
3. Module must include 3-foot-long conductors with attached quick-disconnect terminals
4. Identification must include:
4.1. Month and year of manufacture
4.2. 1-inch-diameter symbol of the module type with the module color written adjacent to the symbol in 0.50-inch-high letters
5 LED must be the ultra-bright type rated for 100,000 hours of continuous operation
6. Module must have an integral power supply

Individual LEDs must be wired such that a loss or failure of 1 LED will not result in a loss of more than 5 percent of the module's light output. Failure of an individual LED in a string must not result in a loss of an entire string or other indication.

The symbol for a 12-inch U-turn section must be a 15/16-inch-wide inverted *U* with an arrow on the left end.

A lane control section must be a combination module with a red *X* and green arrow. The conductor function and color code must be as shown in the following table:

Conductor Function and Color Code

Function	Color
Neutral	White
Red *X*	Red
Green arrow	Brown

The minimum power consumption for an LED signal module must be 5 W.

The maximum power consumption for an LED signal module must be as shown in the following table:

Maximum Power Consumption

LED signal module type	Power consumption (W)					
	Red		Yellow		Green	
	25 °C	74 °C	25 °C	74 °C	25 °C	74 °C
8-inch circular	8	13	13	16	12	12
12-inch circular	11	17	22	25	15	15
12-inch arrow	9	12	10	12	11	11
12-inch U-turn	9	12	10	12	11	11
Bicycle	11	17	22	25	15	15
Programmed visibility	11	17	22	25	15	15
Lane control (*X*)	9	12	--	--	--	--
Lane control (*Arrow*)	--	--	--	--	11	11

Red and green LED signal modules operating over a temperature range from -40 to 74 degrees C and yellow LED signal modules operating at 25 degrees C must maintain the minimum illumination values for 48 months as shown in the following tables:

Minimum Maintained Intensities for Circular Indications

Angle (v,h)	Intensities (cd)					
	8-inch			12-inch		
	Red	Yellow	Green	Red	Yellow	Green
2.5, ±2.5	133	267	267	339	678	678
2.5, ±7.5	97	194	194	251	501	501
2.5, ±12.5	57	113	113	141	283	283
2.5, ±17.5	25	48	48	77	154	154
7.5, ±2.5	101	202	202	226	452	452
7.5, ±7.5	89	178	178	202	404	404
7.5, ±12.5	65	129	129	145	291	291
7.5, ±17.5	41	81	81	89	178	178
7.5, ±22.5	18	37	37	38	77	77
7.5, ±27.5	10	20	20	16	32	32
12.5, ±2.5	37	73	73	50	101	101
12.5, ±7.5	32	65	65	48	97	97
12.5, ±12.5	28	57	57	44	89	89
12.5, ±17.5	20	41	41	34	69	69
12.5, ±22.5	12	25	25	22	44	44
12.5, ±27.5	9	16	16	16	32	32
17.5, ±2.5	16	32	32	22	44	44
17.5, ±7.5	14	28	28	22	44	44
17.5, ±12.5	10	20	20	22	44	44
17.5, ±17.5	9	16	16	22	44	44
17.5, ±22.5	6	12	12	20	41	41
17.5, ±27.5	4	9	9	16	32	32

Minimum Maintained Luminance for Indications

Indication type	Luminance (fL)		
	Red	Yellow	Green
Arrow	1,610	3,210	3,210
U-turn	1,610	3,210	3,210
Bicycle	1,610	1,610	1,610
Lane control (*X*)	1,610	--	--
Lane control (*Arrow*)	--	--	1,610

Minimum Maintained Luminance for Programmed Visibility Indications

Indication type	Luminance (cd)		
	Red	Yellow	Green
PV at angle v=2.5, h=±2.5	314	314	314

Conductors must be prewired to the terminal block.

86-1.02R(4)(c) Visors and Directional Louvers

The visor must be a tunnel type.

The visor must have a downward tilt from 3 to 7 degrees with a minimum length of 9-1/2 inches for nominal 12-inch round lenses and 7 inches for nominal 8-inch round lenses.

A metal visor must be formed from minimum 0.050-inch-thick aluminum alloy sheet.

A plastic visor must be either formed from sheet plastic or blow-molded. The plastic must be a black homogeneous color with a lusterless finish. A visor must withstand a wind load applied to its side for 24

hours without permanent deformation or removal from its door when tested under California Test 605 for plastic visors and California Test 666 for metal visors.

If directional louvers are used, the louvers must fit into full-circular signal visors. Louvers must consist of one of the following:

1. Outside cylinder constructed of sheet steel with a minimum nominal thickness of 0.030 inch and vanes constructed of sheet steel with a minimum nominal thickness of 0.016 inch.
2. Outside cylinder and vanes constructed of 5052-H32 aluminum alloy of equal thickness.

86-1.02S Pedestrian Signal Heads

86-1.02S(1) General

A pedestrian signal head consists of a pedestrian signal mounting assembly and a pedestrian signal face comprising of a pedestrian signal housing, an LED countdown pedestrian signal face module, and a front screen.

86-1.02S(2) Pedestrian Signal Mounting Assemblies

A pedestrian signal mounting assembly must comply with the specifications for a signal mounting assembly in section 86-1.02R, except mast arm slip fitters are not required.

86-1.02S(3) Pedestrian Signal Faces

86-1.02S(3)(a) General

Each pedestrian signal face must include a light-duty terminal block rated at 5 A and have 12 positions with no. 6-by-1/8-inch binder head screws. Each position must have 1 screw-type terminal.

The wiring and terminal block must comply with ITE publication ST-055-E*, Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules*.

86-1.02S(3)(b) Pedestrian Signal Housings

Pedestrian signal housing must comply with the specifications for a signal housing in 86-1.02R(4)(a)(iii), except the maximum overall dimensions must be 18-1/2 inches wide, 19 inches high, and 11-1/2 inches deep and without:

1. Visor
2. Watertight module or lens mounted in the door
3. Reinforcement plates

The housing must have a terminal block attached to the back. The terminal block must have enough positions to accommodate all indications. Each position must be permanently labeled for the indications used.

86-1.02S(3)(c) LED Countdown Pedestrian Signal Face Modules

An LED countdown PSF module must comply with ITE publication ST-055-E*, Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules*, except the material must comply with ASTM D3935 and the module must have:

1. Ultra-bright-type LED rated for 100,000 hours of continuous operation.
2. Lot number and month and year of manufacture permanently marked on the back of the module
3. Prominent and permanent vertical markings for accurate indexing and orientation within the pedestrian signal housing if a specific mounting orientation is required. Markings must be a minimum of 1 inch in height and include an up arrow and the word *up* or *top.*
4. Circuit board complying with TEES, chapter 1, section 6.

Individual LEDs must be wired such that a loss or failure of 1 LED will not result in a loss of more than 5 percent of the module's light output. Failure of an individual LED in a string must not result in a loss of an entire string or other indication.

Each symbol must be at least 9 inches high and 5-1/4 inches wide. The 2-digit countdown timer, *Upraised Hand*, and *Walking Person* indications must be electronically isolated from each other. The 3 indications must not share a power supply or interconnect circuitry.

The module must operate over the specified ambient temperature and voltage range and be readable both day and night at distances up to the full width of the area to be crossed. Upon initial testing at 25 degrees C, the module must have at least the luminance values shown in the following table:

Luminance Values

PSF module symbol	Luminance
Upraised hand and 2-digit countdown timer (fL)	1,094
Walking person (fL)	1,547

The module must not exceed the power consumption requirements shown in the following table:

Maximum Power Consumption Requirements

PSF module display	At 24 ºC	At 74 ºC
Upraised Hand	10.0 W	12.0 W
Walking Person	9.0 W	12.0 W
2-digit countdown timer	6.0 W	8.0 W

86-1.02S(3)(d) Front Screen

Pedestrian signal face must have a front screen that is one of the following types:

1. 3/8-inch-thick aluminum honeycomb screen with 0.2-inch-wide cells or a 1/2-inch-thick plastic screen with 3/8-inch-wide squares with 1/16-inch wall thickness that:
   1.1. Is installed so it tilts downward at an angle of 15 ± 2 degrees from the top and completely covers the message plate.
   1.2. Includes a clear front cover made of either a minimum 1/8-inch-thick acrylic plastic sheet or a minimum 1/16-inch-thick polycarbonate plastic.
   1.3. Is held firmly in place, including the cover, with stainless steel or aluminum clips or stainless steel metal screws.
2. Polycarbonate screen that:
   2.1. Has a nominal thickness of 1/32 inch.
   2.2. Is a 1-1/2-inch-deep eggcrate or Z-crate type.
   2.3. Is mounted in a frame constructed of aluminum alloy or polycarbonate with a minimum thickness of 0.040 inch.
   2.4. Is held in place with stainless steel screws.

The screen and frame of a pedestrian signal face must be made of either (1) plastic that is a flat black color or (2) anodized aluminum that is a flat black color or finished with lusterless, black, exterior-grade latex paint formulated for application to metal surfaces.

86-1.02T Accessible Pedestrian Signals

Accessible pedestrian signal must comply with the *California MUTCD*, chapter 4E, and have:

1. Audible speech message that plays when the push button is actuated. The message must include the name of the street to be crossed. The accessible pedestrian signal must have at least 5 audible message options.
2. Push button locator tone that clicks or beeps.
3. Feature that activates the pedestrian phase during a failure of the audible message, locator tone, or vibrotactile device.

An accessible pedestrian signal must function with the Department-furnished Model 170E/2070E controller assembly.

No part of the accessible pedestrian signal must be installed inside the controller cabinet.
Power for the accessible pedestrian signal must be from the pedestrian signal housing terminal block.

The housing for the signal assembly must be made of corrosion-resistant material. Theft-proof bolts used for mounting the housing to the standard must be stainless steel with a content of 17 percent chromium and 8 percent nickel. The housing must be shaped to fit the pole's curvature.

The color of a metallic housing must match color no. 33538 of FED-STD-595.

The color of a plastic housing must match color no. 17038, 27038, or 37038 of FED-STD-595.

Accessible pedestrian signal must:

1. Have electronic switches, a potentiometer, or an access port for a device for controlling and programming the volume level and messaging
2. Be weatherproof and shockproof

Enclosure for the accessible pedestrian signal must:

1. Weigh less than 7 lb
2. Measure less than 16 by 6 by 5 inches
3. Have a wiring hole with a diameter not exceeding 1-1/8 inches
5. Have a switch for a push button
6. Have a vibrotactile device on the push button or on the arrow
7. Have an internal weatherproof speaker and microphone that senses the ambient sound level

The separation between adjacent holes used for conductors and mounting must be at least twice the diameter of the larger hole.

The speaker grills must be located on the surface of the enclosure. The speakers must not interfere with the housing or its mounting hardware.

The conductor cable between the accessible pedestrian signal assembly and the pedestrian signal head must be a 9 no. 20 conductor cable complying with MIL-W-16878D.

86-1.02U Push Button Assemblies

The housing for a push button assembly must be made of die-cast aluminum, permanent mold-cast aluminum, or UV-stabilized self-extinguishing structural plastic. The plastic housing must have a color throughout that matches color no. 17038, 27038, or 37038 of FED-STD-595.

If the push button is to be attached to a pole, the housing must be shaped to fit the pole's curvature.

The assembly must be waterproof and shockproof.

The push button's switch must be a single-pole, double-throw switching unit with screw-type terminals rated 15 A at 125 V(ac).

Switch for the push button must have:

1. Plunger actuator and a U frame to allow recessed mounting in the push button housing
2. Operating force of 3.5 lb
3. Maximum pretravel of 5/64 inch
4. Minimum overtravel of 1/32 inch
5. Differential travel from 0.002 to 0.04 inch
6. Minimum 2-inch diameter actuator

86-1.02V Reserved

86-1.02W Loop Detector Sealants

86-1.02W(1) General

Sealant for filling loop detector slots must be one of the following:

1. Asphaltic emulsion
2. Elastomeric sealant
3. Epoxy sealant for inductive loops
4. Hot-melt rubberized asphalt

86-1.02W(2) Asphaltic Emulsion Sealant

Asphaltic emulsion sealant must comply with the State Specification 8040-41A-15.

86-1.02W(3) Elastomeric Sealant

Elastomeric sealant must be a polyurethane material that cures only in the presence of moisture if used within the stated shelf life. The sealant must be suitable for use in both asphalt concrete and concrete pavement.

The cured elastomeric sealant must comply with the requirements shown in the following table:

Cured Elastomeric Sealant Requirements

Quality characteristic	Test method	Requirement
Hardness	ASTM D2240[a]	65–85
Tensile strength (min, MPa)	ASTM D412[b]	3.45
Elongation (min, %)		400
Flex at -40 °C[c]	--	No cracks
Weathering resistance	ASTM D822[d]	Slight chalking
Salt spray resistance:	ASTM B117[e]	
Tensile strength (min, MPa)		3.45
Elongation (min, %)		400
Dielectric constant (%)	ASTM D150[f]	<25

[a]Indentation at 25 °C and 50% relative humidity (Rex. Type A, Model 1700 only)
[b]Die C pulled at 508 mm/minute
[c]0.6-mm free film bend (180°) over 13-mm mandrel
[d]Weatherometer 350 h, cured 7 days at 25 °C and 50% relative humidity
[e]28 days at 38 °C with 5% NaCl, Die C, and pulled at 508 mm/minute)
[f]Change over a temperature range from -30 to 50 °C

86-1.02W(4) Hot-Melt Rubberized Asphalt Sealant

Hot-melt rubberized asphalt sealant must:

1. Be in solid form at room temperature and fluid at an application temperature range from 190 to 205 degrees C
2. Not produce toxic fumes
3. Be suitable for use in both asphalt concrete and concrete pavement
4. Be packaged in containers clearly marked *Detector Loop Sealant* with the manufacturer's batch and lot number.

The cured hot-melt rubberized asphalt sealant must comply with the requirements shown in the following table:

Cured Hot-Melt Rubberized Asphalt Sealant Requirements

Quality characteristic	Test method	Requirement
Cone penetration (max, 1/10 mm)	ASTM D5329, sec. 6[a]	35
Flow (max, mm)	ASTM D5329, sec. 8[b]	5
Resilience (min, %)	ASTM D5329, sec. 12[c]	25
Softening point (min, °C)	ASTM D36	82
Ductility (min, cm)	ASTM D113[d]	30
Flash point, Cleveland Open Cup (min, °C)	ASTM D92	288
Viscosity (Pa·s)	ASTM D4402[e]	2.5–3.5

[a]At 25 °C, 150 g, 5 s
[b]At 60 °C
[c]At 25 °C
[d]At 25 °C, 5 cm/minute
[e]Brookfield Thermosel, no. 27 spindle, 20 rpm, 190 °C

86-1.02X Reserved

86-1.02Y Transformers

A transformer must be single-phase and may be a nonsubmersible or submersible type.

A transformer must be a dry type designed for operation on a 60 Hz supply. The transformer must have a decal showing a connection diagram. The diagram must show either color coding or wire tagging with primary (H1, H2) or secondary (X1, X2) markers and the primary and secondary voltage and volt-ampere rating. A transformer must comply with the electrical requirements shown in the following table:

Transformer Electrical Requirements

Quality characteristic	Requirement
Rating (V(ac))	120/480, 120/240, 240/480, or 480/120
Efficiency (%)	> 95
Secondary voltage regulation and tolerance from half load to full load (%)	±3

Secondary 240 and 480 V(ac) windings must be center tapped.

The transformer must withstand the application of 2,200 V(ac) from core to coils and from coil to coil for a 1-minute period when tested immediately after operation of the transformer at full load for 24 hours.

The external leads for the secondary connections must be no. 10 Type USE rated for 600 V(ac).

The transformer's leads must extend a minimum of 12 inches from the case.

The transformer's insulation must be NEMA 185 C or better.

Each transformer must:

1. Include metal half-shell coil protection.
2. Have moisture-resistant, synthetic-varnish-impregnated windings.
3. Be waterproof and suitable for outdoor operation.

Each submersible transformer must:

1. Include a handle and a hanger.
2. Be securely encased in a rugged, corrosion-resistant, watertight case.
3. Have leads that extend out through 1 or more sealed hubs.
4. Be manufactured to withstand a 5-day test with 12-hour on and off periods submerged in 2 feet of salt water that is 2 percent salt by weight. The operating periods must be at full load.

86-1.02Z Batteries

Battery must:

1. Be deep-cycle, sealed, prismatic, lead-calcium-based, absorbed-glass-mat, valve-regulated, lead-acid type
2. Be rated for 12 V
3. Be rated for a temperature range from -25 to 60 degrees C
4. Be group size 24
5. Be commercially available and stocked locally
6. Be marked with a date code, maximum recharge data, and recharge cycles
7. Be new and fully charged when furnished
8. Be free from damage or deformities
9. Have a carrying handle
10. Have 2 top-mounted, threaded-stud posts that include all washers and nuts
11. Include insulating rubber covers for protecting the lugs, posts, and wiring: red for the positive terminal and black for the negative terminal

If a battery is used for a battery backup system, it must accommodate 3/8-inch ring lugs of a Department-furnished battery harness.

86-1.03 CONSTRUCTION

Not Used

86-1.04 PAYMENT

Not Used

Replace section 87 with:

04-15-16

87 ELECTRICAL SYSTEMS

04-15-16

87-1 GENERAL

87-1.01 GENERAL

87-1.01A Summary

Section 87 includes general specifications for constructing and installing electrical systems.

The Department deducts the cost for maintenance performed by the Department on new or portions of existing systems modified under the Contract.

87-1.01B Definitions

Reserved

87-1.01C Submittals

Reserved

87-1.01D Quality Assurance

87-1.01D(1) General

Reserved

87-1.01D(2) Quality Control

Before shipping the material to the job site, submit to METS test samples of:

1. Accessible pedestrian signals
2. LED countdown pedestrian signal face modules
3. LED signal modules
4. LED luminaires

Submit a sample size as shown in the following table:

Electrical Material Sampling

Contract quantity	Test sample size
1–8	1
9–15	2
16–25	3
26–90	5
91–150	8
151–280	13
281–500	20
501–1200	32

Before starting operation of an electrical system, perform a conductor test in the presence of the Engineer.

Conductor test consists of testing each conductor and the conductors in cables for:

1. Continuity.
2. Grounds.
3. Insulation resistance at 500 V(dc) between the circuit and ground. The insulation resistance must be a minimum of 10 MΩ on circuits, except it must be a minimum of 100 MΩ for inductive loop detector circuits.

Start the operational test of the system on any day except Friday or the day before a holiday. The operational test for signals must start from 9:00 a.m. to 2:00 p.m. Notify the Engineer 48 hours before starting the test.

An operational test consists of a minimum of 5 business days of continuous, satisfactory operation of the system. If the system fails, correct the problem and retest the system. A shutdown of the system caused by traffic, a power interruption, or unsatisfactory performance of Department-furnished materials does not constitute discontinuity of the test.

87-1.02 MATERIALS

Not Used

87-1.03 CONSTRUCTION

87-1.03A General

The Engineer determines the final locations of electrical systems.

Verify the locations of electrical systems and the depths of existing detectors, conduits, and pull boxes.

Notify the Engineer before performing work on the existing system.

You may shut down the system for alteration or removal.

Where an existing Department underground facility is shown within 10 feet of any excavation, locate and field mark the facility before performing work that could damage or interfere with the existing facility.

If an existing facility is within 2 feet of an excavation, determine the exact location of the facility by excavating with hand tools before using any power-operated or power-driven excavating or boring equipment. A vacuum excavator may be used if authorized.

Notify the Engineer immediately if an existing facility is damaged by your activities.

If existing underground conduit is to be incorporated into a new system, clean it with a mandrel or cylindrical wire brush and blow it clean with compressed air.

Limit the shutdown of traffic signal systems to normal working hours. Notify the local traffic enforcement agency before shutting down the signal.

Place temporary W3-1 and R1-1 signs in each direction to direct traffic through the intersection during shutdown of the signal. Place two R1-1 signs for 2-lane approaches. The signs must comply with part 2 of the *California MUTCD*.

Cover signal faces when the system is shut down overnight. Cover temporary W3-1 and R1-1 signs when the system is turned on.

If you work on an existing lighting system and the roadway is to remain open to traffic, ensure the system is in operation by nightfall.

Replace detectors you damage within 72 hours, or the Department replaces them and deducts the cost.

Work performed on an existing system not described is change order work.

Do not use electrical power from existing highway facilities unless authorized.

Maintain a minimum 48-inch clearance for a pedestrian pathway when placing equipment.

Except for service installation or work on service equipment enclosures, do not work above ground until all materials are on hand to complete the electrical work at each location.

Bond all metal components to form a continuous grounded system as specified in NEC.

Ground metallic equipment mounted less than 8 feet above the ground surface on a wood pole.

If you damage any portion of a concrete curb, sidewalk, curb ramp, driveway, or gutter depression, replace the entire section between contraction or expansion joints under section 73.

Apply equipment identification characters.

Orient louvers, visors, and signal faces such that they are clearly visible to approaching traffic from the direction being controlled.

Test loops and the detector lead-in cable circuit for continuity, ground, and insulation resistance at the controller cabinet before connecting detector lead-in cable to the terminal block.

Perform an operational test of the systems.

Before starting the operational test for systems that impact traffic, the system must be ready for operation, and all signs, pavement delineation, and pavement markings must be in place at that location.

87-1.03B Conduit Installation

87-1.03B(1) General

The installation of conduit includes installing caps, bushings, and pull tape and terminating the conduit in pull boxes, foundations, poles, or a structure.

Limit the number of bends in a conduit run to no more than 360 degrees between pull points.

Use conduit to enclose conductors except where they are installed overhead or inside standards or posts.

You may use a larger size conduit than specified for the entire length between termination points. Do not use a reducing coupling.

Extend an existing conduit using the same material. Terminate conduits of different materials in a pull box.

Install 2 conduits between a controller cabinet and the adjacent pull box.

Use a minimum trade size of conduit of:

1. 1-1/2 inches from an electrolier to the adjacent pull box
2. 1 inch from a pedestrian push button post to the adjacent pull box
3. 2 inches from a signal standard to the adjacent pull box
4. 3 inches from a controller cabinet to the adjacent pull box
5. 2 inches from an overhead sign to the adjacent pull box
6. 2 inches from a service equipment enclosure to the adjacent pull box
7. 1-1/2 inches if unspecified

Use Type 1 conduit:

1. On all exposed surfaces
2. In concrete structures
3. Between a structure and the nearest pull box

Ream the ends of shop-cut and field-cut conduit to remove burrs and rough edges. Make the cuts square and true. Do not use slip joints and running threads to couple conduit. If a standard coupling cannot be used for metal-type conduit, use a threaded union coupling. Tighten the couplings for metal conduit to maintain a good electrical connection.

Cap the ends of conduit to prevent debris from entering before installing the conductors or cables. Use a plastic cap for Type 1, 2, and 5 conduits and a standard pipe cap for all other types of conduit.

For Type 1, 2, and 5 conduits, use threaded bushings and bond them using a jumper. For other types of conduit, use nonmetallic bushings.

Do not install new conduit through foundations.

Cut Type 2 conduit with pipe cutters; do not use hacksaws. Use standard conduit-threading dies for threading conduit. Tighten conduit into couplings or fittings using strap wrenches or approved groove joint pliers.

Cut Type 3 conduit with tools that do not deform the conduit. Use a solvent weld for connections.

Protect shop-cut threads from corrosion under the standards shown in the following table:

Shop-Cut Thread Corrosion Protection

Conduit	Standard
Types 1 and 2	ANSI C80.1
Type 5	ANSI C80.6

Apply 2 coats of unthinned, organic zinc-rich primer to metal conduit before painting. Use a primer on the Authorized Material List for organic zinc-rich primers. Do not use aerosol cans. Do not remove shop-installed conduit couplings.

For conduits, paint:

1. All exposed threads
2. Field-cut threads, before installing conduit couplings to metal conduit
3. Damaged surfaces on metal conduit

If a Type 2 conduit or conduit coupling coating is damaged:

1. Clean the conduit or fitting and paint it with 1 coat of rubber-resin-based adhesive under the manufacturer's instructions
2. Wrap the damaged coating with at least 1 layer of 2-inch-wide, 20 mils-minimum-thickness, PVC tape under ASTM D1000 with a minimum tape overlap of 1/2 inch

You may repair damaged spots of 1/4 inch or less in diameter in the thermoplastic coating by painting with a brushing-type compound supplied by the conduit manufacturer.

If factory bends are not used, bend the conduit to a radius no less than 6 times its inside diameter without crimping or flattening it. Comply with the bending requirements shown in the following table:

Conduit-Bending Requirements

Type	Requirement
1	Use equipment and methods under the conduit manufacturer's instructions.
2	Use a standard bending tool designed for use on thermoplastic-coated conduit. The conduit must be free of burrs and pits.
3	Use equipment and methods under the conduit manufacturer's instructions. Do not expose the conduit to a direct flame.
5	Use equipment and methods under the conduit manufacturer's instructions.

Install pull tape with at least 2 feet of slack in each end of the conduit that will remain empty. Attach the tape's ends to the conduit.

Install conduit terminating in a standard or pedestal from 2 to 3 inches above the foundation. Slope the conduit toward the handhole opening.

Terminate conduit installed through the bottom of a nonmetallic pull box 2 inches above the bottom and 2 inches from the wall closest to the direction of the run.

87-1.03B(2) Conduit Installation for Structures

87-1.03B(2)(a) General

Paint exposed Type 1 conduit the same color as the structure.

Install galvanized steel hangers, steel brackets, and other fittings to support conduit in or on a wall or bridge.

87-1.03B(2)(b) New Structures

Seal and make watertight the conduits which lead to soffits, wall-mounted luminaires, other lights, and fixtures located below the pull box grade.

If you place a conduit through the side of a nonmetallic pull box, terminate the conduit 2 inches from the wall and 2 inches above the bottom. Slope the conduit toward the top of the box to facilitate pulling conductors.

For ease of installation and if authorized, you may use Type 4 conduit instead of Type 1 conduit for the final 2 feet of conduit entering a pull box in a reinforced concrete structure.

Install an expansion fitting where a conduit crosses an expansion joint in a structure. Each expansion fitting for metal conduit must include a copper bonding jumper having the ampacity as specified in NEC.

Install an expansion-deflection fitting for an expansion joint with a 1-1/2-inch movement rating. The fitting must be watertight and include a molded neoprene sleeve, a bonding jumper, and 2 silicon bronze or zinc-plated iron hubs.

For an expansion joint with a movement rating greater than 1-1/2 inches, install the expansion-deflection fitting as shown.

For conduit installed inside of bridge structures, you must:

1. Install precast concrete cradles made of minor concrete and commercial-quality welded wire fabric. The minor concrete must contain a minimum of 590 lb of cementitious material per cubic yard. The cradles must be moist cured for a minimum of 3 days.
2. Bond precast concrete cradles to a wall or bridge superstructure with one of the following:
   2.1. Epoxy adhesive for bonding freshly-mixed concrete to hardened concrete.
   2.2. Rapid-set epoxy adhesive for pavement markers.
   2.3. Standard-set epoxy adhesive for pavement markers.
3. Use a pipe sleeve or form an opening for a conduit through a bridge superstructure. The sleeve or opening through a prestressed member or conventionally reinforced precast member must be:
   3.1. Oriented transverse to the member.
   3.2. Located through the web.
   3.3. No more than 4 inches in size.
4. Wrap the conduit with 2 layers of asphalt felt building paper and securely tape or wire the paper in place for a conduit passing through a bridge abutment wall. Fill the space around the conduit with mortar under section 51-1, except the proportion of cementitious material to sand must be 1 to 3. Fill the space around the conduits after prestressing is completed.

Thread and cap a conduit installed for future use in structures. Mark the location of the conduit's end in a structure, curb, or wall directly above the conduit with a *Y* that is 3 inches tall.

87-1.03B(2)(c) Existing Structures

Run surface-mounted conduit straight and true, horizontal or vertical on the wall, and parallel to walls on ceilings or similar surfaces. Support the conduit at a maximum of 5-foot intervals where needed to prevent vibration or deflection. Support the conduit using galvanized, malleable-iron, conduit clamps, and clamp backs secured with expansion anchorage devices complying with section 75-3.02C. Use the largest diameter of galvanized, threaded studs that will pass through the mounting hole in the conduit clamp.

87-1.03B(3) Conduit Installation Underground

87-1.03B(3)(a) General

Install conduit to a depth of:

1. 14 inches for the trench-in-pavement method
2. 18 inches, minimum, under sidewalk and curbed paved median areas
3. 42 inches, minimum, below the bottom of the rail of railroad tracks

4. 30 inches, minimum, everywhere else below grade

Place conduit couplings at a minimum of 6 inches from the face of a foundation.

Place a minimum of 2 inches of sand bedding in a trench before installing Type 2 or Type 3 conduit and 4 inches of sand bedding over the conduit before placing additional backfill material.

If installing conduit within the limits of hazardous locations as specified in NEC for Class I, division 1, install and seal Type 1 or Type 2 conduit with explosion-proof sealing fittings.

87-1.03B(3)(b) Conduit Installation under Paved Surfaces

You may lay conduit on existing pavement within a new curbed median constructed on top.

Install conduit under existing pavement by the jacking or drilling methods. You may use the trench-in-pavement method for either of the following conditions:

1. If conduit is to be installed behind the curb under the sidewalk
2. If the delay to vehicles will be less than 5 minutes

Do not use the trench-in-pavement method for conduit installations under freeway lanes or freeway-to-freeway connector ramps.

87-1.03B(3)(c) Reserved

87-1.03B(3)(d) Conduit Installation under Railroad Tracks

Install Type 1 or Type 2 conduit with a minimum diameter of 1-1/2 inches under railroad tracks. If you use the jacking or drilling method to install the conduit, construct the jacking pit a minimum of 13 feet from the tracks' centerline at the near side of the pit. Cover the jacking pit with planking if left overnight.

87-1.03B(4) Reserved

87-1.03B(5) Conduit Installation by the Jacking or Drilling Method

Keep the jacking or drilling pit 2 feet away from the pavement's edge. Do not weaken the pavement or soften the subgrade with excessive use of water.

If an obstruction is encountered, obtain authorization to cut small holes in the pavement to locate or remove the obstruction.

You may install Type 2 or Type 3 conduit under the pavement if a hole larger than the conduit's diameter is predrilled. The predrilled hole must be less than one and half the conduit's diameter.

Remove the conduit used for drilling or jacking and install new conduit for the completed work.

87-1.03B(6) Conduit Installation by the Trenching-In-Pavement Method

Install conduit by the trenching-in-pavement method using a trench approximately 2 inches wider than the conduit's outside diameter but not exceeding 6 inches in width.

Where additional pavement is to be placed, you must complete the trenching before the final pavement layer is applied.

If the conduit shown is to be installed under the sidewalk, you may install it in the street within 3 feet of and parallel to the face of the curb. Install pull boxes behind the curb.

Cut the trench using a rock-cutting excavator. Minimize the shatter outside the removal area of the trench.

Dig the trench by hand to the required depth at pull boxes.

Place conduit in the trench.

Backfill the trench with minor concrete to the pavement's surface by the end of each work day. If the trench is in asphalt concrete pavement and no additional pavement is to be placed, backfill the top 0.10 foot of the trench with minor HMA within 3 days after trenching.

87-1.03C Installation of Pull Boxes

87-1.03C(1) General

Install pull boxes no more than 200 feet apart.

You may install larger pull boxes than specified or shown and additional pull boxes to facilitate the work except in structures.

Install a pull box on a bed of crushed rock and grout it before installing conductors. The grout must be from 0.5 to 1 inch thick and sloped toward the drain hole. Place a layer of roofing paper between the grout and the crushed rock sump. Make a 1-inch drain hole through the grout at the center of the pull box.

Set the pull box such that the top is 1-1/4 inches above the surrounding grade in unpaved areas and leveled with the finished grade in sidewalks and other paved areas.

Place the cover on the box when not working in it.

Grout around conduits that are installed through the sides of the pull box.

Bond and ground the metallic conduit before installing conductors and cables in the conduit.

Bond metallic conduits in a nonmetallic pull box using bonding bushings and bonding jumpers.

Do not install pull boxes in concrete pads, curb ramps, or driveways.

Reconstruct the sump of a pull box if disturbed by your activities. If the sump was grouted, remove and replace the grout.

87-1.03C(2) Nontraffic Pull Boxes

If you bury a nontraffic pull box, set the box such that the top is 6 to 8 inches below the surrounding grade. Place a 20-mil-thick plastic sheet made of HDPE or PVC virgin compounds to prevent water from entering the box.

Place mortar between a nontraffic pull box and a pull box extension.

Where a nontraffic pull box is in the vicinity of curb in an unpaved area, place the box adjacent to the back of the curb if practical.

Where a nontraffic pull box is adjacent to a post or standard, place the box within 5 feet upstream from traffic if practical.

If you replace the cover on a nontraffic pull box, anchor it to the box.

87-1.03C(3) Traffic Pull Boxes

Place minor concrete around and under a traffic pull box.

Bolt the steel cover to the box when not working in it.

Bond the steel cover to the conduit with a jumper and bolt it down after installing the conductors and cables.

87-1.03C(4) Structure Pull Boxes

Bond metallic conduit in a metal pull box in a structure using locknuts, inside and outside of the box, bonding bushings, and bonding jumpers connected to bonding wire running in the conduit system.

87-1.03D Reserved

87-1.03E Excavating and Backfilling for Electrical Systems

87-1.03E(1) General

Notify the Engineer at least 72 hours before starting excavation activities.

Dispose of surplus excavated material.

Restrict closures for excavation on a street or highway to 1 lane at a time unless otherwise specified.

87-1.03E(2) Trenching

Dig a trench for the electrical conduits or direct burial cables. Do not excavate until the conduit or direct burial cable will be installed.

Place excavated material in a location that will not interfere with traffic or surface drainage.

After placing the conduit or direct burial cable, backfill the trench with the excavated material. Compact the backfill placed outside the hinge point of slopes and not under pavement to a minimum relative compaction of 90 percent.

Compact the backfill placed within the hinge points and in areas where pavement is to be constructed to a minimum relative compaction of 95 percent.

Restore the sidewalks, pavement, and landscaping at a location before starting excavation at another location.

87-1.03E(3) Concrete Pads, Foundations, and Pedestals

Construct foundations for standards, poles, metal pedestals, and posts under section 56-3.

Construct concrete pads, foundations, and pedestals for controller cabinets, telephone demarcation cabinets, and service equipment enclosures on firm ground.

Install anchor bolts using a template to provide proper spacing and alignment. Moisten the forms and ground before placing the concrete. Keep the forms in place until the concrete sets for at least 24 hours to prevent damage to the surface.

Use minor concrete for pads, foundations, and pedestals.

In unpaved areas, place the top of the foundation 6 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for Type M and 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. 2 inches above the grade for Type G and Type A cabinets and Type III service equipment enclosures

The pad must be 2 inches above the surrounding grade.

In and adjacent to the sidewalk and other paved areas, place the top of the foundation 4 inches above the surrounding grade, except place the top:

1. 1 foot 6 inches above the grade for Type M and 336L cabinets
2. 1 foot 8 inches above the grade for Type C telephone demarcation cabinets
3. Level with the finished grade for Type G and Type A cabinets and Type III service equipment enclosures

The pad must be level with the finished grade.

Apply an ordinary surface finish under section 51-1.03F.

Allow the foundation to cure for at least 7 days before installing any equipment.

87-1.03F Conductors and Cable Installations

87-1.03F(1) General

The installation of conductors and cables includes splicing conductors and attaching the terminals and connectors to the conductors.

Clean the conduit and pull all conductors and cables as a unit.

If new conductors or cables are to be added in an existing conduit:

1 Remove the content
2. Clean the conduit
3. Pull both old and new conductors and cables as a unit

Wrap conductors and secure cables to the end of the conduit in a pull box.

Seal the ends of conduits with a sealing compound after installing conductors or cables.

Neatly arrange conductors and cables inside pull boxes and cabinets. Tie the conductors and cables together with self-clinching nylon cable ties or enclose them in a plastic tubing or raceway.

Identify conductors and cables by direct labeling, tags, or bands fastened in such a way that they will not move. Use mechanical methods for labeling.

Provide band symbol identification on each conductor or each group of conductors comprising a signal phase in each pull box and near the end of terminated conductors.

Tape the ends of unused conductors and cables in pull boxes to form a watertight seal.

Do not connect the push-button or accessible pedestrian signal neutral conductor to the signal neutral conductor.

87-1.03F(2) Cables

87-1.03F(2)(a) General

Reserved

87-1.03F(2)(b) Reserved

87-1.03F(2)(c) Copper Cables

87-1.03F(2)(c)(i) General

Reserved

87-1.03F(2)(c)(ii) Detector Lead-in Cables

Install a Type B or C detector lead-in cable in conduit.

Waterproof the ends of the lead-in cable before installing it in the conduit to prevent moisture from entering the cable.

Splice loop conductors for each direction of travel for the same phase, terminating in the same pull box, to a separate lead-in cable running from the pull box adjacent to the loop detector to a sensor unit mounted in the controller cabinet. Install the lead-in cable without splices except at the pull box.

Verify in the presence of the Engineer that the loops are operational before making the final splices between loop conductors and the lead-in cable.

Identify and tag each lead-in cable with the detector designation at the cabinet and pull box adjacent to the loops.

87-1.03F(2)(c)(iii) Conductors Signal Cables

Do not splice signal cables except for a 28-conductor cable.

Provide identification at the ends of terminated conductors in a cable as shown.

Provide identification for each cable in each pull box showing the signal standard to which it is connected except for the 28-conductor cable.

Connect conductors in a 12-conductor cable as shown in the following table:

12CSC Color Code and Functional Connection

Color code	Termination	Phase
Red	Red signal	2, 4, 6, or 8
Yellow	Yellow signal	2, 4, 6, or 8
Brown	Green signal	2, 4, 6, or 8
Red/black stripe	Red signal	1, 3, 5, or 7
Yellow/black stripe	Yellow signal	1, 3, 5, or 7
Brown/black stripe	Green signal	1, 3, 5, or 7
Black/red stripe	Spare or as required for red or *DONT WALK*	--
Black/white stripe	Spare or as required for yellow	--
Black	Spare or as required for green or *WALK*	--
Red/white stripe	Pedestrian signal *DONT WALK*	--
Brown/white stripe	Pedestrian signal *WALK*	--
White	Terminal block	Neutral

Provide identification for each 28-conductor cable C1 or C2 in each pull box. The cable labeled *C1* must be used for signal phases 1, 2, 3, and 4. The cable labeled *C2* must be used for signal phases 5, 6, 7, and 8.

Connect conductors in a 28-conductor cable as shown in the following table:

28CSC Color Code and Functional Connection

Color code	Termination	Phase
Red/black stripe	Red signal	2 or 6
Yellow/black stripe	Yellow signal	2 or 6
Brown/black stripe	Green signal	2 or 6
Red/orange stripe	Red signal	4 or 8
Yellow/orange stripe	Yellow signal	4 or 8
Brown/orange stripe	Green signal	4 or 8
Red/silver stripe	Red signal	1 or 5
Yellow/silver stripe	Yellow signal	1 or 5
Brown/silver stripe	Green signal	1 or 5
Red/purple stripe	Red signal	3 or 7
Yellow/purple stripe	Yellow signal	3 or 7
Brown/purple stripe	Green signal	3 or 7
Red/2 black stripes	Pedestrian signal *DONT WALK*	2 or 6
Brown/2 black stripes	Pedestrian signal *WALK*	2 or 6
Red/2 orange stripes	Pedestrian signal *DONT WALK*	4 or 8
Brown/2 orange stripes	Pedestrian signal *WALK*	4 or 8
Red/2 silver stripes	Overlap A, C	OLA[a], OLC[a]
Brown/2 silver stripes	Overlap A, C	OLA[c], OLC[c]
Red/2 purple stripes	Overlap B, D	OLB[a], OLD[a]
Brown/2 purple stripes	Overlap B, D	OLB[c], OLD[c]
Blue/black stripe	Pedestrian push button	2 or 6
Blue/orange stripe	Pedestrian push button	4 or 8
Blue/silver stripe	Overlap A, C	OLA[b], OLC[b]
Blue/purple stripe	Overlap B, D	OLB[b], OLD[b]
White/black stripe	Pedestrian push button common	--
Black/red stripe	Railroad preemption	--
Black	Spare	--
White	Terminal block	Neutral

OL = Overlap; A, B, C, and D = Overlapping phase designation
[a]For red phase designation
[b]For yellow phase designation
[c]For green phase designation

Use the neutral conductor only with the phases associated with that cable. Do not intermix neutral conductors from different cables except at the signal controller.

87-1.03F(2)(c)(iv) Signal Interconnect Cable

For a signal interconnect cable, provide a minimum of 6 feet of slack inside each controller cabinet.

Do not splice the cable unless authorized.

If splices are authorized, insulate the conductor splices with heat-shrink tubing and overlap the insulation at least 0.6 inch. Cover the splice area of the cable with heat-shrink tubing and overlap the cable jacket at least 1-1/2 inches. Provide a minimum of 3 feet of slack at each splice.

87-1.03F(3) Conductors

87-1.03F(3)(a) General

Do not run conductors to a terminal block on a standard unless they are to be connected to a signal head mounted on that standard.

Provide 3 spare conductors in all conduits containing ramp metering and traffic signal conductors.

Install a separate conductor for each terminal of a push button assembly and accessible pedestrian signal.

Provide conductor slack to comply with the requirements shown in the following table:

Conductor Slack Requirements

Location	Slack (feet)
Signal standard	1
Lighting standard	1
Signal and lighting standard	1
Pull box	3
Splice	3
Standards with slip base	0

87-1.03F(3)(b) Reserved

87-1.03F(3)(c) Copper Conductors

87-1.03F(3)(c)(i) General

Install a minimum no. 8, insulated, grounding copper conductor in conduit and connect it to all-metal components.

Where conductors from different service points occupy the same conduit or standard, enclose the conductors from one of the services in flexible or rigid metal conduit.

87-1.03F(3)(c)(ii) Inductive Loop Conductors

Install a Type 1 or 2 inductive loop conductor except use Type 2 for Type E loop detectors.

Install the conductor without splices except at the pull box.

87-1.03F(4) Manual Installation Method

Use an inert lubricant for placing conductors and cables in conduit.

Pull the conductors and cables into the conduit by hand using pull tape.

87-1.03G Equipment Identification Characters

The Engineer provides you with a list of the equipment identification characters.

Stencil the characters or apply the reflective self-adhesive labels to a clean surface.

Treat the edges of self-adhesive characters with an edge sealant.

Place the characters on the side facing traffic on:

1. Front doors of cabinets and service equipment enclosures.
2. Wood poles, fastened with 1-1/4-inch aluminum nails, for pole mounted enclosures
3. Adjacent bent or abutment at approximately the same station as an illuminated sign or soffit luminaire
4. Underside of the structure adjacent to the illuminated sign or soffit luminaire if no bent or abutment exists nearby
5. Posts of overhead signs
6. Standards

Before placing new characters on existing or relocated equipment, remove the existing characters.

87-1.03H Conductor and Cables Splices

87-1.03H(1) General

You may splice:

1. Grounded conductors in a pull box
2. Accessible pedestrian signal and push bottom conductors in a pull box
3. Ungrounded signal conductors in a pull box if signals are modified

4. Ungrounded signal conductors to a terminal compartment or a signal head on a standard with conductors of the same phase in the pull box adjacent to the standard
5. Ungrounded lighting circuit conductors in a pull box if lighting circuits are modified

Solder all splices using the hot iron, pouring, or dipping method. Do not perform open-flame soldering.

87-1.03H(2) Splice Insulation Methods

Insulate splices in a multiconductor cable to form a watertight joint and to prevent moisture absorption by the cable.

Use heat-shrink tubing or Method B to insulate a splice.

Use heat-shrink tubing as follows:

1. Cover the splice area completely with an electrical insulating coating and allow it to dry.
2. Place mastic around each conductor before placing them inside the tubing. Use the type of mastic specified in the tubing manufacturer's instructions.
3. Heat the area under the manufacturer's instructions. Do not perform open-flame heating. After contraction, each end of the heat-shrink tubing or the open end of the tubing's end cap must overlap the conductor insulation at least 1-1/2 inches.
4. Cover the entire splice with an electrical insulating coating and allow it to dry.

Use Method B as follows:

1. Cover the splice area completely with an electrical insulating coating and allow it to dry.
2. Apply 3 layers of half-lapped, 80-mils, PVC tape.
3. Apply 2 layers of 120-mils, butyl-rubber, stretchable tape with liner.
4. Apply 3 layers of half-lapped, 6-mils, PVC, pressure-sensitive, adhesive tape.
5. Cover the entire splice with an electrical insulating coating and allow it to dry.

87-1.03I Connectors and Terminals

Apply connectors and terminals to cables and conductors using a crimping compression tool under the manufacturer's instructions. The tool must prevent opening of the handles until the crimp is completed.

Install crimp-style terminal lugs on stranded conductors smaller than no. 14.

Solder no. 8 and smaller conductors to connectors and terminal lugs.

87-1.03J Standards, Poles, Pedestals, and Posts

Install standards, poles, pedestals, and posts under section 56-3.

Ground standards with a handhole by attaching a bonding jumper from the bolt or lug inside the standard to a metal conduit or to the grounding wire in the adjacent pull box. The bonding jumper must be visible when the handhole cover is removed.

Ground standards without a handhole or standards with a slip base by attaching a bonding jumper to all anchor bolts using ground clamps and connecting it to a metal conduit or to the grounding wire in the adjacent pull box. The bonding jumper must be visible after mortar has been placed on the foundation.

87-1.03K Reserved

87-1.03L Utility Service

87-1.03L(1) General

Install the service equipment early enough to allow the utility to complete its work before completion of the electrical work.

At least 15 days before permanent electrical and telecommunication service is required, request the service connections for permanent installations. The Department arranges with the utilities for completion of the connections and pays all costs and fees required by the utilities.

87-1.03L(2) Electric Service

87-1.03L(2)(a) General

If service equipment is to be installed on a utility-owned pole, furnish and install the conduit, conductors, pull boxes, and other necessary material to complete the service installation. The service utility decides the position of the riser and equipment on the pole.

87-1.03L(2)(b) Electric Service for Irrigation

Establishing electric service for irrigation includes installing conduit, conductors, and pull boxes and making connections from the service point to the irrigation controllers.

87-1.03L(2)(c) Electric Service for Booster Pumps

Establishing electric service for a booster pump includes installing conduit, conductors, and pull boxes and making connections from the service point to the booster pump enclosure.

87-1.03L(3) Telecommunications Service

Establishing telecommunication service includes installing conduit, conductors, and pull boxes and making connections from the service point to the telephone demarcation cabinet.

87-1.03M Photoelectric Controls

Mount the photoelectric unit on the top of the pole for Type I, II, and III photoelectric controls. Use mounting brackets where pole-top mounting is not possible. Orient the photoelectric unit to face north.

Mount the enclosure at a height of 6 feet above finished grade on the same standard as the photoelectric unit.

Install a minimum 100 VA, 480/120 V(ac) transformer in the contactor enclosure to provide 120 V(ac) for the photoelectric control unit when switching 480 V(ac), 60 Hz circuits.

87-1.03N Fused Splice Connectors

Install a fuse splice connector in each ungrounded conductor for luminaires mounted on standards. The connector must be located in the pull box adjacent to the standard.

Crimp the connector terminals onto the ungrounded conductors using a tool under the manufacturer's instructions. Insulate the terminals and make them watertight.

87-1.03O Grounding Electrodes

Install a grounding electrode for each cabinet, service equipment enclosure, and transformer.

