COUNTY OF SAN MATEO

STATE OF CALIFORNIA

CONTRACT DOCUMENTS AND SPECIFICATIONS FOR

MIDDLEFIELD ROAD IMPROVEMENT PROJECT IN THE NORTH FAIR OAKS AREA

TOTAL PROJECT APPROXIMATELY 0.5 MILE IN LENGTH WITH APPURTENANT WORK THERETO IN SAN MATEO COUNTY

COUNTY PROJECT NO. OD420
PROJECT FILE NO. E4931

APPROVED: October 16, 2020



JAMES C. PORTER
(R.C.E. No. 48056)
Director of Public Works

* *

Department of Public Works
San Mateo County
555 County Center, 5th Floor
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County of San Mateo Waste Management Plan Form
Waste Management Daily Transport Report

APPENDIX B

Sanitary Sewer Monitoring and Reporting Requirements:
State Water Resources Control Board Order No. WQ 2013-0058-EXEC

APPENDIX C

Sample "Payment Bond" Form
Sample "Performance Bond" Form

APPENDIX D

Daily Personnel and Equipment Log

APPENDIX E

Construction Claims:
Public Contract Code Sections 9204 and 20104 et seq.

APPENDIX F

Regulatory Environmental Documents:
- Mitigation Measures and Mitigation Monitoring and Reporting Program

APPENDIX G

Inter-Agency Permits and Requirements:
- San Francisco Public Utilities Commission (SFPUC) Consent Letter
- San Mateo County Transit District (SamTrans):
  - SamTrans Right of Entry Permit Agreement
  - Exhibit C Working Procedures
  - Exhibit D Operating System Interface (OSI)
  - Exhibit E Peninsula Corridor Joint Powers Board (PCJPB) Insurance Requirements
- Union Pacific Railroad (UPRR):
  - Crossing Agreements
  - Tracking Monitoring Requirements
  - Work Plan

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Reference Drawings (See Project Plan Sheets RR-2 – RR-7)
Final Interconnected Crossing Agreement
Contractor's Right of Entry Agreement (Sample)

PROPOSAL

Contractor's Check-Off List
Name and Address of Bidder
Contractor Declaration Statement
Bid Schedules
Acknowledgement of Site Visit
Bidder's Bond
Signature of Bidder
Subcontractors
San Mateo County Equal Employment Opportunity Program
Equal Benefits Compliance Ordinance No. 04026
(Title 2, Chapter 2.84, San Mateo County Ordinance Code)
Equal Benefits Compliance Declaration Form
Contractor Employee Jury Service Ordinance No. 04269
(Title 2, Chapter 2.85, San Mateo County Ordinance Code)
Contractor Employee Jury Service Compliance Declaration Form
Non-Collusion Declaration Form

AGREEMENT

Signature Sheet

COUNTY OF SAN MATEO
STATE OF CALIFORNIA

NOTICE TO CONTRACTORS

NOTICE IS HEREBY GIVEN, that

Sealed bids will be received either by mail to the office of the County Manager/Clerk of the Board of Supervisors, or hand-delivered within one half (1/2) hour prior to the bid opening to the main public entrance of the Hall of Justice and Records, 400 County Center, Redwood City, California, 94063 until the hour of

2:30 p.m., Tuesday, December 15, 2020

which all bids (mailed in or hand-delivered) will then be transmitted to the main public entrance of the Hall of Justice and Records at 400 County Center, Redwood City, where the bids will be publicly opened and read aloud for the following project in accordance with the specifications therefore and to which special reference is made as follows:

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA

TOTAL PROJECT APPROXIMATELY 0.5 MILE IN LENGTH
WITH APPURTENANT WORK THERETO
IN SAN MATEO COUNTY

COUNTY PROJECT NO. OD420
PROJECT FILE NO. E4931

Bids are required for the entire work described herein.

Bidders are further advised of the following:

(1) Contractor should be placed on a Plan Holders List for bidding. To be placed on the Plan Holders List, the Contractor shall either:

- **a. Purchase Plans and Specifications, including forms of proposal and contract, from the County of San Mateo Department of Public Works. When purchasing by phone (650-363-4100), please send check to 555 County Center, 5th Floor, Redwood City, CA 94063; OR**
- **b. Complete and sign the Plan Holder's Affidavit by using the link below and you will receive a separate link for downloading an electronic copy of the Plans and**

Specifications:

https://publicworks.smcgov.org/MiddlefieldRdPlanHoldersAffidavitForm

The Contractor is advised that the table should be received by the County no later than three (3) working days prior to the bid opening date.