Attach a grounding conductor from the electrode using either a ground clamp or exothermic weld. Connect the other end of the conductor to the cabinet, service equipment enclosure, and transformer.

87-1.03P Service Equipment Enclosures

Installing a service equipment enclosure includes constructing the foundation and pad and installing conduit, adjacent pull boxes, and grounding electrode.

Locate the foundation such that the minimum clearance around the front and back of the enclosure complies with NEC, article 110.26, "Spaces About Electrical Equipment, (600 V, nominal or less)."

Bond and ground metal conduit as specified in NEC and by the service utility except the grounding electrode conductor must be no. 6 or larger.

If circuit breakers and components do not have a description on engraved phenolic nameplates, install them using stainless steel rivets or screws under section 86-1.02P(2).

87-1.03Q Cabinets

87-1.03Q(1) General

Installing a cabinet includes constructing the foundation and pad and installing conduit, adjacent pull boxes, and grounding electrode.

Apply a mastic or caulking compound before installing the cabinet on the foundation to seal the openings.

Connect the field wiring to the terminal blocks in the cabinet. Neatly arrange and lace or enclose the conductors in plastic tubing or raceway. Terminate the conductors with properly sized captive or spring spade terminals. Apply a crimp-style connector and solder them.

Install and solder a spade-type terminal on no. 12 and smaller field conductors and a spade-type or ring-type terminal on conductors larger than no. 12.

87-1.03Q(2) Department-Furnished Controller Cabinets

Arrange for the delivery of Department-furnished controller cabinets.

87-1.03Q(3) Reserved

87-1.03Q(4) Telephone Demarcation Cabinets

Installing a telephone demarcation cabinet includes installing conduit, cable, and pull boxes to the controller cabinet.

Install the cabinet with the back toward the nearest lane of traffic.

87-1.03R Signal Heads

87-1.03R(1) General

Installing a signal head includes mounting the heads on standards and mast arms, installing backplates and visors, and wiring conductors to the terminal blocks.

Keep the heads covered or direct them away from traffic until the system is ready for operation.

87-1.03R(2) Signal Faces

Use the same brand and material for the signal faces at each location.

Program the programmable visibility signal faces under the manufacturer's instructions. The indication must be visible only in those areas or lanes to be controlled.

87-1.03R(3) Backplates

Install backplates using at least six 10-24 or 10-32 self-tapping and locking stainless steel machine screws and flat washers.

If a plastic backplate requires field assembly, attach each joint using at least four no.10 machine screws. Each machine screw must have an integral or captive flat washer, a hexagonal head slotted for a standard screwdriver, and either a locking nut with an integral or captive flat washer or a nut, flat washer, and lock washer. Machine screws, nuts, and washers must be stainless steel or steel with a zinc or black oxide finish.

If a metal backplate has 2 or more sections, fasten the sections with rivets or aluminum bolts peened after assembly to avoid loosening.

Install the backplate such that the background light is not visible between the backplate and the signal face or between sections.

87-1.03R(4) Signal Mounting Assemblies

Install a signal mounting assembly such that its members are arranged symmetrically and plumb or level. Orient each mounting assembly to allow maximum horizontal clearance to the adjacent roadway.

For a bracket-mounted assembly, bolt the terminal compartment or pole plate to the pole or standard.

In addition to the terminal compartment mounting, attach the upper pipe fitting of Type SV-1-T with 5 sections or a SV-2-TD to the standard or pole using the mounting detail for signal heads without a terminal compartment.

Use a 4-1/2-inch slip fitter and set screws to mount an assembly on a post top.

After installing the assembly, clean and paint the exposed threads of the galvanized conduit brackets and bracket areas damaged by the wrench or vise jaws. Use a wire brush to clean and apply 2 coats of unthinned, organic zinc-rich primer. Do not use an aerosol can to apply the primer.

Install the conductors in the terminal compartment and secure the cover.

87-1.03S Pedestrian Signal Heads

Installing a pedestrian signal head includes mounting the heads on standards and wiring conductors to the terminal blocks.

Install the pedestrian signal mounting assembly under section 87-1.03R(4).

Use the same brand and material for the pedestrian signal faces at each location.

Install a pedestrian signal face such that its members are arranged symmetrically and plumb or level.

87-1.03T Accessible Pedestrian Signals

Use the same brand for the accessible pedestrian signals at each location.

Install an accessible pedestrian signal and the R10 series sign on the crosswalk side of the standard.

Attach the accessible pedestrian signal to the standard with self-tapping screws.

Attach the sign to the standard using 2 straps and saddle brackets.

Point the arrow on the accessible pedestrian signal in the same direction as the corresponding crosswalk.

Furnish the equipment and hardware to set up and calibrate the accessible pedestrian signal.

Arrange to have a manufacturer's representative at the job site to program the accessible pedestrian signal with an audible message or tone.

87-1.03U Push Button Assemblies

Install the push button assembly and the R10 series sign on the crosswalk side of the standard.

Attach the sign to the assembly for Type B assemblies.

Attach the sign to the standard using 2 straps and saddle brackets for Type C assemblies.

You may use straps and saddle brackets to secure the push button to the standard.

Use a slip fitter to secure the assembly on top of a 2-1/2-inch-diameter post.

87-1.03V Detectors

87-1.03V(1) General

Installing a detector includes installing inductive loop conductors, sealant, conduit, and pull boxes.

Center the detectors in the traffic lanes.

Do not splice the detector conductor.

87-1.03V(2) Inductive Loop Detectors

Mark the location of the inductive loop detectors such that the distance between the side of the loop and a lead-in saw cut from an adjacent detector is at least 2 feet. The distance between lead-in saw cuts must be at least 6 inches.

Saw cut the slots under section 13-4.03E(7). The bottoms of the slots must be smooth with no sharp edges. For Type E detector loops, saw the slots such that the sides are vertical.

Wash the slots clean using water and blow dry them with compressed air to remove all moisture and debris.

Identify the start of the conductor.

Waterproof the ends of a Type 2 loop conductor before installing it in the conduit to prevent moisture from entering the cable.

Install the loop conductor in the slots and lead-in saw cuts using a 3/16- to 1/4-inch-thick wood paddle. Hold the conductors in place at the bottom of the slot with wood paddles during placement of the sealant.

Wind adjacent loops on the same sensor unit channel in opposite directions.

Twist the conductors for each loop into a pair consisting of a minimum of 2 turns per foot before placing them in the lead-in saw cut and the conduit leading to the pull box. Do not install more than 2 twisted pairs of conductors per lead-in saw cut.

Provide 5 feet of slack in the pull box.

Test each loop for continuity, circuit resistance, and insulation resistance before filling the slots with sealant.

Remove excess sealant from the adjacent road surface before it sets. Do not use solvents to remove the excess.

Identify the loop conductor pair in the pull box, marking the start with the letter *S* and the end with the letter *F*. Band conductors in pairs by lane in the pull box adjacent to the loops and in the cabinet. Identify each pair with the detector designation and loop number.

Install the conductors in a compacted layer of HMA immediately below the uppermost layer if more than one layer will be placed. Install the loop conductors before placing the uppermost layer of HMA. Fill the slot with a sealant flush to the surface.

Install the conductors in the existing pavement if one layer of HMA is to be placed. Install the loop conductors before placing the layer of HMA. Fill the slot with a sealant flush to the surface.

87-1.03V(3) Preformed Inductive Loop Detectors

Construct a preformed inductive loop detector consisting of 4 turns in the loop and a lead-in conductor pair twisted at least 2 turns per foot all encased in conduit and sealed to prevent water penetration. The detector must be 6-foot square unless shown otherwise.

Construct the loop detector using a minimum 3/8-inch Schedule 40 or Schedule 80 PVC or polypropylene conduit and no. 16 or larger conductor with Type THWN or TFFN insulation.

In new roadways, place the detector in the base course with the top of the conduit flush with the top of the base. Cover with HMA or concrete pavement. Protect the detector from damage before and during pavement placement.

In new reinforced concrete bridge decks, secure the detector to the top of the uppermost layer of reinforcing steel using nylon wire ties. Hold the detector parallel to the bridge deck using PVC or polypropylene spacers where necessary. Place conduit for lead-in conductors between the uppermost 2 layers of reinforcing steel.

Do not install detectors in existing bridge decks unless authorized.

Install a detector in existing pavement before placement of concrete or HMA as follows:

1. Saw cut slots at least 1-1/4 inches wide into the existing pavement.
2. Place the detector in the slots. The top of the conduit must be at least 2 inches below the top of the pavement.
3. Test each loop circuit for continuity, circuit resistance, and insulation resistance.
4. Fill saw cuts with elastomeric or hot melt rubberized asphalt sealant for asphalt concrete pavement and with epoxy sealant or hot melt rubberized asphalt sealant for concrete pavement.

87-1.03W Sealants

87-1.03W(1) General

Reserved

87-1.03W(2) Elastomeric Sealant

Apply an elastomeric sealant with a pressure feed applicator.

87-1.03W(3) Asphaltic Emulsion Sealant

Asphaltic emulsion sealant must:

1. Be used for filling slots in asphalt concrete pavement of a maximum width of 5/8 inch
2. Not be used on concrete pavement or where the slope causes the material to run from the slot
3. Be thinned under the manufacturer's instructions
4. Be placed when the air temperature is at least 45 degrees F

87-1.03W(4) Hot-Melt Rubberized Asphalt Sealant

Melt the sealant in a jacketed, double-boiler-type, melting unit. The temperature of the heat transfer medium must not exceed 475 degrees F.

Apply the sealant with a pressure feed applicator or a pour pot when the surface temperature of the pavement is greater than 40 degrees F.

87-1.03X Reserved

87-1.03Y Transformers

Installing a transformer includes placing the transformer inside a pull box, a cabinet, or an enclosure.

Wire the transformer for the appropriate voltage.

Ground the secondary circuit of the transformer as specified in the NEC.

87-1.03Z Reserved

87-1.04 PAYMENT

Not Used

87-2 LIGHTING SYSTEMS

87-2.01 GENERAL

87-2.01A Summary

Section 87-2 includes specifications for constructing lighting systems.

Lighting system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Standards
6. Luminaires
7. Service equipment enclosure
8. Photoelectric control
9. Fuse splice connectors
10. High mast lighting assemblies

The components of a lighting system are shown on the project plans.

87-2.01B Definitions

Reserved

87-2.01C Submittals

Submit a certificate of compliance and test data for the high mast lighting luminaires.

87-2.01D Quality Assurance

Reserved

87-2.02 MATERIALS

87-2.02A General

Reserved

87-2.02B High Mast Lighting Assemblies

A high mast lighting assembly includes the foundation, pole, lowering device system, luminaires, and control pedestal.

Each luminaire in a high mast lighting assembly must include a housing, an optical system, and a ballast.

The housing must be made of aluminum.

A painted or powder-coated housing for a high mast lighting luminaire must be able to withstand a 1,000-hour salt spray test as specified in ASTM B117.

The optical system, consisting of the reflector, refractor or lens, lamp socket, and lamp, must be in a sealed chamber. The chamber must be sealed by a gasket between the reflector and refractor or lens and a gasket between the reflector and lamp socket. The chamber must have a separate filter or filtering gasket for flow of air.

An asymmetrical luminaire must have a refractor or reflector that is rotatable 360 degrees around a vertical axis to orient the distribution of light.

The luminaire must have a slip fitter for mounting on a 2-inch horizontal pipe tenon and must be adjustable ±3 degrees from the axis of the tenon.

The reflector must have a specular surface made of silvered glass or aluminum protected by either an anodized finish or a silicate film. The reflector must be shaped such that a minimum of light is reflected through the arc tube of the lamp.

The refractor and lens must be made of heat-resistant glass.

The lamp socket must be a porcelain-enclosed, mogul-multiple type. The shell must contain integral lamp grips to ensure electrical contact under conditions of normal vibrations. The socket must be rated for 1,500 W, 600 V(ac) and 4,000 V(ac) pulse for a 400 W lamp and 5,000 V(ac) pulse for a 1,000 W lamp.

The luminaire must have a dual fuse holder for 2 fuses rated at 5 A, 480 V(ac). The fuses must be 13/32 inch by 1-1/2 inches, standard midget ferrule type with a nontime-delay feature.

The lamps must be vertical burning, protected from undue vibration, and prevented from backing out of the socket by a stainless steel clamp attached to the luminaire.

A 1,000 W metal halide lamp must have an initial output of 100,000 lumens and an average rated life of 12,000 hours based on 10 hours per start.

A 400 W high-pressure sodium lamp must have an initial output of 50,000 lumens. A 1,000 W high-pressure sodium lamp must have an initial output of 140,000 lumens.

The ballast for the luminaire must be a regulator type and have a core and coils, capacitors, and starting aid.

Ballast must be:

1. Mounted within a weatherproof housing that integrally attaches to the top of a luminaire support bracket and lamp support assembly
2. Readily removable without removing the luminaire from the bracket arm
3. Electrically connected to the optical assembly by a prewired quick disconnect

The ballast for a metal halide luminaire must comply with luminaire manufacturer's specifications.

The wattage regulation spread at any lamp voltage, from nominal through the life of the lamp, must vary no more than 22 percent for a 1,000 W lamp and a ±10 percent input voltage variation. The ballast's starting line current must be less than its operating current.

87-2.02C Soffit and Wall-Mounted Luminaires

87-2.02C(1) General

Soffit and wall-mounted luminaires must be weatherproof and corrosion resistant.

Each luminaire must include a 70 W high-pressure sodium lamp with a minimum average rated life of 24,000 hours. The lamp socket must be positioned such that the light center of the lamp is located within 1/2 inch of the designed light center of the luminaire.

Luminaire wiring must be SFF-2.

Flush-mounted soffit luminaire must have:

1. Metal body with two 1-inch-minimum conduit hubs and a means of anchoring the body into the concrete
2. Prismatic refractor made of heat-resistant polycarbonate:
    2.1. Mounted in a door frame
    2.2. With the street side identified
3. Aluminum reflector with a specular anodized finish
4. Ballast located either within the housing or in a ceiling pull box if shown
5. Lamp socket

The door frame assembly must be hinged, gasketed, and secured to the luminaire body with at least 3 machine screws.

A pendant soffit luminaire must be enclosed and gasketed and have an aluminum finish. Luminaire must have:

1. Aluminum reflector with a specular anodized finish
2. Refractor made of heat-resistant polycarbonate
3. Optical assembly that is hinged and latched for lamp access and a device to prevent dropping
4. Ballast designed for operation in a raintight enclosure
5. Galvanized metal box with a gasketed cover, 2 captive screws, and 2 chains to prevent dropping and for luminaire mounting

Wall-mounted luminaire must have:

1. Cast metal body
2. Prismatic refractor:
    2.1. Made of glass
    2.2. Mounted in a door frame
3. Aluminum reflector with a specular anodized finish
4. Integral ballast
5. Lamp socket
6. Gasket between the refractor and the body
7. At least 2 mounting bolts of minimum 5/16-inch diameter

A cast aluminum body of a luminaire to be cast into or mounted against concrete must have a thick coat of alkali-resistant bituminous paint on all surfaces to be in contact with the concrete.

87-2.02C(2) High-Pressure Sodium Lamp Ballasts

87-2.02C(2)(a) General

A high-pressure sodium lamp ballast must operate the lamp for its rated wattage.

Starting aids for a ballast must be interchangeable between ballasts of the same wattage and manufacturer without adjustment.

The ballast must be provided with a heat-generating component to serve as a heat sink. The capacitor must be placed at the maximum practicable distance from the heat-generating components or thermally shielded to limit the case temperature to 75 degrees C.

The transformer and inductor must be resin impregnated for protection against moisture. Capacitors, except for those in starting aids, must be metal cased and hermetically sealed.

The ballast must have a power factor of 90 percent or greater.

For the nominal input voltage and lamp voltage, the ballast design center must not vary more than 7.5 percent from the rated lamp wattage.

87-2.02C(2)(b) Regulator-Type Ballasts

A regulator-type ballast must be designed such that a capacitance variance of ±6 percent does not cause more than ±8 percent variation in the lamp wattage regulation.

The ballast must have a current crest factor not exceeding 1.8 for an input voltage variation of ±10 percent.

The lamp wattage regulation spread for a lag-type ballast must not vary by more than 18 percent for ±10 percent input voltage variations. The primary and secondary windings must be electrically isolated.

The lamp wattage regulation spread for a constant-wattage, autoregulator, lead-type ballast must not vary by more than 30 percent for ±10 percent input voltage variations.

87-2.02C(2)(c) Nonregulator-Type Ballasts

A nonregulator-type ballast must have a current crest factor not exceeding 1.8 for an input voltage variation of ±5 percent.

The lamp wattage regulation spread for an autotransformer or high reactance type ballast must not vary by more than 25 percent for ±5 percent input voltage variations.

87-2.03 CONSTRUCTION

87-2.03A General

Set the foundations for standards such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the luminaire's clamping bracket to 10 ft-lb for LED and low-pressure luminaires.

Label the month and year of the installation inside the luminaire housing's door.

Perform the conductor and operational tests for the system.

87-2.03B High Mast Lighting Assemblies

Mount and connect the luminaires to the accessory support ring. Aim the asymmetrical luminaire to orient the distribution of light.

87-2.03C Soffit and Wall-Mounted Luminaires

For a flush-mounted soffit luminaire:

1. Prevent concrete from getting into the housing during pouring of the concrete for the structure
2. Install the luminaire with the axis vertical and the street side of the refractor oriented as indicated
3. Locate the luminaire to provide a minimum 2-foot clearance from the inside surface of the girders and 1-foot clearance from the near face of the diaphragm
4. Install the bridge soffit and ceiling pull box over the same lane

For a pendant soffit luminaire:

1. Cast in place the inserts for the no. 8 pull box during concrete placement for a new structure
2. Drill holes for expansion anchors to support the no. 8 pull box on existing structures
3. Bond the suspension conduit and luminaire to the pull box

For a wall-mounted luminaire, provide:

1. Extension junction box or ring on a new structure
2. 4 external mounting taps on an existing structure

Place the soffits or wall-mounted luminaires in operation as soon as practicable after the falsework has been removed from the structure.

If the Engineer orders soffit or wall-mounted luminaires to be activated before permanent power service is available, installing and removing the temporary power service is change order work.

87-2.04 PAYMENT

Not Used

87-3 SIGN ILLUMINATION SYSTEMS

87-3.01 GENERAL

87-3.01A Summary

Section 87-3 includes specifications for constructing sign illumination systems.

Sign illumination system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Sign lighting fixtures
6. Enclosure for the disconnect circuit breaker
7. Service equipment enclosure
8. Photoelectric control

The components of a sign illumination system are shown on the project plans.

87-3.01B Definitions

Reserved

87-3.01C Submittals

Submit the manufacturer's test data for the induction sign-lighting fixtures.

87-3.01D Quality Assurance

Reserved

87-3.02 MATERIALS

An induction sign-lighting fixture must include a housing with a door, reflector, refractor or lens, lamp, socket assembly, power coupler, high-frequency generator, fuse block, and fuses.

The fixture must comply with the isofootcandle curves as shown.

Fixture must weigh no more than 44 lb, be rated for 87 W at 120/240 V(ac), and have a mounting assembly made of one of the following materials:

1. Cast aluminum
2. Hot-dip galvanized steel plate
3. Galvanized steel plate finished with one of the following:
    3.1. Polymeric coating
    3.2. Same finish used for the housing

Housing must:

1. Be corrosion resistant and suitable for wet locations
2. Be above the top of the mounting rails at a maximum height of 12 inches
3. Have weep holes

Door must:

1. Hold a refractor or lens
2. Open without the use of special tools
3. Have a locking position at 50 degrees minimum from the plane of the door opening
4. Be hinged to the housing on the side of the fixture away from the sign panel
5. Have 2 captive latch bolts or other latching device

When the door is opened, it must lock in the 50 degrees position when an 85 mph, 3-second wind-gust load strikes the door from either side.

The housing and door must be manufactured of sheet or cast aluminum and have a gray powder coat or polyester paint finish. The sheet aluminum must comply with ASTM B209 or B209M for 5052-H32 aluminum sheet. External bolts, screws, hinges, hinge pins, and door closure devices must be corrosion resistant.

The housing and door must be gasketed. The thickness of the gasket must be a minimum of 1/4 inch.

Reflector must not be attached to the outside of the housing and must be:

1. Made of a single piece of aluminum with a specular finish
2. Protected with an electrochemically applied anodized finish or a chemically applied silicate film
3. Designed to drain condensation away from it
4. Secured to the housing with a minimum of 2 screws
5. Removable without removing any fixture parts

Refractor or lens must have a smooth exterior and must be manufactured from the materials shown in the following table:

Refractor and Lens Material Requirements

Component	Material
Flat lens	Heat-resistant glass
Convex lens	Heat-resistant, high-impact-resistant tempered glass
Refractor	Borosilicate heat-resistant glass

The refractor and convex lens must be designed or shielded such that no luminance is visible if the fixture is approached directly from the rear and viewed from below. If a shield is used, it must be an integral part of the door casting.

Lamp must:

1. Be an 85 W induction type with a fluorescent, phosphor-coated, interior wall
2. Have a minimum 70 percent light output of its original lumen output after 60,000 hours of operation
3. Have a minimum color-rendering index of 80
4. Be rated at a color temperature of 4,000K
5. Be removable with common hand tools

The lamp socket must be rated for 1,500 W and 600 V(ac) and be a porcelain-enclosed mogul type with a shell that contains integral lamp grips to ensure electrical contact under normal vibration conditions. The shell and center contact must be made of nickel-plated brass. The center contact must be spring loaded.

The power coupler must be removable with common hand tools.

High-frequency generator must:

1. Start and operate lamps at an ambient temperature of -25 degrees C or greater for the rated life of the lamp
2. Operate continuously at ambient air temperatures from -25 to 55 degrees C without a reduction in the generator life
3. Have a design life of at least 100,000 hours at 55 degrees C
4. Have an output frequency of 2.65 MHz ± 10 percent
5. Have radio frequency interference that complies with 47 CFR 18 regulations regarding harmful interference
6. Have a power factor greater than 90 percent and total harmonic distortion less than 10 percent

The high frequency generator must be mounted such that the fixture can be used as a heat sink and be replaceable with common hand tools.

Each fixture must include a barrier-type fuse block for terminating field connections. Fuse block must:

1. Be rated 600 V(ac)
2. Have box terminals
3. Be secured to the housing and accessible without removal of any fixture parts
4. Be mounted to leave a minimum of 1/2 inch of air space from the sidewalls of the housing
5. Be designed for easy removal of fuses with a fuse puller

The fixture's fuses must be 13/32-inch-diameter, 1-1/2-inch-long ferrule type and UL listed or NRTL certified. For a 120 V(ac) fixture, only the ungrounded conductor must be fused and a solid connection must be provided between the grounded conductor and the high frequency generator.

The fixture must be permanently marked with the manufacturer's brand name, trademark, model number, serial number, and date of manufacture on the inside and outside on the housing. The same information must be marked on the package.

If a wire guard is used, it must be made of a minimum 1/4-inch-diameter galvanized steel wire. The wires must be spaced to prevent rocks larger than 1-1/2-inch diameter from passing through the guard. The guard must be either hot-dip galvanized or electroplated zinc-coated as specified in ASTM B633, service condition SC4, with a clear chromate dip treatment.

87-3.03 CONSTRUCTION

Perform the conductor and operational tests for the system.

87-3.04 PAYMENT

Not Used

87-4 SIGNAL AND LIGHTING SYSTEMS

87-4.01 GENERAL

87-4.01A Summary

Section 87-4 includes specifications for constructing signal and lighting systems.

Signal and lighting system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Internally illuminated street name signs
9. Service equipment enclosure
10. Department-furnished controller assembly
11. Detectors
12. Telephone demarcation cabinet
13. Accessible pedestrian signals
14. Push button assemblies
15. Pedestrian signal heads
16. Luminaires
17. Photoelectric control
18. Fuse splice connectors
19. Battery backup system
20. Flashing beacons
21. Flashing beacon control assembly

The components of a signal and lighting system are shown on the project plans.

87-4.01B Definitions

Reserved

87-4.01C Submittals

Submit shop drawings showing the message for each internally illuminated street sign, including the size of letters, symbols, and arrows.

87-4.01D Quality Assurance

87-4.01D(1) General

Reserved

87-4.01D(2) Quality Control

87-4.01D(2)(a) General

Reserved

87-4.01D(2)(b) Battery Backup System

Notify the Engineer 48 hours before testing the battery backup system.

Test the system in the presence of the Engineer by turning off the power to the signal system at the service equipment enclosure. The signal system must run continuously for 30 minutes. If the battery backup system fails, correct the problem and retest the system for another 30 minutes. After successful completion of the test, turn the power on for the signal system.

87-4.02 MATERIALS

87-4.02A General

Reserved

87-4.02B Battery Backup System

A battery backup system includes the cabinet, batteries, and the Department-furnished electronics assembly.

The electronics assembly includes the inverter/charger unit, power transfer relay, and the battery harness.

87-4.02C Internally Illuminated Street Name Signs

An internally illuminated street name sign includes housing, brackets, sign panels, gaskets, ballast, lampholder, terminal blocks, conductors, and fuses.

An internally illuminated street sign must be designed and constructed to prevent deformation or failure when subjected to an 85 mph, 3-second wind-gust load as specified in the AASHTO publication, "Standard Specifications for Structural Supports of Highway Signs, Luminaires and Traffic Signals."

Sign must:

1. Be Types A or B
2. Have galvanized or cadmium-plated ferrous parts
3. Have screened weep holes
4. Have fasteners, screws, and hardware made of passive stainless steel, Type 302 or 304, or aluminum Type 6060-T6
5. Operate at a temperature from -20 to 74 degrees C

Photoelectric unit sockets are not allowed.

The housing must be constructed to resist torsional twist and warp. The housing must be designed such that opening or removing the panels provides access to the interior of the sign for lamp, ballast, and fuse replacement.

The top and bottom of the sign must be manufactured from formed or extruded aluminum and attached to formed or cast aluminum end fittings. The top, bottom, and end fittings must form a sealed housing.

For a Type A sign, both sides of the sign must be hinged at the top to allow installation or removal of the sign panel.

For a Type B sign, the sign panel must be slide mounted into the housing.

The top of the housing must have 2 free-swinging mounting brackets. Each bracket must be vertically adjustable for leveling the sign to either a straight or curved mast arm. The bracket assembly must allow the lighting fixture to swing perpendicular to the sign panel.

The reflectors must be formed aluminum and have an acrylic, baked-white-enamel surface with a minimum reflectance of 0.85.

Sign panel must be translucent, high-impact-resistant, and made of one of the following plastic materials:

1. Glass-fiber-reinforced, acrylated resin
2. Polycarbonate resin
3. Cellulose acetate butyrate

The sign panel must be designed not to crack or shatter if a 1-inch-diameter steel ball weighing 2.4 ounces is dropped from a height of 8.5 feet above the sign panel to any point on the panel. For this test, the sign panel must be lying in a horizontal position and supported within its frame.

The sign panel's surface must be evenly illuminated. The brightness measurements for the letters must be a minimum of 150 foot-lamberts, average. The letter-to-background brightness ratio must be from 10:1 to 20:1. The background luminance must not vary by more than 40 percent from the average background brightness measurement. The luminance of letters, symbols, and arrows must not vary by more than 20 percent from their average brightness measurement.

The sign panel's white or green color must not fade or darken if exposed to an accelerated test of UV light equivalent to 2 years of outdoor exposure.

The sign panel's legend, symbols, arrows, and border on each face must be white on a green background. The background must comply with color no. 14109 of FED-STD-595.

The message must appear on both sides of the sign and be protected from UV radiation. The letters must be 8-inch upper case and 6-inch lower case, series E.

A Type A sign must have a closed-cell, sponge-neoprene gasket installed between the sign panel frame to prevent the entry of water. The gasket must be uniform and even textured.

The sign ballast must be a high-power-factor type for outdoor operation from 110 to 125 V(ac) and 60 Hz and must comply with ANSI C82.1 and C82.2.

The ballast for a Type A sign must be rated at 200 mA. The ballast for a Type B sign must be rated at 430 mA.

Sign lampholder must:

1. Be the spring-loaded type
2. Have silver-coated contacts and waterproofed entrance leads
3. Have a heat-resistant, circular cross section with a partially recessed neoprene ring

Removal of the lamp from the socket must de-energize the primary of the ballast.

The springs for the lampholders must not be a part of the current-carrying circuit.

The sign's wiring connections must terminate on a molded, phenolic, barrier-type, terminal block rated at 15 A, 1,000 V(ac). The connections must have a white, integral, waterproof marking strip. The terminal screws must not be smaller than a no. 10.

The terminal block must be insulated from the fixture to provide protection from the line-to-ground flashover voltage.

A sectionalized terminal block must have an integral barrier on each side and must allow rigid mounting and alignment.

Fixture's conductors must:

1. Be stranded copper wire with a minimum thermoplastic insulation of 28 mils

2. Be rated at 1,000 V(ac) and for use up to 90 degrees C
3. Be a minimum of no. 16
4. Match the color coding of the ballast leads
5. Be secured with spring cross straps, installed 12 inches apart or less in the chassis or fixture

Stranded copper conductors connected to screw-type terminals must terminate in crimp-type ring connectors.

No splicing is allowed within the fixture.

The sign's fuse must be the Type 3AG, miniature, slow-blow type.

The fuse holder must be a panel-mounting type with a threaded or bayonet knob that grips the fuse tightly for extraction. Each ballast must have a separate fuse.

87-4.03 CONSTRUCTION

87-4.03A General

Set the foundations for standards such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the luminaire's clamping bracket to 10 ft-lb for LED and low-pressure luminaires.

Label the month and year of the installation inside the luminaire housing's door.

Perform the conductor and operational tests for the system.

87-4.03B Battery Backup System Cabinets

Install the battery backup system cabinet to the right of the Model 332L cabinet.

If installation on the right side is not feasible, obtain authorization for installation on the left side.

Provide access for power conductors between the cabinets using:

1. 2" nylon-insulated, steel chase nipple
2. 2" steel sealing locknut
3. 2" nylon-insulated, steel bushing

Remove the jumper between the terminals labeled *BBS-1* and *BBS-2* in the 5 position terminal block in the controller cabinet before connecting the Department-furnished electronics assembly.

87-4.03C Internally Illuminated Street Name Signs

Mount the internally illuminated street name sign to the signal mast arm using the adjustable brackets. Connect the conductors to the terminal blocks in the signal head mounting terminal block.

87-4.04 PAYMENT

Not Used

87-5 RAMP METERING SYSTEMS

87-5.01 GENERAL

Section 87-5 includes specifications for constructing ramp metering systems.

Ramp metering system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Standards
6. Signal heads
7. Service equipment enclosure
8. Department-furnished controller assembly

9. Detectors
10. Telephone demarcation cabinet

The components of a ramp metering system are shown on the project plans.

87-5.02 MATERIALS

Not Used

87-5.03 CONSTRUCTION

Connect the field wiring to the terminal blocks in the controller cabinet. The Engineer provides you a list of field conductor terminations for each controller cabinet.

Perform the conductor and operational tests for the system.

87-5.04 PAYMENT

Not Used

87-6 TRAFFIC MONITORING STATION SYSTEMS

87-6.01 GENERAL

Section 87-6 includes specifications for constructing traffic monitoring station systems.

Traffic monitoring station system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Cables
5. Conductors
6. Service equipment enclosure
7. Controller cabinet
8. Detectors
9. Telephone demarcation cabinet

The components of a traffic monitoring station system are shown on the project plans.

87-6.02 MATERIALS

Not Used

87-6.03 CONSTRUCTION

Connect the field wiring to the terminal blocks in the controller cabinet. The Engineer provides you a list of field conductor terminations for the controller cabinet.

Perform the conductor and operational tests for the system.

87-6.04 PAYMENT

Not Used

87-7 FLASHING BEACON SYSTEMS

87-7.01 GENERAL

Section 87-7 includes specifications for constructing flashing beacon systems.

Flashing beacon system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Standards
6. Service equipment enclosure
7. Signal heads
8. Flashing beacon control assembly

The components of a flashing beacon system are shown on the project plans.

The flash rate for the flashing beacon must comply with chapter 4L, "Flashing Beacons," of the *California MUTCD*.

The flashing beacon must allow alternating flashing wig-wag operation.

The flashing beacon must have a separate flasher unit installed in the flashing beacon control assembly.

87-7.02 MATERIALS

Flashing beacon control assembly must:

1. Have a NEMA 3R enclosure with a dead front panel and a hasp with a 7/16-inch hole for a padlock. The enclosure must have one of the following finishes:
   1.1. Powder coating.
   1.2. Hot-dip galvanized coating.
   1.3. Factory-applied, rust-resistant prime coat and finish coat.
2. Have barrier-type terminal blocks rated for 25 A, 600 V(ac), made of molded phenolic or nylon material and have plated-brass screw terminals and integral marking strips.
3. Include a solid state flasher complying with section 8 of NEMA standards publication no. TS 1 for 10 A, dual circuits.

87-7.03 CONSTRUCTION

Perform the conductor and operational tests for the system.

87-7.04 PAYMENT

Not Used

87-8–87-11 RESERVED

87-12 CHANGEABLE MESSAGE SIGN SYSTEMS

87-12.01 GENERAL

Section 87-12 includes specifications for constructing changeable message sign systems.

Changeable message sign system includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Service equipment enclosure
6. Department-furnished controller cabinet
7. Department-furnished changeable message sign
8. Department-furnished wiring harness
9. Service equipment enclosure
10. Sign disconnect

The components of a changeable message sign system are shown on the project plans.

87-12.02 MATERIALS

Not Used

87-12.03 CONSTRUCTION

Install the changeable message sign.

Connect the field wiring to the terminal blocks in the sign assembly and controller cabinet.

The Engineer provides you a list of field conductor terminations for each sign cabinet and controller cabinet.

The Department maintains the sign assemblies.

87-12.04 PAYMENT

Not Used

87-13–87-17 RESERVED

87-18 INTERCONNECTION CONDUIT AND CABLE

87-18.01 GENERAL

Section 87-18 includes specifications for constructing interconnection conduit and cable.

Interconnection conduit and cable includes:

1. Pull boxes
2. Conduit
3. Signal interconnect cables

The components of an interconnection conduit and cable are shown.

87-18.02 MATERIALS

Not Used

87-18.03 CONSTRUCTION

Test the signal interconnect cable.

Connect the signal interconnect cable to the terminal block in the controller cabinets. The Engineer provides you a list of terminations for each controller cabinet.

87-18.04 PAYMENT

Not Used

87-19 RESERVED

87-20 TEMPORARY ELECTRICAL SYSTEMS

87-20.01 GENERAL

Section 87-20 includes specifications for providing temporary electrical systems.

Obtain the Department's authorization for the type of temporary electrical system and its installation method.

A temporary system must operate on a continuous, 24-hour basis.

87-20.02 MATERIALS

87-20.02A General

Material and equipment may be new or used.

The components of a temporary system are shown on the project plans.

If you use Type UF-B cable, the minimum conductor size must be no. 12.

87-20.02B Temporary Flashing Beacon Systems

A temporary flashing beacon system consists of a flashing beacon system, wood post, generator, and photovoltaic system.

The system must comply with the specifications for a flashing beacon system in section 87-7, except it may be mounted on a wood post or a trailer.

87-20.02C Temporary Lighting Systems

A temporary lighting system consists of a lighting system, generator, and wood poles.

The system must comply with the specifications for a lighting system in section 87-2, except it may be mounted on a wood pole or a trailer.

87-20.02D Temporary Signal Systems

A temporary signal system consists of a signal and lighting system, wood poles and posts, and a generator.

System must comply with the specifications for a signal and lighting system in section 87-4, except:

1. Signal heads may be mounted on a wood pole, mast arm, tether wire, or a trailer
2. Flashing beacons may be mounted on a wood post, or a trailer

87-20.03 CONSTRUCTION

87-20.03A General

Provide electrical and telecommunication services for temporary systems. Do not use existing services unless authorized.

Provide power for the temporary electrical systems under section 12-3.33, except you may use a photovoltaic system for the temporary flashing beacon system.

Install conductors and cables in a conduit, suspended from wood poles at least 25 feet above the roadway, or use direct burial conductors and cables.

You may saw slots across paved areas for burial conductors and cables.

Install conduit outside the paved area at a minimum of 12 inches below grade for Type 1 and 2 conduit and at a minimum of 18 inches below grade for Type 3 conduit.

Install direct burial conductors and cables outside the paved area at a minimum depth of 24 inches below grade.

Place the portions of the conductors installed on the face of wood poles in either Type 1, 2, or 3 conduit between the point 10 feet above grade at the pole and the pull box. The conduit between the pole and the pull box must be buried at a depth of at least 18 inches below grade.

Place conductors across structures in a Type 1, 2, or 3 conduit. Attach the conduit to the outside face of the railing.

Mount the photoelectric unit at the top of the standard or wood post.

You may abandon in place conductors and cables in sawed slots or in conduit installed below the ground surface.

87-20.03B Temporary Flashing Beacon Systems

Install a fused-splice connector in the pull box adjacent to each flashing beacon. Wherever conductors are run overhead, install the splice connector in the line side outside of the control assembly.

87-20.03C Temporary Lighting Systems

Wherever conductors are run overhead, install the fuse splice connectors in the line side before entering the mast arm.

87-20.03D Temporary Signal Systems

You may splice conductors that run to a terminal compartment or a signal head on a pole to the through conductors of the same phase in a pull box adjacent to the pole. Do not splice conductors or cables except in a pull box or in a NEMA 3R enclosure.

The Department provides the timing for the temporary signal.

Maintain the temporary signal except for the Department-furnished controller assembly.

87-20.04 PAYMENT

Not Used

87-21 EXISTING ELECTRICAL SYSTEMS

87-21.01 GENERAL

Section 87-21 includes general specifications for performing work on existing electrical systems.

87-21.02 MATERIALS

Not Used

87-21.03 CONSTRUCTION

87-21.03A General

You may abandon unused underground conduit after pulling out all conductors and removing conduit terminations from the pull boxes.

If standards are to be salvaged, remove:

1. All components
2. Mast arms from the standards
3. Luminaires, signal heads, and signal mounting assemblies from the standards and mast arms

If the existing material is unsatisfactory for reuse and the Engineer orders you to replace it with new material, replacing the existing material with new material is change order work.

If the removed electrical equipment is to be reinstalled, supply all materials and equipment, including signal mounting assemblies, anchor bolts, nuts, washers, and concrete, needed to complete the new installation.

87-21.03B Maintaining Existing Electrical Systems

87-21.03B(1) General

Maintain the existing electrical system in working order during the progress of the work. Conduct your operations to avoid damage to the elements of the systems.

87-21.03B(2) Maintaining Existing Traffic Management System Elements During Construction

Section 87-21.02B(2) applies if a bid item for maintaining existing traffic management system elements during construction is shown on the Bid Item List.

Traffic management system elements include:

1. Ramp metering system
2. Traffic monitoring stations
3. Microwave vehicle detection system
4. Changeable message sign system
5. Extinguishable message sign system
6. Highway advisory radio system
7. Closed circuit television camera system
8. Roadway weather information system

Obtain authorization at least 72 hours before interrupting communication between an existing system and the traffic management center.

If the Engineer notifies you that an existing system is not fully operational due to your activities, repair or replace the system within 72 hours. If the system cannot be fixed within 72 hours or it is located on a structure, provide a temporary system within 24 hours until the system can be fixed. Perform a functional test of the system in the presence of the Engineer. If you fail to perform the necessary repair or replacement work, the Department may perform the repair or replacement work and deduct the cost.

If you damage an existing fiber optic cable, install a new cable such that the length of cable slack is the same as before the damage, measured from an original splice point or termination. All splices must be made using the fusion method.

You may interrupt the operation of traffic monitoring stations:

1. For 60 days if another operational traffic monitoring station is located within 3 miles

2. For 15 days if another operational traffic monitoring station is located more than 3 miles away

If a traffic monitoring station must be interrupted for longer periods than specified, provide a temporary detection system. Obtain the Department's authorization for the type of temporary system and its installation method.

87-21.03C Modifying Existing Electrical Systems

Modify electrical systems as shown.

87-21.03D Removing Existing Electrical Systems

The components to be removed are shown on the project plans.

87-21.04 PAYMENT

Not Used

^^

DIVISION XI MATERIALS

90 CONCRETE

07-15-16

Replace *Method 1* in the 4th paragraph of section 90-1.01D(5)(a) with:

07-15-16

Method 2

Replace section 90-9 with:

07-15-16

90-9 RETURNED PLASTIC CONCRETE

90-9.01 GENERAL

90-9.01A Summary

Section 90-9 includes specifications for incorporating returned plastic concrete (RPC) into concrete.

RPC must be used only where the specifications allow its use. Do not use RPC in pavement or structural concrete.

90-9.01B Definitions

returned plastic concrete (RPC): Excess concrete that is returned to a concrete plant in a plastic state and that has not attained initial set.

hydration stabilizing admixture (HSA): Extended set retarding admixture that controls and predictably reduces the hydration rate of the cementitious material.

90-9.01C Submittals

Submit the following with the weighmaster certificate:

1. Weight or volume of RPC
2. Type, brand, and dosage of HSA
3. Time of adding HSA
4. Copy of the original weighmaster certificate for the RPC
5. Temperature of RPC

When requested, submit the HSA manufacturer's instructions, including dosage tables.

90-9.01D Quality Assurance

The material plant producing concrete containing RPC must be authorized under the MPQP.

For volumetric proportioning of RPC:

1. The volumetric container must be imprinted with manufacturer's name, model number, serial number, the as-calibrated volume and date of the last calibration. Cross sectional dimensions of the container must remain the same as those during its calibration.
2. The device must be re-calibrated monthly and at any time when the container shape has been deformed from its original condition or there is evidence of material build-up on the inside of the device.
3. The device must be held in a level condition during filling. Fill the device to the measure or strike-off line. Each measurement must be filled to within 1.0% of the device as-calibrated volume.
4. The device interior must be cleaned after each measurement to maintain a zero condition.

For weight proportioning, proportion RPC with a weigh hopper attached to the plant at a position which allows the addition of the RPC to the mixer truck with the conventional PCC ingredients. The plant process controller must control the proportioning of RPC to within 1.0% of its target weight.

90-9.02 MATERIALS

90-9.02A General

The quantity of RPC added to the concrete must not exceed 15 percent.

The cementitious material content of the RPC must be at least that specified for the concrete that allows the use of RPC.

Water must not be added to the RPC after batching, including in the truck mixer.

Use HSA for controlling and reducing the hydration rate of RPC.

Incorporate RPC by mixing into the concrete before arriving at the jobsite.

90-9.02B Returned Plastic Concrete

The RPC must not exceed 100 degrees F at any time.

If HSA is not used, RPC must be incorporated into the concrete before attaining initial set or within 4 hours after batching of RPC, whichever is earlier.

If HSA is used:

1. Add HSA to RPC within 4 hours after original batching.
2. Measure and record the time, dosage of HSA, and temperature of RPC when HSA is added.
3. Mix the RPC under the HSA manufacturer's instructions after adding HSA or at least 30 revolutions, whichever is greater.
4. Incorporate RPC into the concrete within 4 hours after adding HSA.

RPC must not contain:

1. Accelerating admixture
2. Fiber
3. Pigment
4. Lightweight aggregate
5. Previously returned RPC
6. Any ingredient incompatible with the resultant concrete

90-9.02C Hydration Stabilizing Admixture

HSA must comply with ASTM C494 admixture Type B or Type D.

HSA must have a proven history of specifically maintaining and extending both plasticity and set.

HSA dosage must comply with the manufacturer's instructions.

90-9.02D Production

Proportion concrete containing RPC under section 90-2.02E.

Proportion RPC by weight or by volume.

90-9.03 CONSTRUCTION

Not Used

90-9.04 PAYMENT

Not Used

^^

92 ASPHALT BINDERS

04-15-16

04-15-16

Replace the 4th paragraph of section 92-1.02B with:

Crumb rubber modifier used must be on the Authorized Materials List for crumb rubber modifier.

Production equipment for PG modified asphalt binder with crumb rubber modifier must be authorized under the Department's *MPQP*.

Crumb rubber must be derived from waste tires described in Pub Res Code § 42703 and must be free from contaminants including fabric, metal, minerals, and other nonrubber substances.

^^

96 GEOSYNTHETICS

01-15-16

Replace *product name, manufacturing source, and date of manufacture* in the 2nd sentence of the 1st paragraph of section 96-1.01D with:

01-15-16

manufacturing source code

BID BOOK

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

BUDGET / ACCOUNT: 9172 / 8400

Department of Public Works and Planning

CONTRACT NUMBER: 18-07-C

COPY NUMBER:

BID BOOK TABLE OF CONTENTS

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

CONTRACT NUMBER: 18-07-C

PROPOSAL NUMBER	TITLE
NOT APPLICABLE	INSTRUCTIONS FOR COMPLETING THE BID BOOK
1	PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO
2	BID ITEM LIST/BID SHEET
3	EVALUATION OF BID PROPOSAL SHEETS
4	BID SECURITY
5	NONCOLLUSION AFFIDAVIT
6	PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT
7	PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE AND PUBLIC CONTRACT CODE 10232 STATEMENT
8(A) – 8(F)	SUBCONTRACTORS
9	CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS
10	TITLE 40, CODE OF FEDERAL REGULATIONS, PART 32 DEBARMENT AND SUSPENSION CERTIFICATION
11	NONLOBBYING CERTIFICATION FOR FEDERAL-AID CONTRACTS
12(A) – 12(B)	DISCLOSURE OF LOBBYING ACTIVITIES
14(A) – 14(C)	EXHIBIT 15-H DBE INFORMATION —GOOD FAITH EFFORTS
16	GUARANTY
17	GUIDELINES FOR MEETING THE CALIFORNIA STATE REVOLVING FUND PROGRAMS DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

INSTRUCTIONS FOR COMPLETING THE BID BOOK FOR FEDERAL AID PROJECTS

General

Complete forms in the *Bid* book.

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

Certain bid forms must be submitted with the bid and properly executed.

Certain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

Bid Item List and Bid Comparison

Submit a bid based on the bid item quantities the Department shows on the Bid Item List. Bids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders.*

Bid Document Completion

Proposal sheets are identified by title and by the letter “P” followed by the number assigned to the proposal sheet in question. Proposal sheets are included in the *Bid Book.*

Proposal 1 - Proposal to the Board of Supervisors of Fresno County

Provided for information.

Proposal 2 - Bid Proposal Sheet

One or more sheet(s) upon which the bidder completes the bid.

Fill out completely including a unit price and total for each unit price-based item and a total for each lump sum item.

Do not make any additions such as “plus tax”, “plus freight”, or conditions such as “less 2% if paid by 15th”.

Use ink or typewriter.

Proposal 3 - Evaluation of Bid Proposal Sheet

Describes how inconsistences and irregularities are evaluated and corrected when Design Services reviews the Bid Item List.

Proposal 4 - Bid Security and Signature

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

- Cash
- Cashier's check
- Certified check
- Signed bidder's bond by an admitted surety insurer

Indicate type of bid security provided.

- Cash – Acceptable but not recommended. Cash is deposited in a clearing account and is returned to bidders by County warrant. This process may take several weeks.
- Cashier's or Certified Checks. This type of security is held until the bid is no longer under consideration. If submitted by a potential awardee, they will be returned when the contract is fully executed by the bidder and bonds and insurance have been approved.
- Bid Bonds - Must be signed by the bidder and by the attorney-in-fact for the bonding company. Provide notarized signature of attorney-in-fact accompanied by bonding company's affidavit authorizing attorney-in-fact to execute bonds. An unsigned bid bond will be cause for rejection.