c. **If Plans and Specifications are obtained through a source other than those outlined in 1a and 1b above, complete and sign the following Plan Holder's Affidavit and return to the County by either PDF via email to** mraman@smcgov.org **or by fax at (650) 361-8220. The Contractor is advised that the table should be received by the County no later than three (3) working days prior to the bid opening date.**

Plan Holder's Affidavit			
Project Title	**Middlefield Road Improvement Project**		
Project No.	**OD420**	**Project Engineer:**	**Monika Raman**
		Project Manager:	**Carter Choi**
Bid Open Date and Time:	**2:30 p.m., Tuesday December 15, 2020**		
Company Name:			
Mailing Address:			
Phone Number:		**Fax Number:**	
E-mail Address:			
(Name and Title of Authorized Representative of Bidder)			
(Signature of Authorized Representative of Bidder)			

(2) The Plan Holders List will be posted to the County of San Mateo's Public Works website 2 working days prior to the bid open date.

(3) Questions regarding the Contract Documents concerning items such as discrepancies, conflicts, omissions, doubts as to meanings, or regarding scope of bid items shall be referred to the Engineer. Inquiries must be received in writing via email, to mraman@smcgov.org, not less than five (5) working days prior to bid opening. Inquiries will be answered in writing via email response if written clarification is warranted, in the opinion of the Engineer, then inquiries and responses will be posted to the Project's page on the County of San Mateo's Public Works website. It will be the Contractor's sole responsibility to ensure that they receive responses, *if any.* The County will not be responsible for oral clarifications.

(4) It will be the Contractor's sole responsibility to ensure that they have received addendums, *if any,* which will be posted to the County of San Mateo's Public Works website on the same day issued. Said addendums will also be sent to all current plan holders and made available during purchase of Plans and Specifications.

(5) Reference is made to Section 2-1.10, "Disqualification of Bidders," of the Standard Specifications. The Contractor's attention is directed in particular to the last sentence, which states, "Proposals in which the prices obviously are unbalanced may be rejected."

The Public Works website will be updated as needed and can be accessed under the Departments tab found on the County of San Mateo website *(publicworks.smcgov.org).*

ENGINEER'S ESTIMATE

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA
TOTAL PROJECT APPROXIMATELY 0.5 MILES IN LENGTH
WITH APPURTENANT WORK THERETO
IN SAN MATEO COUNTY

A BID IS REQUIRED FOR THE ENTIRE WORK DESCRIBED HEREIN FOR SCHEDULE A AND SCHEDULE B. THE AWARD OF CONTRACT, IF AWARDED, WILL BE MADE ON THE BASIS OF THE LOWEST SUM TOTAL OF BOTH SCHEDULE A AND SCHEDULE B.

SCHEDULE A (EXCLUDES JOINT TRENCH):

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
1	10	1	LS	Construction Waste Management
2	11	1	LS	Mobilization
3	11-3	1	LS	Water Pollution Control
4	12	1	LS	Maintaining Traffic
5	12-2	1	LS	Temporary Pavement Delineation
6	15-2	14,810	LF	Sawcut Asphalt Concrete and Portland Cement Concrete
7A	15-3	6	EA	Adjust Storm Drain Manholes to Grade
7B	15-3	19	EA	Adjust Telecom Manholes to Grade
8A	15-4	1	EA	Reconstruct Storm Drain Manhole to Grade
8B	15-4	1	EA	Reconstruct Telecom Manhole to Grade
9	15-5	39	EA	Adjust Water Valve Box to Grade (Cal Water)
10	15-6	48	EA	Adjust Water Meter Box to Grade (Cal Water)
11	15-7	15	EA	Adjust Monument Box Cover to Grade
12	15-8	4,000	SY	Remove Portland Cement Concrete Pavement
13	15-9	50	EA	Pothole and Protect Existing Utilities
14	15-10	2	EA	Temporary Relocation and Reinstallation of United States Postal Service Mailboxes
15	15-11	2	EA	Remove Telephones
16	15-12	110	EA	Adjust Sanitary Sewer Cleanout Box to Grade
17	15-13	1	EA	Adjust PG&E Utility Vault to Grade