Acknowledge Addenda

Provide contractor's license information.

State business name and if business is a:

- Corporation - list officers
- Partnership - list partners
- Joint Venture - list members; if members are corporations or partnerships, list their officers or partners.
- Individual - list Owner's name and firm name style

Signature of Bidder - the following lists types of companies and corresponding authorized signers.

- Corporation - by an officer
- Partnership - by a partner
- Joint Venture - by a member
- Individual - by the Owner

If signature is by a Branch Manager, Estimator, Agent, etc., the bid must be accompanied by a power of attorney authorizing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be rejected.

- Business Address - Firm's Street Address
- Mailing Address - P.O. Box or Street Address
- Complete, sign, and return with bid.

Proposal 5 - Noncollusion Affidavit

Must be completed, signed, and returned with bid.

Proposal 6 - Public Contract Code Section 10285.1 Statement

Check "has" or "has not" in accordance with instructions on form, return with completed for with bid. Note that signing the bid constitutes signing this statement.

Proposal 7 - Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement

Check: "yes" or "no" accordance with instructions on form, include explanation if "yes" is checked. Return completed form with bid. Note that signing the bid constitutes signing this questionnaire and statement.

Proposal 8(a) through Proposal 8(f) - Subcontractors

Sheet(s) upon which bidders list subcontractors. List each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or $10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

The *Subcontractor List* submitted with the bid must show the name, location of business, work portions to be performed, and the contractor's license number for each subcontractor listed.

- Use subcontractor's business name style as registered with the License Board.
- Specify the city in which the subcontractor's business is located and the state if other than California.

- Description of the work to be performed by the subcontractor. Indicate with bid item numbers from the bid sheet and/or work descriptions similar to those on bid sheet.
- List license number for each subcontractror.

Upon request from Design Services, provide the following additional information within 24 hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- Complete physical address for each subcontractor listed.
- Percentage of the total bid or dollar amount associated with each subcontractor listed.
- Department of Industrial Relations registration number

Proposal 9 - *Certification With Regard To The Performance Of Previous Contracts Or Subcontracts Subject To The Equal Opportunity Clause And The Filing Of Required Reports*

For a Federal-aid contract, complete, sign, and return with bid.

Proposal 10 - *Title 49, Code of Federal Regulations, Part 29 Debarment And Suspension Certification*

For a Federal-aid contract, complete, sign, and return with bid.

Proposal 11 – *Non-lobbying Certification for Federal-Aid Contracts*

For a Federal-aid contract, complete, sign, and return with bid.

Proposal 12(a) through Proposal 12(b) - *Disclosure of Lobbying Activities*

For a Federal-aid contract, complete, sign, and return with bid.

Proposal 13 *- Not Used*

Proposal 14(a) through Proposal 14(c) *- Exhibit 15-H DBE Information — Good Faith Efforts*

For a Federal-aid contract, the apparent low, second-low, and third-low bidders must complete and submit so that it is received by Design Services no later than 4:00 PM on the fourth business day after the bid opening if not submitted with the bid.

Proposal 15 *- Not Used*

Proposal 16 - *Guaranty*

Does not need to be signed with the bid. Part of the contract which must be signed by the contractor when contract is executed.

Proposal 17 – *Guidelines for Meeting the California State Revolving Fund Programs Disadvantaged Business Enterprise Requirements*

Instructions and Forms required by the Federal and State agencies financing the project. To be completed and submitted per the instructions.

Zim Industries, Inc
#2

PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO

hereinafter called the Owner

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32) PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

The work embraced herein shall be done in accordance with the 2015 Standard Specifications and with the 2015 Standard Plans, of the State of California, Department of Transportation insofar as the same may apply and in accordance with these special provisions.

Except to the extent that they may conflict with these special provisions, revised Standard Specifications apply to the extent included in the section entitled "Project Details" of the book entitled "Specifications."

The work to be done is shown on a set of Plans, Department File No. 11273, entitled: "County Service Areas 30 & 32, El Porvenir & Cantua Creek, County of Fresno Westside Groundwater Project Pilot Hole Testing and Production Wells"

The undersigned, as bidder, declares that the only persons, or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes and agrees if this proposal is accepted, that he will contract with the Owner to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following unit prices, to-wit:

Proposal 1 Zim Industries, Inc.

Zim Industries, Inc
#2

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	94,000	94,000
2	1		LS	CLEARING AND GRUBBING	2,000	2,000
3	1		LS	TRAFFIC CONTROL	1,500	1,500
4	1		LS	JOB SITE MANAGEMENT	16,100	16,100
5	1		LS	WATER POLLUTION CONTROL	5,000	5,000
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	450	22,500
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	90	112,500
8	4		EA	COLLECT DEPTH ZONE SAMPLES	7,600	30,400
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	30	37,500
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	91	73,892
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	120	8,400
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	8,700	8,700
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	26	18,278
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	14	9,058
15	610		LF	FURNISH AND INSTALL GRAVEL PACK	75	45,750
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL	60	38,400
17	40		HR	PRELIMINARY DEVELOPMENT	450	18,000
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST	29,000	29,000
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	300	6,000
20	1		LS	ABANDON PILOT HOLE	13,000	13,000
SUBTOTAL BID (ITEMS 1 - 20)						589,978 ✓

Proposal 2.1 Zim Industries, Inc.

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	76,200	76,200
22	1		LS	CLEARING AND GRUBBING	5,000	5,000
23	1		LS	TRAFFIC CONTROL	1,000	1,000
24	1		LS	JOB SITE MANAGEMENT	16,100	16,100
25	1		LS	WATER POLLUTION CONTROL	6,000	6,000
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	450	22,500
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	90	130,500
28	4		EA	COLLECT DEPTH ZONE SAMPLES	7,600	30,400
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	30	43,500
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	91	95,732
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	120	12,000
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	8,700	8,700
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	26	18,278
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	14	14,098
35	450		LF	FURNISH AND INSTALL GRAVEL PACK	75	33,750
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL	60	60,000
37	40		HR	PRELIMINARY DEVELOPMENT	450	18,000
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST	29,000	29,000
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	300	6,000
40	1		LS	ABANDON PILOT HOLE	15,000	15,000
41	500		CY	EARTHWORK AND CHEMICAL TREATMENT	120	60,000
SUBTOTAL BID (ITEMS 21 - 41)						701,758 ✓

TOTAL BID (ITEMS 1 - 41)	1,291,736 ✓

F - Final Pay Item
S - Specialty Item

Total Bid - One million, two-hundred ninety-one thousand, Seven-hundred thirty-six dollars & no cents.

Proposal 2.2a

Zim Industries, Inc.

EVALUATION OF BID PROPOSAL SHEETS

Abbreviations used in the bid proposal sheet are identified in Section 1-1.06, "Abbreviations," of these special provisions.

Bids are required for the entire work. Bids will be compared on the basis indicated in the Notice to Bidders. The bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for that purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the unit price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

(a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the item total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;

(b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc. from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage-wise the unit price or item total in the Owner's Final Estimate of cost.

If both the unit price and the item total are unreadable or otherwise unclear, or are omitted, the bid may be deemed irregular. Likewise, if the item total for a lump sum item is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular unless the project being bid has only a single item and a clear, readable total bid is provided.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing any unit price or item total or lump sums. Written unit prices, item totals and lump sums will be interpreted according to the number of digits and, if applicable, decimal placement. Cents symbols also have no significance in establishing any unit price or item total since all figures are assumed to be expressed in dollars and/or decimal fractions of a dollar. Bids on lump sum items shall be item totals only; if any unit price for a lump sum item is included in a bid and it differs from the item total, the items total shall prevail.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the Owner, and that discretion will be exercised in the manner deemed by the Owner to best protect the public interest in the prompt and economical completion of the work. The decision of the Owner respecting the amount of a bid, or the existence or treatment of an irregularity in a bid, shall be final.

If this proposal shall be accepted and the undersigned shall fail to contract, as aforesaid, and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Owner, within eight (8) days not including Saturdays, Sundays and legal holidays, after the bidder has received notice of award of the contract, the Owner, at its option, may determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the Owner.

Proposal 3
Contract Number 18-07-C

Zim Industries, Inc.

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (X); Certified Check ( ); Cashier's Check ( ); Cash ($)

Bidder has and acknowledges the following addenda: 1, 2

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if bidder or other interested person is an individual, state first and last name in full.

FIRM NAME Zim Industries, Inc.
President - Curt B. Zimmerer
Secretary & Manager - Robert J. Zimmerer
Treasurer - William P. Zimmerer

Licensed in accordance with an act providing for the registration of Contractors,
Class A, C57 License No. 440537 Expires 06/30/2019

(Furnishing Contractor License information as part of this proposal is optional and is requested to facilitate verification of licensure)

Curt B Zimmerer
Signature of Bidder

August 8, 2018
Dated

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS: 4532 E. Jefferson Ave.; Fresno, CA 93725
Zip Code

MAILING ADDRESS: 4532 E. Jefferson Ave.; Fresno, CA 93725
Zip Code

BUSINESS PHONE: (559) 834-1551 FAX NUMBER: (559) 834-5156

EMAIL ADDRESS Curt@zimindustries.com

Proposal 4
Contract Number 18-07-C

CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 30th day of November 2016.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

To the Board of Supervisors, County of Fresno:

NONCOLLUSION AFFIDAVIT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID *

Curt B. Zimmerer
(Printed or Typed Name)

being first duly sworn, deposes and says that he or she is

President
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

of Zim Industries, Inc
(Bidding Entity)

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

(Signature)

August 8, 2018
(Dated)

(Title 23 United States Code Section 112)

(Calif Public Contract Code Section 7106; Stats.1988, c. 1548, Section 1.)

* NOTE: Completing, signing, and returning the Non-Collusion Affidavit is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Proposal 5
Contract Number 18-07-C

PUBLIC CONTRACT CODE

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has X, has not ___been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Zim Industries Inc

Public Contract Code Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

Not Applicable

Public Contract Code 10232 Statement

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Zim Industries, Inc.

BIDDER: Zim Industries, Inc

SUBCONTRACTORS:

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of **one-half of one percent of the total bid presented herewith or $10,000, whichever is greater.** Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Submission of subcontractor's name, location of business and description of work, and their contractor's license number is REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.

SUBCONTRACTOR: 5C Holdings Inc. (661) 438-8392

Business Address: 9530 Hageman Rd, B368, Bakersfield, CA 93312

Class C61/D09 License No. 938158 DIR Registration No. 1000028859

Item No. or Description of Work: Drilling and setting of conductor casing

Dollar Amount or Percentage of Total Bid $9,650.00 / 0.75%

Email Address cami@5ch-inc.com

SUBCONTRACTOR: Pacific Surveys, LLC (800) 919-7555

Business Address: 4456 Via Saint Ambrose, Claremont, CA 91711

Class N/A License No. N/A-service provider DIR Registration No. 1000014306

Item No. or Description of Work: geophysical logging and well surveying

Dollar Amount or Percentage of Total Bid $13,794.90 / 1.07%

Email Address shop@pacificsurveys.com

BIDDER: Zim Industries, Inc.

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(b)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(c)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc.

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(d)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder X, proposed subcontractor __, hereby certifies that he has X, has not __, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has X, has not __, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Zim Industries, Inc.
(Company)

By: Curt Bjornerud

President
(Title)

Date: August 08, 2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 32
DEBARMENT AND SUSPENSION CERTIFICATION

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Curt B. Zimmerer, President — August 8, 2018
Name & Title of Authorized Representative / Zim Industries, Inc. — Date

Curt B. Zimmerer
Signature of Authorized Representative

☐ I am unable to certify to the above statements. My explanation is attached.

Proposal 10
Contract Number 18-07-C

NONLOBBYING CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with awarding of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such sub-recipients shall certify and disclose accordingly.

Bidder: Zim Industries, Inc

By: Curt B Zimmerer

Date: August 8, 2018

Title: President, Curt B Zimmerer

Proposal 11
Contract Number 18-07-C

Not Applicable

approved by OMB
0348-0046

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

1. Type of Federal Action: a. contract ____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	**2. Status of Federal Action:** a. bid/offer/application _____ b. initial award c. post-award	**3. Report Type:** a. initial filing _____ b. material change **For material change only:** Year _____ quarter _____ Date of last report_____
4. Name and Address of Reporting Entity: ____ Prime _____ Subawardee Tier_____, if Known: **Congressional District,** *if known*:	**5. If Reporting Entity in No. 4 is Subawardee,** Enter Name and Address of Prime: **Congressional District,** *if known*:	
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____	
8. Federal Action Number, *if known:*	**9. Award Amount,** *if known:* **$**	
10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:** _____ **Title:** _____ **Telephone No.:** _____ **Date:** _____	
Federal Use Only	**Authorized for Local Reproduction** **Standard Form - LLL (Rev. 7-97)**	

Proposal 12(a)
Contract Number: 18-07-C

Zim Industries, Inc

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. _____ Bid Opening Date _____

The County of Fresno established a Disadvantaged Business Enterprise (DBE) goal of _____% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Names, addresses and phone numbers of firms selected for the work above:

E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

GUARANTY

To the Owner: County of Fresno

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

CONTRACT NUMBER: 18-07-C

The undersigned guarantees the construction and installation of the following work included in this project:

ALL WORK

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the work or any part thereof fail to operate properly as originally intended and in accordance with the plans and specifications, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, the undersigned agrees to reimburse the Owner, upon demand, for its expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or, upon demand by the Owner, to replace any such material and to repair said work completely without cost to the Owner so that said work will function successfully as originally contemplated.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the Owner.

Name (Printed): Curt B. Zimmerer

Signature: Curt B Zimmerer

Title: President

Date: December 31, 2018

Contractor: Zim Industries, Inc

California State Water Resources Control Board
Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P. O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Guidelines for Meeting the California State Revolving Fund (CASRF) Programs (Clean Water and Drinking Water SRF) Disadvantaged Business Enterprise Requirements

The Disadvantaged Business Enterprise (DBE) Program is an outreach, education, and objectives program designed to increase the participation of DBEs in the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Programs.

How to Achieve the Purpose of the Program

Recipients of CWSRF/DWSRF financing that are subject to the DBE requirements (recipients) are required to seek, and are encouraged to use, DBEs for their procurement needs. Recipients should award a "fair share" of sub-agreements to DBEs. This applies to all sub-agreements for equipment, supplies, construction, and services.

The key functional components of the DBE Program are as follows:

- Fair Share Objectives
- DBE Certification
- Six Good Faith Efforts
- Contract Administration Requirements
- DBE Reporting

Disadvantaged Business Enterprises are:

- Entities owned and/or controlled by socially and economically disadvantaged individuals as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note) (10% statute), and Public Law 102-389 (42 U.S.C. 4370d) (8% statute), respectively;
- Minority Business Enterprise (MBE) - entities that are at least 51% owned and/or controlled by a socially and economically disadvantaged individual as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note), and Public Law 102-389 (42 U.S.C. 4370d), respectively;
- Women Business Enterprise (WBE) - entities that are at least 51% owned and/or controlled by women;
- Small Business Enterprise (SBE);
- Small Business in a Rural Area (SBRA);
- Labor Surplus Area Firm (LSAF); or
- Historically Underutilized Business (HUB) Zone Small Business Concern or a concern under a successor program.

Certifying DBE Firms:

Under the DBE Program, entities can no longer self-certify and contractors and sub-contractors must be certified at bid opening. Contractors and sub-contractors must provide to the CASRF recipient proof of DBE certification. Certifications will be accepted from the following:

- The U.S. Environmental Protection Agency (USEPA)
- The Small Business Administration(SBA)
- The Department of Transportation's State implemented DBE Certification Program (with U.S. citizenship)
- Tribal, State and Local governments
- Independent private organization certifications

If an entity holds one of these certifications, it is considered acceptable for establishing status under the DBE Program.

- Information retained on the Bidder's List must include the following:
    1. Entity's name with point of contact;
    2. Entity's mailing address and telephone number;
    3. The project description on which the entity bid or quoted and when;
    4. Amount of bid/quote; and
    5. Entity's status as a DBE or non-DBE.
- The Bidders List must be kept until the recipient is no longer receiving funding under the agreement.
- The recipient shall include Bidders List as part of the Final Budget Approval Form.
- A recipient must require its prime contractor to pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the Recipient.
- A recipient must be notified in writing by its prime contractor prior to any termination of a DBE subcontractor by the prime contractor.
- If a DBE subcontractor fails to complete work under the subcontract for any reason, the recipient must require the prime contractor to employ the six GFEs if soliciting a replacement subcontractor.
- A recipient must require its prime contractor to employ the six GFEs even if the prime contractor has achieved its fair share objectives.

Reporting Requirements

For the duration of the construction contract(s), the recipient is required to submit to the State Water Resources Control Board DBE reports annually by October 10 of each fiscal year on the attached Utilization Report form (UR-334). Failure to provide this information as stipulated in the financial agreement language may be cause for withholding disbursements.

CONTACT FOR MORE INFORMATION

SWRCB, CASRF – Barbara August (916) 341-6952 barbara.august@waterboards.ca.gov

US EPA, Region 9 – Joe Ochab (415) 972-3761 ochab.joe@epa.gov

California Water Boards

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

A Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

Please use the space below to report any concerns regarding the above funded project:

Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

Send completed Form 4500-2 to:
Mr. Joe Ochab, DBE Coordinator
US EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	**Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies**	**Price of Work Submitted to the Prime Contractor**
DBE Certified By: _ DOT _ SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

California Water Boards

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractor's[2] and the estimated dollar amount of each subcontract. A Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity		

I have identified potential DBE certified subcontractors. YES NO

If *yes*, please complete the table below. If *no*, please explain:

Subcontractor Name/ Company Name	Company Address / Phone / Email	Estimated Dollar Amount	Currently DBE Certified?

--Continue on back if needed--

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

California Water Boards

STATE WATER RESOURCES CONTROL BOARD – DIVISION OF FINANCIAL ASSISTANCE
DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION
CALIFORNIA STATE REVOLVING FUNDS (CASRF)
FORM UR-334

1. Grant/Finance Agreement Number:	2. Annual Reporting Period 10/1/___ through 09/30/_	3. Purchase Period of Financing Agreement:
4. Total Payments Paid to Prime Contractor or Sub-Contractors During Current Reporting Period: $		
5. Recipient's Name and Address:	6. Recipient's Contact Person and Phone Number:	

7. List All DBE Payments Paid by Recipient or Prime Contractor During Current Reporting Period:

Payment or Purchase Paid by Recipient or Prime Contractor	Amount Paid to Any DBE Contractor or Sub-Contractor For Service Provided to Recipient		Date of Payment (MM/DD/YY)	Procurement Type Code** (see below)	Name and Address of DBE Contractor of Sub-Contractor or Vendor
	MBE	WBE			

8. Initial here if no DBE contractors or sub-contractors paid during current reporting period:
9. Initial here if all procurements for this contract are completed:
10. Comments:

11. Signature and Title of Recipient's Authorized Representative	12. Date

Email Form UR-334 to:

DrinkingWaterSRF@waterboards.ca.gov OR CleanWaterSRF@waterboards.ca.gov

Questions may be directed to:

Barbara August, SWRCB
Barbara.August@waterboards.ca.gov
Phone: (916) 341-6952
Fax: (916) 327-7469

**Procurement Type:
1. Construction
2. Supplies
3. Services (includes business services; professional services; repair services and personnel services)
4. Equipment

STATE WATER RESOURCES CONTROL BOARD - DIVISION OF FINANCIAL ASSISTANCE
DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION
CALIFORNIA STATE REVOLVING FUNDS

INSTRUCTIONS FOR COMPLETING FORM UR-334

Box 1 Grant or Financing Agreement Number.

Box 2 Annual reporting period.

Box 3 Enter the dates between which you made procurements under this financing agreement or grant.

Box 4 Enter the total amount of payments paid to the contractor or sub-contractors during this reporting period.

Box 5 Enter Recipient's Name and Address.

Box 6 Enter Recipient's Contact Name and Phone Number.

Box 7 Enter details for the **DBE purchases only** and be sure to limit them to the current period. 1) Use either an "R" or a "C" to represent "Recipient" or "Contractor." 2) Enter a dollar total for DBE and total the two columns at the bottom of the section. 3) Provide the payment date. 4) Enter a product type choice from those at the bottom of the page. 5) List the vendor name and address in the right-hand column

Box 8 Initial here if no DBE contractors or sub-contractors were paid during this reporting period.

Box 9 Initial this box only if all purchases under this financing agreement or grant have been completed during this reporting period or a previous period. If you initial this box, we will no longer send you a survey.

Box 10 This box is for explanatory information or questions.

Box 11 Provide an authorized representative signature.

Box 12 Enter the date form completed.

CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 30th day of November 2016.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
) ss
County of Fresno)

On 08-09-2018, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he/~~she~~/they~~ executed the same in ~~his/~~her~~/their~~ authorized capacity~~(ies)~~, and that by ~~his/~~her~~/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2202238
FRESNO COUNTY
My Comm. Exp. July 12, 2021

Signature: Bonnie Gonzalez

(Seal)

Bonnie Gonzalez, Notary Public

Fresno County Westside Groundwater Project

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. 1000359-005 C Bid Opening Date August 9, 2018

The County of Fresno established a Disadvantaged Business Enterprise (DBE) goal of 16% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement
Daily Construction Service	7/5, 7/9, 7/16, 7/23, 7/30 & 8/06 of 2018
Craigs List	7/5/2018 thru August 9, 2018

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates
Capital Plow	June 11, 2018	emails & phone calls to August 9, 2018
Sunger Pumps & Supply, Inc	June 11, 2018	emails & phone calls to August 9, 2018
Uchida Pipe	June 11, 2018	emails & phone calls to August 9, 2018
Mill Man Steel, Inc	June 11, 2018	emails & phone calls to August 9, 2018
Imperial Pipe	June, 11, 2018	emails & phone calls to August 9, 2018
ASAP Industrial Supply, Inc	June, 11, 2018	emails & phone calls to August 9, 2018
5C Holdings, Inc	June 11, 2018	emails & phone calls to August 9, 2018

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Item#	Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract
6&26	drill borehole & set conductor	No	drill & set conductor	$9,650.00	0.75%
6&26	Supply Conductor pipe	No	supply conductor pipe	$12,234.00	0.95%
10,11,30&31	supply casing & screen	No	supply materials	$108,955.36	8.43%
12&32	supply compressors	No	supply materials	$ 8,782.80	0.68%
13,14,33&34	supply sounding tube & gravel fill	No	supply materials	$37,298.00	2.89%

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Capital Flow 7640 Wilbur Way #2, Sacramento, CA 95828 (916)540-7884; declined to quote
Sanger Pumps & Supply Inc. 13600 E. Belmont Ave, Sanger, CA 93657 (559)618-7444; declined to quote
Uchida Pipe 3001 S. Barrington Ave, Suite 119, Los Angeles, CA 90025 (424)465-6058; declined to quote
ASAP Industrial Supply, Inc. 10927 Jasmine Street; Fontana, CA 92337 (909)923-2777; declined to quote

Names, addresses and phone numbers of firms selected for the work above:

		Bid Item#
5C Holdings, Inc.	9530 Hageman Rd, Suite B368; Bakersfield, CA 93312; (661)438-8392	6&26
Roscoe Moss Company	4360 Worth Street; Los Angeles, CA 90063; (323)263-4111	10,11,12,30,31,32
Mill Man Steel, Inc.	1441 Wazee St. #104; Denver, CO 80202; (303)220-8545	6&26
Kelly Pipe	19459 Flightpath Way; Bakersfield, CA 93308; (661)399-4540	13,14,33,34

Detailed quotes attached show price differences of quotes.

E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

Had telephone conversations with DBE's solicited and verified that Zim Industries, Inc. would work with their firms on payment terms to match the payment terms required by their suppliers. We also are not requiring DBEs to provide bonding on their work, we will bond the job as the general contractor

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

Referred DBEs to Roscoe Moss Manufacturing Company and Kelly Pipe as possible pipe manufacturers / pipe suppliers to sell to them.

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
CA - Dept of Transportation	Internet - https://ucp.dot.ca.gov/licenseform.htm	
CA - Dept of General Services	Internet - https://www.osmb.dgs.ca.gov	
CA - Office of Small Business & DVBE Services	Internet - http://www.eprocure.dgs.ca.gov	

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

Researched past projects for names of possible DBEs to solicit quotations. Our direct DBE solicitations offered our best prospects in obtaining DBE quotations for this project.

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractor's[2] and the estimated dollar amount of each subcontract. A Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Zim Industries, Inc		Fresno County Westside Groundwater Projec
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
502	1000359-005C	Curt B. Zimmerer
Address		
4532 E. Jefferson Ave. Fresno, CA 93725		
Telephone No.		Email Address
(559) 834-1551		curt@zimindustries.com
Issuing/Funding Entity		
Drinking Water State Revolving Fund		

I have identified potential DBE certified subcontractors. (YES) NO

If *yes*, please complete the table below. If *no*, please explain:

Subcontractor Name/ Company Name	Company Address / Phone / Email	Estimated Dollar Amount	Currently DBE Certified?
SC Holdings	9530 Hageman Rd B368 Bakersfield, CA 93312 (661) 438-8342 cami@sch-inc.com	$9650.00	Yes 16000428
Pacific Surveys, LLC	4456 Vsq Saint Ambrose Claremont, CA 91711 (800) 919-7888 shop@pacificsurveys.com	$13,794.90	NO
mill Man Steel, Inc	1441 Wazee Street, Suite 104 Denver, CO 80202 (303) 220-8545 jamesgoss@millmansteel.com	$12,234.00	Yes 911N0069

--Continue on back if needed--

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[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt B. Zimmerer	Curt B. Zimmerer
Title	Date
President, Zim Industries, Inc	August 8, 2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name	Project Name
5 C Holdings	Fresno County Westside Groundwater Project
Bid / Proposal No.	**Assistance Agreement ID No. (if known)**	**Point of Contact**
502	1000359-005C	Cami Hogg
Address	
9530 Hageman Rd B368 Bakersfield CA 93312	
Telephone No.	**Email Address**
(661) 4388392	Cami@5ch-inc.com
Prime Contractor Name	**Issuing/Funding Entity**
Tim Industries, Inc	Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
6&26	drilling & setting of conductors	$9,650

DBE Certified By:	Meets/exceeds EPA certification standards?
___ DOT ✓ SBA ✓ Other: WBE	YES NO (Unknown)

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[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt Zimmer	Curt B. Zimmer
Title	Date
President, Zim Industries, Inc	8-8-2018

Subcontractor Signature	Print Name
[signature]	Cami Hogg
Title	Date
President, SC Holdings	8-7-2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

5 C Holdings
(Company)

By _____

President
(Title)

Date: 8/9/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Proposal 9
Contract Number 18-07-C

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name: PACIFIC SURVEYS, LLC	Project Name: Fresno County Westside Groundwater Project
Bid / Proposal No.: 502	Assistance Agreement ID No. (if known): 1000359-005C
Point of Contact: MICHAEL RIDDER	
Address: 9756 VIA SAINT AMBROSE CLAREMONT, CA 91711	
Telephone No.: 800 919 7555	Email Address: SHOP@PACIFICSURVEYS.COM
Prime Contractor Name: ZIM INDUSTRIES, INC	Issuing/Funding Entity: Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
7427	geophysical logging & well surveying	$13,794.00

DBE Certified By: ___ DOT ___ SBA

Other: N/A - PACIFIC SURVEYS IS NOT A DBE

Meets/exceeds EPA certification standards? YES (NO) Unknown

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[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt Zimmerer	Curt B Zimmerer
Title	Date
President, Zim Industries, Inc.	8/8/2018

Subcontractor Signature	Print Name
Josh Wheatcroft	JOSH WHEATCROFT
Title	Date
OFFICE MANAGER	8/7/2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

PACIFIC SURVEYS, LLC
(Company)

By: JOSH WHEATCROFT

OFFICE MANAGER
(Title)

Date: 8/8/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
MILL MAN STEEL, INC		FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
502	1000359-005C	James Goss
Address		
1441 WAZEE ST, SUITE 104, DENVER CO 80202		
Telephone No.		Email Address
303-220-8545		jamesgoss@millmansteel.com
Prime Contractor Name		Issuing/Funding Entity
ZIM INDUSTRIES, INC		Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
6626	STEEL PIPE	$ 12,734 USD

DBE Certified By:			Meets/exceeds EPA certification standards?		
	DOT	SBA	YES	NO	Unknown
Other: CPUC					

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt B Zimmerer	Curt B Zimmerer
Title	Date
President, Zim Industries, Inc.	8/8/2018

Subcontractor Signature	Print Name
	JAMES GOSS
Title	Date
SALES	8/8/18

Mill Man Steel, Inc

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

Zim Industries, Inc.

DBE – Good Faith Effort

Fresno County Westside Groundwater Project

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. 1000359-005 C Bid Opening Date August 9, 2018

The County of Fresno established a Disadvantaged Business Enterprise (DBE) goal of 18.48 % for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement
Daily Construction Service	7/5, 7/9, 7/16, 7/23, 7/30 & 8/06 of 2018
Craigs List	7/5/2018 thru August 9, 2018

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates
Capital Flow	June 11, 2018	emails & phone calls to August 9, 2018
Singer Pumps & Supply, Inc.	June 11, 2018	emails & phone calls to August 9, 2018
Uchida Pipe	June 11, 2018	emails & phone calls to August 9, 2018
Mill Man Steel, Inc.	June 11, 2018	emails & phone calls to August 9, 2018
Imperial Pipe	June, 11, 2018	emails & phone calls to August 9, 2018
ASAP Industrial Supply, Inc.	June, 11, 2018	emails & phone calls to August 9, 2018
5C Holdings, Inc.	June 11, 2018	emails & phone calls to August 9, 2018

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Item #	Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract
6&26	drill borehole & set conductor	No	drill & set conductor	$9,650.00	0.75%
6&26	Supply Conductor pipe	No	supply conductor pipe	$12,234.00	0.95%
10,11,30&31	Supply casing & screen	No	Supply material	$108,955.36	8.43%
12 & 32	supply compressor section	No	Supply material	$ 8,782.80	0.68%
13,14,33&34	Supply Sounding tube & gravel fed	No	Supply materials	$37,298.00	2.89%

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Capital Flow 7640 Wilbur Way #2, Sacramento, CA 95828 (916)340-7884; declined to quote
Sanger Pumps & Supply Inc. 13608 E. Belmont Ave, Sanger, CA 93657 (559)638-7444; declined to quote
Uchida Pipe 3001 S. Barrington Ave. Suite 119, Los Angeles, CA 90025 (424)465-6058; declined to quote
ASAP Industrial Supply, Inc. 10927 Jasmine Street; Fontana, CA 92337 (909)923-2727; declined to quote

Names, addresses and phone numbers of firms selected for the work above:

		Bid Item #
5C Holdings Inc.	9530 Hageman Rd, Suite B368; Bakersfield, CA 93312; (661) 438-8392	6&26
Roscoe Moss Company	4360 Worth Street; Los Angeles, CA 90063; (323) 263-4111	10,11,12,30,31,32
Mill Man Steel, Inc.	1441 Wazee St. #104; Denver, CO 80202; (303) 220-8545	6&26
Kelly Pipe	19459 Flightpath Way; Bakersfield, CA 93308; (661) 399-4540	13,14,33,34

Detailed quotes attached show price differences of quotes.

E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

Had telephone conversations with DBE's solicited and verified that Zim Industries, Inc. would work with their firms on payment terms to match the payment terms required by their suppliers. We also are not requiring DBEs to provide bonding on their work, we will bond the job as the general contractor

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

Referred DBEs to Roscoe Moss Manufacturing Company and Kelly Pipe as possible pipe manufacturers / pipe suppliers to sell to them.

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
CA - Dept of Transportation	Internet - https://ucp.dot.ca.gov/licenseform.htm	
CA - Dept of General Services	Internet - https://www.osmb.dgs.ca.gov	
CA - Office of Small Business & DVBE Services	Internet - http://www.eprocure.dgs.ca.gov	

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

Researched past projects for names of possible DBEs to solicit quotations. Our direct DBE solicitations offered our best prospects in obtaining DBE quotations for this project.

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

ZIM INDUSTRIES, INC. REQUESTS FOR QUOTES FROM CERTIFIED/QUALIFIED DBE SUBCONTRACTORS/ SUPPLIERS & TRUCKERS AND GENERAL LABORER APPLICATIONS FOR:

Fresno County Westside Groundwater Project
El Porvenir (CSA 30) & Cantua Creek (CSA 32)
Pilot Hole Testing and Production Well Construction
Drinking Water State Revolving Fund
Project No: 1000359-005C
Contract Number: 18-07-C
Fresno County

BID DATE:
AUGUST 9, 2018 NO LATER THAN 2:00 PM

Project Description: Drilling, construction and testing of two initial pilot holes and two final production wells in El Porvenir and Cantua Creek in Fresno County, including zone sampling and water quality testing and constructing final production wells after zone test results are obtained and final well design is completed.

Items of Work, including but not limited to: Trucking, Construction Area Signs, Steel Well Casing & Screen, Steel 3" Vent Pipe / Gravel Feed Tube / Sounding Tube, Premier Silica Sand Filter Pack, Cement, Sanitary Facilities, Temporary Fencing, Diesel Fuel, Site Grading & Leveling, Surveying, Traffic Control, Water Discharge Pollution Control, Dust Control, Clearing and Grubbing, Conductor Borehole Drilling, Logging, Well Video, Plumbness and Alignment Testing, Bentonite, Sand, Pea Gravel, Drill Bits, Conductor Casing, Pump Development & Pump Test, Site Clean-Up.

Please contact Zim Industries with any questions with bonding, insurance, necessary equipment, and job overview. Please email resumes/employment applications to apply for general laborer positions.

Zim is willing to breakout any portion of work to encourage DBE Participation.

Plans and Specs are available for your viewing at our office or can be emailed upon request.

Performance & Payment Bonds may be required. Worker's Compensation, Auto, and Liability Insurance are required (see contract documents for all contract requirements).

ZIM INDUSTRIES, INC.
4532 E. Jefferson Ave., Fresno, CA 93725
Phone (559) 834-1551 Fax (559) 834-5156
Contact: Tina Daniel • Email: tina@zimindustries.com

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DAILY CONSTRUCTION SERVICE

DAILY CONSTRUCTION SERVICE
Construction Market Data LLC
P.O. Box 1748, Glen Ellen, CA 95442
Phone: 800.242.9747
Fax: 800.850.9009
vikki.darmiento@cmdgroup.com

I am a citizen of the United States, over the age of eighteen, and not a party to or interested in matter noticed. I am principal advertising clerk for the Daily Construction Service, a tradepaper of general circulation, published five days per week in the County of San Francisco, State of California, which tradepaper had been adjudged a trade paper of general circulation by the Superior Court of the City and County of San Francisco, State of California, under the date of January 16, 1953, Court Decree Number 423039.

The Notice, of which the annexed is a printed copy, has been published on the following date(s).

July 5, 9, 16, 23, 30 August 6, 2018

I certify (or declare) under penalty of perjury that the aforegoing is true and correct.

Viktoria C. D'Amato

Signature

Dated at Sonoma, California, this 7th day

of August 2018.

ZIM INDUSTRIES, INC. REQUESTS FOR QUOTES FROM CERTIFIED/QUALIFIED DBE SUBCONTRACTORS/ SUPPLIERS & TRUCKERS AND GENERAL LABORER APPLICATIONS FOR:

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4532 E. Jefferson Ave., Fresno, CA 93725
Phone (559) 834-1551 Fax (559) 834-5156
Contact: Tina Daniel • Email: tina@zimindustries.com

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Today's Opportunities
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Advertising
P.O. Box 1748, Glen Ellen, CA 95442

Contact: Vikki D'Armiento
800-242-9747 • Fax: 800-850-9009
Vikki.darmiento@cmdgroup.com

CLIENT: ZIM Industries, Inc.

To : Boyd Z.

SIZE: 8" ad x 6 Days = 48"

Run Dates: 7/5, 9,16, 23, 30
8/6 2018

RATE: $462.00

TERMS: Net 30 days from Invoice Date.

SPECIAL INSTRUCTIONS:

APPROVAL: Please publish the attached advertisement in Daily Construction Service, Northern California Edition, per terms and conditions above. I have reviewed the ad copy and have marked any necessary corrections.

OK?

Signed: _____

Date: 7-3-2018

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, July 3, 2018 2:53 PM
To: Viktoria D'Armiento
Cc: Boyd Zimmerer
Subject: Ad
Attachments: 20180703144737658.pdf

Victoria,

Thank you.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

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-----Original Message-----
From: Ricoh
Sent: Tuesday, July 3, 2018 2:48 PM
To: Curt Zimmerer <curt@zimindustries.com>
Subject: Message from "RNP002673E46AF8"

This E-mail was sent from "RNP002673E46AF8" (MP C4504ex).

Scan Date: 07.03.2018 14:47:37 (-0700)
Queries to: ricoh@zimindustries.com

CLASS II BASE
DRAIN ROCK
SAND

DUMPS
CONCRETE / AC

NOR-CAL ROCK, INC.

***NOW** 2 Locations To Serve You!*
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(800) 242-9747

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CLASSIFIEDS

ZIM INDUSTRIES, INC. REQUESTS FOR QUOTES FROM CERTIFIED/QUALIFIED DBE SUBCONTRACTORS/ SUPPLIERS & TRUCKERS AND GENERAL LABORER APPLICATIONS FOR:

Fresno County Westside Groundwater Project
El Porvenir (CSA 30) & Cantua Creek (CSA 32)
Pilot Hole Testing and Production Well Construction
Drinking Water State Revolving Fund
Project No: 1000359-005C
Contract Number: 18-07-C
Fresno County

BID DATE:
AUGUST 9, 2018 NO LATER THAN 2:00 PM

Project Description: Drilling, construction and testing of two initial pilot holes and two final production wells in El Porvenir and Cantua Creek in Fresno County, including zone sampling and water quality testing and constructing final production wells after zone test results are obtained and final well design is completed.

Items of Work, including but not limited to: Trucking, Construction Area Signs, Steel Well Casing & Screen, Steel 3" Vent Pipe / Gravel Feed Tube / Sounding Tube, Premier Silica Sand Filter Pack, Cement, Sanitary Facilities, Temporary Fencing, Diesel Fuel, Site Grading & Leveling, Surveying, Traffic Control, Water Discharge Pollution Control, Dust Control, Clearing and Grubbing, Conductor Borehole Drilling, Logging, Well Video, Plumbness and Alignment Testing, Bentonite, Sand, Pea Gravel, Drill Bits, Conductor Casing, Pump Development & Pump Test, Site Clean-Up.

Please contact Zim Industries with any questions with bonding, insurance, necessary equipment, and job overview. Please email resumes/employment applications to apply for general laborer positions.

Zim is willing to breakout any portion of work to encourage DBE Participation.

Plans and Specs are available for your viewing at our office or can be emailed upon request.

Performance & Payment Bonds may be required. Worker's Compensation, Auto, and Liability Insurance are required (see contract documents for all contract requirements).

ZIM INDUSTRIES, INC.
4532 E. Jefferson Ave., Fresno, CA 93725
Phone (559) 834-1551 Fax (559) 834-5156
Contact: Tina Daniel • Email: tina@zimindustries.com

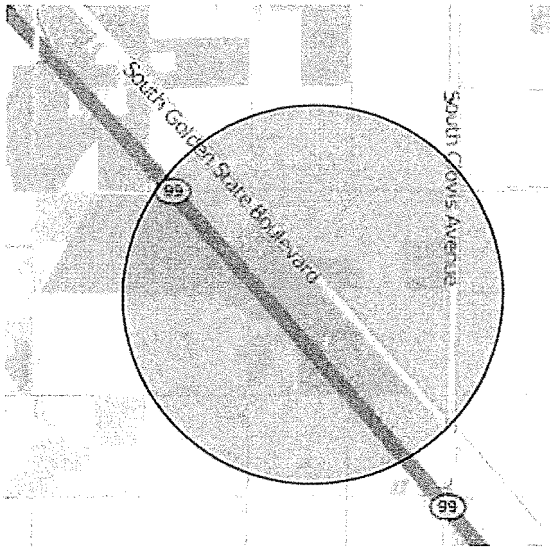
An Equal Opportunity Employer

© 2018 Construction Market Data Group LLC. All Rights Reserved.

Contact Information:

Zim Industries request for quotes from certified DBE subcontractors

(Fresno)



4532 E. Jefferson Ave.

compensation: **To be determined**

employment type: **contract**

REQUEST FOR CERTIFIED DBE SUBCONTRACTORS, SUPPLIERS & TRUCKERS FOR:

QR Code Link to This Post

Fresno County Westside Groundwater Project El Porvenir (CSA 30) & Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction Project
Drinking Water State Revolving Fund Project No: 1000359-005C
Contract Number: 18-07-C Fresno County

BID DATE: August 9th, 2018 NO LATER THAN 2:00 PM

REQUESTS FOR QUOTES FROM QUALIFIED DBE SUBCONTRACTORS, SUPPLIERS AND AND TRUCKERS & GENERAL LABORER EMPLOYMENT APPLICATIONS FOR:

Project Description: Drilling, construction and testing of two initial pilot holes and two final production wells in El Porvenir and Cantua Creek in Fresno County, including zone sampling and water quality testing and constructing final production wells after zone test results are obtained and final well design is completed.

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4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Fax (559) 834-5156
Contact: Tina Daniel
Email in response to Craiglist ad

An Equal Opportunity Employer

Curt Zimmerer

From: Tina Daniel
Sent: Thursday, July 5, 2018 3:31 PM
To: Boyd Zimmerer; Curt Zimmerer
Subject: Craigslist City of Fresno ad up
Attachments: Ad - Craigslist 7.5.18.pdf

The DBE ad is up on Craiglist as of today and I have saved a copy of the ad in the bid file.

Tina Daniel
Human Resources Manager
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Fax (559) 834-5156
Email: tina@zimindustries.com

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REQUEST FOR CERTIFIED DBE SUBCONTRACTORS, SUPPLIERS & TRUCKERS FOR:

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Phone (559) 834-1551
Fax (559) 834-5156
Contact: Tina Daniel
Email: Tina@zimindustries.com

An Equal Opportunity Employer

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: PACIFIC SURVEYS, LLC Phone: 800 919 7555

Business Address: 1756 W. SAN ANTONIO Fax: 909 949 0850

Email: SHOP@PACIFICSURVEYS.COM CLAREMONT, CA 91711

License No. and Classification: service provider N/A - DIR#1000014306 Years in Business: 20

Contact Person: MICHAEL RINDER

Is the firm currently certified as a DBE? ☒ No ☐ Yes Cert. Number: N/A

Type of work/ services/ materials proposed by bidder:

GEOPHYSICAL LOGGING & WELL SURVEYING

Amount of Bid/Quote: See attached $13,794.90

Date of Bid/Quote: 8-7-18

Owner ⇒ The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8900

Utilized as a service provider. Is not a DBE.

Curt Zimmerer

From: Shop <shop@pacificsurveys.com>
Sent: Tuesday, August 7, 2018 3:25 PM
To: Curt Zimmerer
Cc: Michael Ridder
Subject: RE: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: Bidders List Forms.pdf; Pacific Surveys DIR Registartion Status 2018-2019 Screenshot.png

Curt,

The price quote you requested appears below. The completed Bidder's list forms are attached. We are not a DBE so those forms technically don't even need to be submitted for us as they're only really needed for firms that are a DBE. I also attached documentation of our current registration status with the DIR in case you need it. Please note that We are a service provider and not a contractor so no license is required for the type of work that we do. Thanks!

Curt,

We're applying our prevailing wage service charges to our quote but we're giving you our standard rate pricing for the services in an effort to keep the costs down for you. Please review the following price quote for open hole geophysical logging and cased well surveys at the El Porvenir (CSA 30) & Cantua Creek (CSA 32) wells located in Fresno County, CA:

El Porvenir (CSA 30) Well:

Prices for the first callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Electric Log/Gamma-ray	$0.69/ft (1000' Min)/survey	1300	$897.00
Deviation	$0.65/ft (1000' Min)/survey	1300	$845.00
Total			$2547.00 *

Prices for the second callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Caliper/BH Volumes	$0.49/ft (1000' Min)/survey	1300	$637.00
Total			$1442.00 *

Prices for the third callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Video Survey **	$0.37/ft (1000' Min)/survey	1	$370.00
Gyroscopic Survey (Optional)	$1.40/ft (1000' Min)/survey	1	$1400.00
Total			$2575.00 *

El Porvenir (CSA 30) Well Total **$6564.00**

*

Cantua Creek (CSA 32) Well:

Prices for the first callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Electric Log/Gamma-ray	$0.69/ft (1000' Min)/survey	1500	$1035.00
Deviation	$0.65/ft (1000' Min)/survey	1500	$975.00
Total			$2815.00 *

Prices for the second callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Caliper/BH Volumes	$0.49/ft (1000' Min)/survey	1500	$735.00
Total			$1540.00 *

Prices for the third callout:

Service	Unit Price	Quantity	Extended
Service Charge	$805/trip to site (Mon-Fri)	1	$805.00 (Mon-Fri)
Video Survey **	$0.37/ft (1000' Min)/survey	1170	$432.90
Gyroscopic Survey (Optional)	$1.40/ft (1000' Min)/survey	1170	$1638.00
Total			$2875.90 *

Cantua Creek (CSA 32) Well Total **$7230.90 ***

Project Total **$13794.90 ***

* Totals assume that no standby time will be required to complete any of the work and that the work for each mobilization will be done on a weekday. We charge $120/hour for standby time and our prevailing wage weekend Service Charges are as follows:

Saturday Service Charge	$840/trip to site
Sunday Service Charge	$940/trip to site

** The price for the video surveys includes a 3 hour time allotment to complete each video survey. An additional charge of $120/hour will be applied for each hour over 3 hours that it takes to complete each video survey.

1000 foot minimum pricing applies to unit prices for all services and our per foot unit prices are applicable to anything over 1000 feet for all services.

These prices include the PDF of the video report for each video survey, two color hard copies of the video report for each video survey plus four DVDs of the video for each video survey in addition to all field and final copies of logs along with LAS and PDF files.

We appreciate your interest in our services and hope to work with you on this project. Please feel free to reply to this e-mail or call Pacific Surveys President Michael Ridder at (800) 919-7555 with any questions regarding price or service.

Sincerely,

Josh Wheatcroft
Office Manager
Pacific Surveys, LLC
1785 W. Arrow Route
Bldg D, Suite 3 & 4
Upland, CA 91786
shop@pacificsurveys.com

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Tuesday, August 7, 2018 12:12 PM
To: Shop <shop@pacificsurveys.com>
Subject: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Josh,

See attached specifications.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

The information contained in this electronic transmission is intended only for the personal and confidential use of the designated addressee indicated, and is intended to be privileged and/or confidential. If the reader of this electronic transmission is not the intended recipient or addressee, you are hereby notified that you have received this electronic transmission in error, and that any review, dissemination, distribution or copying of this electronic transmission or any of the information contained herein, in any manner whatsoever, is strictly prohibited. If you receive this electronic transmission in error, please notify the sender immediately. Thank you.