ENGINEER'S ESTIMATE (SCHEDULE A) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
18	15-14	1	LS	Relocation Of Health Clinic Existing Fire Hydrant, Fire Department Connection And Sign And Regrading And Replanting Of Bioretention Area
19	15-15	5	EA	Adjust Existing Gas Valve to Grade
20	15-16	16	EA	Adjust Pull Boxes
21	15-17	1	EA	Relocate Pull Boxes
22	15-18	1	EA	Protect Bollard
23	15-19	1	EA	Adjust Existing Monitoring Well to Grade
24	15-20	4	EA	Remove Existing Pedestrian Signals
25	15-21	1	LS	Remove Concrete Curbs, Gutters, Sidewalks, Driveway Openings, Sidewalk Access Ramps, Valley Gutters and Medians
26	15-22	18,525	SY	Remove Asphalt Concrete Paving, Pavement Fabric, Aggregate Base
27	16	1	LS	Clearing and Grubbing
28	16-1	1	EA	Remove Trees
29	17	1	LS	Develop and Apply Water
30	19-1	8,420	CY	Roadway Excavation
31	20	1	LS	Erosion and Sediment Control
32	25	60	CY	Aggregate Subbase (Class 4)
33	26	3,609	CY	Aggregate Base (Class 2) – Open Trench SS
34	36	34	EA	Drainage Inlet Marker
35	37-2	1	EA	Remove and Relocate Existing Drainage Inlet
36	37-2	2	EA	Install New Drainage Inlet
37	37-3	13	EA	Clean and Inspect Existing Drainage Inlet
38	39-1	6,945	TON	Asphalt Concrete (Type B, 1/2" Maximum, Medium grading)
39	39-3	114	SY	Place Asphalt Concrete (Miscellaneous Areas)
40	39-4	8,449	SY	Plane Asphalt Concrete Pavement (Full Width)
41	40	3,000	SF	Portland Cement Concrete Pavement (Bus Pads)
42	51-2	81	CY	Class 2 Concrete (Minor Structures)
43	51-3	860	CY	Class 3 Concrete
44	51-4	30	EA	Sidewalk Access Ramps (Case A)
45	51-4	1	EA	Sidewalk Access Ramp (Case B with Retaining Curb)
46	51-4	2	EA	Sidewalk Access Ramps (Case C with Retaining Curb)

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ENGINEER'S ESTIMATE (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
47	51-4	6	EA	Sidewalk Access Ramps (Case C without Retaining Curb)
48	51-4	2	EA	Sidewalk Access Ramps (Case F)
49	51-6	400	LF	Red Curb Painting at No Parking Zones
50	56-1	40	EA	Install New Roadside Signs
51	56-2	75	EA	Remove and Reset Existing Roadside Signs
52	68-3	160	LF	PVC Underdrains
53	68-5	600	LF	Sidewalk Underdrains (Ductile Iron)
54 (F)	75	2,850	LBS	Miscellaneous Iron and Steel
55	81	14	EA	Survey Monument
56	84-3	14,000	SF	Thermoplastic Pavement Marking (Crosswalks and Legends)
57	84-3	22,000	LF	Thermoplastic Striping (by color)
58	85	81	EA	Pavement Markers, Type D (Two-way, Yellow, Retroreflective)
59	85	54	EA	Pavement Markers, Type G (Two-way, Yellow, Retroreflective)
60	85	8	EA	Pavement Markers, Hydrant Marker (Blue Reflective)
61	86-2	15	EA	Install New Traffic Signal
62	86-2A	1	EA	Modify Existing Traffic Signal (at 5th Ave)
63	86-3	45	EA	Traffic Loop Detectors (Type E)
64	86-3	14	EA	Traffic Loop Detectors (Type D)
65	86-26	1	LS	Solar Powered Beacon and Sign Systems
66	86-27	41	EA	Streetlights – Street
67	86-27	28	EA	Streetlights – Pedestrian
68	86-27	65	EA	Streetlight Pull Box
69	100	1	LS	Construction Staking
70	101	1	LS	Temporary Fence
71	103-1.3	1	LS	Holiday Lights
72	103-1.3	1	LS	Wifi Systems
73	103-3.1	1	LS	Closed Circuit Television (CCTV) Inspection of Sanitary Sewer Lines
74	103-3.3	28	EA	Remove and Replace Existing Sanitary Sewer Manhole
75	103-3.3	2	EA	Remove and Relocate Sanitary Sewer Manhole
76	103-3.6	60	LF	Sanitary Sewer Lateral Connection

ENGINEER'S ESTIMATE (SCHEDULE A) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
77	105-3	1	LS	Trench Safety
78	106-2	6,155	LF	Pipe Replacement (Open Trench) - 8" PVC Pipeline
79	106-2	425	LF	Pipe Replacement (Open Trench) - 24" PVC Pipeline
80	106-3	181	EA	Reconnect Sanitary Sewer Lateral (Open-Trench Method)
81	108	132	EA	Utility Line Crossings
82	108-1	1	LS	San Francisco (Hetch Hetchy) Water Transmission Line Crossings
83 (S)	113	450	LF	Jack and Bore Crossing #1 (Middlefield Road): One 36" and two 24" Steel Casings (150 LF Each)
84 (S)	113	150	LF	Jack and Bore Crossing #2 (Redwood Junction): One 24" Steel Casing
85 (S)	113	150	LF	Jack and Bore Crossing #3 (Sanitary Sewer): One 16" Steel Casing
86	114-1	1	LS	Irrigation System
87	114-2.3.7	61	EA	48" Boxed Trees
88	114-2.3.7	5	EA	36" Boxed Trees
89	114-2.3.7	820	EA	Canned Shrubs/Vines (1-Gallon)
90	114-2.3.7	144	EA	Canned Shrubs/Vines (5-Gallon)
91	114-3.2.1	18	EA	Benches
92	114-3.2.1	2	EA	Special Bulb-Out Seatwall
93	114-3.2.2	13	EA	Bike Rack
94	114-3.2.3	12	EA	Trash and Recycle Receptacle
95	114-3.2.4	66	EA	Tree Grate (48"x72")
96	114-3.2.5	300	SF	Special Bulb-Out Paving
97	114-4	1	LS	Tree Protection
98	115-2	908	SF	Bioretention Concrete Walls Reinforcing
99	115-3	1,590	LF	Bioretention Collection and Discharge Piping and Structures
100	115-4	300	CY	Bioretention Basin Fill Material

SCHEDULE B (JOINT TRENCH):

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
1	10	1	LS	Construction Waste Management
2	11	1	LS	Mobilization
3	11-3	1	LS	Water Pollution Control
4	12	1	LS	Maintaining Traffic
5	15-2	26,675	LF	Sawcut Asphalt Concrete and Portland Cement Concrete
6	103-1	5	EA	Electric Utility box - 4'6" x 8'6" x 6' #7-Box
7	103-1	8	EA	Electric Utility box - 54" x 102" x 72" #7TR Box
8	103-1	1	EA	Electric Utility box - 54" x 102" x 72" #7S Box
9	103-1	6	EA	Electric Utility box - 54" x 78" x 60" #6S Box
10	103-1	1	EA	Electric Utility box - 54" x 78" x 60" #6J Box
11	103-1	2	EA	Electric Utility box - 54" x 78" x 60" #6I Box
12	103-1	19	EA	Electric Utility box - 24" x 36" x 18" #3F Splice Box Full Traffic
13	103-1	15	EA	Electric Utility box - 24" x 36" x 18" #3 Splice Box
14	103-1	4	EA	Electric Utility box - 17" x 30" x 18" #2-Box
15	103-1	7	EA	Telephone Utility box - 48" x 78" x 48" T8-Box
16	103-1	7	EA	Telephone Utility box - 30" x 48" x 36" T4-Box
17	103-1	9	EA	Telephone Utility box - 17" x 30" x 24" T3-Box
18	103-1	13	EA	Fiber Utility box - 30" x 48" x 24" B-48 Box
19	103-1	21	EA	Fiber Utility box - 24" x 36" x 14" B-40 Box
20	103-1	33	EA	CATV Utility Box - 20" x 42" x 24" B-44 Box
21	103-1	2	EA	Telephone Utility box - 30" x 60" x 36" T2-Box
22	103-1	392	LF	Utility Trench Section D - 24x60
23	103-1	25	LF	Utility Trench Section D1 - 36x60
24	103-1	90	LF	Utility Trench Section D2 - 24x53
25	103-1	46	LF	Utility Trench Section D3 - 42x63
26	103-1	19	LF	Utility Trench Section D4 - 42x63
27	103-1	332	LF	Utility Trench Section D5 - 24x58
28	103-1	45	LF	Utility Trench Section D6 - 36x58
29	103-1	30	LF	Utility Trench Section D7 - 36x64
30	103-1	22	LF	Utility Trench Section D8 - 42x62
31	103-1	17	LF	Utility Trench Section D9 - 36x65
32	103-1	133	LF	Utility Trench Section D10 - 18x56