-----Original Message-----
From: Shop <shop@pacificsurveys.com>
Sent: Tuesday, August 7, 2018 11:33 AM
To: Curt Zimmerer <curt@zimindustries.com>
Cc: Michael Ridder <mridder@pacificsurveys.com>
Subject: RE: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Curt,

We need the portion of the specs that defines "electric logging". If you have a PDF copy of the entire RFP specs that you can just send me, that would be ideal. Thanks,

Josh Wheatcroft
Office Manager
Pacific Surveys, LLC
1785 W. Arrow Route
Bldg D, Suite 3 & 4
Upland, CA 91786
shop@pacificsurveys.com

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Tuesday, August 7, 2018 11:16 AM
To: Shop <shop@pacificsurveys.com>
Subject: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Pacific Surveys,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for service providers to provide electric logging (Bid Items 7 and 27) and video services (3.16) on this project. Please provide a quotation for the services listed on the attached PDF file. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

CR/Search.action

DIR - DIR - Compliance f... Mandarin says...

Public Works Contractor (PWC) Registration Search

Enter at least one search criteria to display registered public works contractor(s) matching your selections.

Note: Search results will display all of the public works contractor registrations, both current and expired.

Make sure the proper registration fiscal year is selected when performing a search.

Registration Fiscal Year: 7/1/2018 - 6/30/2019

PWC Registration Number: example: 1234567890

Contractor Legal Name: PACIFIC SURVEYS, LLC

License Number: example: 123456 Contractor License Lookup

County: Select County

Search Reset

This is a listing of PWC registrations pursuant to Division 2, Part 7, Chapter 1 (commencing with section 1720 of the California Labor Code.)

Export as: Excel | PDF

Search Results

One registered contractor found. 1

Details	Legal Name	Registration Number	County	City	License Type/Number(s)	Current Status	Registration Date	Expiration Date
View	PACIFIC SURVEYS, LLC	1000014306	LOS ANGELES	CLAREMONT	NONE:NONE	Active	06/14/2018	06/30/2019

v2.20171120

Copyright © 2017 State of California

Curt Zimmerer

From: Shop <shop@pacificsurveys.com>
Sent: Wednesday, August 8, 2018 8:04 PM
To: Curt Zimmerer
Cc: Robert Zimmerer; Michael Ridder
Subject: RE: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.
Attachments: Signed Equal Employment Opportunity certification Form.pdf

Curt,

I didn't notice the boxes that needed to be checked earlier. Attached is a new PDF of the signed form that has the appropriate boxes checked. Thanks,

Josh Wheatcroft
Office Manager
Pacific Surveys, LLC
1785 W. Arrow Route
Bldg D, Suite 3 & 4
Upland, CA 91786
shop@pacificsurveys.com

-----Original Message-----
From: Shop
Sent: Wednesday, August 8, 2018 7:24 PM
To: 'Curt Zimmerer' <curt@zimindustries.com>
Cc: Robert Zimmerer <bob@zimindustries.com>; Michael Ridder <mridder@pacificsurveys.com>
Subject: RE: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.

Curt,

Attached is a PDF of the signed form. Thanks,

Josh Wheatcroft
Office Manager
Pacific Surveys, LLC
1785 W. Arrow Route
Bldg D, Suite 3 & 4
Upland, CA 91786
shop@pacificsurveys.com

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Wednesday, August 8, 2018 7:07 PM
To: Shop <shop@pacificsurveys.com>
Cc: Robert Zimmerer <bob@zimindustries.com>

Curt Zimmerer

From: Shop <shop@pacificsurveys.com>
Sent: Wednesday, August 8, 2018 7:25 PM
To: Curt Zimmerer
Cc: Robert Zimmerer; Michael Ridder
Subject: RE: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.
Attachments: Signed Equal Employment Opportunity certification Form.pdf

Curt,

Attached is a PDF of the signed form. Thanks,

Josh Wheatcroft
Office Manager
Pacific Surveys, LLC
1785 W. Arrow Route
Bldg D, Suite 3 & 4
Upland, CA 91786
shop@pacificsurveys.com

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Wednesday, August 8, 2018 7:07 PM
To: Shop <shop@pacificsurveys.com>
Cc: Robert Zimmerer <bob@zimindustries.com>
Subject: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.

Josh,

Please execute and email back to me and Bob Zimmerer before 11:00 AM tomorrow morning. We are listing you on the above referenced bid and need to enclose in our proposal. Thank you.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

PACIFIC SURVEYS, LLC
(Company)

By: JOSH WHEATCROFT

OFFICE MANAGER
(Title)

Date: 8/8/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Curt Zimmerer

From:	Curt Zimmerer
Sent:	Wednesday, August 8, 2018 7:07 PM
To:	'Shop'
Cc:	Robert Zimmerer
Subject:	Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.
Attachments:	20180808185650214.pdf

Josh,

Please execute and email back to me and Bob Zimmerer before 11:00 AM tomorrow morning. We are listing you on the above referenced bid and need to enclose in our proposal. Thank you.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
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Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

The information contained in this electronic transmission is intended only for the personal and confidential use of the designated addressee indicated, and is intended to be privileged and/or confidential. If the reader of this electronic transmission is not the intended recipient or addressee, you are hereby notified that you have received this electronic transmission in error, and that any review, dissemination, distribution or copying of this electronic transmission or any of the information contained herein, in any manner whatsoever, is strictly prohibited. If you receive this electronic transmission in error, please notify the sender immediately. Thank you.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor __, hereby certifies that he has __, has not __, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not __, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____
(Company)

By: _____

_____
(Title)

Date: _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

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Curt Zimmerer

From: Shop <shop@pacificsurveys.com>
Sent: Tuesday, August 7, 2018 11:33 AM
To: Curt Zimmerer
Cc: Michael Ridder
Subject: RE: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

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Josh Wheatcroft
Office Manager
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I look forward to receiving your quote and bid forms required by this project.

Sincerely,

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Fax (559) 834-5156
Email: curt@zimindustries.com

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 11:16 AM
To: Shop
Subject: Request for quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf; 20180807110324527.pdf

Pacific Surveys,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for service providers to provide electric logging (Bid Items 7 and 27) and video services (3.16) on this project. Please provide a quotation for the services listed on the attached PDF file. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

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Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _DOT _SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

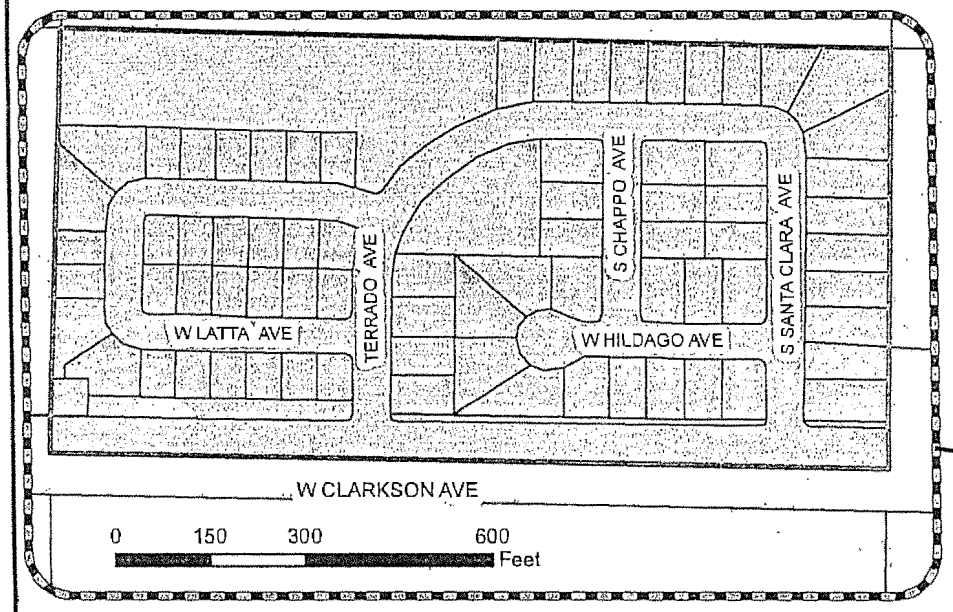
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

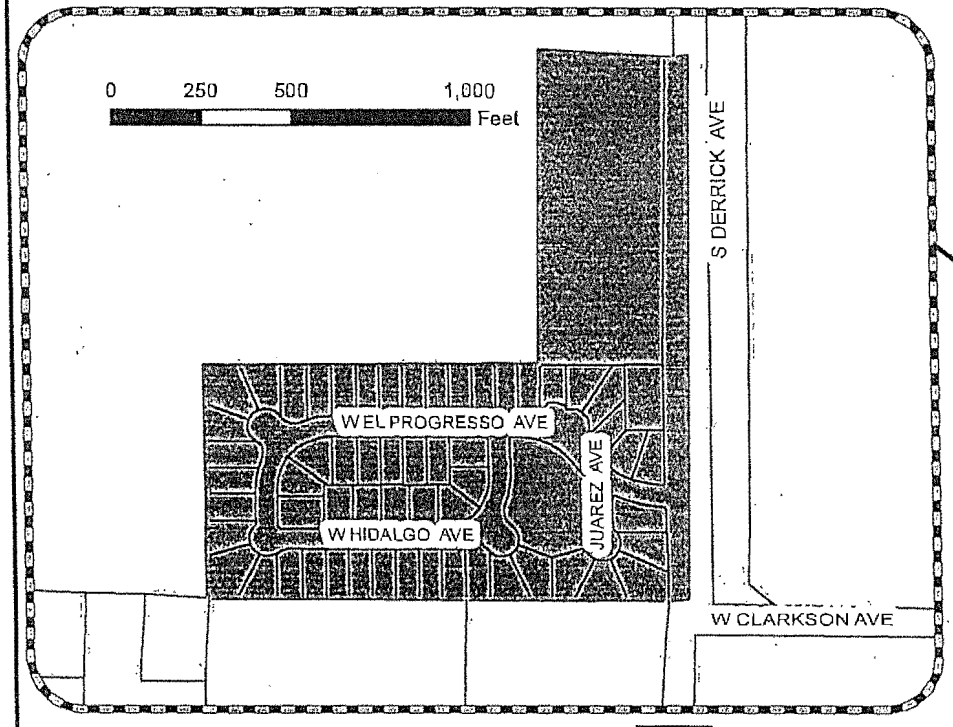
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

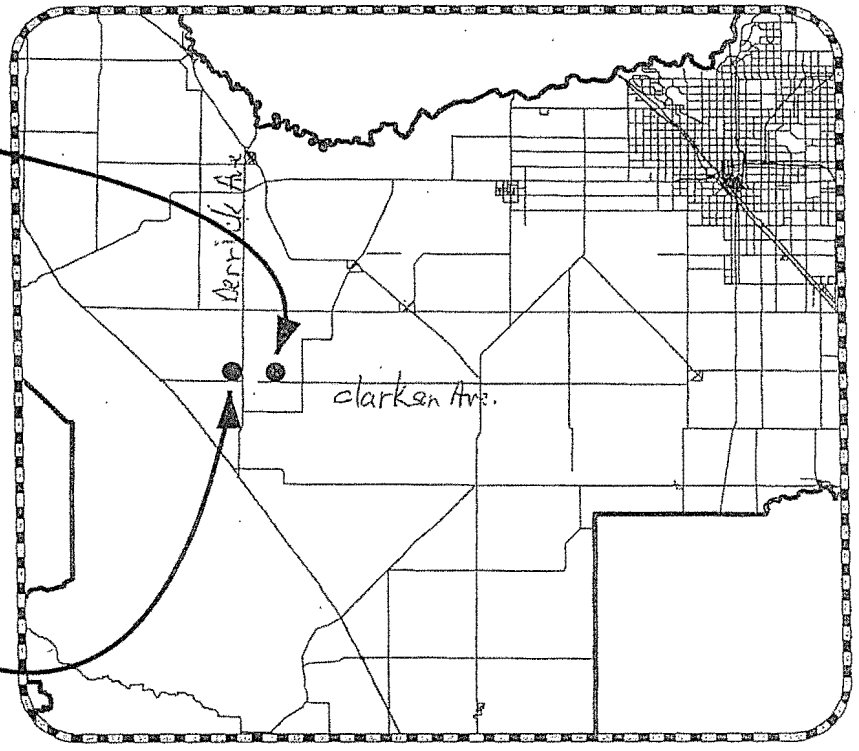
PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1

N
W E
S

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency..

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 *WELL CASING*

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

After the pump is removed, all sand and debris shall be removed from the bottom of the well.

3.14 COMPLETED WELL WATER SAMPLES

A. Water samples will be collected during the pump test. The Contractor shall cooperate with the Geologist who will collect the samples.

3.15 PLUMBNESS AND ALIGNMENT

A. After completion of the testing for yield and drawdown, the Contractor shall test well for plumbness and alignment by lowering a 40-foot long "dummy" or cage into the well to the bottom. The outer diameter of the dummy shall be not more than one-inch smaller than the inside diameter of the well casing. The dummy shall consist of a rigid spindle with 3-rings, each 12 inches wide and spaced top-middle-bottom. The central member of the dummy shall be sufficiently rigid to maintain the concentric alignment of the 3 rings.

B. Should the dummy fail to move freely throughout the length of the well, the well shall be subject to rejection by the Owner. The Owner may direct the Contractor to abandon the well per County of Fresno and State requirements, and drill a new well per Project specifications at not extra cost to the Owner.

C. The Contractor shall guarantee that the well, when completed, shall be sufficiently straight and plumb to permit the free installation and operation of a deep well turbine pump normally used in similarly sized casings with the pump bowls set at 600 feet.

3.16 VIDEO SURVEY

A. A color video survey of the entire length of the casing will be performed to verify casing integrity, location of perforations, and effectiveness of development. The video survey equipment shall have side scan capability. Video tape shall be submitted to Engineer for review prior to casing closure. If further well cleaning is necessary, Contractor shall do so at his own expense and also pay for an additional video survey after the well is cleaned.

3.17 CASING CLOSURE

A. Upon completion of work on the well, the production well shall be capped by welding a 1/4-inch steel plate over the top of the well casing.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries Inc.
Project: No. 1600359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: 5 C Holdings Phone: (661) 438-8392
Business Address: 9530 Hageman Rd B368 Fax: (661) 588-6455
Email: cami@5ch-inc.com Bakersfield CA 93312
License No. and Classification: 938158 C61/D09 Years in Business: 9
Contact Person: Cami Hogg
Is the firm currently certified as a DBE? ☐ No ☑ Yes Cert. Number: 16000428
Type of work/ services/ materials proposed by bidder:
drilling + setting of conductor

Amount of Bid/Quote: See Attached $9,650.00
Date of Bid/Quote: 8-7-2018

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Utilized DBE as a subcontractor.

5 C - Drilling & Transportation Services

9530 Hageman Road, Suite B-368 Bakersfield, CA 93312

Phone (661) 401-0226

License# 938158-C61/D09, SBE# 1800205/LASBE/EBE

WBE# 16000428/WOSB, DIR# 1000028859

Rate Sheet

To: Zim Industries

Job: Conductor

Project: Fresno County Westside Groundwater Project

Attn: Curt Zimmerer

Phone: 559-351-3427

Email: curt@zimindustries.com

Scope of work: Drilling 2-50' conductor - prevailing wage. Polymer or gel to be provided by Zim Industries

Item		*Rate*	*Unit*	*Project Estimate*
1	Drilling including mobilization	$ 375.00	hourly	$ 6,000.00
2	Drilling including mobilization - Over time	$ 425.00		$ 2,125.00
3	Drilling including mobilization - Double Time	$ 475.00		
4	Polymer	$ 30.00	gallon	
5	Gel	$ 20.00	sack	
6	3rd party services and materials	20% mark up		
7	Supervisor	$ 75.00	hourly	$ 600.00
8	USA Dig Alert	$ 75.00	hourly	$ 150.00
9	Teeth	$ 25.00	per tooth	$ 250.00
10	Welder	$ 85.00	hourly	
11	Centralizers	$ 10.00	each	
12	Steel Lid	$ 350.00	each	
13	Per Diem	$ 175.00	each employee	$ 525.00
	Project Estimate			$ 9,650.00

Specific Conditions:

1 Teeth will be charged in rock drilling conditions
2 An authorized contractor's representative shall endorse 5C's work tickets and field change orders daily. These tickets shall form the basis for 5 C Invoices.
3 Payment Terms are Net 30 for all work completed
4 Past due invoices are subject to 1.5% per month finance charghe (18% per year).

5 C Holdings, Inc.
Casey Hogg

Date: 8/7/2018

Accepted:
By: _____
Title: _____
Date: _____

General Conditions:

Unless specifically included, modified or amended on page one of the attached proposal, 5 C Holdings, Inc. (hereinafter referred to as 5C) proposes to provide labor, equipment and/or materials to perform work as described therein, subject to the following conditions:

1. General contractor to provide safe and reasonable access for ingress and egress of track mounted drill rig to shaft locations including swing radius and for support equipment including but not limited to cranes, material trucks, concrete trucks and pumps. All field engineering and layout, including shaft locations and elevations, shall be established prior to and maintained during drilling operations at no expense to 5C.

2. Continuous spoils removal to be performed by others so as not to interfere with drilling operations.

3. Maximum vertical and horizontal distance from track or wheels from drill rig not to exceed 6' foot.

4. Shafts not completely filled with concrete are to be protected and covered by others so as to insure against accident or injury.

5. 5C assumes no responsibility for damage to underground utilities. General contractor to locate and remove or reroute underground utilities so as not to interfere with drilling operations. Delays resulting there from will be charged for at the delay and obstruction rate stated on page one of the attached proposal.

6. Provisions for electrical power, water supply, dewatering, sumps and/or drains shall be provided by others.

7. The attached proposal is based on drilling with standard earth augers in soil free of rock, water, caving, man-made obstructions, pressurized groundwater/artesian well(s) or other conditions that might impede the "normal" drilling process. Drilling requiring use of rock augers, coring tools, drilling fluids, casing or other specialized tools, equipment, or procedures will be charged for at the delay and obstruction rate stated on page one of the attached proposal.

8. General Contractor to notify Dig Alert (811 or www.digalert.org) a minimum of 72 hours prior to 5C arriving onsite. All locations where 5C is to drill must be delineated in white paint by the General Contractor and the Dig Alert reference number supplied to 5C immediately.

9. The attached proposal is based on one mobilization to jobsite and continuous uninterrupted drilling operations, 8 hour day, 40 hour week, Saturdays, Sundays and Holidays excluded.

10. Should conditions be encountered during the performance of 5C's work which differ from those (a) specified by the contract documents or soils data provided to 5C which are not a part of the contract documents, or (b) those ordinarily encountered and generally recognized as inherent in work of the character provided in the contract, an equitable adjustment and time extension will be made to cover the resulting costs.

11. Laboratory analysis, field-testing and inspections, including overtime shall be provided and paid for by others.

12. Traffic control including but not limited to flagmen, barricades, barriers, street closure permits or permission to encroach to be provided and paid for by others.

13. All required licenses, permits, bonds and inspections to be provided and paid for by others.

14. Unless negligent, 5C assumes no responsibility for damage to existing improvements or structures above or below grade. Temporary shoring, permanent shoring and underpinning not specifically included in the attached proposal are excluded.

15. Drilled shafts shall be accepted or rejected by an authorized contractor/owner representative upon individual completion. Subsequent authorization for placement of materials into shafts will constitute final approval and any corrective work required thereafter will be performed at additional expense.

16. Anchor bolts, dowels, keyways or any formwork above top of pile concrete/bottom of pile cap is excluded.

17. Minimum 10" clear travel space through center of rebar cages for entire length of shaft will be required when concrete is provided and/or placed by 5C. Rebar cages are to be placed within 10 feet of 5C's equipment and of sufficient strength to maintain shape during hoisting. Costs for splicing or coupling of angles or hooks at top of steel is excluded should temporary casing be required. Spacers, dobies, wheels or other required centering devices for rebar cages shall be provided by others. Sandblasting or cleaning of rebar cages is excluded. Any required PVC or steel inspection tubes for gamma-gamma or cross hole sonic logging shall be provided, installed and grouted by others. Any gamma-

18. Hand cleaning of shaft bottoms is excluded. Any drilling fluids, slurry, contaminated concrete, spoils either solid or liquid shall be removed from the jobsite by others unless specifically included in this proposal.

19. Unless specifically included in the attached proposal, costs for concrete pumping is excluded.

20. General Liability Insurance limit of $1,000,000.00; Automobile Liability/Worker's Compensation insurance limits of $1,000,000.00 with excess liability limits of $4,000,000.00 are included in the attached proposal. Standard additional insured endorsements for general liability will be issued, as required by written contract only, on form VE0182-03/04 at no additional charge. Other endorsements such as Primary wording, waivers of subrogation or additional insured endorsements for automobile liability may be available for an additional charge and/or with prior approval from our insurance carrier. Additional costs of other endorsements or any special insurance requirements in

21. An authorized contractor's representative shall endorse 5C's work tickets and field change orders daily. These tickets shall form the basis for 5C invoices. No back charges will be accepted unless signed for by an authorized representative of 5C.

22. Payment terms are Net 30 for all work completed. Past due invoices are subject to 1.5% per month finance charge (18% per year).

23. No liquidated damages may be assessed against 5C unless specifically agreed to in contract documents. 5C shall not be responsible for consequential or incidental damages.

24. If through no fault of 5C, we are unable to complete the work as described, we may terminate this agreement by written notice and shall be paid for the percentage of work completed including unrecoverable costs of materials.

25. All items not specifically included in the attached proposal are excluded. Any deviation from said proposal is to be approved by both parties. Said proposal is to become a part of any agreement issued to 5C.

26. Any controversy or claim arising out of or related to the contract, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator or arbitrators may be entered in any court having jurisdiction thereof.

27. In the event that suit is instituted to enforce payment, the prevailing party shall be entitled to reasonable attorney fees together with costs of suit.

28. 5C shall receive written notice to proceed 30 calendar days prior to mobilization to jobsite.

29. The attached proposal is valid for seven calendar days from date submitted unless extended in writing by 5C.

30. Any and all retention amounts withheld, shall be released to 5C within 35 days upon completion of our work.

Customer Initials: _____

5 C Holdings: _____

Curt Zimmerer

From: Cami Hogg <cami@5ch-inc.com>
Sent: Tuesday, August 7, 2018 2:36 PM
To: Curt Zimmerer
Cc: casey Hogg
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: CSLB ID Card 2019.pdf; SB Certification through 2019.pdf; WBE Certification.pdf; Fresno County Westside Conductor Proposal.pdf; Fresno County Westside DBE Docs.pdf

Curt

Attached is the proposal along with certifications and signed subcontractor docs.

Respectfully,

Cami Hogg
President

License 938158 - C61/D09

SBE(micro) #1800205/LASBE/EBE
WBE #16000428/ WOSB
DIR # 1000028859

"2018 Energy Services Business of the Year"

5 C - Drilling and Transportation Services Mailing | 9530 Hageman Road, Suite B-368 | Bakersfield, CA 93312 Shop | 30728 Imperial Street | Shafter, CA | 93263 Tel 661-438-8392 |Fax 661-588-6455 |Cell 661-978-6555
Email: cami@5ch-inc.com | Site: www.5ch-inc.com

-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 7, 2018 10:43 AM
To: Cami Hogg <cami@5ch-inc.com>
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Cami,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide services to drill the two

conductor boreholes and install the two conductor casings on this project (Bid Items 6 and 26). As a DBE your company qualifies as a DBE service provider for this project. Please provide a quotation for the services listed on the attached PDF file. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers and service providers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

CONTRACTORS
STATE LICENSE BOARD
ACTIVE LICENSE

License Number **938158** Entity CORP

Business Name 5 C HOLDINGS INC

Classification(s) C61/D09

Expiration Date 09/30/2019 www.cslb.ca.gov

Printed on: 8/18/2017 12:58:17 PM

To verify most current certification status go to: https://www.caleprocure.ca.gov

DGS
CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Office of Small Business & DVBE Services

Certification ID: 1800205

Legal Business Name:
5 C HOLDINGS, INC.

Doing Business As (DBA) Name 1:
5 C HOLDINGS, INC.

Doing Business As (DBA) Name 2:

Address:
9530 HAGEMAN RD.
BAKERSFIELD
CA 93312

Email Address:
cami@5ch-inc.com

Business Web Page:
http://www.5ch-inc.com

Business Phone Number:
661/438-8392

Business Fax Number:
661/588-6455

Business Types:
Construction , Service

Certification Type	Status	From	To
SB(Micro)	Approved	08/18/2017	08/31/2019

Stay informed! KEEP YOUR CERTIFICATION PROFILE UPDATED!
-LOG IN at CaleProcure.CA.GOV

Questions?
Email: OSDSHELP@DGS.CA.GOV
Call OSDS Main Number: 916-375-4940
707 3rd Street, 1-400, West Sacramento, CA 95605

SUPPLIER CLEARINGHOUSE

CERTIFICATE OF ELIGIBILITY

CERTIFICATION EXPIRATION DATE: **July 29, 2019**

The Supplier Clearinghouse for the Utility Supplier Diversity Program of the California Public Utilities Commission hereby certifies that it has audited and verified the eligibility of:

5 C HOLDINGS, INC.

Women Business Enterprise (WBE)

pursuant to Commission General Order 156, and the terms and conditions stipulated in the Verification Application Package. This Certificate shall be valid only with the Clearinghouse seal affixed hereto.

Eligibility must be maintained at all times, and renewed within 30 days of any changes in ownership or control. Failure to comply may result in a denial of eligibility. The Clearinghouse may reconsider certification if it is determined that such status was obtained by false, misleading or incorrect information. Decertification may occur if any verification criterion under which eligibility was awarded later becomes invalid due to Commission ruling. The Clearinghouse may request additional information or conduct on- site visits during the term of verification to verify eligibility.

This certification is valid only for the period that the above firm remains eligible as determined by the Clearinghouse. Utility companies may direct inquiries concerning this Certificate to the Clearinghouse at (800) 359-7998 in Los Angeles.

VON: 16000428

DETERMINATION DATE: July 29, 2016

Curt Zimmerer

From: Cami Hogg <cami@5ch-inc.com>
Sent: Thursday, August 9, 2018 6:58 AM
To: Curt Zimmerer
Cc: Robert Zimmerer; casey Hogg
Subject: RE: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.
Attachments: Scan_20180809.pdf

Curt

Attached is the completed EEO cert.

Respectfully,

Cami Hogg
President

License 938158 - C61/D09

SBE(micro) #1800205/LASBE/EBE
WBE #16000428/ WOSB
DIR # 1000028859

"2018 Energy Services Business of the Year"

5 C - Drilling and Transportation Services Mailing | 9530 Hageman Road, Suite B-368 | Bakersfield, CA 93312 Shop | 30728 Imperial Street | Shafter, CA | 93263 Tel 661-438-8392 |Fax 661-588-6455 |Cell 661-978-6555
Email: cami@5ch-inc.com | Site: www.5ch-inc.com

-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Wednesday, August 8, 2018 7:03 PM
To: Cami Hogg <cami@5ch-inc.com>
Cc: Robert Zimmerer <bob@zimindustries.com>
Subject: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.

Cami,

Please execute and email back to me and Bob Zimmerer before 11:00 AM tomorrow morning. We are listing you on the above referenced bid and need to enclose in our proposal. Thank you.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

5 C Holdings
(Company)

By _____

President
(Title)

Date: 8/9/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Curt Zimmerer

From: Curt Zimmerer
Sent: Wednesday, August 8, 2018 7:03 PM
To: Cami Hogg
Cc: Robert Zimmerer
Subject: Equal Employment Opportunity certification of subcontractor listed on Fresno County Westside Groundwater Project by Zim Industries, Inc.
Attachments: 20180808185650214.pdf

Cami,

Please execute and email back to me and Bob Zimmerer before 11:00 AM tomorrow morning. We are listing you on the above referenced bid and need to enclose in our proposal. Thank you.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

The information contained in this electronic transmission is intended only for the personal and confidential use of the designated addressee indicated, and is intended to be privileged and/or confidential. If the reader of this electronic transmission is not the intended recipient or addressee, you are hereby notified that you have received this electronic transmission in error, and that any review, dissemination, distribution or copying of this electronic transmission or any of the information contained herein, in any manner whatsoever, is strictly prohibited. If you receive this electronic transmission in error, please notify the sender immediately. Thank you.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor __, hereby certifies that he has __, has not __, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not __, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____
(Company)

By: _____

_____
(Title)

Date: _____

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Curt Zimmerer

From: Cami Hogg <cami@5ch-inc.com>
Sent: Tuesday, August 7, 2018 10:47 AM
To: Curt Zimmerer
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Received.

Respectfully,

Cami Hogg
President

License 938158 - C61/D09

SBE(micro) #1800205/LASBE/EBE
WBE #16000428/ WOSB
DIR # 1000028859

"2018 Energy Services Business of the Year"

5 C - Drilling and Transportation Services Mailing | 9530 Hageman Road, Suite B-368 | Bakersfield, CA 93312 Shop | 30728 Imperial Street | Shafter, CA | 93263 Tel 661-438-8392 |Fax 661-588-6455 |Cell 661-978-6555
Email: cami@5ch-inc.com | Site: www.5ch-inc.com

-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 7, 2018 10:43 AM
To: Cami Hogg <cami@5ch-inc.com>
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Cami,

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I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:43 AM
To: 'Cami Hogg'
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

Cami,

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I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _ DOT _ SBA Other: _____		Meets/exceeds EPA certification standards? YES NO Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

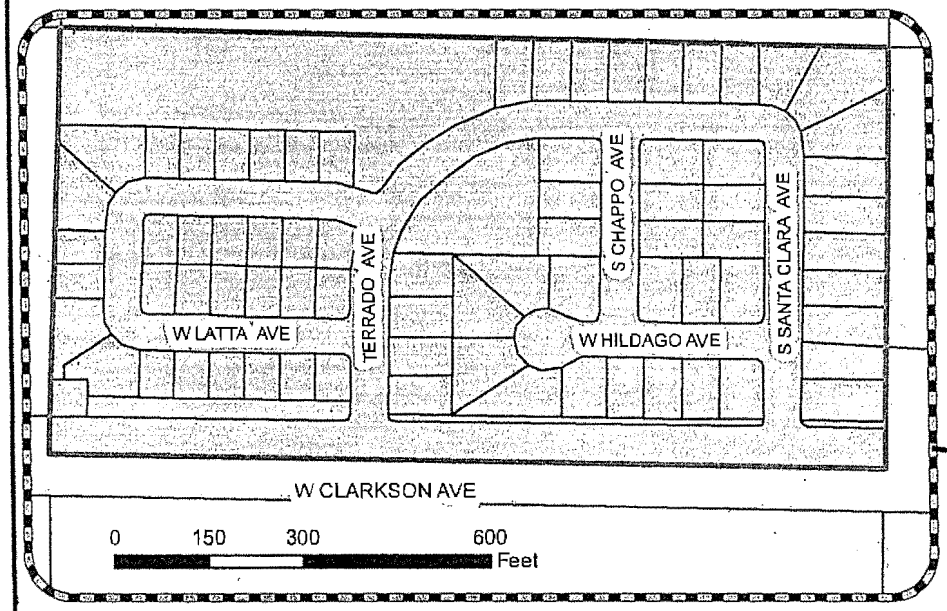
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

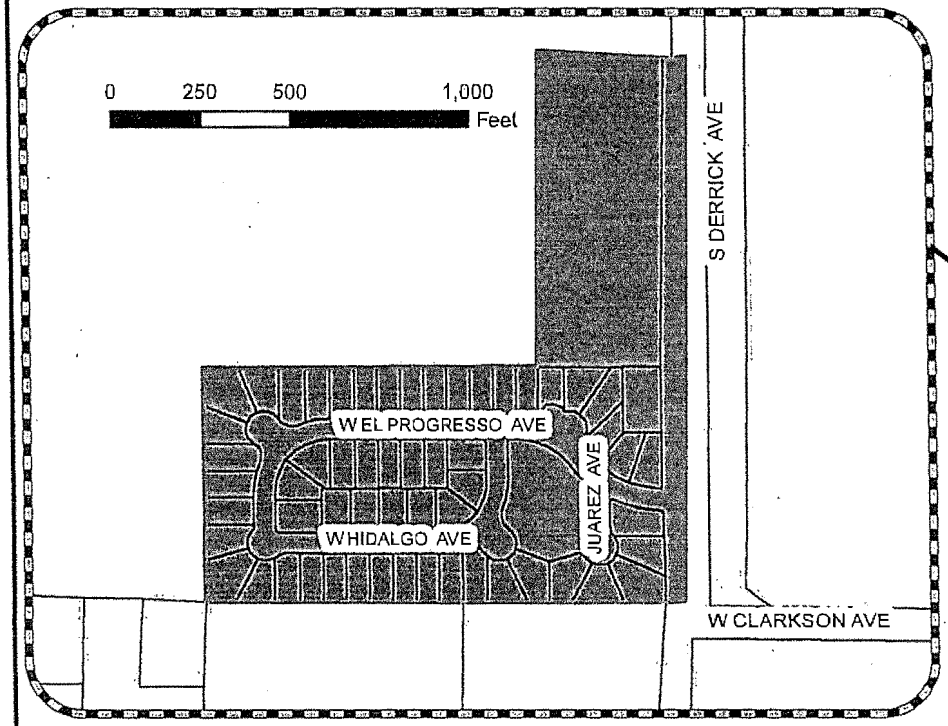
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

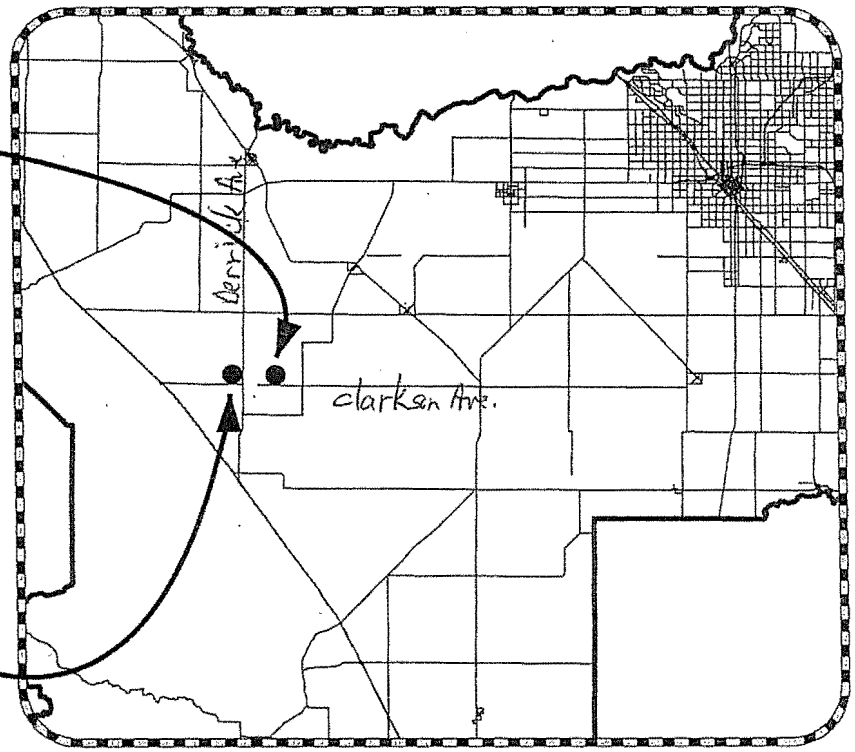
PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1

N
W E
S

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: MILL MAN STEEL INC Phone: 303-220.8545
Business Address: 1441 WAZEE ST, SUITE 1014 Fax: 303-825-1749
Email: jamesgoss@millmansteel.com Denver, CO 80202
License No. and Classification: N/A-Material Supplier Years in Business: 29
Contact Person: JAMES GOSS
Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: VOW: 911N0069
Type of work/ services/ materials proposed by bidder:
STEEL PIPE

Amount of Bid/Quote: $ 12,234 USD See Attached quotes
Date of Bid/Quote: 8/8/18 & 8/9/18

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Partially Utilized material supplier for 120 feet of conductr casing. Supplier is a DBE supplier

Curt Zimmerer

From: James Goss <jamesgoss@millmansteel.com>
Sent: Thursday, August 9, 2018 8:44 AM
To: Curt Zimmerer
Subject: RE: Revised
Attachments: Zim Industries 8-9-18.docx

Sure thing, attached is delivered via 1 truck.

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

"The Good Service People"
A Native American Woman Owned Business Enterprise

From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Thursday, August 09, 2018 9:40 AM
To: James Goss
Subject: RE: Revised

James,

You can deliver both 60 foot conductor pipes on one load. We know these specifications and footages are set before the drilling takes place and the wells are designed. Please send best quote with all 120 feet being delivered on one load. Thanks.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

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From: James Goss <jamesgoss@millmansteel.com>
Sent: Thursday, August 9, 2018 8:31 AM

Mill Man Steel, Inc.
1441 Wazee St. #104
Denver, CO 80202
Phone: (303) 220-8545
Fax: (303) 220-5663

Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725

Dear: Curt

Mill Man Steel Inc. is pleased to offer the following material.

Well- El Porvenir
60FT- 26"OD x .375W New API5L/X42, PEB, 1pc @ 40ft & 1pc @ 20ft
$101.95FT

Well- Cantua Creek
60FT- 26"OD x .375W New API5L/X42, PEB- 1pc @ 40ft & 1pc @ 20ft
$101.95FT

26" is Korean import, but falls under buy America act.
The 20ft pieces are beveled but one end will be plasma beveled.

Price is delivered to well site(s).

****Material is subject to prior sale, and lead time subject to change based on production schedule at time of order. Above pricing is based on footage quoted, subject to change if quantity changes.**
****Please note pricing is subject to change, and must be confirmed at time of order due to section 232 complications**
****Please note all items are combined for pricing, selective purchase of individual items may affect price.**

Thank you for allowing us to quote your steel pipe requirements.

Sincerely, James Goss

Curt Zimmerer

From: James Goss <jamesgoss@millmansteel.com>
Sent: Thursday, August 9, 2018 8:31 AM
To: Curt Zimmerer
Subject: Revised
Attachments: Zim Industries 8-9-18.docx

Hi Curt, see attached.
Unfortunately price goes up when losing footage and having 2 separate trucks for each well to deliver material.

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

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Mill Man Steel, Inc.
1441 Wazee St. #104
Denver, CO 80202
Phone: (303) 220-8545
Fax: (303) 220-5663

Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725

Dear: Curt

Mill Man Steel Inc. is pleased to offer the following material.

Well- El Porvenir
60FT- 26"OD x .375W New API5L/X42, PEB, 1pc @ 40ft & 1pc @ 20ft
$112.95FT

Well- Cantua Creek
60FT- 26"OD x .375W New API5L/X42, PEB- 1pc @ 40ft & 1pc @ 20ft
$112.95FT

26" is Korean import, but falls under buy America act.
The 20ft pieces are beveled but one end will be plasma beveled.

Price is delivered to well site(s).

****Material is subject to prior sale, and lead time subject to change based on production schedule at time of order. Above pricing is based on footage quoted, subject to change if quantity changes.**
****Please note pricing is subject to change, and must be confirmed at time of order due to section 232 complications**
****Please note all items are combined for pricing, selective purchase of individual items may affect price.**

Thank you for allowing us to quote your steel pipe requirements.

Sincerely, James Goss

Curt Zimmerer

From: James Goss <jamesgoss@millmansteel.com>
Sent: Wednesday, August 8, 2018 1:50 PM
To: Curt Zimmerer
Subject: Bid
Attachments: 20180808144334136.pdf; WMBE Cert.pdf

Curt, please see attached bid, if you need any other paperwork please let me know.

Regards, James

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

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-----Original Message-----
From: james goss [mailto:jamesgoss@millmansteel.com]
Sent: Wednesday, August 08, 2018 12:44 PM
To: James Goss
Subject:

This E-mail was sent from "RNPB240D8" (Aficio MP C3000).

Scan Date: 08.08.2018 14:43:33 (-0400)

Mill Man Steel, Inc.
1441 Wazee St. #104
Denver, CO 80202
Phone: (303) 220-8545
Fax: (303) 220-5663

Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725

Dear: Curt

Mill Man Steel Inc. is pleased to offer the following material.

Well- El Porvenir
60FT- 26"OD x .375W New API5L/X42, PEB- $96.85FT

840FT- 12 ¾"OD x .375W New A53/B @ 40-42FT lengths, PEB- $54.70FT

80FT- 12 ¾"OD x .375W New A53/B @ 40-42FT lengths, PEB- $71.30FT
(Slotted triple row x .060 x 2 ½")

1,365FT- 3 ½"OD x .216W (Sch40) New A53/B @ 21ft lengths- $9.35FT

Well- Cantua Creek
60FT- 26"OD x .375W New API5L/X42, PEB- $96.70FT

1,080FT- 12 ¾"OD x .375W New A53/B @ 40-42FT lengths, PEB- $54.44FT

100FT- 12 ¾"OD x .375W New A53/B @ 40-42FT lengths, PEB- $71.10FT
(Slotted triple row x .060 x 2 ½")

1,722FT- 3 ½"OD x .216W (Sch40) New A53/B @ 21ft lengths- $9.10FT

All material is offered as domestic (manufactured only) with the exception of the 26" which is offered as Korean, but falls under buy America act.
Price is delivered to well site(s).

**Material is subject to prior sale, and lead time subject to change based on production schedule at time of order. Above pricing is based on footage quoted, subject to change if quantity changes.
**Please note pricing is subject to change, and must be confirmed at time of order due to section 232 complications
**Please note all items are combined for pricing, selective purchase of individual items may affect price.

SUPPLIER CLEARINGHOUSE

CERTIFICATE OF ELIGIBILITY

CERTIFICATION EXPIRATION DATE: **February 21, 2021**

The Supplier Clearinghouse for the Utility Supplier Diversity Program of the California Public Utilities Commission hereby certifies that it has audited and verified the eligibility of:

Mill Man Steel Inc. dba Superior Transportation Systems DBA Oil Field Tubulars and Supply Co. dba Mavrik Environmental & Exploration Products

Women/Minority Business Enterprise (WMBE)

pursuant to Commission General Order 156, and the terms and conditions stipulated in the Verification Application Package. This Certificate shall be valid only with the Clearinghouse seal affixed hereto.

Eligibility must be maintained at all times, and renewed within 30 days of any changes in ownership or control. Failure to comply may result in a denial of eligibility. The Clearinghouse may reconsider certification if it is determined that such status was obtained by false, misleading or incorrect information. Decertification may occur if any verification criterion under which eligibility was awarded later becomes invalid due to Commission ruling. The Clearinghouse may request additional information or conduct on- site visits during the term of verification to verify eligibility.

This certification is valid only for the period that the above firm remains eligible as determined by the Clearinghouse. Utility companies may direct inquiries concerning this Certificate to the Clearinghouse at (800) 359-7998 in Los Angeles.

VON: 91IN0069

DETERMINATION DATE: February 21, 2018

Curt Zimmerer

From: James Goss <jamesgoss@millmansteel.com>
Sent: Wednesday, August 8, 2018 8:12 AM
To: Curt Zimmerer
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Good morning Curt, I'm having no luck on the 26" x .312W in Domestic, would we be able to get a material exclusion for that size?
From what I understand is most Domestic mill don't make that wall thickness.

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

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-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 07, 2018 12:25 PM
To: James Goss
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

James,

No, we would have each well delivered to the job site separately as the wells are completed approximately 30 days apart from each other. Thanks.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

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of the information contained herein, in any manner whatsoever, is strictly prohibited. If you receive this electronic transmission in error, please notify the sender immediately. Thank you.

-----Original Message-----
From: James Goss <jamesgoss@millmansteel.com>
Sent: Tuesday, August 7, 2018 11:22 AM
To: Curt Zimmerer <curt@zimindustries.com>
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Ok, no problem. Also meant to ask would these 2 wells go at the same time for delivery to the job site?
I want to nest the material properly for trucking.

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

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-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 07, 2018 12:18 PM
To: James Goss
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

James,

Please quote without collars. Just quote bevel x bevel. Thanks.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

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-----Original Message-----
From: James Goss <jamesgoss@millmansteel.com>
Sent: Tuesday, August 7, 2018 11:14 AM
To: Curt Zimmerer <curt@zimindustries.com>
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Hi Curt, was looking through this and it gives the option of quoting with collars, or without just bevel x bevel. Is there a preference for you?

Mill Man Steel, Inc.
jamesgoss@millmansteel.com
(P) 303-220-8545
(F) 303-825-1749
(C) 909-260-5010

"The Good Service People"
A Native American Woman Owned Business Enterprise

-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 07, 2018 11:22 AM
To: James Goss
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

James,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

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Curt Zimmerer

From: James Goss <jamesgoss@millmansteel.com>
Sent: Tuesday, August 7, 2018 11:28 AM
To: Curt Zimmerer
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Perfect, I will account accordingly.

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(C) 909-260-5010

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-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 07, 2018 12:25 PM
To: James Goss
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

James,

No, we would have each well delivered to the job site separately as the wells are completed approximately 30 days apart from each other. Thanks.

Curt

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To: Curt Zimmerer <curt@zimindustries.com>
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Ok, no problem. Also meant to ask would these 2 wells go at the same time for delivery to the job site?
I want to nest the material properly for trucking.

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-----Original Message-----
From: Curt Zimmerer [mailto:curt@zimindustries.com]
Sent: Tuesday, August 07, 2018 12:18 PM
To: James Goss
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

James,

Please quote without collars. Just quote bevel x bevel. Thanks.

Curt

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Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:22 AM
To: James Goss
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

James,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

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Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner ⇒ The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8900

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name	Project Name	
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _ DOT _ SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

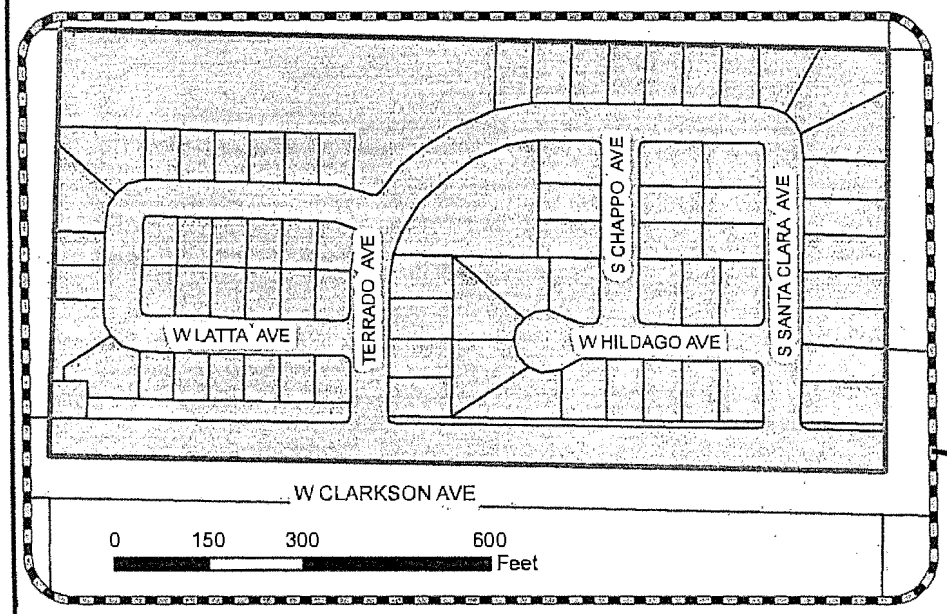
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

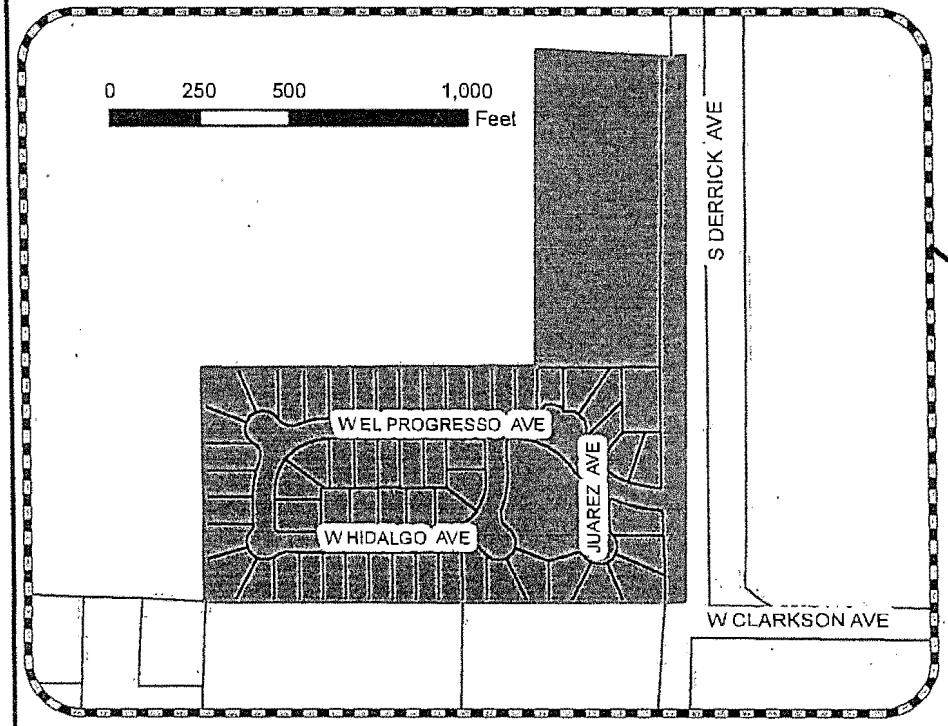
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

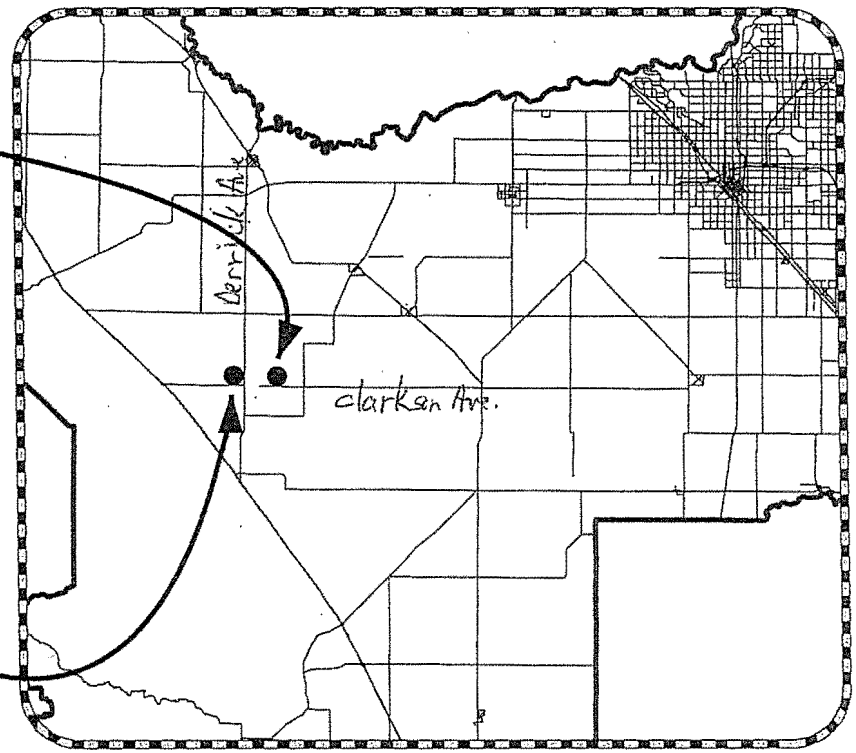
PROJECT LOCATION MAPS



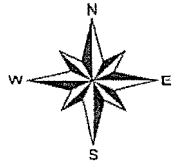
CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1



DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Roscoe Moss Company Phone: (323) 263-4111
Business Address: 4360 Worth Street Los Angeles, CA 90063 Fax: (323) 263-4497
Email: choherd@roscoemoss.com
License No. and Classification: N/A material supplier Years in Business: 94
Contact Person: Tom Herring
Is the firm currently certified as a DBE? ☒ No ☐ Yes Cert. Number: N/A
Type of work/ services/ materials proposed by bidder:
Conductor casing, Casing, Screen, Compression section
Amount of Bid/Quote: See Attached Quote
Date of Bid/Quote: 8-8-2018

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Partially Utilized material supplier, Not a DBE supplier.

ROSCOE MOSS COMPANY

4360 Worth Street
Los Angeles, California 90063, U.S.A.
Phone: (323) 263-4111, Fax: (323) 263-4497
e-mail: choherd@roscoemoss.com
Web site: www.roscoemoss.com

AIS Certification

To: Hari **Company:** Nor-Cal

From: Tom Herring **Location:**

Date: 8/8/2018 **E-mail:** **RE:** Quote

Item	Description	Quantity	Unit Price
1	26"OD x 5/16" wall ASTM 139 Grade B Low Carbon Steel Blank Casing, (if available)	50FT	$115.56/FT
2	12.3/4" OD x .375" wall ASTM 139 Grade B Low Carbon Steel Blank Casing, 30' lengths, Weld collars	1052	$52.04/ft
3	12.3/4" OD x .375" wall ASTM 139 Grade B Low Carbon Steel .060 slot Triple Row Mill Slot, Weld Collars	100	$68.84/ft
4	12-3/4"OD S.E. Head (attached)	1 ea.	$250.00/ea
5	3" SCH 40 x 4' long re-enforced Sounding Tube Box	1 ea.	$6700.00/ea
6	14" over 12-3/4" x 3/8" LCS Compression Section	1 ea.	$4391.40/ea.

Did not use

Used

Terms:

- Price quoted FOB **Roscoe Moss Company, Los Angeles**
- Quote valid for 30 days
- Payment: Net 30 days
- Applicable taxes not included

Please feel free to contact me should you have any questions regarding this quote.

Regards,

Tom Herring
Roscoe Moss Company

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Kelly Pipe
Phone: (661) 399-4540
Business Address: 19459 Flightpath Way Bakersfield, CA 93308
Fax: (661) 399-4541
Email: tcrowe@kellypipe.com
License No. and Classification: N/A - material supplier
Years in Business: 120
Contact Person: Tim Crowe
Is the firm currently certified as a DBE? ☒ No ☐ Yes Cert. Number: N/A
Type of work/ services/ materials proposed by bidder:
Conductor casing, blank casing, perf. casing, gravel feed tube & sounding tube
Amount of Bid/Quote: See Attached Quote
Date of Bid/Quote: 7-30-2018

Owner ⇒ The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Partially used material supplier, Not a DBE supplier

Kelly Pipe - BAKERSFIELD
19459 FLIGHTPATH WAY
BAKERSFIELD CA 93308
Phone: 661-399-4540
Fax: 661-399-4541

SALES QUOTE

10-Q602735

Sell To:	Ship To:
ZIM INDUSTRIES 4532 E. JEFFERSON FRESNO CA 93725 BOB ZIMMERER	ZIM INDUSTRIES 4532 E. JEFFERSON FRESNO CA 93725 BOB ZIMMERER

AIS Certification

Quote Number:	Quote Date	Ship date	Customer	Customer PO	Sales Person
10-Q602735	8/8/2018		ZIM270	WESTSIDE	Tim Crowe
Customer Contact	**Payment Terms**			**Customer Reference**	**Branch : Rep : Warehouse**
BOB ZIMMERER	NET 30 DAYS Quote 10-Q602735				11 : DLON : BF
Customer Contact Phone	**Shipping Terms**	**FOB Point**		**Carrier**	**Currency Code**
559-834-1551	Our Truck Bakersfield			Our Truck Bakersfield	

LN#	Product Code	Description	Wt/LN	Qty	U/M	Unit Price	Total Price	
1	1300375-64	30 .375 D API5LB/X42 PSL2 DSAW PEB DRL 118.76# Domestically Manufactured from Foreign Coil	5,938	50	FT	$186.45	$9,322.50	Not used
2	1126375-55MM	12 .375 A53B ERW 49.61# BPE DR L MELT/MFG *** Blank ***	40,680	820	FT	$56.56	$46,379.20	
3	1126375-55MM	12 .375 A53B ERW 49.61# BPE DR L MELT/MFG Perf .060 x 2" x 36 Row	3,473	70	FT	$70.80	$4,956.00	
4	1030216-55	3 .216 D A53 GrB ERW PEB DRL 7.58# XLTUBE M&M sound tube/gravel fill	10,233	1,350	FT	$7.81	$10,543.50	
5	WFD12SC	12" STD DOM WELD CAP TFA or Hackney Manufactured in US from Foreign Slab	30	1	EA	$175.00	$175.00	Not used
		Total Weight:	60,353					

times 2 for 2 wells
partially used supplier

This Material is subject to prior sale and applicable taxes.This Quotation and all agreements and other instruments executed in connection here in are subject to terms and conditions.For More Details Please Visit www.kellypipe.com

Subtotal:	71,376.20
Total Sales Tax	0.00
Total:	71,376.20

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Sanger Pumps & Supply Inc. Phone: (530) 913-9424
Business Address: 13600 E. Belmont Ave. Sanger, CA 93657 Fax: N/A
Email: jon@sangerpumps.com
License No. and Classification: N/A-material supplier Years in Business: 4
Contact Person: Mark / Lilibeth Tezak
Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: 45526
Type of work/ services/ materials proposed by bidder:
material supplier — well casing
Amount of Bid/Quote: declined to quote
Date of Bid/Quote: N/A

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Did not utilize DBE supplier, declined to quote.

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 5:27 PM
To: contact@sangerpumps.com
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Mark,

Kelly Pipe located in Bakersfield, California or anyone selling mild steel blank casing. The blank casing can be mill slotted to convert the blank into screen.

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

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From: contact@sangerpumps.com <contact@sangerpumps.com>
Sent: Tuesday, August 7, 2018 4:09 PM
To: Curt Zimmerer <curt@zimindustries.com>
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Hi Curt,

Thank you for the notice This is Mark from Sanger Pumps. I am taking over Jon's position and I was wondering which manufacture you usually get these items from.

Please let me know if you have any questions
Thank you for your time
-Mark

--------- Original Message ---------
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
From: "Curt Zimmerer" <curt@zimindustries.com>
Date: 8/7/18 10:34 am

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:34 AM
To: jon@sangerpumps.com; beth@sangerpumps.com; contact@sangerpumps.com
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

Jon / Beth,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C, Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8900

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _ DOT _ SBA Other: _____		Meets/exceeds EPA certification standards? YES NO Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

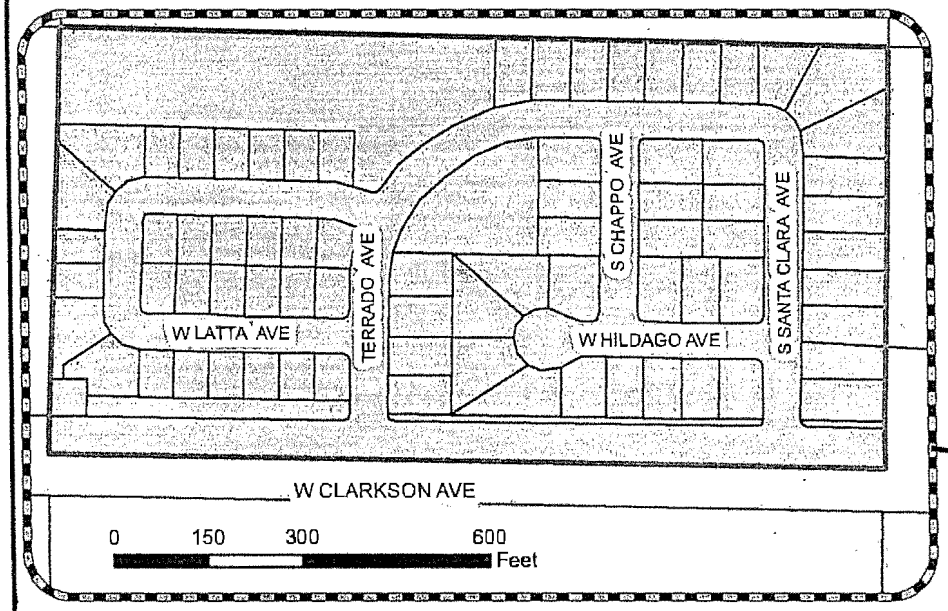
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

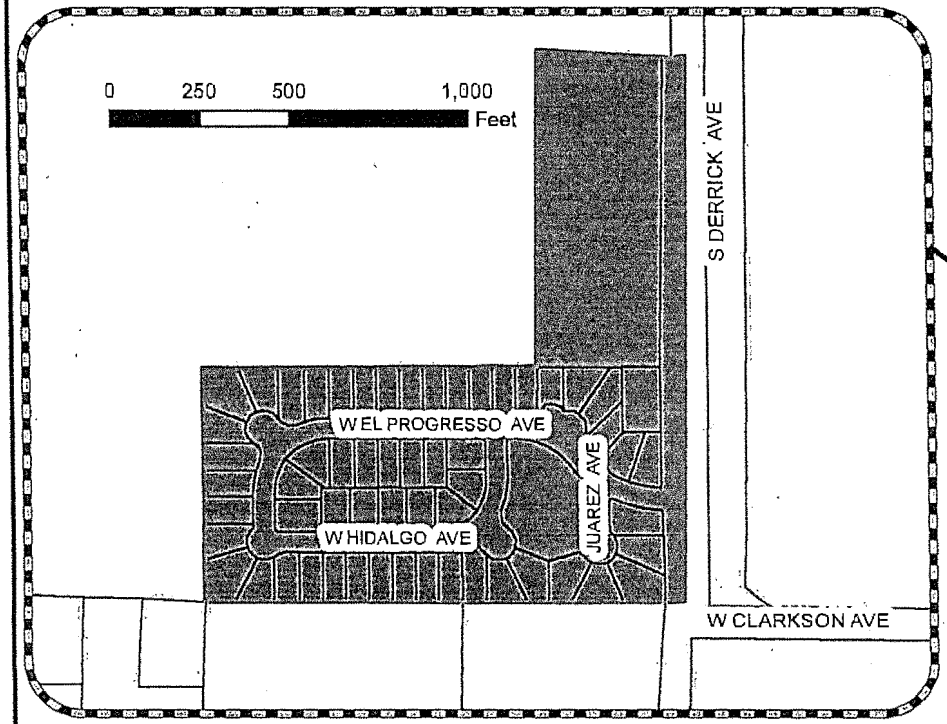
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

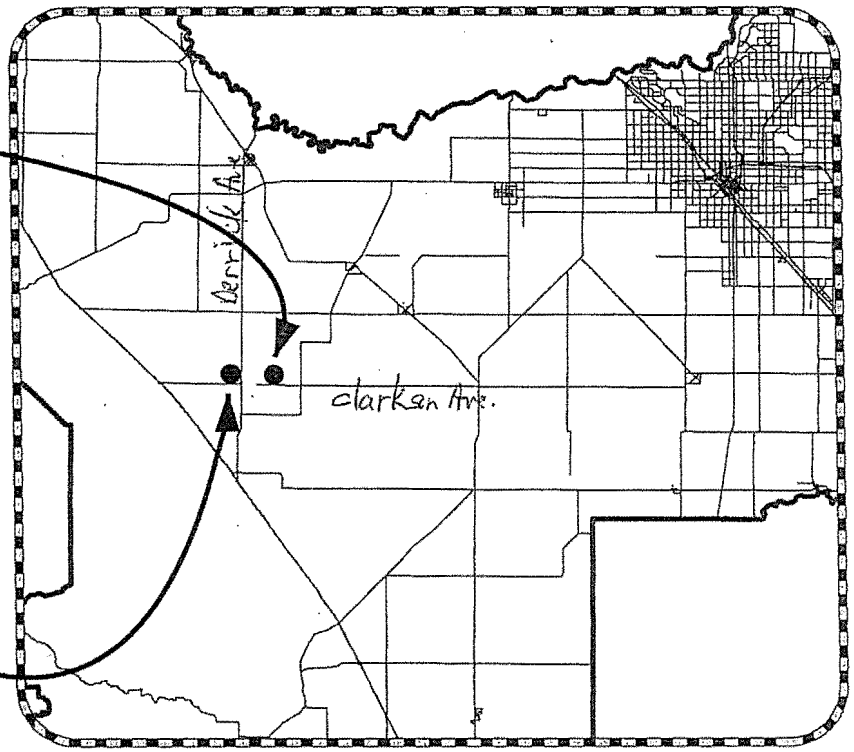
PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1

N
W E
S

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Capital Flow Phone: (916) 540-7884
Business Address: 7640 Wilbur Way #2 Sacramento, CA 95828 Fax: (916) 583-7338
Email: dustine capflowinc.com
License No. and Classification: N/A - material supplier Years in Business: 5
Contact Person: Dustin Wilson
Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: 176011
Type of work/ services/ materials proposed by bidder:
material supplier - well casing & appurtenances

Amount of Bid/Quote: declined to quote
Date of Bid/Quote: N/A

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Did not utilized DBE material supplier, declined to quote.

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:23 AM
To: 'dustin@capfloww.com'
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

Dustin,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _ DOT _ SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

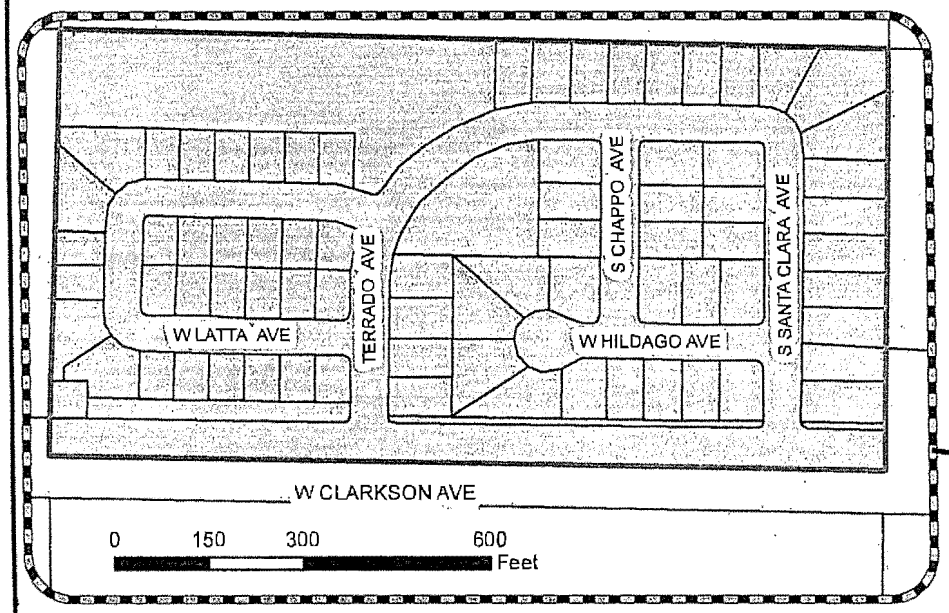
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

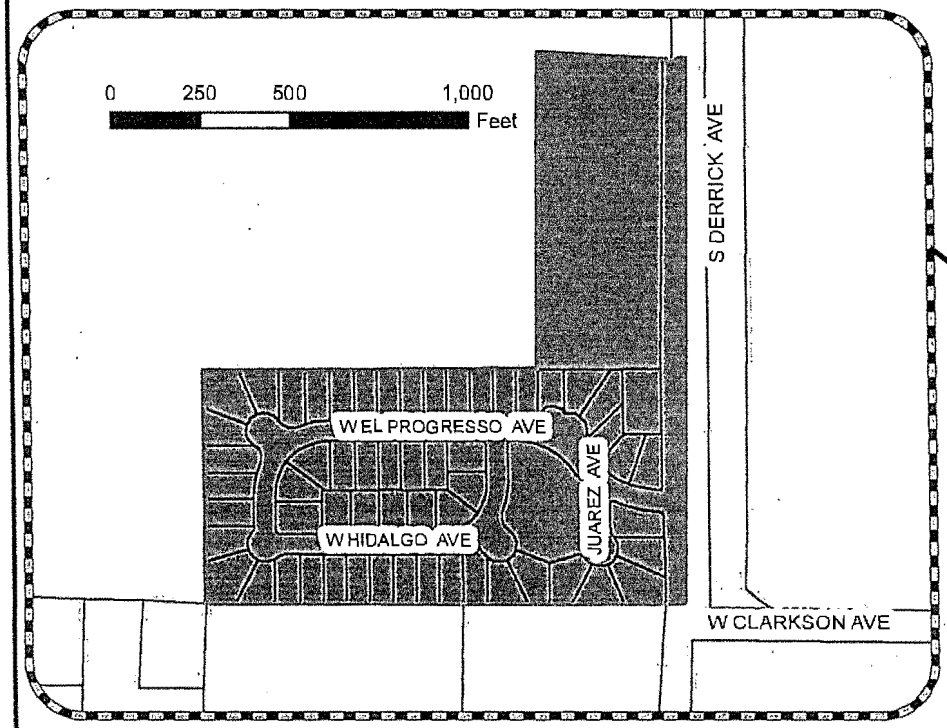
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

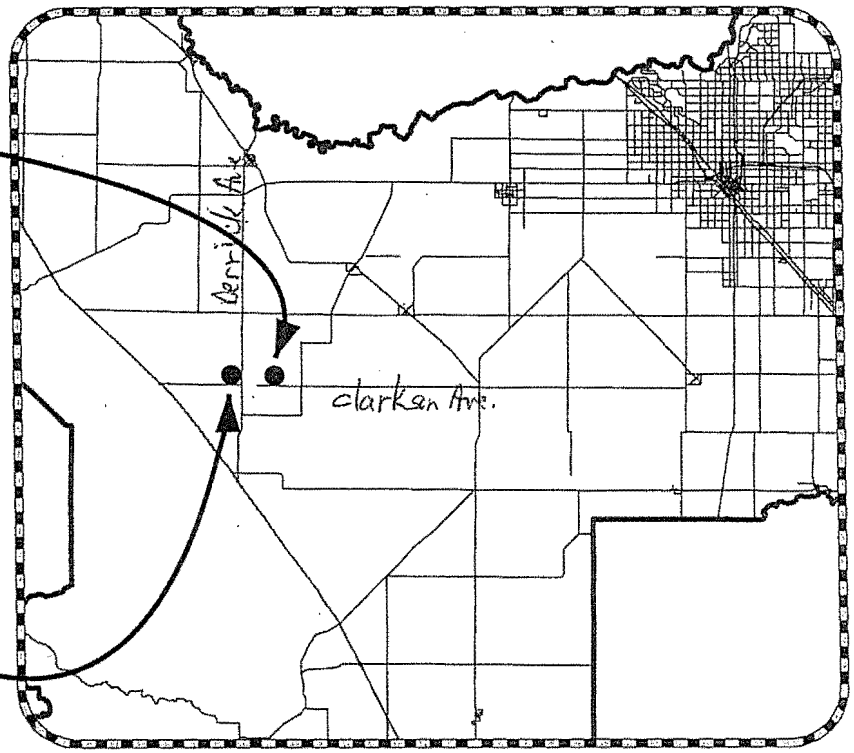
PROJECT LOCATION MAPS



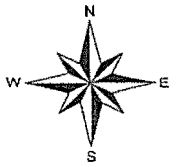
CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1



DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: ASAP Industrial Supply Phone: (909) 923-2727
Business Address: 10927 Jasmine Street Fontana, CA 92337 Fax: (909) 429-9656
Email: roni@asapis.com cell (951) 544-4735
License No. and Classification: N/A - material supplier Years in Business: 10
Contact Person: Roni Schmidt
Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: 58217
Type of work/ services/ materials proposed by bidder:
material supplier - well casing
Amount of Bid/Quote: declined to quote See Attached
Date of Bid/Quote: N/A

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Did Not use DBE supplier, declined to quote.

Curt Zimmerer

From: Crystal Reed <creed@imperialpipe.com>
Sent: Tuesday, August 7, 2018 11:13 AM
To: Curt Zimmerer; roni@asapis.com
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Hi Curt:

Will do my best to get Roni pricing by then, typically we need a week - because I have 10 other large projects I have to have bid out by Friday, will see what I can do by tomorrow - thank you and have a great day!! ☺

Crystal Reed
Marketing Manager,
Sales & Business Development
Cell: 909-702-8364
Email: creed@imperialpipe.com
12375 Brown Avenue
Riverside, CA 92509
951-682-3307
www.imperialpipe.com

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Tuesday, August 7, 2018 10:20 AM
To: Crystal Reed <creed@imperialpipe.com>; roni@asapis.com
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Crystal / Roni,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:20 AM
To: Crystal Reed; roni@asapis.com
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

Crystal / Roni,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: _ DOT _ SBA Other: _____		Meets/exceeds EPA certification standards? YES NO Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

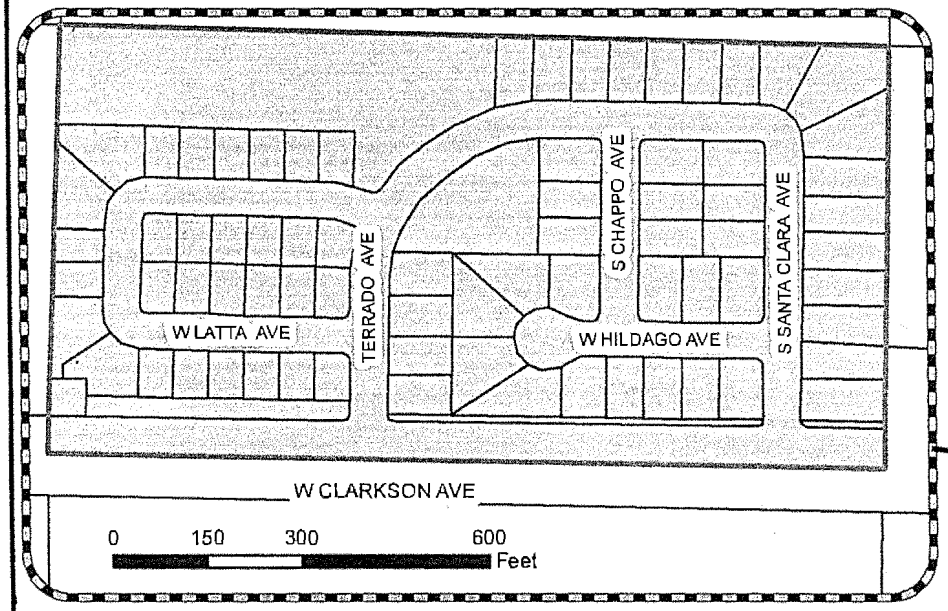
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

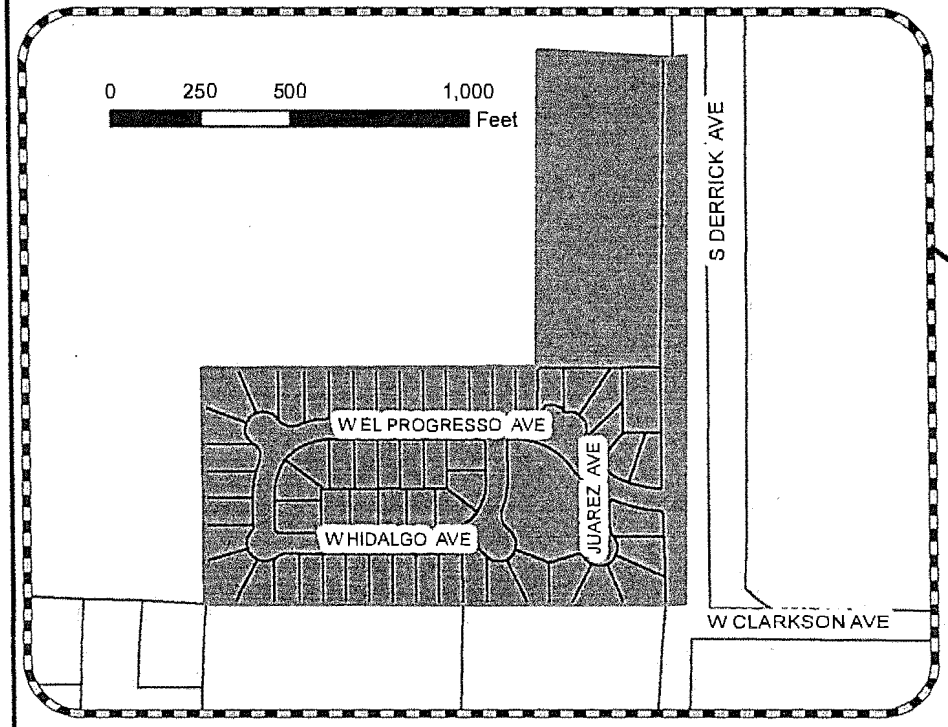
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

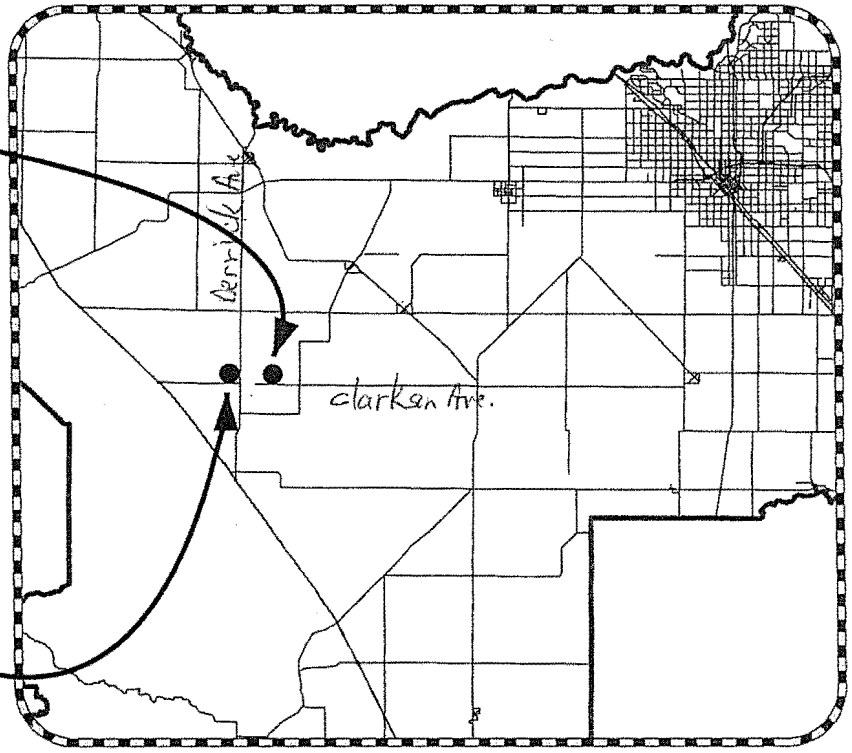
PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



CSA #30 DISTRICT SHADED



PROJECT LOCATED IN DISTRICT #1

N
W E
S

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 PERFORATED WELL CASING

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 FINE SAND

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 GRAVEL PACK

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.
Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Uchida Pipe Phone: (424) 465-6258
Business Address: 4000 Barranca Pkwy #250 Irvine, CA 92604 Fax: N/A
Email: andrew@uchidapipe.com
License No. and Classification: N/A - material supplier Years in Business: 24
Contact Person: Andrew Uchida
Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: VON 94ES0023
Type of work/ services/ materials proposed by bidder:
material supplier - casing
Amount of Bid/Quote: declined to quote - see Attached
Date of Bid/Quote: 8-8-18

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Declined to quote - material supplier is a DBE.
Did not use supplier.

Curt Zimmerer

From: Andrew Uchida <andrew@uchidapipe.com>
Sent: Wednesday, August 8, 2018 9:14 AM
To: Curt Zimmerer
Subject: RE: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

We'll be no quoting. Thanks again.

Andrew M. Uchida

Uchida Pipe
Tel: (424) 465-6058
Cell: (310) 365-3521

-----Original Message-----
From: Curt Zimmerer <curt@zimindustries.com>
Sent: Tuesday, August 7, 2018 10:23 AM
To: Andrew Uchida <andrew@uchidapipe.com>
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.

Andrew,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form.
Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

I look forward to receiving your quote, certifications and bid forms required by this project.

Sincerely,

Curt

Curt Zimmerer
President
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551

Cell: (559) 240-2982
Fax (559) 834-5156
Email: curt@zimindustries.com

Curt Zimmerer

From: Curt Zimmerer
Sent: Tuesday, August 7, 2018 10:23 AM
To: 'Andrew Uchida'
Subject: Request for DBE quotes for the County of Fresno well drilling project Bidding August 9, 2018 at 2:00 PM to Zim Industries, Inc.
Attachments: 20180807095821307.pdf

Andrew,

Attached is the bid schedule and specs for a project bidding Thursday at Fresno County, CA. The attached PDF file contains a copy of the material specifications for the water well drilling project bidding August 9, 2018 for the Fresno County Westside Groundwater Project. Zim Industries, Inc. is looking for DBEs to provide materials and services on this project (Bid Items 6, 10, 11, 12, 13, 14, 26, 30, 31, 32, 33, and 34). As a DBE your company qualifies as a DBE supplier for this project. Please provide a quotation for the materials listed on the attached PDF file. The well casing on this project is specified mild carbon steel. In addition, please fill out the information on the Bidder's List of Subcontractors DBE form. Also, please fill out and sign the DBE Subcontractor Performance Form 4500-3. Finally, please provide proof of DBE current certifications and current declarations. This information is needed no later than 5:00 PM tomorrow as this project bids on August 9, 2018 and has to be federal expressed tomorrow evening. Thank you for your assistance and your interest in this project. This project requires the listing of WBE, MBE and other designated DBE suppliers. We are definitely going to utilize the most competitive qualified supplier and service provider in our bid.

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BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: _____ Phone: _____

Business Address: _____ Fax: _____

Email: _____

License No.
and Classification: _____ Years in Business: _____

Contact Person: _____

Is the firm currently certified as a DBE? ☐ No ☐ Yes Cert. Number: _____

Type of work/ services/ materials proposed by bidder:

_____

_____

Amount of Bid/Quote: _____

Date of Bid/Quote: _____

Owner ⇒ The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name	Project Name	
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor

DBE Certified By: _ DOT _ SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

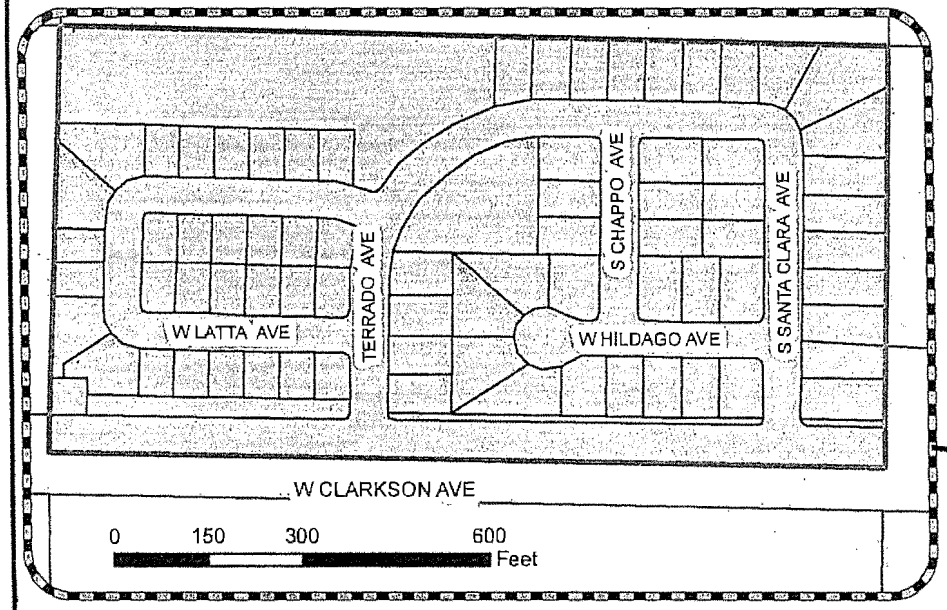
Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

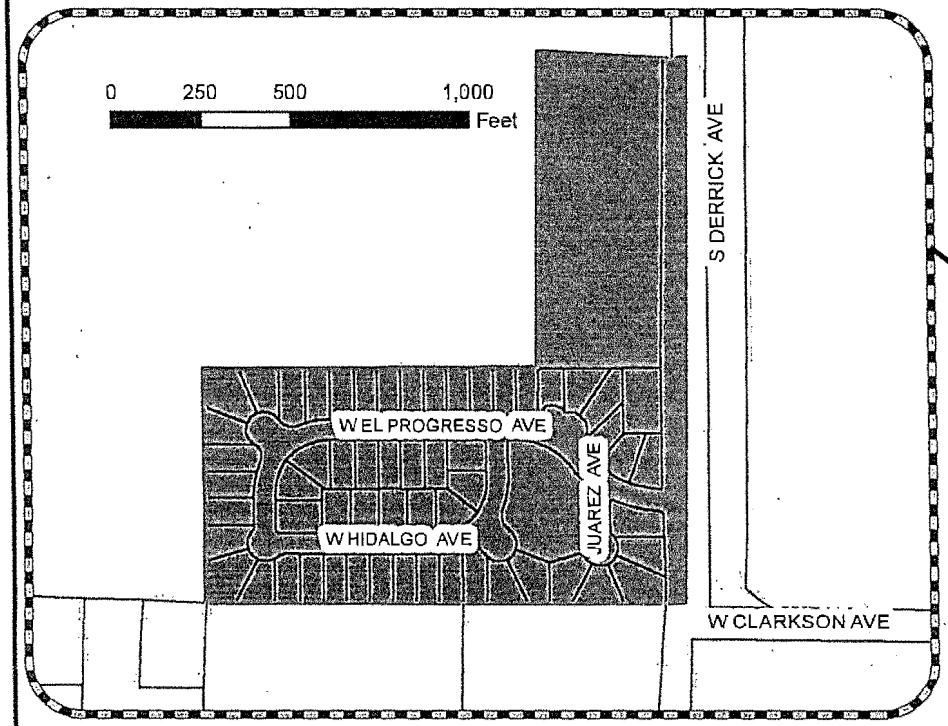
LOCATION MAPS

CSA 30 & 32: Fresno County
Westside Groundwater Project

PROJECT LOCATION MAPS



CSA #32 DISTRICT SHADED



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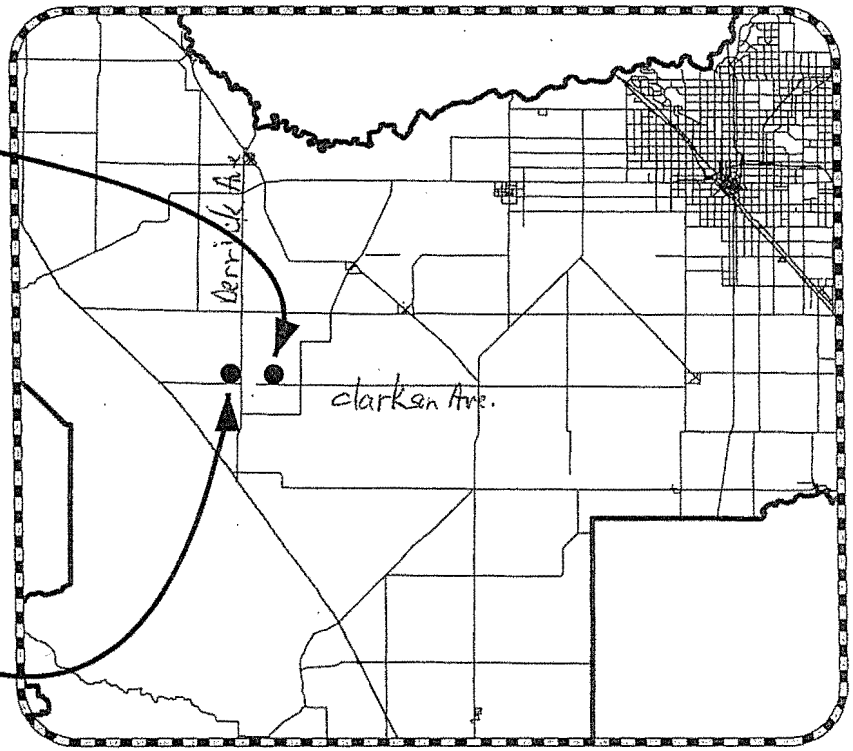
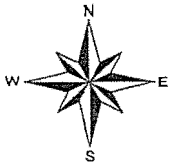


PROJECT LOCATED IN DISTRICT #1



THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
2	1		LS	CLEARING AND GRUBBING		
3	1		LS	TRAFFIC CONTROL		
4	1		LS	JOB SITE MANAGEMENT		
5	1		LS	WATER POLLUTION CONTROL		
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
8	4		EA	COLLECT DEPTH ZONE SAMPLES		
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)		
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
15	610		LF	FURNISH AND INSTALL GRAVEL PACK		
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL		
17	40		HR	PRELIMINARY DEVELOPMENT		
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
20	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 1 - 20)						

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS		
22	1		LS	CLEARING AND GRUBBING		
23	1		LS	TRAFFIC CONTROL		
24	1		LS	JOB SITE MANAGEMENT		
25	1		LS	WATER POLLUTION CONTROL		
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING		
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
28	4		EA	COLLECT DEPTH ZONE SAMPLES		
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)		
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING		
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING		
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION		
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE		
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE		
35	450		LF	FURNISH AND INSTALL GRAVEL PACK		
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL		
37	40		HR	PRELIMINARY DEVELOPMENT		
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST		
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME		
40	1		LS	ABANDON PILOT HOLE		
SUBTOTAL BID (ITEMS 21 - 40)						

TOTAL BID (ITEMS 1 - 40)	

F - Final Pay Item
S - Specialty Item

equipment submittal, as specified elsewhere in these provisions, for any covered materials. A list of materials covered by this provision, as well as any active state or nationwide waivers, may be obtained for the United States Environmental Protection Agency.

The Contractor acknowledges to and for the benefit of the County, the State of California, and the United States, that it understands the goods and services under this Agreement are being funded with monies made available from the DWSRF and Proposition 1 that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor for this contract. The Contractor represents and warrants to and for the benefit of the County, the State of California, and the United States, that: the Contractor has reviewed and understands the American Iron and Steel Requirement; all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved; and the Contractor will provide any further verified information, certification or assurance of compliance with this section, or information necessary to support compliance or a waiver of the American Iron and Steel Requirement, as may be requested by the County, the State of California, or the United States.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the County, the State of California, or the United States, to recover damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the County, the State of California, or the United States, resulting from such a failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State of California or any damages owed to the State of California by the County). While the Contractor has no direct contractual privity with the State of California, as a lender to the County for the funding of its project, the County and the Contractor agree that the State of California is a third-party beneficiary and neither this paragraph (nor any other provision of this contract necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State of California.

6-1.04B Iron and Steel Products

In general, all products made primarily of iron and steel to be incorporated into the project during construction must be produced in the United States, with the exception of:

1. Raw materials, such as ores, limestone and iron and steel scrap
2. Non-iron or steel components of an iron and steel product
3. Mechanical and electrical components and equipment
4. Any item for which a waiver has been approved by the United States Environmental Protection Agency.

Attention is directed to the guidance memorandum provided by the United States Environmental Protection Agency, which has been included in the project details section.

6-1.04C Certification

Certifications or waivers must be provided for all applicable materials under the American Iron and Steel provisions, which are not covered under a waiver from the United States Environmental Protection Agency. Certifications must indicate that each material has been produced or manufactured in the United States.

Replace section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

Unless substitution is expressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. Unless the Department has made a public interest finding expressly authorizing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authorized.

Submit a substitution request with a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

SECTION 01 22 00

EXPLANATION OF BID ITEMS

PILOT HOLE TESTING AND PRODUCTION WELLS

PART 1 - EXPLANATION OF BID ITEMS

1.1 GENERAL

The Contract payment for the specified items of work as set forth in the Bid Schedule shall be full compensation for furnishing all labor, materials, methods or processes, implements, tools, equipment and incidentals and for doing all work involved as required by the provisions of the Contract Documents for a complete in place and operational system.

A. Unless otherwise specified in the Technical Specifications, quantities of work shall be determined from measurements or dimensions in a horizontal plane. All measurements shall be made in accordance with United States Standard Measures. All materials shall be measured on the basis of "in place" quantities and paid for using the units listed in the bid schedule. For materials specified to be measured in place in a structure, the actual volume within the neat lines of the structure, as shown on the contract drawings, will be the basis for computing quantities.

B. After the work has been completed, the Engineer will make field measurements of unit price items in order to determine the quantities of the various items as a basis for payment. On all unit price items, the contractor will be paid for the actual amount of the work performed in accordance with the contract documents, as computed from field measurements.

C. Work or quantities not listed in the description of bid items are considered incidental to other construction and will not be separately measured or paid for.

D. For those bid items identified with a final pay quantity, Section 9-1.02C, "Final Pay Items," of the State Standard Specifications shall apply in its entirety excepting that the words therein, "Engineer's Estimate," shall be replaced with the words, "Bid Proposal," signifying the Bid Schedule provided as part of the Bidder's Proposal of these Specifications.

1.2 BASE BID ITEMS:

BID ITEM NO. 1 and 21– Mobilization/Demobilization, Insurance, and Bonds

This item is a lump sum bid item shall include mobilization/demobilization for well drilling, site work including temporary fencing and sanitary facilities. This bid item also includes obtaining all required bonds, insurance, permits (including but not limited to well drilling), licenses, and fees for the entire project. This bid item shall also include provisions for protection of workers and the public from any hazards that may occur during construction including dust control, protection and support of existing facilities, pot holing and locating existing utilities, general project clean up, and all costs for miscellaneous work shown and described in the Contract Documents, not included in other bid items.

BID ITEM NO. 2 and 22 – Clearing and Grubbing
This bid item is a lump sum bid for the cost of all work involved in clearing and grubbing the project site. Areas shall stripped of surface vegetation, including clearing and grubbing of all trees, vines, stumps, roots, concrete, removing and replacing fencing for site access, debris and unsuitable material, within the project site area including fill slopes, temporarily stockpiling unsuitable material during construction and related work. This bid item shall be paid at the lump sum price bid. Payment will be prorated based on the percentage of contract work completed.

BID ITEM NO. 3 and 23 – Traffic Control
This bid item is a lump sum bid item for the cost for furnishing all labor, materials, tools, equipment, and incidentals and for doing all th work involved in implementing necessary traffic control measures as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 4 and 24 – Job Site Management
This bid item is a lump sum bid item for the cost of all work involved with job sit management and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for all the work involved in spill prevention and control, material management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous, waste resulting from your activities, as specified in these Standard Specifications and these special provisions, and as ordered by the Engineer.

BID ITEM NO. 5 and 25 – Water Pollution Control
This bid item is a lump sum bid item for the cost of water pollution control and includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in preparing, implementing, maintaining, inspecting, and removing water pollution control practices in accordance with the approved WPCP as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM NO. 6 and 26 – Furnish and Install 26-inch Diameter Conductor Casing
This bid item is a unit price bid for furnishing and installing 26-inch diameter conductor casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including the cement seal outside of casing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 7 – Drill Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 8 and 28 – Collect Depth Zone Samples
This bid item is a unit price bid for collection of individual depth zone samples, including bentonite, sand, and gravel, and shall be per zone sampled, and shall be full compensation for furnishing all labor, equipment and material to complete the sample collection including but not limited to bentonite clay and sand, and as described herein, and no additional compensation will be made therefore.

The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 9 – Open Pilot Hole (to 1,300 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, alignment testing and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 10 and 30 – Furnish and Install 12-inch Diameter Blank Casing
This bid item is a unit price bid for furnishing and installing 12-inch diameter (ID) blank casing and the 3-inch vent pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 11 and 31 – Furnish and Install 12-inch Diameter Perforated Casing
This bid item is a unit price bid for furnishing and installing 12-inch ID triple row vert mill slot perforated casing and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 12 and 32 – Furnish and Install 20-Foot Long Compression Section
This bid item is a lump sum bid for furnishing and installing a 20-foot long compression section complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 13 and 33 – Furnish and Install 3-Inch Diameter Sounding Tube
This bid item is a unit price bid for furnishing and installing 3-inch diameter sounding tube and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 14 and 34 – Furnish and Install 3-Inch Diameter Gravel Fill Pipe
This bid item is a unit price bid for furnishing and installing 3-inch diameter gravel fill pipe and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 15 and 35 – Furnish and Install Gravel Pack
This bid item is a unit price bid for furnishing and installing gravel pack and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made

therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 16 and 36 – Furnish and Install Annular Seal
This bid item is a unit price bid for furnishing and installing annular seal and shall be per lineal foot complete in place, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM No. 17 and 37 – Preliminary Development
This bid item is a unit price bid for preliminary development and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 18 and 38 – Pump Development and Pump Test
Lump sum bid item for mobilization and demobilization of up to 500 feet of pump and for development pumping of up to 40 hours, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs, including but not limited to the plumbness test, to complete the work as described herein, and no additional compensation will be made therefore.

BID ITEM NO. 19 and 39 – Additional Pump Development and Test Pumping Time
This bid item is a unit price bid for pump development and pump testing and shall be on a per hour basis, and shall be full compensation for furnishing all labor, equipment, materials, and disposal costs to complete the work as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 27 – Drill Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for drilling a pilot borehole from the bottom of the conductor casing to the specified depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to electric log and plumbness testing, to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 29 – Open Pilot Hole (to 1,500 feet total depth)
This bid item is a unit price bid for opening the pilot hole to a 24-inch diameter borehole from the bottom of the conductor casing to the total depth and shall be per lineal foot completed, and shall be full compensation for furnishing all labor, equipment and material to complete the installation as described herein, including but not limited to well seal, drillers log and report, and alignment testing, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price.

BID ITEM NO. 20 and 40 – Abandon Pilot Hole
Lump sum bid item for abandoning the Pilot Hole, and shall be full compensation for furnishing all labor, equipment and material to complete the work as described herein, and no additional compensation will be made therefore. Either or both of these items may be deleted entirely by Owner, if the Engineer determines that they are unnecessary. If an item is deleted, no compensation

will be made therefor. No costs shall be incurred pertaining to either of these items unless directed by the Engineer.

END OF SECTION

8. At least twenty-four (24) hours advance notice of video survey and casing alignment.

B. The Contractor shall give notice to the County of Fresno Environmental Health Department as follows:

1. At least forty-eight (48) hours advanced notice prior to the installation of the annual seal to witness work to be performed

2. At least forty-eight (48) hours advanced notice prior to the abandonment (if necessary) of the pilot hole and/or production well to witness the work to be performed

1.9 BOREHOLE DESTRUCTION

A. In the event the Contractor shall abandon a hole or well because of loss of tools or other causes which are his responsibility, or if the well fails to conform to these Plans and Specifications and the Contractor is unable to correct the condition at his own expense, it shall be considered an abandoned hole, and the Contractor shall immediately start a new well at a nearby location designated by the Engineer. The Contractor may salvage as much undamaged materials from the initial well as possible to be used in the new well. The Contractor shall destroy the hole or well by filling with sand-cement grout completely from bottom to top and in conformance with regulations of the County of Fresno Water Well Ordinance and County of Fresno Well Destruction requirements. Contractor shall notify County of Fresno Environmental Health Department and arrange for County of Fresno Environmental Health Department inspector to witness sealing. This work shall be performed at no extra cost to the Owner.

1.10 QUALITY ASSURANCE

A. All materials and coatings in contact with potable water shall be ANSI/NSF-61 certified and comply with California AB 1953.

PART 2 PRODUCTS

2.1 CONDUCTOR CASING

A. Conductor casing shall be manufactured in accordance with the latest edition of ASTM A252, Grade 2 and the following conditions:

1. The diameter shall be 26 inches (nominal), and the wall thickness shall be 5/16 inches.

2. The casing sections shall be factory assembled in not less than 20-foot lengths.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. These holes shall be carefully welded closed when joints are welded.

2.2 WELL CASING

A. Well casing shall be new, in "straight from the factory" condition, and manufactured in accordance with the latest edition of ASTM A53, Grade B, with the following conditions:

1. The casing will be 12 inches inside diameter. The wall thickness shall be a minimum of 0.375 inches.

2. Casing used in the well shall be of uniform outside diameter and wall thickness and shall be factory assembled in not less than 40-foot lengths. The exact depth of the production well and location of the perforated sections shall be specified by the Engineer after the pilot hole is completed.

3. For field assembly by welding, ends of sections shall be furnished with collars. The collars shall be of the same thickness and have the same chemical and physical properties as the corresponding casing section, shall be 5 inches in width, shall be rolled to fit the outside diameter, and shall be welded to the casing section. The inside edge of the collars and the outside edge of the adjacent casing length shall be ground or sufficiently scarred to remove sharp edges or burrs. Section ends shall be machined flat, perpendicular to the axis of the casing, and shall not vary more than 0.010 inches at any point from a true point at right angles to the axis of the casing. Diametrical

clearance between casing O.D. and collar I.D. shall be 1/16 inch ± 1/32 inch.

4. Alternatively, the casing sections may be provided with machined beveled joints and butt welded. The welding rod shall be of equal or better A.S.M.E. rating than that of the parent metal. Full penetration, double pass welds shall be used on each joint. An alignment clamp must be used and care taken to ensure the casing sections are properly aligned.

5. If collared pipe is used, three 3/8-inch x 1-inch alignment holes shall be provided in each collar to ensure proper matching of the sections. All of these holes shall be completely filled by welding when the casing is installed.

2.3 *PERFORATED WELL CASING*

A. Vertical mill slot well casing shall be new, in "straight from the factory" condition, manufactured in accordance with the aforementioned casing requirements. Casing of 12 inches inside diameter will be used, and wall thickness shall be a minimum of 0.375-inch. The openings in the perforated casing shall be machine made vertical to the axis of the casing. For bidding purposes, assume all triple row perforated casing. Also for bidding purposes, assume a perforation size of 0.060-inch. Information obtained from the pilot hole will be used to determine the size of the openings, depths of the well, and lengths of blank and perforated casing. Perforated well casing shall be of identical inside diameter and wall thickness as the blank casing.

2.4 *FINE SAND*

A. For bidding purposes, the Contractor shall assume sand to have an effective size ranging from 0.125 millimeters (mm) up to 0.25 mm. Sand used for final well design will be determined based on information obtained from the pilot hole.

2.5 *GRAVEL PACK*

A. The gravel shall be composed of sound, durable, well-rounded, naturally stream worn particles, containing no silt, clay, organic matter, or deleterious materials. No crushed rock will be accepted. The uniformity coefficient of the gravel shall not exceed 2.5 and the size distribution of the gravel pack shall parallel the central part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5. For bidding purposes, the gravel shall be 8x16 Premier Silica, or approved equal. Information obtained from the pilot hole will be used to determine the required gravel size for production well.

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: SoCal Stormwater Runoff Solution Services, Inc. Phone: (310) 343-8313

Business Address: ~~P.O. Box #25158 Los Angeles, CA 90025~~ Fax: (310) 579-8413

Email: mary@socalstormwatersolutions.com

License No and Classification: NIA service provider Years in Business: _____

Contact Person: Atena Naderi

Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: 4056

Type of work/ services/ materials proposed by bidder:
Preparation of SWPPP / Preparation of WPCP

Amount of Bid/Quote: See Attached quote

Date of Bid/Quote: 8-9-2018

Owner =) The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Did not utilize DBE service provider; we self perform this task.

Curt Zimmerer

From:	Tina Daniel
Sent:	Thursday, August 9, 2018 10:09 AM
To:	Curt Zimmerer; Boyd Zimmerer; Robert Zimmerer
Subject:	FW: SWPPP Compliance Proposal - Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32) Project
Attachments:	13480 - Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32).pdf

Another response to the Fresno County job.

Tina Daniel
Human Resources Manager
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Fax (559) 834-5156
Email: tina@zimindustries.com

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-----Original Message-----
From: atena@socalstormwatersolutions.com <atena@socalstormwatersolutions.com>
Sent: Thursday, August 9, 2018 9:11 AM
To: 'Mary Mofid' <mary@socalstormwatersolutions.com>
Subject: SWPPP Compliance Proposal - Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32) Project

Attention: Estimating Department

Please view the attached Proposal for:
Project Name: Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32)
Project Number: 18-07-C, 1000359-005C
Please do not hesitate to contact me if you have any questions or concerns.

Best Regards,

Atena Naderi
Office Coordinator/Account Receivable
Socal Stormwater Runoff Solution Services Inc.
Office: (310) 343-8313

Cell: (747) 258-6804
Fax: (310)579-8413
Website: www.socalstormwatersolutions.com

SoCal Stormwater Runoff Solution Services Inc.
SBE & SLB Certified
City of Los Angeles SBE & SLB Certificate# 4056
PO Box# 25158, Los Angeles, CA 90025
California License# C3483049
Office: (310) 343-8313
Fax #: (310) 579-8413
E-mail: mary@socalstormwatersolutions.com
Web Site www.socalstormwatersolutions.com

Proposal

Date	Proposal #
8/9/2018	13480

project:

Project Name: Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32)
Project Number: 18-07-C, 1000359-005C

Item #	Description	Qty	Rate	U/M	Total	Initial
1.1	Preparation of Stormwater Pollution Prevention Plan **(SWPPP)** Including Revisions as Specified in Project Documents Development and QSD Certified/**Project with Disturbed Area of More than One Acre**	1	$1,495.00	LS	$1,495.00	
	or					
	Preparation of The Water Pollution Control Plan **(WPCP)/Project with Disturbed Area Less than one acre**		$550.00		$550.00	
	Acceptance of This Bid is good for 30 Days from Bid Date.			**Total:**		

1. Payment terms for new customers is C.O.D. Client may receive an approval for Net 30 when Credit Card Authorization Form is reviewed and approved.(Existing clients with the active account are exempted.)
2. Price includes electronic copy of the final SWPPP.
NOTE: Socal Stormwater Runoff Solution Services INC. herein called "SSRSS INC." does not provide draft or approved SWPPP hard copies. Corrections / additions to the plan due to errors or omissions on behalf of the contractor or the Agency may be billed to the contractor as time and material (T&M). T&M will be billed at a standard rate of $90.00/hour for QSP Certified Engineer services and $120.00 / hour for QSD Certified or Registered Civil Engineering services with all services being billed in 2 hour increments.
3. Hard copy manuals: Billed at $75.00 for additional manual unless stated otherwise. Contractor will also pay for all additional shipping charges at cost plus a 15% handling fee.
4. Additional charges may apply pending contractor insurance requirements.
5. This Contract constitutes the entire Contract, and the parties are not bound by any oral expression or representation including those made by any agent of either party purporting to act for or on behalf or either party or by any commitment or arrangement not specified in the Contract.
6. No additional work shall be done without prior written authorization of Contractor. Any such authorization shall be on a change order form approved by both parties, which shall become a part of this Contract. Where such additional work is so added to this Contract, it is agreed that the total price under this Contract shall be increased by the price of such additional work, any delinquent service charge may be increased proportionately, and all terms and conditions of this Contract shall apply equally to such additional work.
7. It is expressly stipulated and agreed that SSRSS INC. shall not be liable for any delays occasioned by the elements, labor disputes, strikes, lockouts, Acts of God, fires, inclemency of the weather, changes ordered in the work, unavoidable casualties, the acts or omissions of owners or persons or any other similar or dissimilar causes beyond the control of SSRSS INC.
8. Contractor hereby agrees that time shall be of the essence in regard to all payments provided for herein, and if any payment is not made when due, Contractor agrees to pay all collection costs and expenses including costs of suit and any related attorney's fees and costs and also hereby waives the benefit of any statute of limitation that would prohibit an action of SSRSS INC. to enforce the terms and conditions of this Contract including but not limited to any right to recovery of attorney's fees and costs. The laws of the State of California shall control all aspects of this contract except as to lien matters, which will be governed by the laws of the state where the subject property is located.
9. If at any time any controversy shall arise between SSRSS INC. and Contractor regarding anything pertaining to this Contract and which the parties hereto do not promptly adjust and determine, then Contractor and SSRSS INC. stipulate and agree that the controversy shall, at the election of SSRSS INC., be submitted to an determined under the Construction Industry Arbitration Rules of the American Arbitration Association then in effect, and the parties hereto agree to be bound by the Award in such Arbitration. The Award shall be binding and final and may be entered as a final judgment in a court of competent jurisdiction.
10. SSRSS INC. will not be responsible for Acts of God, fire, storm, flood, landslide, earthquake, theft, vandalism or other disasters or accidents. Owner will purchase insurance at his expense before any work begins that will cover fire, vandalism, malicious mischief and other perils during the course of construction. SSRSS INC. will be held harmless for any damage or outcome relating to lack of insurance, vandalism, trespassing, weather, underground services or "Mother Nature".
11. Contractor is responsible for the labor/material for installment, maintenance and repair of the BMP's per the approved SWPPP.
12. Contractor is required to comply with the requirements of the approved SWPPP and all the terms of the Construction General permit (CGP) ORDER NO. 2009-0009-DWQ NPDES NO. CAS000002.
13. SSRSS INC. is not responsible for any Contractor negligence and non-compliances of the terms and requirements of the SWPPP and the CGP by the Contractor or any other parties. Contractor is required to notify the QSD and the State Water Board of any violations of the permit requirements and non-authorized discharges.
14. SSRSS INC. may assign or subcontract all or any portion of the work to be done under this Contract.
15. Access to the job site must be furnished by Contractor, the general contractor, lessee or other party ordering work.
16. SSRSS INC. shall not be held responsible for any existing violations of applicable building regulations or ordinances, whether cited by the appropriate authority or not. SSRSS INC. is not held responsible for any abnormal or unusual preexisting conditions. Correction of any such violations or abnormal conditions shall not be considered part of this Contract and shall be at the Contractor's expense.
17. Once the proposal is signed and fully executed, no cancellation would be accepted. SWPPP/WPCP plan is a project specific document and can not be utilized for any other projects. If for any reason (Contractor decision, error or the Owner/Agency change on requirement) a SWPPP/WPCP document is no longer needed, this contract shall be in effect and contractor is responsible to pay for the service in full.
18. Price of this contract is subject to increase for projects that are not commenced for over 90 days from the date that this contract is signed and fully executed.
19. Invoices paid after due date are subject to a finance charge computed at a monthly rate of 1.5% (annual percentage rate of 18%). Client is responsible for legal and collection costs if necessary to collect past due amount(s).
20. Price of the SWPPP preparation consists the average of 10 page drawings included in WPCD (Water Pollution Control drawing). Any additional drawing will be charged for $15 per page.
21. In an event that the project has multiple sites, inspection rate will be re-negotiated if the inspection time exceed total of 1 hour or sites are over 3 locations or over 2 miles away in radius.
22. Client is resposible to notify Socal Stormwater 2 weeks prior to commence their work. In an event that a project starts without proper notification, client is resposible for the payment of the inspections as stated in the contract plus a penalty. Also, Socal Stormwater will notify Waterboard and the owner that our certificate was used without permission and client deems to be at fault.

"Note: Lead compliance plan proposal will be provided upon your request."
"Note: public safety plan proposal will be provided upon your request."

If this proposal is satisfactory please initial each item, sign and email to Mary Mofid attention:
Authorized Customer Rep: ..... Signature : .....

FAX COVER SHEET

TO	
COMPANY	
FAX NUMBER	15598345156
FROM	Socal Stormwater Runoff Solution Services Inc.
DATE	2018-08-09 16:44:19 GMT
RE	SWPPP Compliance Proposal - Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32) Project

COVER MESSAGE

Attention:EstimatingDepartment

Please view the attached Proposal for:
Project Name: Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32)
Project Number: 18-07-C, 1000359-005C
Please do not hesitate to contact me if you have any questions or concerns.

Best Regards,

Atena Naderi
Office Coordinator/Account Receivable
Socal Stormwater Runoff Solution Services Inc.
Office: (310) 343-8313
Cell: (747) 258-6804
Fax: (310)579-8413
Website: www.socalstormwatersolutions.com

SoCal Stormwater Runoff Solution Services Inc.
SBE & SLB Certified
City of Los Angeles SBE & SLB Certificate# 4056
PO Box# 25158, Los Angeles, CA 90025
California License# C3483049
Office: (310) 343-8313
Fax #: (310) 579-8413
E-mail: mary@socalstormwatersolutions.com
Web Site www.socalstormwatersolutions.com

Proposal

Date	Proposal #
8/9/2018	13480

project:

Project Name: Fresno County Westside Groundwater Project El Porvenir (CSA 30) and Cantua Creek (CSA 32)
Project Number: 18-07-C, 1000359-005C

Item #	Description	Qty	Rate	U/M	Total	Initial
1.1	Preparation of Stormwater Pollution Prevention Plan (SWPPP) Including Revisions as Specified in Project Documents Development and QSD Certified/Project with Disturbed Area of More than One Acre	1	$1,495.00	LS	$1,495.00	
	or					
	Preparation of The Water Pollution Control Plan (WPCP)/Project with Disturbed Area Less than one acre		$550.00		$550.00	

BIDDER'S LIST

- Contractor is required to provide the following information for all DBE and non-DBE subcontractors, who provided a proposal, bid, quote, or were contacted by Contractor. This information must be submitted with Contractor's bid.

Prime Contractor: Zim Industries, Inc.

Project: No. 1000359-005C Fresno County Westside Groundwater Project
Drinking Water State Revolving Fund

Firm Name: Tully Consulting Group Phone: (707) 693-1926

Business Address: 1650 N. Lincoln St., Suite A Fax: (707) 471-0318
Dixon, CA 95620

Email: estimating@tullygroup.com

License No. and Classification: C64334 Service provided N/A DIR# 1000024960 Years in Business: 13

Contact Person: Robin Tully

Is the firm currently certified as a DBE? ☐ No ☒ Yes Cert. Number: 38300 & 60919

Type of work/ services/ materials proposed by bidder:
Prepare Water Pollution Control Program

Amount of Bid/Quote: See Attached $1,180.00

Date of Bid/Quote: 8/8/2018

Owner => The County of Fresno
Department of Public Works and Planning
Contract Number 18-07-C
Fresno County Westside Groundwater Project
EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
Pilot hole testing and production Well construction
Budget / Account: 9172 / 8400

Did not utilize; service provider is a DBE.
We self perform this function.

Curt Zimmerer

From: Tina Daniel
Sent: Wednesday, August 8, 2018 4:46 PM
To: Robert Zimmerer; Curt Zimmerer; Boyd Zimmerer
Subject: FW: Proposal for Fresno County Westside Groundwater Project - El Porvenir (CSA 30) and Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction
Attachments: proposal_Fresno County Westside Groundwater Project - El Porvenir (CSA 30) and Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction.pdf

All,
See attached response that came in from DVBE ad for Fresno County job.

Tina Daniel
Human Resources Manager
Zim Industries, Inc.
4532 E Jefferson Ave.
Fresno, CA 93725
Phone (559) 834-1551
Fax (559) 834-5156
Email: tina@zimindustries.com

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From: Estimating TullyGroup <estimating@tullygroup.com>
Sent: Wednesday, August 8, 2018 4:30 PM
Subject: Proposal for Fresno County Westside Groundwater Project - El Porvenir (CSA 30) and Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction

Hello,

Please see the attachment for our proposal for the Fresno County Westside Groundwater Project - El Porvenir (CSA 30) and Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction. Thank you for your consideration.

Regards,

Estimating Department
Tully Consulting Group
1650 N. Lincoln St, Suite A, Dixon, CA 95620
Office: (707) 693-1926 | Fax: (707) 471-0318
estimating@tullygroup.com | www.tullygroup.com

DBE/WBE/UDBE #38300, Please Note: DBE Certificates do not expire -- firms that do not continue to meet DBE criteria are decertified and removed from the database.

SBE (Micro) #60919, Exp. 1/31/2020
DIR Registration Number: 1000024960, Exp. 6/30/2019

TCG

Civil Engineering and Stormwater Solutions

August 8, 2018

RE: Proposal for WPCP for Fresno County Westside Groundwater Project - El Porvenir (CSA 30) and Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction, bidding 8/9/18

Dear Prime Contractor,

Thank you for the opportunity to provide a proposal for this project. We provide civil engineering and stormwater management services.

Scope of Work:

A. Prepare Water Pollution Control Program (WPCP)

Prepare a Water Pollution Control Program (WPCP). The document will be prepared in accordance with Caltrans requirements. Water Pollution Control Drawings will be included.

Exclusions: Installation and implementation of water pollution practices, providing a WPC Manager, conducting training, and monitoring, inspection and correcting water pollution control practices are excluded. A WPC Manager, training, monitoring and inspection are available as an additional service upon request.

Fee:

The WPCP will be prepared for a Fixed Fee of the following, with fees billed monthly based upon percent completion:

A. Prepare WPCP, $590 EA x 2 (Part of Bid Item No. 5 & 25) $1,180

Fees will be due within 30 days of client's receipt of invoice. Late payments beyond 30 days past due can be subject to a 1.5% per month interest charge. Payment arrangements can be made to coincide with any owner to contractor payment installments.

Timing and deliverables:

Submittals will be provided in a timely manner; please contact us for scheduling so we can meet your deadline. The document will be provided in hard copy (4 copies) and electronic PDF format.

We appreciate the opportunity to present this proposal. Please feel free to contact me if you have any questions via cell at (707) 628-4219 or at our office number below.

Sincerely,

Robin Tully

Robin Tully, PE, QSD, President
License #: C64354

AUTHORIZATION TO PROCEED

Name: _____ Date: _____

DBE/WBE/UDBE #38300, Please Note: DBE Certificates do not expire - firms that do not continue to meet DBE criteria are decertified and removed from the database. SBE (Micro) #60919, Exp. 1/31/2020; Annual

TULLY CONSULTING GROUP
1650 N. LINCOLN ST, SUITE A • DIXON, CA • 95620
PHONE: 707-693-1926 • FAX 707-471-0318 • ESTIMATING@TULLYGROUP.COM

Civil Engineering and Stormwater Solutions

Revenue: Under $1 Million, In Business Since 2005; Taxpayer Identification Number (TIN) 83-0499875; DIR Registration Number: 1000024960, Exp. 06/30/2019; Full legal name: Tully Inc., DBA Tully Consulting Group

TULLY CONSULTING GROUP
1650 N. LINCOLN ST, SUITE A • DIXON, CA • 95620
PHONE: 707-693-1926 • FAX 707-471-0318 • ESTIMATING@TULLYGROUP.COM

A G R E E M E N T

THIS AGREEMENT made at Fresno, in Fresno County, California, by and between Zim Industries, Inc. hereinafter called the Contractor, and the County of Fresno hereinafter called the Owner.

WITNESSETH: That the Contractor and the Owner, for the consideration hereinafter named, agree as follows:

ARTICLE I. The Contractor agrees to furnish all labor and materials, including tools, implements, and appliances required, but excluding such materials as are mentioned in the specifications to be furnished by the Owner, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims of mechanics, materialmen, teamsters, subcontractors, artisans, machinists, and laborers required for:

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

CONTRACT NUMBER: 18-07-C

All in strict compliance with the plans, drawings and specifications therefor prepared by the Owner, and other contract documents relating thereto.

ARTICLE II. The Contractor and the Owner agree that the Notice to Bidders and Special Provisions, the Wage Scale (Prevailing Wages), the, the Plans and Drawings, Addenda and Bulletins thereto, and the Proposal (the Bid Book) hereto attached, together with this Agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated.

All portions of the Standard Specifications of the State of California, Department of Transportation, dated 2015, which are not in conflict with this contract shall be deemed a part of the specifications as though fully therein set forth; provided, however, that revisions to the said Standard Specifications shall apply only to the extent, if any, included in the Project Details of these specifications or as otherwise incorporated directly herein. No part of said specifications which is in conflict with any portion of this agreement, or which is not actually descriptive of the work to be done thereunder, or of the manner in which said work is to be executed, shall be considered as any part of this agreement, but shall be utterly null and void.

ARTICLE III. The Owner agrees to pay the Contractor in current funds for the performance of the contract the sum of **ONE MILLION TWO HUNDRED NINETY-ONE THOUSAND SEVEN HUNDRED THIRTY-SIX DOLLARS AND 00/100 ($1,291,736.00)** it being understood that said price is based upon the estimated quantities of materials to be used as set forth in the Proposal, except where provisions are made in the contract documents whereby the estimated quantities shall constitute the final quantity; that upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Contractor's Proposal hereto attached. Payments on account thereof will be made as set forth in the special provisions.

ARTICLE IV. If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors should persistently violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, then the Owner may, upon certificate of the Engineer when sufficient cause exists to justify such action, serve written notice upon the Contractor and his surety of its intention to terminate the contract, and unless within five days after the serving of such notice, such violations shall cease and satisfactory arrangements for correction thereof be made, the contract shall, upon the expiration of said five days, cease and terminate.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within ten (10) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the ten (10) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

ARTICLE V. With respect to any work required to be done under this contract, the Contractor will indemnify and hold harmless the COUNTY OF FRESNO, STATE OF CALIFORNIA, UNITED STATES OF AMERICA, PROVOST & PRITCHARD ENGINEERING GROUP, INC., CONSULTANTS and all other participating public agencies, whether or not said agencies are named herein, who have jurisdiction within the areas in which the work is to be performed, and all officers and employees of the Owner, the County, the State, the United States and said other participating agencies, from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents or employees under this Agreement, and from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to any person, firm or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents or employees under this Agreement. In addition, CONTRACTOR agrees to indemnify COUNTY for Federal, State of California and/or local audit exceptions resulting from non-compliance herein on the part of CONTRACTOR.

CONTRACTOR agrees to indemnify, save, hold harmless, and at COUNTY'S request, defend the COUNTY, its officers, agents, and employees from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents, or employees under this Agreement, and from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to any person, firm, or corporation who may be injured or

damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents, or employees under this Agreement.

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M. Best, Inc. rating of A and FSC VIII or better.

The Certificate of Insurance shall be issued in duplicate, to the COUNTY OF FRESNO, STATE WATER RESOURCES CONTROL BOARD, PROVOST & PRITCHARD ENGINEERING GROUP, INC. and all other participating agencies, whether or not said agencies are named herein, who contribute to the cost of the work or have jurisdiction over areas in which the work is to be performed and all officers and employees of said agencies while acting within the course and scope of their duties and responsibilities.

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M Best Company rating of A FSC VII or better.

Without limiting the COUNTY'S right to obtain indemnification from CONTRACTOR or any third parties, CONTRACTOR, at its sole expense, shall maintain in full force and effect, the following insurance policies or a program of self-insurance, including but not limited to, an insurance pooling arrangement or Joint Powers Agreement (JPA) throughout the term of the Agreement:

A. Commercial General Liability

Commercial General Liability Insurance with limits not less than those shown in the following table:

Liability Insurance Requirements

Total bid	For each occurrence[a]	Aggregate for products/completed operation	General aggregate[b]	Umbrella or excess liability[c]
≤ $1,000,000	$1,000,000	$2,000,000	$2,000,000	$5,000,000
> $1,000,000 ≤ $10,000,000	$1,000,000	$2,000,000	$2,000,000	$10,000,000
> $10,000,000 ≤ $25,000,000	$2,000,000	$2,000,000	$4,000,000	$15,000,000
> $25,000,000	$2,000,000	$2,000,000	$4,000,000	$25,000,000

[a]Combined single limit for bodily injury and property damage.
[b]This limit must apply separately to your work under this Contract.
[c]The umbrella or excess policy must contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

This policy shall be issued on a per occurrence basis. COUNTY may require specific coverages including completed operations, products liability, contractual liability, Explosion-Collapse-Underground, fire legal liability, or any other liability insurance deemed necessary because of the of the nature of this contract.

Such Commercial General Liability insurance shall name the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents and employees shall be excess only and not contributing with insurance provided under CONTRACTOR's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to COUNTY. CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance policy naming COUNTY as an additional insured and providing for a thirty (30) day prior written notice of cancellation or change in terms or coverage.

Within eight (8) days from date CONTRACTOR executes this Agreement, CONTRACTOR shall provide certificates of insurance and endorsement as stated above for all of the foregoing policies, as required herein, to the County of Fresno, Department of Public Works and Planning, Design Services, 2220 Tulare Street, Fresno, CA 93721, stating that such insurance coverages have been obtained and are in full force; that the County of Fresno, its officers, agents and employees will not be responsible for an premiums on the policies; that such Commercial General Liability insurance names the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned; that such coverage for additional insured shall apply as primary insurance an any other insurance, or self- insurance shall not be cancelled or changed without a minimum of thirty (30) days advance, written notice given to COUNTY.

CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance naming the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents, and employees shall be excess only and not contributing with insurance provided under CONTRACTOR'S policies herein. This insurance shall not be cancelled or changed without a minimum or thirty (30) days advance written notice given to COUNTY.

B. Automobile Liability

Comprehensive Automobile Liability Insurance with limits of not less than One Million Dollars ($1,000,000) per accident for bodily injury and property damage. Coverage should include owned and non-owned vehicles used in connection with this Agreement and all applicable endorsements.

C. Professional Liability

If CONTRACTOR is a licensed professional or employs professional staff, (e.g., Architect, Engineer, Surveyor, etc.) in providing services, Professional Liability Insurance with limits of not less than One Million Dollars ($1,000,000.00) per occurrence, Three Million Dollars ($3,000,000.00) annual aggregate with a provision for 3 year tail coverage.

D. Worker's Compensation

A policy of Worker's Compensation insurance as may be required by the California Labor Code.

ARTICLE VI. Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the State of California and during the performance of the work contemplated herein will continue so to comply with said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in duplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-insure should be provided the Owner.

ARTICLE VII. The Contractor shall forthwith furnish in duplicate, a faithful performance bond in an amount equal to 100% of the contract price and a payment bond in an amount equal to 100% of the contract price, both bonds to be written by a surety company acceptable to the Owner and in the form prescribed by law.

The payment bond shall contain provisions such that if the Contractor or his subcontractors shall fail to pay (a) amounts due under the Unemployment Insurance Code with respect to work performed under the contract, or (b) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from the wages of the employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor, then the surety will pay these amounts. In case suit is brought upon the payment bond, the surety will pay a reasonable attorney's fee to be fixed by the court.

ARTICLE VIII. Governing Law – Venue for any action arising out of or relating to this Agreement shall be in Fresno County, California. This Agreement shall be governed by the laws of the State of California

This Contract, 18-07-C was awarded by the Board of Supervisors on September 25, 2018. It has been reviewed by the Department of Public Works and Planning and is in proper order for signature of the Chairman of the Board of Supervisors.

IN WITNESS WHEREOF, they have executed this Agreement this 23rd day of January, 2019

Zim Industries, Inc
(CONTRACTOR)

94-2597729
(Taxpayer Federal I.D. No.)

By Curt B. Zimmerer

Title President

Curt B. Zimmerer

COUNTY OF FRESNO
(OWNER)

By

Nathan Magsig, Chairman
of the Board of Supervisors of the
County of Fresno

ATTEST:
Bernice E. Seidel
Clerk of the Board of Supervisors
County of Fresno, State of California

By Kelly Hannah
Deputy

CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 31st day of October 2018.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

Zim Industries, Inc
#2

PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO

hereinafter called the Owner

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32) PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

The work embraced herein shall be done in accordance with the 2015 Standard Specifications and with the 2015 Standard Plans, of the State of California, Department of Transportation insofar as the same may apply and in accordance with these special provisions.

Except to the extent that they may conflict with these special provisions, revised Standard Specifications apply to the extent included in the section entitled "Project Details" of the book entitled "Specifications."

The work to be done is shown on a set of Plans, Department File No. 11273, entitled: "County Service Areas 30 & 32, El Porvenir & Cantua Creek, County of Fresno Westside Groundwater Project Pilot Hole Testing and Production Wells"

The undersigned, as bidder, declares that the only persons, or parties interested in this proposal as principals are those named herein, that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes and agrees if this proposal is accepted, that he will contract with the Owner to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following unit prices, to-wit:

Proposal 1 Zim Industries, Inc.

Zim Industries, Inc
#2

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 30 - EL PORVENIR						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
1	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	94,000	94,000
2	1		LS	CLEARING AND GRUBBING	2,000	2,000
3	1		LS	TRAFFIC CONTROL	1,500	1,500
4	1		LS	JOB SITE MANAGEMENT	16,100	16,100
5	1		LS	WATER POLLUTION CONTROL	5,000	5,000
6	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	450	22,500
7	1,250		LF	DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	90	112,500
8	4		EA	COLLECT DEPTH ZONE SAMPLES	7,600	30,400
9	1,250		LF	OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	30	37,500
10	812		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	91	73,892
11	70		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	120	8,400
12	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	8,700	8,700
13	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	26	18,278
14	647		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	14	9,058
15	610		LF	FURNISH AND INSTALL GRAVEL PACK	75	45,750
16	640		LF	FURNISH AND INSTALL ANNULAR SEAL	60	38,400
17	40		HR	PRELIMINARY DEVELOPMENT	450	18,000
18	1		LS	PUMP DEVELOPMENT AND PUMP TEST	29,000	29,000
19	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	300	6,000
20	1		LS	ABANDON PILOT HOLE	13,000	13,000
SUBTOTAL BID (ITEMS 1 - 20)						589,978 ✓

Proposal 2.1 Zim Industries, Inc.

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
CONTRACT # 18-07-C

CSA 32 - CANTUA CREEK						
ITEM	QUANTITY	F/S	UNIT OF MEASURE	ITEM	ITEM PRICE	TOTAL PRICE
21	1		LS	MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	76,200	76,200
22	1		LS	CLEARING AND GRUBBING	5,000	5,000
23	1		LS	TRAFFIC CONTROL	1,000	1,000
24	1		LS	JOB SITE MANAGEMENT	16,100	16,100
25	1		LS	WATER POLLUTION CONTROL	6,000	6,000
26	50		LF	FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	450	22,500
27	1,450		LF	DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	90	130,500
28	4		EA	COLLECT DEPTH ZONE SAMPLES	7,600	30,400
29	1,450		LF	OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	30	43,500
30	1,052		LF	FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	91	95,732
31	100		LF	FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	120	12,000
32	1		LS	FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	8,700	8,700
33	703		LF	FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	26	18,278
34	1,007		LF	FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	14	14,098
35	450		LF	FURNISH AND INSTALL GRAVEL PACK	75	33,750
36	1,000		LF	FURNISH AND INSTALL ANNULAR SEAL	60	60,000
37	40		HR	PRELIMINARY DEVELOPMENT	450	18,000
38	1		LS	PUMP DEVELOPMENT AND PUMP TEST	29,000	29,000
39	20		HR	ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	300	6,000
40	1		LS	ABANDON PILOT HOLE	15,000	15,000
41	500		CY	EARTHWORK AND CHEMICAL TREATMENT	120	60,000
SUBTOTAL BID (ITEMS 21 - 41)						701,758 ✓

TOTAL BID (ITEMS 1 - 41)	1,291,736 ✓

F - Final Pay Item
S - Specialty Item

Total Bid - One million, two-hundred ninety-one thousand, Seven-hundred thirty-six dollars & no cents.

Proposal 2.2a

Zim Industries, Inc.

EVALUATION OF BID PROPOSAL SHEETS

Abbreviations used in the bid proposal sheet are identified in Section 1-1.06, "Abbreviations," of these special provisions.

Bids are required for the entire work. Bids will be compared on the basis indicated in the Notice to Bidders. The bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for that purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the unit price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

(a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the item total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;

(b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc. from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage-wise the unit price or item total in the Owner's Final Estimate of cost.

If both the unit price and the item total are unreadable or otherwise unclear, or are omitted, the bid may be deemed irregular. Likewise, if the item total for a lump sum item is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular unless the project being bid has only a single item and a clear, readable total bid is provided.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing any unit price or item total or lump sums. Written unit prices, item totals and lump sums will be interpreted according to the number of digits and, if applicable, decimal placement. Cents symbols also have no significance in establishing any unit price or item total since all figures are assumed to be expressed in dollars and/or decimal fractions of a dollar. Bids on lump sum items shall be item totals only; if any unit price for a lump sum item is included in a bid and it differs from the item total, the items total shall prevail.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the Owner, and that discretion will be exercised in the manner deemed by the Owner to best protect the public interest in the prompt and economical completion of the work. The decision of the Owner respecting the amount of a bid, or the existence or treatment of an irregularity in a bid, shall be final.

If this proposal shall be accepted and the undersigned shall fail to contract, as aforesaid, and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Owner, within eight (8) days not including Saturdays, Sundays and legal holidays, after the bidder has received notice of award of the contract, the Owner, at its option, may determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of the Owner.

Proposal 3
Contract Number 18-07-C

Zim Industries, Inc.

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (X); Certified Check ( ); Cashier's Check ( ); Cash ($)

Bidder has and acknowledges the following addenda: 1, 2

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if bidder or other interested person is an individual, state first and last name in full.

FIRM NAME Zim Industries, Inc.
President - Curt B. Zimmerer
Secretary & Manager - Robert J. Zimmerer
Treasurer - William P. Zimmerer

Licensed in accordance with an act providing for the registration of Contractors,
Class A, C57 License No. 440537 Expires 06/30/2019

(Furnishing Contractor License information as part of this proposal is optional and is requested to facilitate verification of licensure)

Curt B Zimmerer
Signature of Bidder

August 8, 2018
Dated

NOTE: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS: 4532 E. Jefferson Ave.; Fresno, CA 93725
Zip Code

MAILING ADDRESS: 4532 E. Jefferson Ave.; Fresno, CA 93725
Zip Code

BUSINESS PHONE: (559) 834-1551 FAX NUMBER: (559) 834-5156

EMAIL ADDRESS Curt@zimindustries.com

Proposal 4
Contract Number 18-07-C

CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 30th day of November 2016.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

To the Board of Supervisors, County of Fresno:

NONCOLLUSION AFFIDAVIT

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID *

Curt B. Zimmerer
(Printed or Typed Name)

being first duly sworn, deposes and says that he or she is

President
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

of Zim Industries, Inc
(Bidding Entity)

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

(Signature)

August 8, 2018
(Dated)

(Title 23 United States Code Section 112)

(Calif Public Contract Code Section 7106; Stats.1988, c. 1548, Section 1.)

* NOTE: Completing, signing, and returning the Non-Collusion Affidavit is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Proposal 5
Contract Number 18-07-C

PUBLIC CONTRACT CODE

Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has X, has not ___been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Zim Industries Inc

Public Contract Code Section 10162 Questionnaire

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

Not Applicable

Public Contract Code 10232 Statement

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Zim Industries, Inc.

BIDDER: Zim Industries, Inc

SUBCONTRACTORS:

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of **one-half of one percent of the total bid presented herewith or $10,000, whichever is greater.** Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Submission of subcontractor's name, location of business and description of work, and their contractor's license number is REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.

SUBCONTRACTOR: 5C Holdings Inc. (661) 438-8392

Business Address: 9530 Hageman Rd, B368, Bakersfield, CA 93312

Class C61/D09 License No. 938158 DIR Registration No. 1000028859

Item No. or Description of Work: Drilling and setting of conductor casing

Dollar Amount or Percentage of Total Bid $9,650.00 / 0.75%

Email Address cami@5ch-inc.com

SUBCONTRACTOR: Pacific Surveys, LLC (800) 919-7555

Business Address: 4456 Via Saint Ambrose, Claremont, CA 91711

Class N/A License No. N/A-service provider DIR Registration No. 1000014306

Item No. or Description of Work: geophysical logging and well surveying

Dollar Amount or Percentage of Total Bid $13,794.90 / 1.07%

Email Address shop@pacificsurveys.com

BIDDER: Zim Industries, Inc.

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(b)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(c)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc.

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

Proposal 8(d)
Contract Number 18-07-C

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

BIDDER: Zim Industries, Inc

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

SUBCONTRACTOR: _____

Business Address: _____

Class _____ License No. _____ DIR Registration No. _____

Item No. or Description of Work: _____

Dollar Amount or Percentage of Total Bid _____

Email Address _____

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder X, proposed subcontractor __, hereby certifies that he has X, has not __, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has X, has not __, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Zim Industries, Inc.
(Company)

By: Curt Bjornerud

President
(Title)

Date: August 08, 2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

TITLE 40, CODE OF FEDERAL REGULATIONS, PART 32
DEBARMENT AND SUSPENSION CERTIFICATION

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

DRINKING WATER STATE REVOLVING FUND
PROJECT NO: 1000359-005C

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Curt B. Zimmerer, President — August 8, 2018
Name & Title of Authorized Representative / Zim Industries, Inc. — Date

Curt B. Zimmerer
Signature of Authorized Representative

☐ I am unable to certify to the above statements. My explanation is attached.

Proposal 10
Contract Number 18-07-C

NONLOBBYING CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with awarding of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such sub-recipients shall certify and disclose accordingly.

Bidder: Zim Industries, Inc

By: Curt B Zimmerer

Date: August 8, 2018

Title: President, Curt B Zimmerer

Proposal 11
Contract Number 18-07-C

Not Applicable

approved by OMB
0348-0046

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

1. Type of Federal Action: a. contract ____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	**2. Status of Federal Action:** a. bid/offer/application _____ b. initial award c. post-award	**3. Report Type:** a. initial filing _____ b. material change **For material change only:** Year _____ quarter _____ Date of last report_____
4. Name and Address of Reporting Entity: ____ Prime _____ Subawardee Tier_____, if Known: **Congressional District,** *if known*:	**5. If Reporting Entity in No. 4 is Subawardee,** Enter Name and Address of Prime: **Congressional District,** *if known*:	
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____	
8. Federal Action Number, *if known:*	**9. Award Amount,** *if known:* **$**	
10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:** _____ **Title:** _____ **Telephone No.:** _____ **Date:** _____	
Federal Use Only	**Authorized for Local Reproduction** **Standard Form - LLL (Rev. 7-97)**	

Proposal 12(a)
Contract Number: 18-07-C

Zim Industries, Inc

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. _____ Bid Opening Date _____

The County of Fresno established a Disadvantaged Business Enterprise (DBE) goal of _____% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Names, addresses and phone numbers of firms selected for the work above:

E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

GUARANTY

To the Owner: County of Fresno

FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT

EL PORVENIR (CSA 30) & CANTUA CREEK (CSA 32)
PILOT HOLE TESTING AND PRODUCTION WELL CONSTRUCTION

CONTRACT NUMBER: 18-07-C

The undersigned guarantees the construction and installation of the following work included in this project:

ALL WORK

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the work or any part thereof fail to operate properly as originally intended and in accordance with the plans and specifications, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, the undersigned agrees to reimburse the Owner, upon demand, for its expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or, upon demand by the Owner, to replace any such material and to repair said work completely without cost to the Owner so that said work will function successfully as originally contemplated.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the Owner.

_____

_____

_____

Date: _____ Contractor: _____

California State Water Resources Control Board
Division of Financial Assistance
1001 I Street • Sacramento, California 95814 • (916) 341-5700 FAX (916) 341-5707
Mailing Address: P. O. Box 944212 • Sacramento, California • 94244-2120
Internet Address: http://www.waterboards.ca.gov

Guidelines for Meeting the California State Revolving Fund (CASRF) Programs (Clean Water and Drinking Water SRF) Disadvantaged Business Enterprise Requirements

The Disadvantaged Business Enterprise (DBE) Program is an outreach, education, and objectives program designed to increase the participation of DBEs in the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Programs.

How to Achieve the Purpose of the Program

Recipients of CWSRF/DWSRF financing that are subject to the DBE requirements (recipients) are required to seek, and are encouraged to use, DBEs for their procurement needs. Recipients should award a "fair share" of sub-agreements to DBEs. This applies to all sub-agreements for equipment, supplies, construction, and services.

The key functional components of the DBE Program are as follows:

- Fair Share Objectives
- DBE Certification
- Six Good Faith Efforts
- Contract Administration Requirements
- DBE Reporting

Disadvantaged Business Enterprises are:

- Entities owned and/or controlled by socially and economically disadvantaged individuals as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note) (10% statute), and Public Law 102-389 (42 U.S.C. 4370d) (8% statute), respectively;
- Minority Business Enterprise (MBE) - entities that are at least 51% owned and/or controlled by a socially and economically disadvantaged individual as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note), and Public Law 102-389 (42 U.S.C. 4370d), respectively;
- Women Business Enterprise (WBE) - entities that are at least 51% owned and/or controlled by women;
- Small Business Enterprise (SBE);
- Small Business in a Rural Area (SBRA);
- Labor Surplus Area Firm (LSAF); or
- Historically Underutilized Business (HUB) Zone Small Business Concern or a concern under a successor program.

Certifying DBE Firms:

Under the DBE Program, entities can no longer self-certify and contractors and sub-contractors must be certified at bid opening. Contractors and sub-contractors must provide to the CASRF recipient proof of DBE certification. Certifications will be accepted from the following:

- The U.S. Environmental Protection Agency (USEPA)
- The Small Business Administration(SBA)
- The Department of Transportation's State implemented DBE Certification Program (with U.S. citizenship)
- Tribal, State and Local governments
- Independent private organization certifications

If an entity holds one of these certifications, it is considered acceptable for establishing status under the DBE Program.

- Information retained on the Bidder's List must include the following:
    1. Entity's name with point of contact;
    2. Entity's mailing address and telephone number;
    3. The project description on which the entity bid or quoted and when;
    4. Amount of bid/quote; and
    5. Entity's status as a DBE or non-DBE.
- The Bidders List must be kept until the recipient is no longer receiving funding under the agreement.
- The recipient shall include Bidders List as part of the Final Budget Approval Form.
- A recipient must require its prime contractor to pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the Recipient.
- A recipient must be notified in writing by its prime contractor prior to any termination of a DBE subcontractor by the prime contractor.
- If a DBE subcontractor fails to complete work under the subcontract for any reason, the recipient must require the prime contractor to employ the six GFEs if soliciting a replacement subcontractor.
- A recipient must require its prime contractor to employ the six GFEs even if the prime contractor has achieved its fair share objectives.

Reporting Requirements

For the duration of the construction contract(s), the recipient is required to submit to the State Water Resources Control Board DBE reports annually by October 10 of each fiscal year on the attached Utilization Report form (UR-334). Failure to provide this information as stipulated in the financial agreement language may be cause for withholding disbursements.

CONTACT FOR MORE INFORMATION

SWRCB, CASRF – Barbara August (916) 341-6952 barbara.august@waterboards.ca.gov

US EPA, Region 9 – Joe Ochab (415) 972-3761 ochab.joe@epa.gov

California Water Boards

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

A Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

Please use the space below to report any concerns regarding the above funded project:

Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

Send completed Form 4500-2 to:
Mr. Joe Ochab, DBE Coordinator
US EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

California Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity

Contract Item Number	**Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies**	**Price of Work Submitted to the Prime Contractor**
DBE Certified By: _ DOT _ SBA Other: _____	Meets/exceeds EPA certification standards? YES NO Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

Subcontractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

California Water Boards

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractor's[2] and the estimated dollar amount of each subcontract. A Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity		

I have identified potential DBE certified subcontractors. YES NO

If *yes*, please complete the table below. If *no*, please explain:

Subcontractor Name/ Company Name	Company Address / Phone / Email	Estimated Dollar Amount	Currently DBE Certified?

--Continue on back if needed--

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

California Water Boards

STATE WATER RESOURCES CONTROL BOARD – DIVISION OF FINANCIAL ASSISTANCE
DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION
CALIFORNIA STATE REVOLVING FUNDS (CASRF)
FORM UR-334

1. Grant/Finance Agreement Number:	2. Annual Reporting Period 10/1/___ through 09/30/_	3. Purchase Period of Financing Agreement:
4. Total Payments Paid to Prime Contractor or Sub-Contractors During Current Reporting Period: $		
5. Recipient's Name and Address:	6. Recipient's Contact Person and Phone Number:	

7. List All DBE Payments Paid by Recipient or Prime Contractor During Current Reporting Period:

Payment or Purchase Paid by Recipient or Prime Contractor	Amount Paid to Any DBE Contractor or Sub-Contractor For Service Provided to Recipient		Date of Payment (MM/DD/YY)	Procurement Type Code** (see below)	Name and Address of DBE Contractor of Sub-Contractor or Vendor
	MBE	WBE			

8. Initial here if no DBE contractors or sub-contractors paid during current reporting period:
9. Initial here if all procurements for this contract are completed:
10. Comments:

11. Signature and Title of Recipient's Authorized Representative	12. Date

Email Form UR-334 to:

DrinkingWaterSRF@waterboards.ca.gov OR CleanWaterSRF@waterboards.ca.gov

Questions may be directed to:

Barbara August, SWRCB
Barbara.August@waterboards.ca.gov
Phone: (916) 341-6952
Fax: (916) 327-7469

**Procurement Type:
1. Construction
2. Supplies
3. Services (includes business services; professional services; repair services and personnel services)
4. Equipment

STATE WATER RESOURCES CONTROL BOARD - DIVISION OF FINANCIAL ASSISTANCE
DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION
CALIFORNIA STATE REVOLVING FUNDS

INSTRUCTIONS FOR COMPLETING FORM UR-334

Box 1 Grant or Financing Agreement Number.

Box 2 Annual reporting period.

Box 3 Enter the dates between which you made procurements under this financing agreement or grant.

Box 4 Enter the total amount of payments paid to the contractor or sub-contractors during this reporting period.

Box 5 Enter Recipient's Name and Address.

Box 6 Enter Recipient's Contact Name and Phone Number.

Box 7 Enter details for the **DBE purchases only** and be sure to limit them to the current period. 1) Use either an "R" or a "C" to represent "Recipient" or "Contractor." 2) Enter a dollar total for DBE and total the two columns at the bottom of the section. 3) Provide the payment date. 4) Enter a product type choice from those at the bottom of the page. 5) List the vendor name and address in the right-hand column

Box 8 Initial here if no DBE contractors or sub-contractors were paid during this reporting period.

Box 9 Initial this box only if all purchases under this financing agreement or grant have been completed during this reporting period or a previous period. If you initial this box, we will no longer send you a survey.

Box 10 This box is for explanatory information or questions.

Box 11 Provide an authorized representative signature.

Box 12 Enter the date form completed.

THE GUARANTEE™

BID BOND

BOND NO. Bid Bond

KNOW ALL MEN BY THESE PRESENTS, That we, Zim Industries, Inc. as Principal, and The Guarantee Company of North America USA, a corporation duly organized under the laws of the State of Michigan, as Surety, are held and firmly bound unto Fresno County Department of Public Works and Planning Department as Obligee, in the sum of Ten Percent of Amount Bid ($ 10%) Dollars for the payment of which Principal and Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, Principal has submitted a bid for Fresno County Westside Groundwater Project -Contract Number 18-07-C, the Project.

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal enters into a Contract with the Obligee for the Project; or, if the Principal pays the Obligee the amount of this Bond or the difference between Principal's bid and the next lowest bid for the Project, whichever is less: this obligation is null and void, otherwise to remain in full force and effect.

Signed and sealed this 9th day of August, 2018.

Zim Industries, Inc.

Witness

BY: Curt B. Zimmerer
Principal

ITS: President

The Guarantee Company of North America USA

Witness

BY: Lyn Genito
Attorney-In-Fact Lyn Genito

THE GUARANTEE COMPANY OF NORTH AMERICA USA

Rev. 11/4/15

One Towne Square, Suite 1470, Southfield, Michigan, USA 48076 | Tel: 248.281.0281 1.866.328.0567 | Fax: 248.750.0431

Excellence, Expertise, Experience ... Everytime | theguaranteeus.com

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Fresno)

On August 9, 2018 before me, Judy M. Muston - Notary Public
Date *Here Insert Name and Title of the Officer*

personally appeared Curt B. Zimmerer
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JUDY M. MUSTON
Notary Public – California
Fresno County
Commission # 2231187
My Comm. Expires Mar 12, 2022

Signature Judy M. Muston
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Bid Bond Document Date: 8/9/18
Number of Pages: 1 Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____

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CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 30th day of November 2016.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
) ss
County of Fresno)

On 08-09-2018, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he/~~she~~/they~~ executed the same in ~~his/~~her~~/their~~ authorized capacity~~(ies)~~, and that by ~~his/~~her~~/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2202238
FRESNO COUNTY
My Comm. Exp. July 12, 2021

Signature: Bonnie Gonzalez

(Seal)

Bonnie Gonzalez, Notary Public

THE GUARANTEE®

The Guarantee Company of North America USA
Southfield, Michigan

Bond No. Bid Bond
Principal: Zim Industries, Inc.
Obligee: Fresno County Department of Public Works and Planning Department

POWER OF ATTORNEY

NOW ALL BY THESE PRESENTS: That **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

Lyn Genito
Alliant Insurance Services, Inc.

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon **THE GUARANTEE COMPANY OF NORTH AMERICA USA** as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of **THE GUARANTEE COMPANY OF NORTH AMERICA USA** at a meeting held on the 31st day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof; and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given, except as provided below
3. In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.
4. In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner – Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 6th day of December 2011, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, **THE GUARANTEE COMPANY OF NORTH AMERICA USA** has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 2nd day of October, 2015.

THE GUARANTEE COMPANY OF NORTH AMERICA USA

Stephen C. Ruschak, President & Chief Operating Officer **Randall Musselman, Secretary**

STATE OF MICHIGAN
County of Oakland

On this 2nd day of October, 2015 before me came the individuals who executed the preceding instrument, to me personally known, and being by me duly sworn, said that each is the herein described and authorized officer of The Guarantee Company of North America USA; that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and each signature were duly affixed by order of the Board of Directors of said Company.

Cynthia A. Takai
Notary Public, State of Michigan
County of Oakland
My Commission Expires February 27, 2024
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

Cynthia A. Takai

I, Randall Musselman, Secretary of **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by **THE GUARANTEE COMPANY OF NORTH AMERICA USA**, which is still in full force and effect.

IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 9th day of August, 2018.

Randall Musselman, Secretary

Fresno County Westside Groundwater Project

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. 1000359-005 C Bid Opening Date August 9, 2018

The County of Fresno established a Disadvantaged Business Enterprise (DBE) goal of 16% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement
Daily Construction Service	7/5, 7/9, 7/16, 7/23, 7/30 & 8/06 of 2018
Craigs List	7/5/2018 thru August 9, 2018

B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates
Capital Plow	June 11, 2018	emails & phone calls to August 9, 2018
Sunger Pumps & Supply, Inc	June 11, 2018	emails & phone calls to August 9, 2018
Uchida Pipe	June 11, 2018	emails & phone calls to August 9, 2018
Mill Man Steel, Inc	June 11, 2018	emails & phone calls to August 9, 2018
Imperial Pipe	June, 11, 2018	emails & phone calls to August 9, 2018
ASAP Industrial Supply, Inc	June, 11, 2018	emails & phone calls to August 9, 2018
5C Holdings, Inc	June 11, 2018	emails & phone calls to August 9, 2018

C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Item#	Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount ($)	Percentage Of Contract
6&26	drill borehole & set conductor	No	drill & set conductor	$9,650.00	0.75%
6&26	Supply Conductor pipe	No	supply conductor pipe	$12,234.00	0.95%
10,11,30&31	supply casing & screen	No	supply materials	$108,955.36	8.43%
12&32	supply compressors	No	supply materials	$ 8,782.80	0.68%
13,14,33&34	supply sounding tube & gravel fill	No	supply materials	$37,298.00	2.89%

D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Capital Flow 7640 Wilbur Way #2, Sacramento, CA 95828 (916)540-7884; declined to quote
Sanger Pumps & Supply Inc. 13600 E. Belmont Ave, Sanger, CA 93657 (559)618-7444; declined to quote
Uchida Pipe 3001 S. Barrington Ave, Suite 119, Los Angeles, CA 90025 (424)465-6058; declined to quote
ASAP Industrial Supply, Inc. 10927 Jasmine Street; Fontana, CA 92337 (909)923-2777; declined to quote

Names, addresses and phone numbers of firms selected for the work above:

		Bid Item#
5C Holdings, Inc.	9530 Hageman Rd, Suite B368; Bakersfield, CA 93312; (661)438-8392	6&26
Roscoe Moss Company	4360 Worth Street; Los Angeles, CA 90063; (323)263-4111	10,11,12,30,31,32
Mill Man Steel, Inc.	1441 Wazee St. #104; Denver, CO 80202; (303)220-8545	6&26
Kelly Pipe	19459 Flightpath Way; Bakersfield, CA 93308; (661)399-4540	13,14,33,34

Detailed quotes attached show price differences of quotes.

E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

Had telephone conversations with DBE's solicited and verified that Zim Industries, Inc. would work with their firms on payment terms to match the payment terms required by their suppliers. We also are not requiring DBEs to provide bonding on their work, we will bond the job as the general contractor

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

Referred DBEs to Roscoe Moss Manufacturing Company and Kelly Pipe as possible pipe manufacturers / pipe suppliers to sell to them.

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
CA - Dept of Transportation	Internet - https://ucp.dot.ca.gov/licenseform.htm	
CA - Dept of General Services	Internet - https://www.osmb.dgs.ca.gov	
CA - Office of Small Business & DVBE Services	Internet - http://www.eprocure.dgs.ca.gov	

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

Researched past projects for names of possible DBEs to solicit quotations. Our direct DBE solicitations offered our best prospects in obtaining DBE quotations for this project.

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractor's[2] and the estimated dollar amount of each subcontract. A Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Zim Industries, Inc		Fresno County Westside Groundwater Projec
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
502	1000359-005C	Curt B. Zimmerer
Address		
4532 E. Jefferson Ave. Fresno, CA 93725		
Telephone No.		Email Address
(559) 834-1551		curt@zimindustries.com
Issuing/Funding Entity		
Drinking Water State Revolving Fund		

I have identified potential DBE certified subcontractors. (YES) NO

If *yes*, please complete the table below. If *no*, please explain:

Subcontractor Name/ Company Name	Company Address / Phone / Email	Estimated Dollar Amount	Currently DBE Certified?
SC Holdings	9530 Hageman Rd B368 Bakersfield, CA 93312 (661) 438-8342 cami@sch-inc.com	$9650.00	Yes 16000428
Pacific Surveys, LLC	4456 Vsq Saint Ambrose Claremont, CA 91711 (800) 919-7888 shop@pacificsurveys.com	$13,794.90	NO
mill Man Steel, Inc	1441 Wazee Street, Suite 104 Denver, CO 80202 (303) 220-8545 jamesgoss@millmansteel.com	$12,234.00	Yes 911N0069

--Continue on back if needed--

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt B. Zimmerer	Curt B. Zimmerer
Title	Date
President, Zim Industries, Inc	August 8, 2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name	Project Name
5 C Holdings	Fresno County Westside Groundwater Project
Bid / Proposal No.	**Assistance Agreement ID No. (if known)**	**Point of Contact**
502	1000359-005C	Cami Hogg
Address	
9530 Hageman Rd B368 Bakersfield CA 93312	
Telephone No.	**Email Address**
(661) 4388392	Cami@5ch-inc.com
Prime Contractor Name	**Issuing/Funding Entity**
Tim Industries, Inc	Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
6&26	drilling & setting of conductors	$9,650

DBE Certified By:	Meets/exceeds EPA certification standards?
___ DOT ✓ SBA ✓ Other: WBE	YES NO (Unknown)

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt Zimmer	Curt B. Zimmer
Title	Date
President, Zim Industries, Inc	8-8-2018

Subcontractor Signature	Print Name
[signature]	Cami Hogg
Title	Date
President, SC Holdings	8-7-2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

5 C Holdings
(Company)

By _____

President
(Title)

Date: 8/9/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Proposal 9
Contract Number 18-07-C

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name: PACIFIC SURVEYS, LLC	Project Name: Fresno County Westside Groundwater Project
Bid / Proposal No.: 502	Assistance Agreement ID No. (if known): 1000359-005C
Point of Contact: MICHAEL RIDDER	
Address: 9756 VIA SAINT AMBROSE CLAREMONT, CA 91711	
Telephone No.: 800 919 7555	Email Address: SHOP@PACIFICSURVEYS.COM
Prime Contractor Name: ZIM INDUSTRIES, INC	Issuing/Funding Entity: Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
7427	geophysical logging & well surveying	$13,794.00

DBE Certified By: ___ DOT ___ SBA

Other: N/A - PACIFIC SURVEYS IS NOT A DBE

Meets/exceeds EPA certification standards? YES (NO) Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt Zimmerer	Curt B Zimmerer
Title	Date
President, Zim Industries, Inc.	8/8/2018

Subcontractor Signature	Print Name
Josh Wheatcroft	JOSH WHEATCROFT
Title	Date
OFFICE MANAGER	8/7/2018

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS.

The bidder __, proposed subcontractor X, hereby certifies that he has __, has not X, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has __, has not X, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

PACIFIC SURVEYS, LLC
(Company)

By: JOSH WHEATCROFT

OFFICE MANAGER
(Title)

Date: 8/8/2018

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Water Boards

Disadvantaged Business Enterprise (DBE) Program

DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. A Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name		Project Name
MILL MAN STEEL, INC		FRESNO COUNTY WESTSIDE GROUNDWATER PROJECT
Bid / Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
502	1000359-005C	James Goss
Address		
1441 WAZEE ST, SUITE 104, DENVER CO 80202		
Telephone No.		Email Address
303-220-8545		jamesgoss@millmansteel.com
Prime Contractor Name		Issuing/Funding Entity
ZIM INDUSTRIES, INC		Drinking Water State Revolving Fund

Contract Item Number	Description of Work Submitted from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
6626	STEEL PIPE	$ 12,734 USD

DBE Certified By:			Meets/exceeds EPA certification standards?		
	DOT	SBA	YES	NO	Unknown
Other: CPUC					

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.2015 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Curt B Zimmerer	Curt B Zimmerer
Title	Date
President, Zim Industries, Inc.	8/8/2018

Subcontractor Signature	Print Name
	JAMES GOSS
Title	Date
SALES	8/8/18

Mill Man Steel, Inc

The public reporting and record keeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Do not send the completed form to this address.

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

August 6, 2018 Contract No. 18-07-C

ADDENDUM NO. 2 to the Bidding and Contract Documents for Fresno County Westside Groundwater Project, revising the Bidding and Contract Documents as follows:

COVER PAGE

No changes

TABLE OF CONTENTS

No changes

NOTICE TO BIDDERS

DELETE the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 07/27/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

REPLACE with the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180003, Dated 01/05/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA3.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

SPECIAL PROVISIONS

No changes

Acknowledged August 8, 2018 by
Zim Industries, Inc
Curt B. Zimmer, President

PROPOSAL

No changes

AGREEMENT

No changes

PROJECT DETAILS

No changes

PLANS

No changes

END OF ADDENDUM NO. 2

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

8/6/19
Date Signed

Supervising Engineer:

Dale Siemer, PE 59670
Lic. Expiration: 12/31/19

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Seventh Floor
Fresno, CA 93721-2106

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

July 31, 2018 Contract No. 18-07-C

ADDENDUM NO. 1 to the Bidding and Contract Documents for Fresno County Westside Groundwater Project, revising the Bidding and Contract Documents as follows:

NOTICE TO BIDDERS

DELETE the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 06/15/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

REPLACE with the following text:

The Federal minimum wage rates for this project as predetermined by the United States Secretary of Labor are set forth in **General Decision Number CA180029, Dated 07/27/2018**, which is incorporated in these special provisions by this reference as if fully set forth herein and which can be viewed at http://www.wdol.gov/wdol/scafiles/davisbacon/CA29.dvb. Said Federal wage rates, as well as project plans, special provisions, and bid forms, may also be examined at the County of Fresno office described in the preceding paragraph. Addenda to modify the reference to Federal minimum wage rates to reflect revisions thereto, if necessary, will be issued to planholders of record.

Acknowledged August 8, 2018
by Zim Industries, Inc.
Curt B Zimmerer
Curt B. Zimmerer,
President

SPECIAL PROVISIONS

Section 8-1.04B - Standard Start

DELETE the following text:

SIXTY (100) WORKING DAYS

REPLACE with the following text:

ONE HUNDRED (100) WORKING DAYS

Section 00 01 10 - Table of Contents

ADD the following text:

31 23 00	Earthwork
33 21 01	Water Well Drilling

Section 01 11 00 - Description of Work and Schedule Constraints

ADD the following text to *Part 1.1*:

D. Slope failure has occurred at the CSA 32 proposed well site adjacent to the storm drain basin. The slope failure appears to have been caused by existing water treatment plant backwash water discharge eroding the side slope and filling gopher holes with water and undermining the ground in the vicinity of the well site. Work at the CSA 32 well site will initially consist of earthwork to stabilize soils and repair the slope failure in the proposed well site area so that drilling equipment can access the site.

E. Derrick Avenue (State Route 33) is Caltrans right of way. No work is anticipated to be necessary on Derrick Avenue. If the Contractor anticipates doing any work within Caltrans right of way, including placing signage for any required traffic control, the Contractor is responsible for obtaining an Encroachment Permit from Caltrans, including preparing and submitting all required application documents, paying all fees and complying with all permit requirements.

Section 01 22 00 - Explanation of Bid Items

ADD the following text to *Part 1.2*:

BID ITEM NO. 41 - Earthwork and Chemical Treatment
This bid item is a unit price bid for Earthwork and Chemical Treatment of existing soil at the proposed CSA 32 well site and shall be per cubic yard completed, and shall be full compensation for furnishing all labor, equipment and material, including but not limited to excavation, removal of unsuitable material, soil mixing, chemical treatment, soil placement and side slope repair, and compaction to complete the installation as described herein, and no additional compensation will be made therefore. The quantities may be increased, decreased, or deleted entirely by Owner, with no change in unit price. Earthwork related to Clearing and Grubbing at the CSA 32 site shall be excluded from this bid item and included in Bid Item 22.

Section 31 11 00 - Clearing and Grubbing

DELETE and REPLACE with attached *Section 31 11 00 - Clearing and Grubbing*

Section 31 21 01 - Water Well Drilling

ADD the following to *Part 1.2*:

Section 31 23 00 - Earthwork

DELETE and REPLACE *Paragraph B* in *Part 2.8* with the following text:

B. The Contractor shall dispose of surplus drilling fluid off-site in a manner acceptable to the Owner and Engineer. The Contractor is responsible for transporting and disposing well development and test water offsite; including paying all costs associated with identifying a disposal site, obtaining approval from and making arrangements with the owner(s) of said site, transporting the water to said site, and paying all disposal charges. An exception shall be made for disposal of development water at CSA 32 to allow for the disposal of development water in the existing storm drain pond, provided that the Contractor can demonstrate sufficient storage capacity in the basin. The Contractor's bid proposal shall include all costs associated with providing any required discharge piping to an approved discharge site. The disposal plan and site shall be approved by the Owner prior to the start of drilling.

Section 31 23 00 - Earthwork

INSERT attached *Section 31 23 00 - Earthwork*

PROPOSAL

DELETE *Proposal 2.2*

REPLACE with *Proposal 2.2a*

PROJECT DETAILS

INSERT attached *Geotechnical Investigation Report* by Kleinfelder

INSERT attached *CSA 30 Site Plan*

PLANS

Sheet C2-1

DELETE and REPLACE with attached *Sheet C2-1A*

Attached:
General Decision Number CA180029, Dated 07/27/2018
Section 31 11 00 - Clearing and Grubbing
Section 31 23 00 - Earthwork
Proposal 2.2a
CSA 30 Site Plan
Geotechnical Investigation Report by Kleinfelder
Sheet C2-1A

END OF ADDENDUM NO. 1

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

Date Signed: 8/1/18

Supervising Engineer: _____

Dale Siemer, PE C59670
Lic. Expiration: 12/31/19

FRESNO COUNTY
Department of Public Works and Planning
m/a 2220 Tulare Street, Seventh Floor
Fresno, CA 93721-2106

DATE SIGNED 7/31/18

Date Signed: 7/31/18

Consultant Engineer: _____

Nicholas Jacobson, PE C84909
Lic. Expiration: 03/31/20

Provost & Pritchard Consulting Group
286 W. Cromwell Avenue
Fresno, CA 93711

SUPPLEMENTAL INFORMATION – Not Part of the Contract Documents

The following list is comprised of paraphrased questions submitted by potential bidders or sub-bidders in writing via facsimile, email, or letter. These paraphrased questions and associated responses are not part of the contract documents and shall have no bearing whatsoever on the interpretation of the Standard Specifications, the Standard Plans, the Special Provisions, or the Plans. Nor shall they have any bearing whatsoever on the interpretation of other publications referenced therein.

1. **Question**: At CSA 30, where can water be disposed when drilling?

   Response: The Contractor is required to find a suitable location to dispose of drilling fluid. The Contractor may enter into an agreement with a land owner adjacent to the CSA 30 area for disposal of water while drilling. If the Contractor chooses to make arrangements with an adjacent landowner, the Contractor shall provide a copy of the fully executed written agreement to the Engineer prior to any drilling water disposal.

   The CSA 30 Site Plan Project Detail which is included in Addendum No. 1 shows County owned property within CSA 30 where the Contractor may construct a discharge pipe (if necessary) to convey drilling water to an adjacent land owner's property. The Contractor shall submit a water disposal plan detailing how the Contractor proposes to dispose of drilling water. The plan shall include, but not be limited to the proposed pipe alignment for water disposal, traffic control measures, and fully executed agreement with land owner for disposal of drilling water.

2. **Question**: Can the existing soccer goal be removed during drilling operations?

   Response: The Contractor may remove the existing soccer goal during drilling operations. The Contractor shall restore the soccer goal to its original condition after drilling operations are finished. Costs for removing and replacing the soccer goal shall be paid for under Bid Item No. 1 and no additional payment will be made.

ZIMINDU-01 LMANZER

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 01/09/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Tracy Dolan	
Alliant Insurance Services, Inc. 2355 Gold Meadow Way Ste 250 Gold River, CA 95670	PHONE (A/C, No, Ext): (916) 210-0317	FAX (A/C, No): (916) 210-0343
	E-MAIL ADDRESS: tracy.dolan@alliant.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Zurich American Insurance Company	16535
INSURED	INSURER B : Fireman's Fund Insurance Company	21873
Zim Industries, Inc.; Bakersfield Well & Pump Co. 4532 E. Jefferson Ave. Fresno, CA 93725	INSURER C : American Fire and Casualty Company	24066
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR	X		GLO8311662-14	03/01/2018	03/01/2019	DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
	X Employee Benefits Li						MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO			BAP8311663-14	03/01/2018	03/01/2019	BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR			SSE 00049022601	03/01/2018	03/01/2019	EACH OCCURRENCE	$ 9,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 9,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: Y	N/A		WC8311661-14	03/01/2018	03/01/2019	E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Excess Liability			ECA(19)59129699	10/08/2018	03/01/2019		7,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: Contract No. 18-07-C, Fresno County Westside Groundwater Project

County of Fresno, its officers, agents and employees, individually and collectively are named additional insured for General Liability per attached form. Coverage is primary and non-contributory and 30 day written notice of cancellation applies and 10 day notice of cancellation for non payment of premium applies.

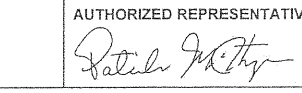
CERTIFICATE HOLDER

County of Fresno
Department of Public Works and Planning
2220 Tulare Street, 6th Floor
Fresno, CA 93721

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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The ACORD name and logo are registered marks of ACORD

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location And Description Of Completed Operations
Any person or organization, other than an architect, engineer or surveyor, whom you are required to add as an additional insured under this policy under a written contract or written agreement executed prior to loss, except where such requirement is prohibited by law and where that contract specifically requires the ISO CG2037 04/2013 edition form or the equivalent of same.	**Any Location or project, other than a wrap-up or other consolidated insurance program location or project for which insurance is otherwise separately provided to you by a wrap-up or other consolidated insurance program.**
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

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B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

© ISO Properties, Inc., 2004

Other Insurance Amendment – Primary And Non-Contributory

ZURICH

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.
GLO8311662-14	03/01/2018	03/01/2019	03/01/2018			

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

Named Insured: Zim Industries, Inc.; Bakersfield Well & Pump Co

Address (including ZIP Code): 4532 E. Jefferson Ave., Fresno, CA 93725

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

1. The following paragraph is added to the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

   This insurance is primary insurance to and will not seek contribution from any other insurance available to an additional insured under this policy provided that:

   a. The additional insured is a Named Insured under such other insurance; and

   b. You are required by a written contract or written agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

2. The following paragraph is added to Paragraph **4.b.** of the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

   This insurance is excess over:

   Any of the other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured, in which the additional insured on our policy is also covered as an additional insured on another policy providing coverage for the same "occurrence", offense, claim or "suit". This provision does not apply to any policy in which the additional insured is a Named Insured on such other policy and where our policy is required by written contract or written agreement to provide coverage to the additional insured on a primary and non-contributory basis.

All other terms and conditions of this policy remain unchanged.

Includes copyrighted material of Insurance Services Office, Inc., with its permission.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
Any person or organization, other than an architect, engineer or surveyor, whom you are required to add as an additional insured under this policy under a written contract or written agreement executed prior to loss, except where such requirement is prohibited by law and where that contract specifically requires the ISO CG2010 04/2013 edition form or the equivalent of same.	**Any Location or project, other than a wrap-up or other consolidated insurance program location or project for which insurance is otherwise separately provided to you by a wrap-up or other consolidated insurance program.**
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

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B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

© Insurance Services Office, Inc., 2012

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

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County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

August 29, 2018

Curt B. Zimmerer, President
Zim Industries, Inc.
4532 E. Jefferson Avenue
Fresno, CA 93725

Subject: Contract 18-07-C, Fresno County Westside Groundwater Project

Dear Mr. Zimmerer,

Your firm submitted a bid to the Department of Public Works and Planning (Department) for the above-mentioned project on August 9, 2018. At the time of bid opening, your firm was the apparent second-low bidder. Department staff reviewed the bids in detail, including the Good Faith Efforts documentation submitted by the apparent low bidder and your firm. Based on this review, the Department plans to recommend that the Board of Supervisors (Board) find the bid from the apparent low bidder non-responsive and; in turn, award to the project your firm as the lowest responsive bidder.

This matter will be presented to the Board at its meeting on September 25, 2018.

If you have any questions, please contact me by telephone at 559-600-9908 or via e-mail at ehaagenson@fresnocountyca.gov.

Mohammad Alimi
Design Engineer

Erin Haagenson
Senior Staff Analyst

County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
STEVEN E. WHITE, DIRECTOR

January 23, 2019

Curt B. Zimmerer, President
Zim Industries Inc.
4532 E. Jefferson Ave.
Fresno, CA 93725

Subject: NOTICE OF APPROVAL, Fresno County Westside Groundwater Project; Contract No. 18-07-C

The contract between your firm and the County of Fresno for the referenced project became operative on January 23, 2019. Two copies of the executed contract are enclosed.

A "Notice to Proceed" authorizing commencement of the work will be issued by the Construction Engineer.

DIR Project ID 272212 is assigned to Contract No. 18-07-C.

The attached copy of Section 41 of the Charter of the County of Fresno is for your reference and compliance. If you have any questions contact Mitch Araki at maraki@fresnocountyca.gov or (559) 600-4501.

Sincerely,

Mohammad Alimi, Ph.D., P.E.
Design Division Engineer

Erin Haagenson,
Senior Staff Analyst

Enclosures

cc: Board of Supervisors, Auditor - Controller, Financial Services, Construction Management, Design Division – Design Services

ATTACHMENT TO NOTICE OF APPROVAL

(Portion of the Charter of the County of Fresno)

SECTION 41. No officer or employee shall be interested directly or indirectly in any contract or transaction with the County or become a surety upon any bond given to the County.

No officer or employee shall receive any commission, money, or thing of value, or derive any profit, benefit or advantage, directly or indirectly, from or by reason of any dealings with, or service for the County, by himself or otherwise, except his lawful compensation as such officer or employee.

As to members of appointive boards and commissions only, the following standards shall apply. No appointive board or commission member shall be financially interested in any contract made by any body or board of which he is a member. The meaning of the terms "financial interest" and "made" shall be consistent with state law. Nothing contained herein shall be construed to apply to a member of a board or commission which is purely advisory.

Any violation of the provisions of this section shall render the contract or transaction involved voidable at the option of the Board of Supervisors. It shall be the duty of every officer and employee who has knowledge of any violation of the provisions of this section immediately to report such violation to the Board of Supervisors. Failing to do so, he may be removed from his office or employment. (Amended June 3, 1980.)

THE GUARANTEE™

Premium: $12,334.00

PERFORMANCE BOND

BOND AMOUNT: $ 1,291,736.00 BOND NO.: 12163911

KNOW ALL MEN BY THESE PRESENTS, That we, Zim Industries, Inc.
as Principal, and The Guarantee Company of North America USA, a Michigan Corporation, as Surety, are held and firmly bound unto County Of Fresno, Public Works and Planning Department
as Obligee, in the sum of One Million Two Hundred Ninety One Thousand Seven Hundred Thirty Six Dollars and 00/100 ($ 1,291,736.00) Dollars for which sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, on the _____ day of _____, _____, the Principal entered into a contract with the Obligee for Fresno County Westside Groundwater Project (El Porvenir (CSA 30) & Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction, Drinking Water State Revolving Fund, Project No: 1000359-005C, Contract Number 18-07-C which contract is by reference made a part hereof and is hereafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, That, if the Principal shall faithfully perform said Contract in accordance with the plans, specifications and terms thereof, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Sealed with our Seals and Dated this 3rd day of January, 2019.

Zim Industries, Inc.

_____
Witness

BY: Curt B. Zimmerer
Principal

ITS: President

The Guarantee Company of North America USA

_____
Witness

BY: Lyn Genito
Attorney-In-Fact Lyn Genito

THE GUARANTEE COMPANY OF NORTH AMERICA USA

Rev. 12/1/15

One Towne Square, Suite 1470, Southfield, Michigan, USA 48076 | Tel: 248.281.0281 1.866.328.0567 | Fax: 248.750.0431

Excellence, Expertise, Experience ... Everytime | theguaranteeus.com

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Fresno)

On January 4, 2019 (Date) before me, Judy M. Muston - Notary Public (Here Insert Name and Title of the Officer),

personally appeared Curt B. Zimmerer (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JUDY M. MUSTON
Notary Public – California
Fresno County
Commission # 2231187
My Comm. Expires Mar 12, 2022

Signature Judy M. Muston
(Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Performance Bond-Fresno Co Westside Groundwater Proj. Document Date: 1/3/2019
Number of Pages: 1 Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____

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CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 31st day of October 2018.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
) ss
County of Fresno)

On 01-03-2019 before me, Cody Lyman, Notary Public, personally appeared Lyn Genito, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

CODY LYMAN
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2177131
FRESNO COUNTY
My Comm. Exp. December 25, 2020

(Seal)

Signature: _____
Cody Lyman, Notary Public

The Guarantee Company of North America USA

PAYMENT BOND - PUBLIC WORK
SECTIONS 3247 - 3252, CIVIL CODE
(CALIFORNIA)

SURETY COMPANY

Bond No. 12163911
Premium: included in performance

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, The County of Fresno has awarded to Zim Industries, Inc.

as Contractor, a contract for the work described as follows: Fresno County Westside Groundwater Project El Porvenir (CSA 30) & Cantua Creek (CSA 32) Pilot Hole Testing and Production Well Construction, Drinking Water State Revolving Fund, Project No:1000359-005C, Contract Number: 18-07-C

AND WHEREAS, Said Contractor is required to furnish a bond in connection with said contract, to secure the payment of claims of laborers, mechanics, materialmen, and other persons as provided by law.

NOW, THEREFORE, We the undersigned Contractor and Surety are held and firmly bound unto the **County of Fresno** in the amount required by law, the sum of $ 1,291,736.00, for which payment well and truly to be made we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Contractors shall fail to pay (1) Any of the persons named in Civil Code Section 3181, (2) amounts due under the Unemployment Insurance Code for work or labor performed in connection with said contract by any such claimant, or (3) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from wages of the employees of Contractor and his sub-contractors with respect to such work and labor, pursuant to Section 13020 of the Unemployment Insurance Code, then the Surety or Sureties herein will pay for the same in an aggregate amount not exceeding the sum specified in this bond, and also in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court, otherwise the above obligation shall be void.

This bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

This bond is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code, Sections 3247 - 3252 inclusive, and all amendments thereto.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 3rd day of January, 2019.

Zim Indutries, Inc.

Curt B. Zimmer

Curt B. Zimmer, President

Contractor

The Guarantee Company of North America USA

SURETY COMPANY

By

Lyn Genito - Attorney in Fact

S-2061-B (07-97)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Fresno)

On January 10, 2019 before me, Judy M. Muston - Notary Public
Date *Here Insert Name and Title of the Officer*

personally appeared Curt B. Zimmerer
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JUDY M. MUSTON
Notary Public – California
Fresno County
Commission # 2231187
My Comm. Expires Mar 12, 2022

Signature Judy M. Muston
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Payment Bond - Fresno County Westside Groundwater Proj. Document Date: 1-7-2019
Number of Pages: 1 Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

Signer's Name: _____
☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator
☐ Other: _____
Signer Is Representing: _____

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CORPORATE RESOLUTION TO EXECUTE CONTRACTS

At a meeting of the corporation today, after considerable discussion, the following resolution was moved, seconded and unanimously adopted;

Resolved that any of the following persons, William P. Zimmerer, Robert J. Zimmerer, Curt B. Zimmerer, John C. Zimmerer, Kevin A. Newlen, Brian P. Zimmerer, or Boyd C. Zimmerer be, and they hereby are, authorized without further authorization of the board of directors to enter into and execute on behalf of the corporation any and all contracts to do corporate business for ZIM INDUSTRIES, INC. d.b.a. Bakersfield Well and Pump Company.

In witness whereof, I have hereunto set my hand as such Secretary, and affixed the corporate seal of said corporation this 31st day of October 2018.

Robert J. Zimmerer - Secretary

AUTHORIZED SIGNATURES

William P. Zimmerer

Robert J. Zimmerer

John C. Zimmerer

Curt B. Zimmerer

Kevin A. Newlen

Boyd C. Zimmerer

Brian P. Zimmerer

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

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State of California)
) ss
County of Fresno)

On 01-03-2019, before me, Cody Lyman, Notary Public, personally appeared Lyn Genito, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

CODY LYMAN
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2177131
FRESNO COUNTY
My Comm. Exp. December 25, 2020

(Seal)

Signature: _____
Cody Lyman, Notary Public

THE GUARANTEE™

The Guarantee Company of North America USA
Southfield, Michigan

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS: That THE GUARANTEE COMPANY OF NORTH AMERICA USA, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

Steven P. Edwards, Cody Lyman, Lyn Genito, Bonnie Gonzalez
Alliant Insurance Services, Inc.

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon THE GUARANTEE COMPANY OF NORTH AMERICA USA as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of THE GUARANTEE COMPANY OF NORTH AMERICA USA at a meeting held on the 31st day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given, except as provided below.
3. In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.
4. In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner – Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 6th day of December 2011, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, THE GUARANTEE COMPANY OF NORTH AMERICA USA has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 2nd day of October 2015.

THE GUARANTEE COMPANY OF NORTH AMERICA USA

Stephen C. Ruschak, President & Chief Operating Officer

Randall Musselman, Secretary

STATE OF MICHIGAN
County of Oakland

On this 2nd day of October, 2015 before me came the individuals who executed the preceding instrument, to me personally known, and being by me duly sworn, said that each is the herein described and authorized officer of The Guarantee Company of North America USA, that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and each signature were duly affixed by order of the Board of Directors of said company.

Cynthia A. Takai
Notary Public, State of Michigan
County of Oakland
My Commission Expires February 27, 2024
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

Cynthia A. Takai

I, Randall Musselman, Secretary of THE GUARANTEE COMPANY OF NORTH AMERICA USA, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by THE GUARANTEE COMPANY OF NORTH AMERICA USA, which is still in full force and effect.

IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 31st day of January 2019.

Randall Musselman, Secretary

SURETY VERIFICATION

(Complete and return with Performance and Payment Bonds)

PROJECT Contract No. 18-07-C Fresno County Westside Groundwater Project

Contract No. Contract No. 18-07-C

Contractor Zim Industries, Inc.

Contact Person Curt Zimmerer Phone No. 559-834-1551

SURETY COMPANY (Exact Name Style, Home Office Address)

The Guarantee Company of North America USA

1800 Sutter Street, Suite 880

Concord, CA. 94520

AGENT / BROKER

Attorney-in-fact Lyn Genito Phone No. 559-374-3560

Firm Alliant Insurance Services, Inc.

Mail Address 9 E River Park Place East, 3rd Floor

City, State, ZIP Fresno, CA. 93720

CA Dept of Insurance License No. 0C36861 Expires 09 / 30 / 2020
(or attach copy of License)

Owner's use only

Received 1 / 14 / 2019 By Nwa

Surety admitted 10 / 14 / 1999

Surety Best's Class VIII Rating A

Comments

\dsform\PW180G

PLANS FOR CONSTRUCTION

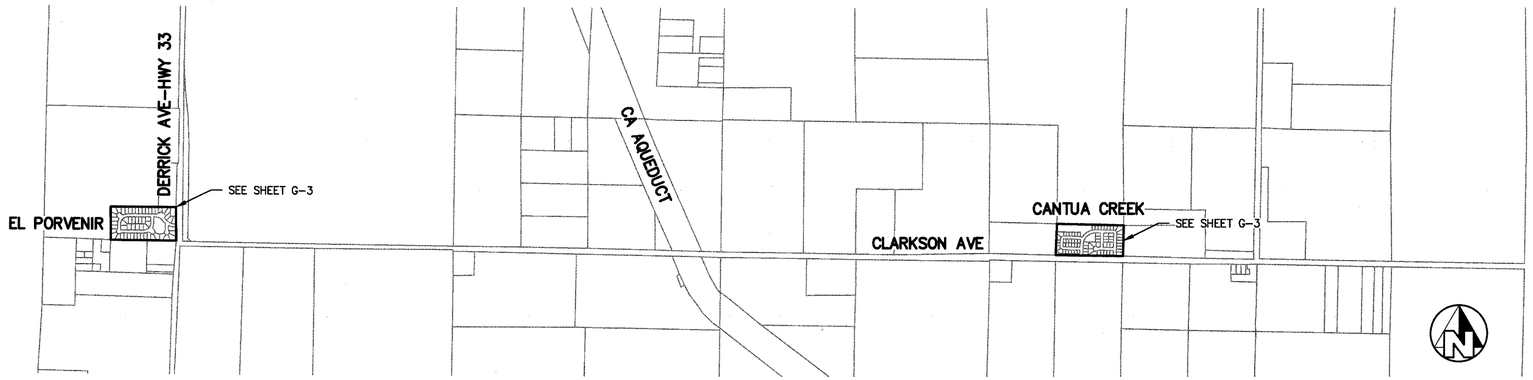
COUNTY SERVICE AREAS 30 & 32

EL PORVENIR & CANTUA CREEK

COUNTY OF FRESNO WESTSIDE GROUNDWATER PROJECT

PILOT HOLE TESTING AND PRODUCTION WELLS

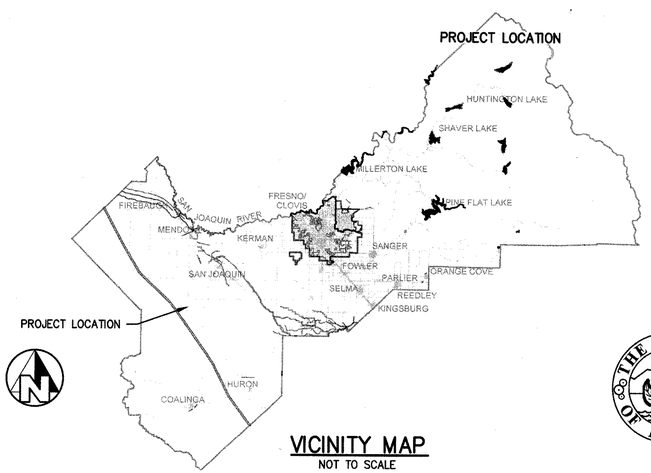
SHEET INDEX	
SHEET NO.	DESCRIPTION
GENERAL	
G-1	COVER SHEET
G-2	LEGEND & ABBREVIATIONS
G-3	COMMUNITY SITE PLANS
CIVIL	
C1-1	SITE PLAN-EL PORVENIR
C2-1	SITE PLAN-CANTUA CREEK
DETAILS	
D1-1	WELL DRILLING AND CASING-EL PORVENIR
D2-1	WELL DRILLING AND CASING-CANTUA CREEK



SITE MAP

SCALE IN FEET

0 750 1500 3000



VICINITY MAP

NOT TO SCALE

THE COUNTY OF FRESNO 1856

DEPARTMENT OF PUBLIC WORKS AND PLANNING

Sal Quintero	Chairman	3rd	District
Andreas A. Borgeas	Vice Chairman	2nd	District
Brian Pacheco		1st	District
Ernest Buddy Mendes		4th	District
Nathan Magsig		5th	District

Jean M. Rousseau
County Administrative Officer

APPROVED _____

Steven E. White, Director
Department of Public Works and Planning

CALIFORNIA CONTRACTOR'S LICENSES REQUIRED FOR THIS PROJECT					
CLASS C-57, WELL DRILLING CONTRACTOR					
DRAWING NO.	ROAD NO.	BRIDGE NO.	FISCAL YR.	SHEET NO.	TOTAL
11273	########## ##########	N/A	#########	g-1	##
CONTRACT NO. 18-07-C					

RECORD DRAWING		
NAME		
ADDRESS		
CITY	STATE	ZIP
PHONE		
DATE AWARDED		
DATE STARTED		
DATE COMPLETED		
RESIDENT ENGINEER		
NAME	SIGNATURE	
NAME	SIGNATURE	

LINETYPE LEGEND

- CHAIN LINK FENCE
- HOG WIRE FENCE
- BARBED WIRE FENCE
- WOODEN FENCE
- METAL FENCE
- EDGE OF LANDSCAPED AREA
- RAILROAD TRACKS
- SECTION LINES
- AC CENTERLINE – EXISTING
- AC CROWN – EXISTING
- EXISTING YELLOW STRIPED LINES
- EXISTING WHITE STRIPED LINE
- AC EDGE OF PAVEMENT – EXISTING
- CONCRETE – EDGE OF DRIVEWAY
- AC – EDGE OF DRIVEWAY
- DIRT – EDGE OF DRIVEWAY
- GRAVEL – EDGE OF DRIVEWAY
- OIL DIRT – EDGE OF DRIVEWAY
- CORREGATED METAL PIPE
- HIGH DENSITY POLYETHYLENE
- STEEL PIPE
- POLYVINYL CHLORIDE
- PRESCRIPTIVE RIGHT OF WAY
- PROPERTY LINE
- RIGHT OF WAY
- RIGHT OF WAY – PROPOSED
- VARIOUS EASEMENTS
- TEMPORARY CONST PERMIT
- WATER LINES
- IRRIGATION LINE
- STORM DRAIN
- SEWER LINE
- MISC FLOW LINE
- GUTTER FLOW LINE
- WATER LINE MARK
- HIGH WATER LINE MARK
- EDGE OF CONCRETE STRUCTURES
- TOP FACE OF CURB
- EDGE OF CONCRETE SIDEWALK
- SAW CUT LINES
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- FIBER OPTIC
- GAS LINE
- OVERHEAD CABLE TELEVISION
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- UNDERGROUND CABLE TELEVISION
- PROFILE STYLE – EXISTING GROUND
- PROFILE STYLE – DESIGN
- DESIGN ALIGNMENT
- EDGE OF THE TRAVELED LANE
- EDGE OF PAVEMENT – DESIGN
- HINGE POINT LINE
- DAYLIGHTING LINE
- ABUTMENT
- BARRIER
- BRIDGE DECK
- BRIDGE GUARD RAIL
- CONC FOOTING
- HEADWALL
- WHEEL GUARD
- WING WALL

SYMBOL LEGEND

- CONCRETE IRRIGATION TURNOUT BOX
- CONCRETE IRRIGATION STANDPIPE
- STEEL IRRIGATION VENTPIPE
- SPRINKLER VALVES / CONTROL BOXES
- CONC IRRIGATION BUBBLER
- STEEL IRRIGATION INLET SCREEN
- STEEL IRRIGATION SCREWGATE
- CONC IRRIG VENTPIPE
- ELECTRIC MOTOR WATER WELL PAD
- DEISEL MOTOR WATER WELL PAD
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- WATER MANHOLE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- WATER VAULT
- WATER WELL PAD
- MONITORING WELL PAD
- BUTTERFLY OR GATE VALVE
- HOSE BIBS
- SEWER MANHOLE
- SEWER VAULT
- GAS METER
- GAS VAULT
- GAS VALVE
- GAS MANHOLE
- UNDERGROUND GAS WARNING POST
- ELECTRIC TRANSFORMER PAD
- ELECTRIC VAULT
- ELECTRIC MANHOLE
- UNDERGROUND ELECTRIC WARNING POST
- POWER POLE
- JOINT POLE
- ELECTRIC METER
- JOINT TRANSFORMER POLE
- GUY POLE
- GUY WIRE
- SERVICE POLE
- TRANSFORMER POLE
- ELECTRIC TRANSMISSION TOWER
- LAMP POLE
- ELECTRIC MOTOR GATE
- GATE KEYPAD
- FIBER OPTIC MANHOLE
- TELEPHONE PEDESTAL
- UNDERGROUND FIBER OPTIC WARNING POST
- FIBER OPTIC VAULT
- TELEPHONE VAULT
- TELEPHONE MANHOLE
- UNDERGROUND TELEPHONE WARNING POST
- TELEPHONE POLE
- VARIOUS PULL BOXES
- STREET LIGHT POLE
- TRAFFIC LIGHT POLE

SYMBOL LEGEND

- MISC TRAFFIC SIGNS
- STOP SIGN
- RAILROAD CROSSING AHEAD SIGN
- TURN SIGNAL LOOP DETECTOR
- RAILROAD CROSSING ARM
- SIGNAL CONTROL BOX PAD
- RAILROAD SIGNAL CONTROL BOX PAD
- CONC PILES
- STEEL RAILING POST
- HOG WIRE FENCE POST
- STEEL OR CONC GUARD POST
- STEEL BARBED WIRE FENCE POST
- WOODEN FENCE POST
- WROUGHT IRON FENCE POST
- RAILROAD TIE FENCE POST
- STEEL CHAIN LINK FENCE POST
- MAIL BOX
- WOOD RAILING
- WOOD DECKING
- WOODEN GUARD POST

HATCHING LEGEND

- ASPHALTIC CONCRETE
- AGGREGATE BASE
- AGGREGATE SUB–BASE
- COLD PLANE
- NATIVE EARTH – COMPACTED 95%
- FILL MATERIAL – COMPACTED 95%
- USER DEFINED
- USER DEFINED
- USER DEFINED

LANDSCAPING SYMBOL LEGEND

- PALM TREE
- CITRUS TREE
- CONIFEROUS TREE
- DECIDUOUS TREE
- REDWOOD TREE
- PINE TREE
- NUT TREE
- FIR TREE
- ELM TREE
- EUCALYPTUS TREE
- FRUIT TREE
- CEDAR TREE
- JUNIPER TREE
- OLIVE TREE
- OAK TREE
- STUMP
- ROSE BUSH
- OLIANDER BUSH
- LANDSCAPING
- CACTUS
- BOULDERS
- JUNIPER BUSH

CALLOUTS AND MISC SYMBOLS

- DETAIL NUMBER / SHEET NUMBER (STATE STANDARD PLANS)
- DETAIL NUMBER / DWG SHEET NUMBER (PLAN SET CALLOUT)
- TOWNSHIP / RANGE
- SECTION

ABBREVIATIONS

AB	AGGREGATE BASE	MP	MILE POST
ABUT	ABUTMENT(S)	MTL	MATERIAL
AC	ASPHALTIC CONCRETE	NBL	NORTHBOUND LANE
ALIGN	ALIGNMENT	NS	NATIVE SOIL
AP	ANGLE POINT	OC	ON CENTER
AS	AGGREGATE SUBBASE	OG	ORIGINAL GROUND
BB	BEGINNING OF BRIDGE	PB	PULL BOX
BC	BEGIN HORIZONTAL CURVE	PBS	PULVERIZED BITUMINOUS SURFACE
BCM	BRASS CAP MONUMENT	PE	POLYETHYLENE
BCR	BEGIN CURB RETURN	PED	PEDESTRIAN
BD	BEGIN DITCH	PCC	PORTLAND CEMENT CONCRETE
BIT	BITUMINOUS	PERM	PERMEABLE
BKF	BACKFILL	PG	PROFILE GRADE
BM	BENCH MARK	PI	POINT OF INTERSECTION
BR	BRIDGE	PL	PLATE
BVC	BEGIN VERTICAL CURVE	P/L	PROPERTY LINE
BW	BARBED WIRE	POC	POINT ON CURVE
CF	CUBIC FEET	POT	POINT ON TANGENT
CFS	CUBIC FEET PER SECOND	PP	POWER POLE
C&G	CURB AND GUTTER	PPP	PERFORATED PLASTIC PIPE
CIP	CAST IRON PIPE	PRF	PAVEMENT REINFORCING FABRIC
C/L	CENTER LINE	PT	PEDESTAL TELEPHONE
CL	CHAIN LINK	PNT	POINT
CLR	CLEAR	PULV	PULVERIZED
CIP	CAST IRON PIPE	PVC	POLYVINYL CHLORIDE
CMP	CORRUGATED METAL PIPE	PVMT	PAVEMENT
COL	COLUMN	RCB	REINFORCED CONCRETE BOX
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
CS	COTTON SPINDLE	R&D	REMOVE AND DISPOSE
CSP	CONCRETE SLOPE PROTECTION	REL	RELOCATE
CATV	CABLE TELEVISION	RES	RESIDENTIAL
CULV	CULVERT	RET	RETAINING
CY	CUBIC YARD(S)	RG	RUBBER GASKET
DI	DRAINAGE INLET	RLG	ROCK LINED GUTTER
DO	DRAINAGE OUTLET	RMS	ROAD MIX SURFACE
DRWY	DRIVEWAY	R&S	REMOVE AND SALVAGE
EASE	EASEMENT	RSP	ROCK SLOPE PROTECTION
EB	END OF BRIDGE	RTE	ROUTE
EBL	EAST BOUND LANE	R/W	RIGHT OF WAY
EC	END HORIZONTAL CURVE	RW	RETAINING WALL
ECR	END OF CURB RETURN	SL	SLOPE
ED	END DITCH	SBL	SOUTHBOUND LANE
ELEV	ELEVATION	SEC	SECTION
EMB	EMBANKMENT	SR	STATE ROUTE
EP	EDGE OF PAVEMENT	SHR	SHOULDER
EPS	EDGE OF PAVED SHOULDER	S/L	SECTION LINE
ETL	EDGE OF TRAVELED LANE	SP	STANDPIPE
EVC	END VERTICAL CURVE	STA	STATION
EXC	EXCAVATION	STD	STANDARD
(E)	EXISTING	STR	STRUCTURE
EXP	EXPANSION JOINT	SURF	SURFACING
FCBCM	FRESNO COUNTY BCM	SDWK	SIDEWALK
FCBM	FRESNO COUNTY BM	SWR	SEWER
FG	FINISHED GRADE	TAN	TANGENT
FH	FIRE HYDRANT	TAN OFF	TANGENT OFFSET
FL	FLOW LINE	TBM	TEMPORARY BENCHMARK
GALV	GALVANIZED	TBR	TO BE REMOVED
GP	GRADING PLANE	TC	TOP OF CURVE
GR	GUARD RAILING	TD	TOP OF DIKE
GW	GUY WIRE	TOB	TOP OF BANK
HMA	HOT MIXED ASPHALT	TCB	TRAFFIC CONTROL BOX
HP	HINGE POINT	TRANS	TRANSITION
HW	HEAD WALL	TS	TRAFFIC SIGNAL
HWM	HIGH WATER MARK	TYP	TYPICAL
IB	IMPORTED BORROW	UC	UNDERCROSSING
IP	IRON PIPE	UG	UNDERGROUND
IRR	IRRIGATION	UD	UNDERDRAIN
IV	IRRIGATION VALVE	UDR	UNDERDRAIN RISER
JP	JOINT POLE	UP	UNDERPASS
JT	JOINT	VC	VERTICAL CURVE
LF	LINEAR FEET	VCP	VITRIFIED CLAY PIPE
LOC	LOCATION	VG	VALLEY GUTTER
LOL	LAYOUT LINE	VP	VENTPIPE
LP	LIMIT OF PAYMENT	WBL	WESTBOUND LANE
EASE	EASEMENT	WP	WEAKENED PLANE
EB	END OF BRIDGE	WV	WATER VALVE
MB	METAL BEAM	WW	WINGWALL
MBGR	METAL BEAM GUARD RAILING	XING	CROSSING
MH	MANHOLE	X SEC	CROSS SECTION

UTILITY NOTES

LOCATIONS FOR EXISTING UNDERGROUND FACILITIES ARE APPROXIMATE. EXACT DEPTH AND LOCATIONS ARE UNKNOWN. FIELD LOCATE PRIOR TO THE START OF CONSTRUCTION.

**CALL UNDERGROUND SERVICE ALERT (USA) 811

APPLICABLE 2010 STATE OF CALIFORNIA CALTRANS STANDARD PLANS:

- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE

APPLICABLE 2013 CITY OF FRESNO STANDARD PLANS:

- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE

APPLICABLE 2014 COUNTY OF FRESNO STANDARD PLANS:

- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE

APPLICABLE 2014 FRESNO IRRIGATION DISTRICT STANDARD PLANS:

- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE

APPLICABLE 2014 FRESNO METROPOLITAN FLOOD CONTROL DISTRICT STANDARD PLANS:

- ☐ PLAN NO. APPLICABLE PLAN TITLE
- ☐ PLAN NO. APPLICABLE PLAN TITLE

CALLOUTS – USE ON PLANS AS NEEDED

- AC OR CONC CALLOUT – EXISTING
- AC OR CONC CALLOUT – NEW
- DIRT OR GRAVEL CALLOUT – EXISTING
- DIRT OR GRAVEL CALLOUT – NEW
- CURVE TABLE OR RADIUS CALLOUT – EXISTING
- CURVE TABLE OR RADIUS CALLOUT – NEW
- LANDSCAPING CALLOUT – EXISTING
- LANDSCAPING CALLOUT – NEW
- IRRIG OR FL OR DIKE OR DI CALLOUT – EXISTING
- IRRIG OR FL OR DIKE OR DI CALLOUT – NEW

GENERAL NOTES

1. DIMENSIONS SHOWN ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. THE FOLLOWING APPLY TO EARTHWORK QUANTITIES:
   - A. ROADWAY EXCAVATION QUANTITIES ARE IN PLACE VOLUMES OF EXCAVATION. THESE QUANTITIES INCLUDE WASTE MATERIAL AND EXCAVATION FOR ROAD APPROACHES AND DRIVEWAYS. NO ALLOWANCE FOR SUBSIDENCE AND SHRINKAGE.
   - B. WASTE MATERIAL IS ROADWAY EXCAVATION UNSUITABLE FOR OR NOT NEEDED IN EMBANKMENT CONSTRUCTION.
   - C. EMBANKMENT QUANTITIES ARE IN PLACE VOLUMES REQUIRED TO CONSTRUCT THE ROADBED TO THE GRADING PLANE. THESE QUANTITIES INCLUDE AN ALLOWANCE FOR ROAD APPROACHES AND DRIVEWAYS.
3. ALL PIPE JOINTS ARE TO BE POSITIVE JOINT SYSTEMS.
4. STATE STANDARD SPECS – 2015 EDITION.

SURVEY SYMBOL LEGEND

- SECTION CORNER
- BENCHMARK
- SURVEY CONTROL POINT
- PROPERTY CORNER OR RW MONUMENT
- FLIGHT TARGET AT SECTION CORNER
- FLIGHT TARGET AT P LINE STATION
- FLIGHT TARGET AT P LINE ANGLE POINT

	DATE	RECORD DRAWING		SCALE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	DATE	
DRAWN: PPI	05-11-2018			
CHECKED: MWK	05-11-2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SUPERVISING ENGINEER _____ DATE _____

REGISTERED PROFESSIONAL ENGINEER — NICHOLAS DAVID MADISON — No. 84909 — CIVIL — STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

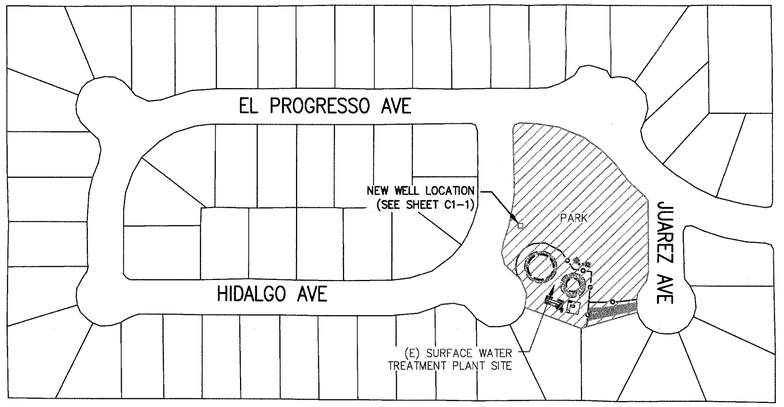
DEPARTMENT OF PUBLIC WORKS AND PLANNING

LEGEND & ABBREVIATIONS

GENERAL

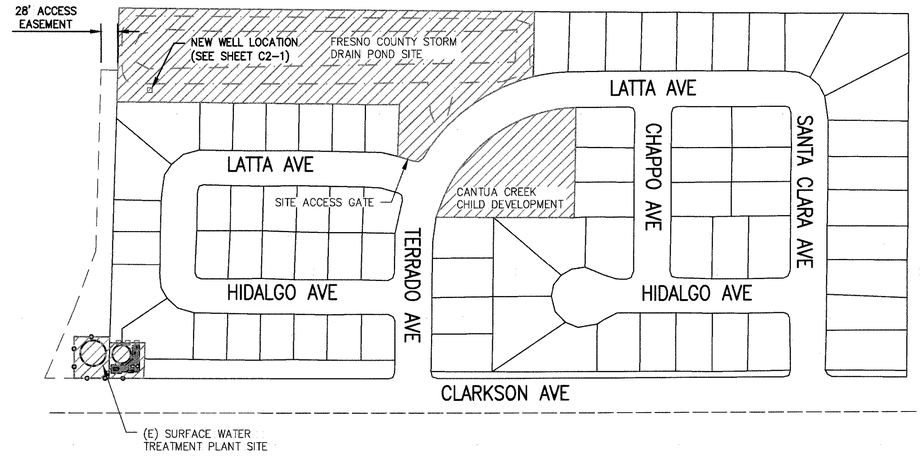
DRAWING NO. 11273 SHEET NO. G-2 TOTAL 2 of 7

EL PORVENIR - CSA 30



DERRICK AVE-HWY 33

CANTUA CREEK - CSA 32



VICINITY MAP
NTS

	DATE	RECORD DRAWING		SCALE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	DATE	
DRAWN: PPI	05-11-2018			
CHECKED: MWK	05-11-2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SUPERVISING ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — NICHOLAS DAVID JOHNSON — No. 84908 — CIVIL — STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

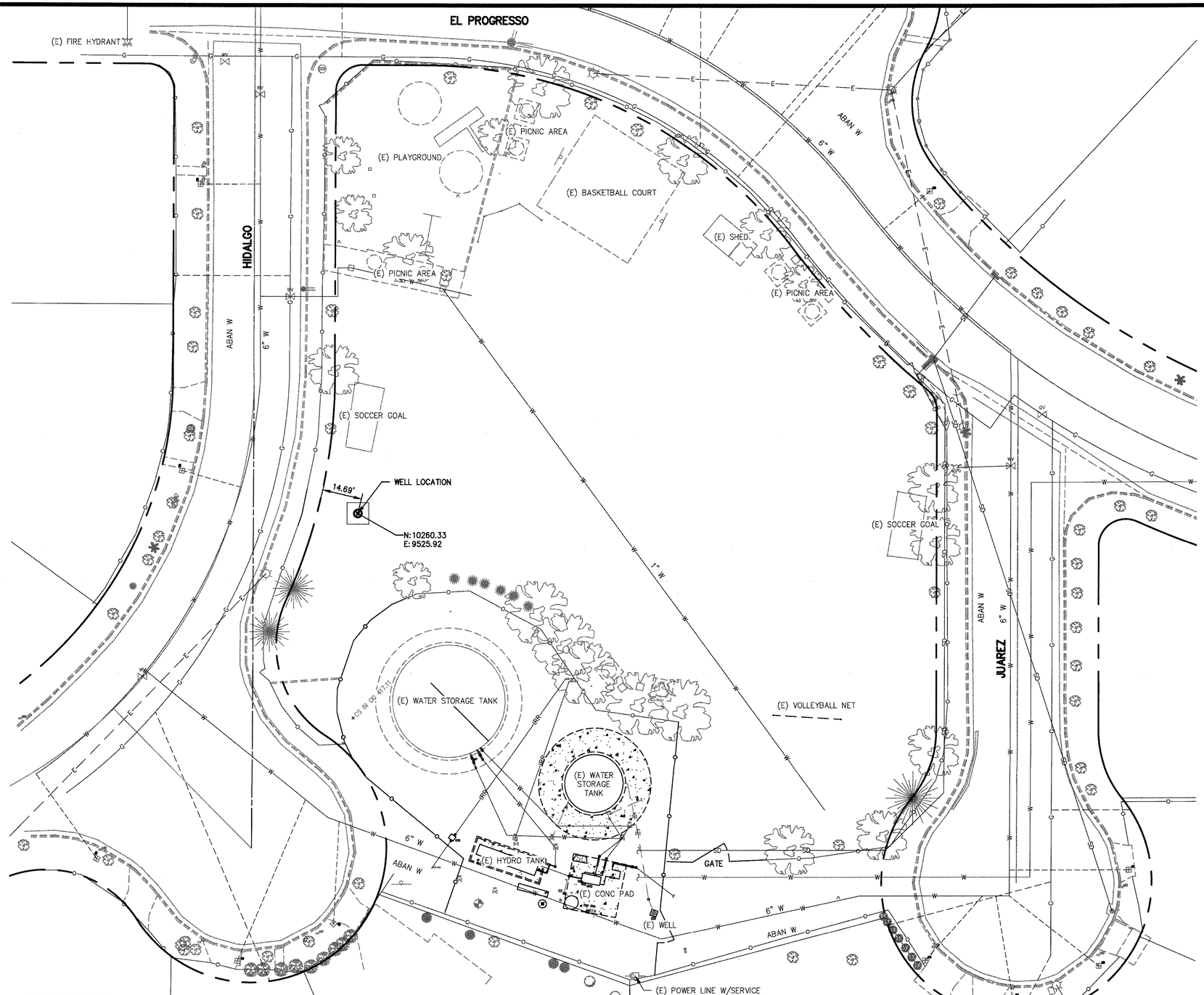
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

COMMUNITY SITE PLANS

GENERAL

DRAWING NO. 11273 SHEET NO. G-3 TOTAL 3 of 7



	DATE	RECORD DRAWING		SCALE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	DATE	SCALE IN FEET 0 10 20 40
DRAWN: PPI	05-11-2018			
CHECKED: MWK	05-11-2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SUPERVISING ENGINEER _____ DATE

REGISTERED PROFESSIONAL ENGINEER NICHOLAS DAVID JACKSON No. 84909 CIVIL STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

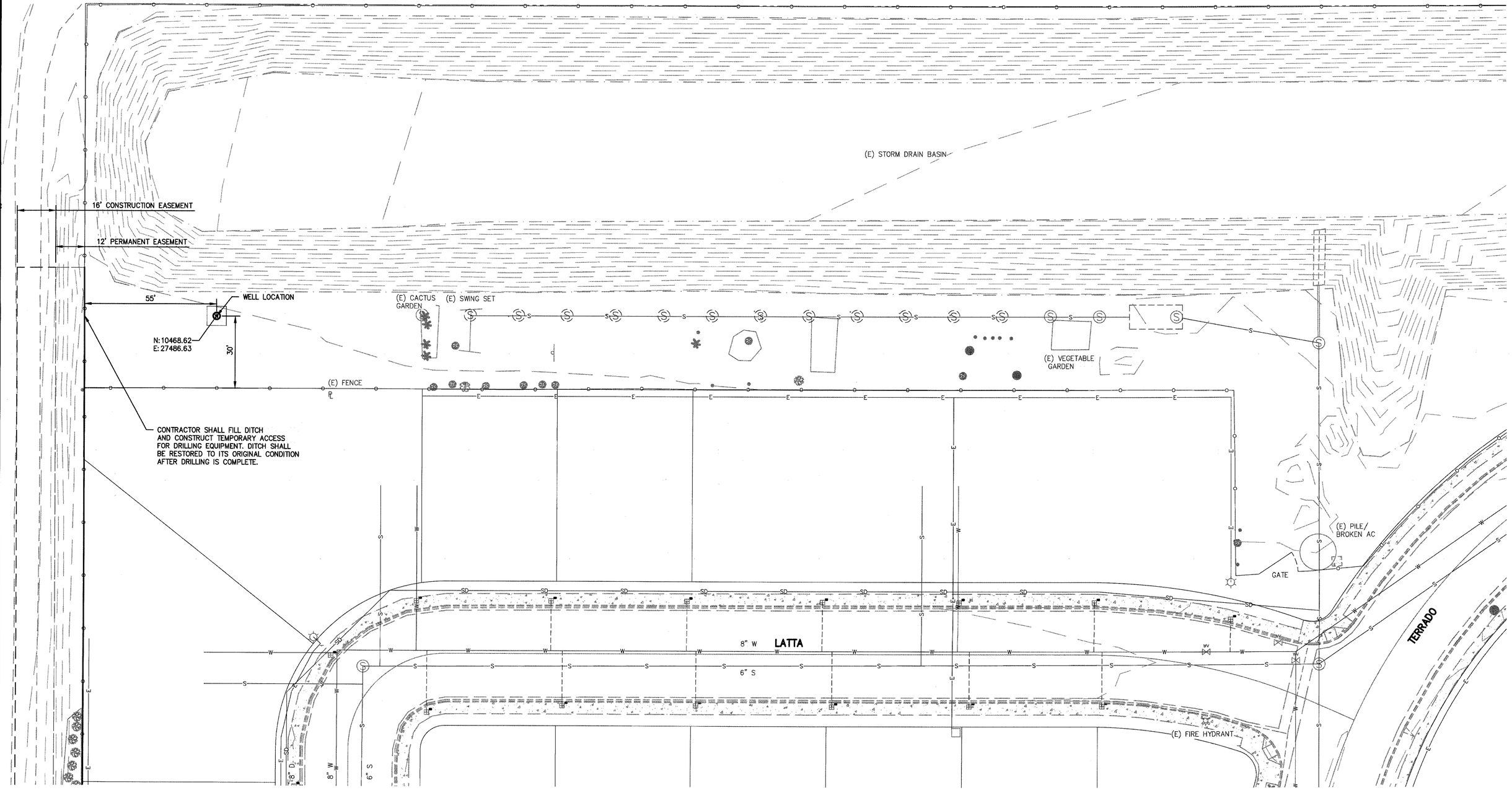
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

SITE PLAN-EL PORVENIR

CIVIL

DRAWING NO. 11273 SHEET NO. C1-1 TOTAL 4 of 7



	DATE	RECORD DRAWING		SCALE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	DATE	SCALE IN FEET 0 10 20 40
DRAWN: PPI	05-11-2018			
CHECKED: MWK	05-11-2018			

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SUPERVISING ENGINEER _____ DATE _____

REGISTERED PROFESSIONAL ENGINEER NICHOLAS DAVID JACOBSEN No. 84909 CIVIL STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

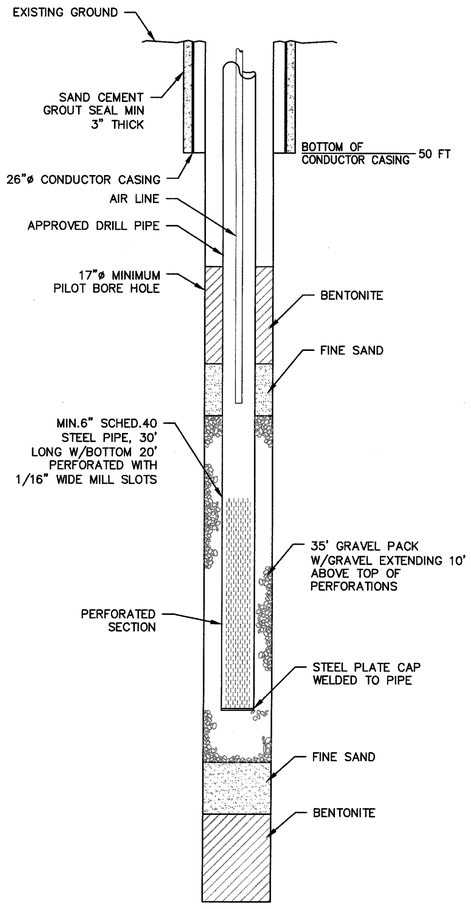
THE COUNTY OF FRESNO 1856

DEPARTMENT OF PUBLIC WORKS AND PLANNING

SITE PLAN-CANTUA CREEK

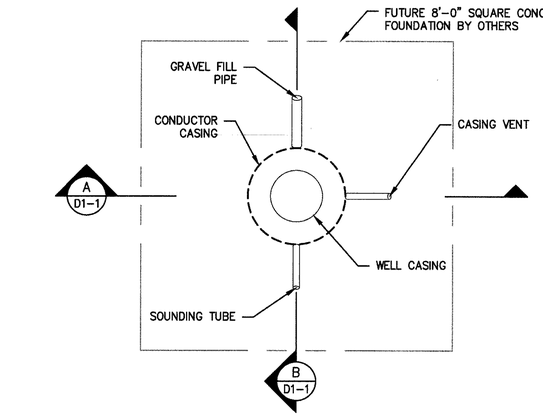
CIVIL

DRAWING NO. 11273 SHEET NO. C2-1 TOTAL 5 of 7

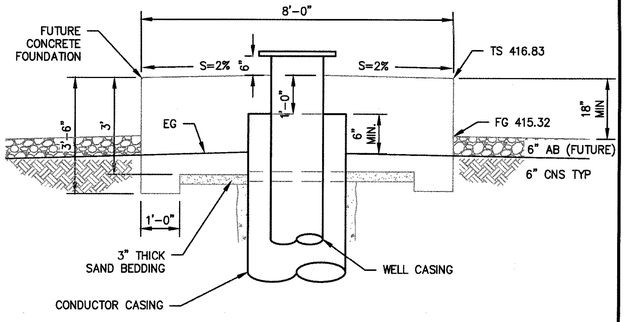


1 / D1-1

PILOT HOLE FORMATION SAMPLING DETAIL–EL PORVENIR



PLAN VIEW

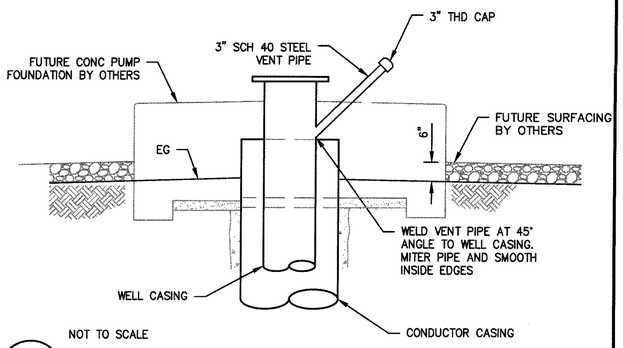


FUTURE WELL PUMP FOUNDATION SECTION

NOT TO SCALE

2 / D1-1

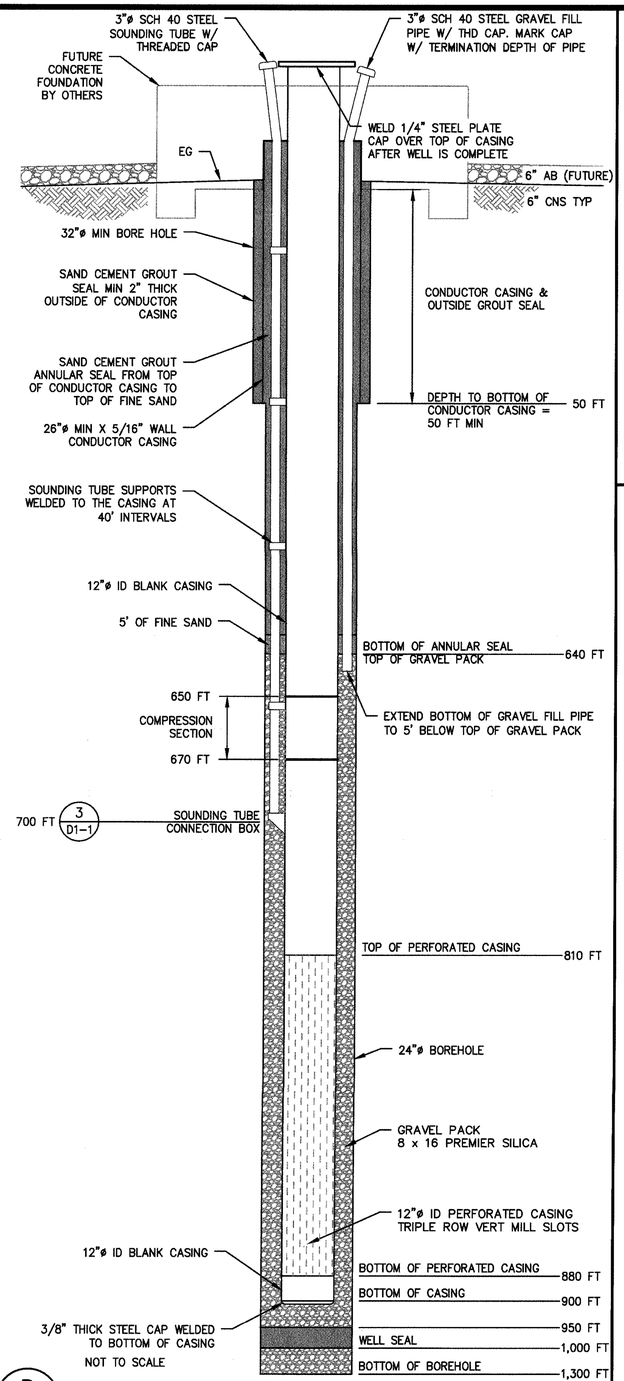
WELL PUMP FOUNDATION–EL PORVENIR



NOT TO SCALE

A / D1-1

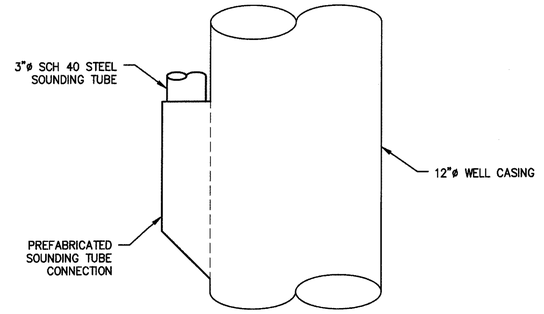
WELL HEAD SECTION–EL PORVENIR



NOT TO SCALE

B / D1-1

PRODUCTION WELL SECTION–EL PORVENIR



NOT TO SCALE

3 / D1-1

SOUNDING TUBE CONNECTION BOX

NOTE

1. PERMANENT SOUNDING TUBE SHALL BE CONNECTED TO WELL CASING AS SPECIFIED IN SECTION 33 21 01 OF THE PROJECT SPECIFICATIONS.

NOTES

1. REAM HOLE TO 1,000 FEET DEEP AND THEN PLACE A 50' SAND–CEMENT SEAL BASED ON PRELIMINARY WELL DESIGN SHOWN.
2. PRODUCTION WELL INFORMATION SHOWN ON THESE PLANS IS FOR BIDDING PURPOSES ONLY. ALL PRODUCTION WELL INFORMATION IS SUBJECT TO CHANGE PENDING PILOT HOLE ZONE DEPTH SAMPLING RESULTS.
3. CONTRACTOR SHALL NOT BEGIN WORK ON THE PRODUCTION WELL UNTIL GIVEN WRITTEN NOTICE TO PROCEED FOR WORK RELATED TO THE PRODUCTION WELL BY THE ENGINEER.

	DATE	RECORD DRAWING	DATE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	
DRAWN: PPI	05-11-2018		
CHECKED: MWK	05-11-2018		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SCALE

SUPERVISING ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — NICHOLAS DAVID HARRISON — No. 84809 — CIVIL — STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A — BRIDGE NO. N/A

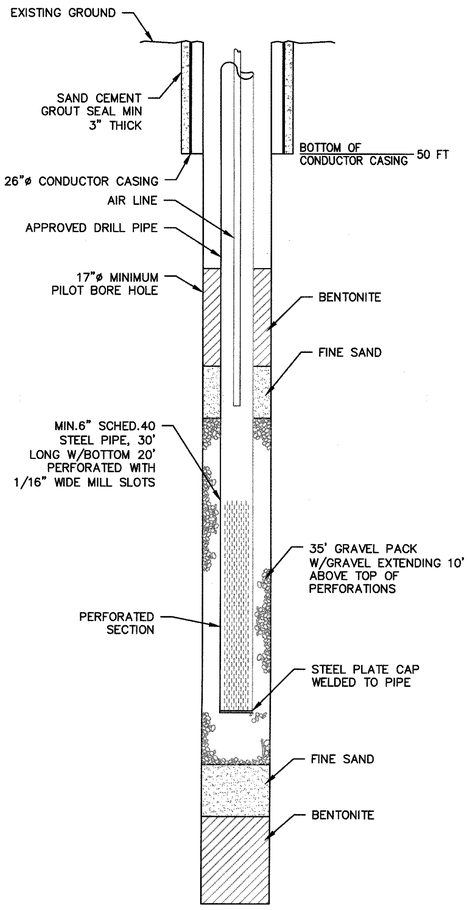
THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

WELL DRILLING AND CASING-EL PORVENIR

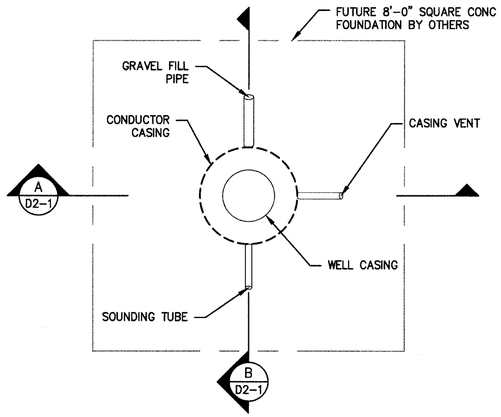
DETAILS

DRAWING NO. 11273 — SHEET NO. D1-1 — TOTAL 6 of 7

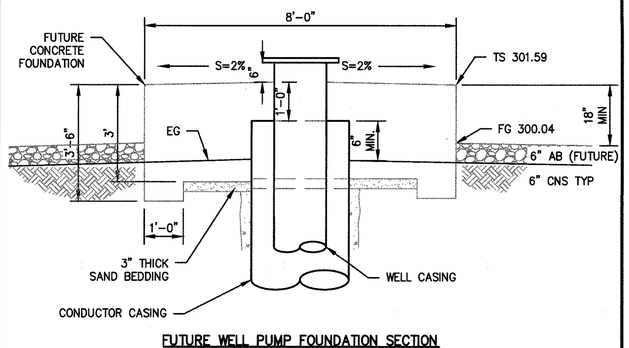


1 / D2-1

PILOT HOLE FORMATION SAMPLING DETAIL–CANTUA CREEK



PLAN VIEW

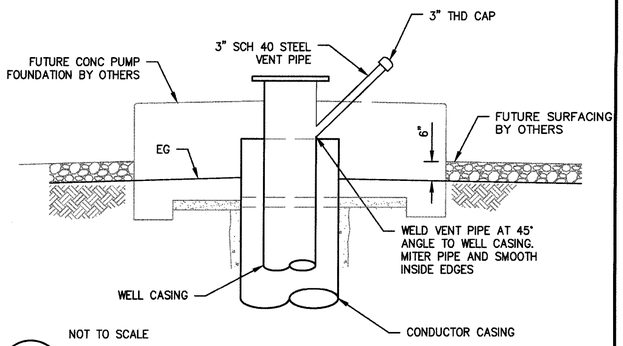


FUTURE WELL PUMP FOUNDATION SECTION

NOT TO SCALE

2 / D2-1

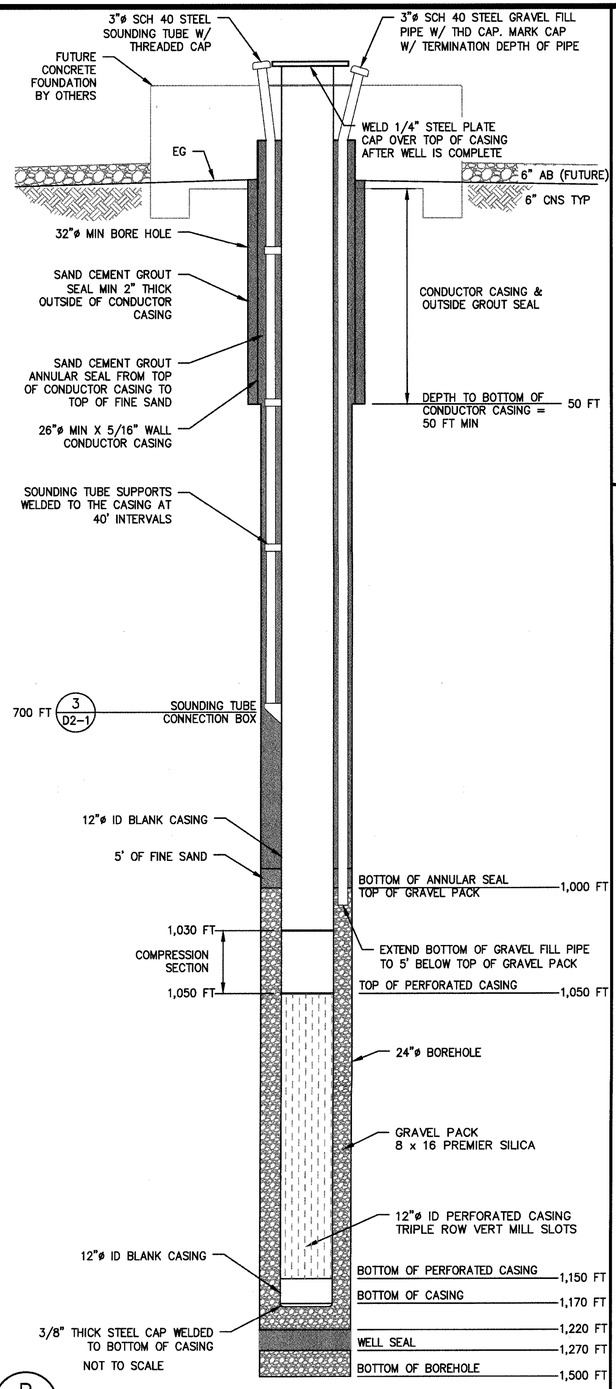
WELL PUMP FOUNDATION–CANTUA CREEK



NOT TO SCALE

A / D2-1

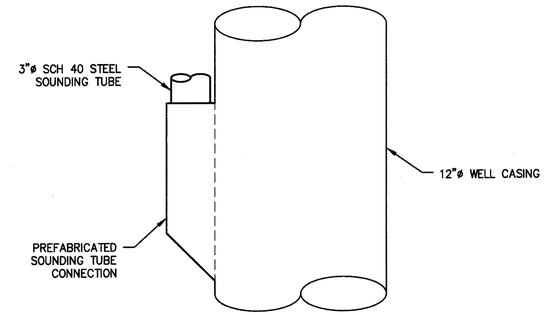
WELL HEAD SECTION–CANTUA CREEK



NOT TO SCALE

B / D2-1

PRODUCTION WELL SECTION–CANTUA CREEK



NOT TO SCALE

3 / D2-1

SOUNDING TUBE CONNECTION BOX

NOTE

1. PERMANENT SOUNDING TUBE SHALL BE CONNECTED TO WELL CASING AS SPECIFIED IN SECTION 33 21 01 OF THE PROJECT SPECIFICATIONS.

NOTES

1. REAM HOLE TO 1,270 FEET DEEP AND THEN PLACE A 50' SAND–CEMENT SEAL BASED ON PRELIMINARY WELL DESIGN SHOWN.
2. PRODUCTION WELL INFORMATION SHOWN ON THESE PLANS IS FOR BIDDING PURPOSES ONLY. ALL PRODUCTION WELL INFORMATION IS SUBJECT TO CHANGE PENDING PILOT HOLE ZONE DEPTH SAMPLING RESULTS.
3. CONTRACTOR SHALL NOT BEGIN WORK ON THE PRODUCTION WELL UNTIL GIVEN WRITTEN NOTICE TO PROCEED FOR WORK RELATED TO THE PRODUCTION WELL BY THE ENGINEER

	DATE	RECORD DRAWING	DATE
DESIGNED: NDJ	05-11-2018	RESIDENT ENGINEER	
DRAWN: PPI	05-11-2018		
CHECKED: MWK	05-11-2018		

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

SCALE

SUPERVISING ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER NICHOLAS DAVID MADDISON No. 84809 CIVIL STATE OF CALIFORNIA

PROJECT

WESTSIDE GROUNDWATER PROJECT

COUNTY OF FRESNO

ROAD NO. N/A BRIDGE NO. N/A

THE COUNTY OF FRESNO

DEPARTMENT OF PUBLIC WORKS AND PLANNING

WELL DRILLING AND CASING-CANTUA CREEK

DETAILS

DRAWING NO. 11273 SHEET NO. D2-1 TOTAL 7 of 7

Fresno County Department of Public Works and Planning
Project: Fresno County Westside Groundwater Project (CSA 30 & 32)
Contract No.: 18-07-C

Bid Opening: 08/09/18
Scheduled Award Date: 10/9/2018

Bidders
1 Nor-Cal Pump & Well Drilling, Inc
2 Zim Industries, Inc

Nor-Cal Pump & Well Drilling, Inc
Subcontractors
Pacific Surveys, LLC
Big Hill Logging & Road Building Co. Inc

Zim Industries, Inc
Subcontractors
5C Holdings Inc
Pacific Surveys, LLC

CSA 30 - EL PORVENIR

ITEM NO.	ESTIMATED QUANTITY	UNIT OF MEASURE	F, S	ITEM DESCRIPTION	Engineer's Estimate ITEM PRICE (IN FIGURES)	Engineer's Estimate TOTAL PRICE (IN FIGURES)	1 ITEM PRICE (IN FIGURES)	1 TOTAL PRICE (IN FIGURES)	2 ITEM PRICE (IN FIGURES)	2 TOTAL PRICE (IN FIGURES)
1	1	LS		MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	36,000.00	$36,000.00	96,259.00	$96,259.00	$94,000.00	$94,000.00
2	1	LS		CLEARING AND GRUBBING	12,000.00	$12,000.00	3,500.00	$3,500.00	$2,000.00	$2,000.00
3	1	LS		TRAFFIC CONTROL	1,000.00	$1,000.00	1,750.00	$1,750.00	$1,500.00	$1,500.00
4	1	LS		JOB SITE MANAGEMENT	2,000.00	$2,000.00	5,000.00	$5,000.00	$16,100.00	$16,100.00
5	1	LS		WATER POLLUTION CONTROL	1,500.00	$1,500.00	2,350.00	$2,350.00	$5,000.00	$5,000.00
6	50	LF		FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	624.00	$31,200.00	350.00	$17,500.00	$450.00	$22,500.00
7	1,250	LF		DRILL PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	102.00	$127,500.00	80.00	$100,000.00	$90.00	$112,500.00
8	4	EA		COLLECT DEPTH ZONE SAMPLES	10,800.00	$43,200.00	9,000.00	$36,000.00	$7,600.00	$30,400.00
9	1,250	LF		OPEN PILOT HOLE (TO 1,300 FEET TOTAL DEPTH)	96.00	$120,000.00	60.00	$75,000.00	$30.00	$37,500.00
10	812	LF		FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	216.00	$175,392.00	70.00	$56,840.00	$91.00	$73,892.00
11	70	LF		FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	288.00	$20,160.00	95.00	$6,650.00	$120.00	$8,400.00
12	1	LS		FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	10,800.00	$10,800.00	6,742.00	$6,742.00	$8,700.00	$8,700.00
13	703	LF		FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	16.00	$11,248.00	15.00	$10,545.00	$26.00	$18,278.00
14	647	LF		FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	18.00	$11,646.00	15.00	$9,705.00	$14.00	$9,058.00
15	610	LF		FURNISH AND INSTALL GRAVEL PACK	90.00	$54,900.00	40.00	$24,400.00	$75.00	$45,750.00
16	640	LF		FURNISH AND INSTALL ANNULAR SEAL	66.00	$42,240.00	60.00	$38,400.00	$60.00	$38,400.00
17	40	HR		PRELIMINARY DEVELOPMENT	636.00	$25,440.00	550.00	$22,000.00	$450.00	$18,000.00
18	1	LS		PUMP DEVELOPMENT AND PUMP TEST	42,000.00	$42,000.00	15,000.00	$15,000.00	$29,000.00	$29,000.00
19	20	HR		ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	384.00	$7,680.00	295.00	$5,900.00	$300.00	$6,000.00
20	1	LS		ABANDON PILOT HOLE	28,500.00	$28,500.00	13,500.00	$13,500.00	$13,000.00	$13,000.00
SUBTOTAL BID (ITEMS 1 - 20)					**$804,406.00**		**$547,041.00**		**$589,978.00**	

F - Final Pay Item
S - Specialty Item

CSA 32 - CANTUA CREEK

ITEM NO.	ESTIMATED QUANTITY	UNIT OF MEASURE	F, S	ITEM DESCRIPTION	Engineer's Estimate ITEM PRICE (IN FIGURES)	Engineer's Estimate TOTAL PRICE (IN FIGURES)	1 ITEM PRICE (IN FIGURES)	1 TOTAL PRICE (IN FIGURES)	2 ITEM PRICE (IN FIGURES)	2 TOTAL PRICE (IN FIGURES)
21	1	LS		MOBILIZATION/DEMOBILIZATION, INSURANCE, AND BONDS	36,000.00	$36,000.00	$92,949.00	$92,949.00	$76,200.00	$76,200.00
22	1	LS		CLEARING AND GRUBBING	24,000.00	$24,000.00	$3,500.00	$3,500.00	$5,000.00	$5,000.00
23	1	LS		TRAFFIC CONTROL	1,000.00	$1,000.00	$1,750.00	$1,750.00	$1,000.00	$1,000.00
24	1	LS		JOB SITE MANAGEMENT	2,000.00	$2,000.00	$5,000.00	$5,000.00	$16,100.00	$16,100.00
25	1	LS		WATER POLLUTION CONTROL	1,500.00	$1,500.00	$2,350.00	$2,350.00	$6,000.00	$6,000.00
26	50	LF		FURNISH AND INSTALL 26-INCH DIAMETER CONDUCTOR CASING	624.00	$31,200.00	$350.00	$17,500.00	$450.00	$22,500.00
27	1,450	LF		DRILL PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	102.00	$147,900.00	$80.00	$116,000.00	$90.00	$130,500.00
28	4	EA		COLLECT DEPTH ZONE SAMPLES	10,800.00	$43,200.00	$9,000.00	$36,000.00	$7,600.00	$30,400.00
29	1,450	LF		OPEN PILOT HOLE (TO 1,500 FEET TOTAL DEPTH)	96.00	$139,200.00	$60.00	$87,000.00	$30.00	$43,500.00
30	1,052	LF		FURNISH AND INSTALL 12-INCH DIAMETER BLANK CASING	216.00	$227,232.00	$70.00	$73,640.00	$91.00	$95,732.00
31	100	LF		FURNISH AND INSTALL 12-INCH DIAMETER PERFORATED CASING	288.00	$28,800.00	$95.00	$9,500.00	$120.00	$12,000.00
32	1	LS		FURNISH AND INSTALL 20-FOOT LONG COMPRESSION SECTION	10,800.00	$10,800.00	$6,742.00	$6,742.00	$8,700.00	$8,700.00
33	703	LF		FURNISH AND INSTALL 3-INCH DIAMETER SOUNDING TUBE	16.00	$11,248.00	$15.00	$10,545.00	$26.00	$18,278.00
34	1,007	LF		FURNISH AND INSTALL 3-INCH DIAMETER GRAVEL FILL PIPE	18.00	$18,126.00	$15.00	$15,105.00	$14.00	$14,098.00
35	450	LF		FURNISH AND INSTALL GRAVEL PACK	90.00	$40,500.00	$40.00	$18,000.00	$75.00	$33,750.00
36	1,000	LF		FURNISH AND INSTALL ANNULAR SEAL	66.00	$66,000.00	$60.00	$60,000.00	$60.00	$60,000.00
37	40	HR		PRELIMINARY DEVELOPMENT	636.00	$25,440.00	$550.00	$22,000.00	$450.00	$18,000.00
38	1	LS		PUMP DEVELOPMENT AND PUMP TEST	42,000.00	$42,000.00	$15,000.00	$15,000.00	$29,000.00	$29,000.00
39	20	HR		ADDITIONAL PUMP DEVELOPMENT AND TEST PUMPING TIME	384.00	$7,680.00	$295.00	$5,900.00	$300.00	$6,000.00
40	1	LS		ABANDON PILOT HOLE	36,600.00	$36,600.00	$15,000.00	$15,000.00	$15,000.00	$15,000.00
41	500	CY		EARTHWORK AND CHEMICAL TREATMENT	50.00	$25,000.00	$200.00	$100,000.00	$120.00	$60,000.00
SUBTOTAL BID (ITEMS 21 - 41)					**$965,426.00**		**$713,481.00**		**$701,758.00**	

F - Final Pay Item
S - Specialty Item

TOTAL BID (ITEMS 1 - 41)	**$1,769,832.00**	**$1,260,522.00**	**$1,291,736.00**