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
33	103-1	15	LF	Utility Trench Section D11 - 36x65
34	103-1	58	LF	Utility Trench Section D14 - 42x62
35	103-1	116	LF	Utility Trench Section D15 - 42x62
36	103-1	24	LF	Utility Trench Section D16 - 18x52
37	103-1	93	LF	Utility Trench Section D17 - 30x65
38	103-1	230	LF	Utility Trench Section D18 - 36x60
39	103-1	67	LF	Utility Trench Section D19 - 42x62
40	103-1	95	LF	Utility Trench Section D20 - 24x60
41	103-1	35	LF	Utility Trench Section D21 - 30x58
42	103-1	16	LF	Utility Trench Section D22 - 30x60
43	103-1	67	LF	Utility Trench Section D23 - 30x63
44	103-1	431	LF	Utility Trench Section D24 - 24x56
45	103-1	198	LF	Utility Trench Section D25 - 36x64
46	103-1	14	LF	Utility Trench Section D26 - 30x60
47	103-1	32	LF	Utility Trench Section D28 - 30x58
48	103-1	63	LF	Utility Trench Section D29 - 42x63
49	103-1	32	LF	Utility Trench Section D30 - 30x58
50	103-1	83	LF	Utility Trench Section D31 - 24x55
51	103-1	135	LF	Utility Trench Section D32 - 30x60
52	103-1	67	LF	Utility Trench Section D33 - 30x60
53	103-1	72	LF	Utility Trench Section D34 - 30x54
54	103-1	203	LF	Utility Trench Section D35 - 24x58
55	103-1	40	LF	Utility Trench Section D36 - 36x70
56	103-1	60	LF	Utility Trench Section D37 - 36x65
57	103-1	21	LF	Utility Trench Section D38 - 24x58
58	103-1	36	LF	Utility Trench Section D39 - 18x58
59	103-1	33	LF	Utility Trench Section D40 - 24x53
60	103-1	10	LF	Utility Trench Section D41 - 36x70
61	103-1	55	LF	Utility Trench Section D42 - 36x65
62	103-1	42	LF	Utility Trench Section D43 - 36x64
63	103-1	66	LF	Utility Trench Section D44 - 36x65
64	103-1	23	LF	Utility Trench Section D45 - 42x55
65	103-1	17	LF	Utility Trench Section D46 - 30x65
66	103-1	25	LF	Utility Trench Section D48 - 30x58

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
67	103-1	36	LF	Utility Trench Section D49 - 24x58
68	103-1	18	LF	Utility Trench Section D50 - 18x58
69	103-1	60	LF	Utility Trench Section D51 - 42x63
70	103-1	31	LF	Utility Trench Section D52 - 42x63
71	103-1	31	LF	Utility Trench Section D53 - 42x54
72	103-1	28	LF	Utility Trench Section D54 - 24x62
73	103-1	46	LF	Utility Trench Section D55 - 30x53
74	103-1	19	LF	Utility Trench Section D56 - 30x55
75	103-1	17	LF	Utility Trench Section D57 - 30x61
76	103-1	39	LF	Utility Trench Section D58 - 36x65
77	103-1	74	LF	Utility Trench Section D59 - 18x56
78	103-1	64	LF	Utility Trench Section D60 - 30x64
79	103-1	17	LF	Utility Trench Section D61 - 36x60
80	103-1	7	LF	Utility Trench Section D63 - 24x58
81	103-1	39	LF	Utility Trench Section D64 - 42x54
82	103-1	7	LF	Utility Trench Section D65 - 24x57
83	103-1	32	LF	Utility Trench Section D66 - 30x56
84	103-1	62	LF	Utility Trench Section F - 24x59
85	103-1	32	LF	Utility Trench Section D67 - 42x63
86	103-1	26	LF	Utility Trench Section D68 - 30x60
87	103-1	64	LF	Utility Trench Section D69 - 18x53
88	103-1	57	LF	Utility Trench Section F1 - 42x54
89	103-1	11	LF	Utility Trench Section F2 - 42x54
90	103-1	25	LF	Utility Trench Section F5 - 30x59
91	103-1	51	LF	Utility Trench Section F6 - 18x52
92	103-1	58	LF	Utility Trench Section F7 - 12x52
93	103-1	181	LF	Utility Trench Section G - 36x59
94	103-1	28	LF	Utility Trench Section G1 - 24x50
95	103-1	45	LF	Utility Trench Section G2 - 24x56
96	103-1	59	LF	Utility Trench Section G3 - 30x58
97	103-1	30	LF	Utility Trench Section G4 - 12x50
98	103-1	56	LF	Utility Trench Section G7 - 30x60
99	103-1	130	LF	Utility Trench Section H - 12x43
100	103-1	106	LF	Utility Trench Section H1 - 18x43

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
101	103-1	49	LF	Utility Trench Section H2 - 30x43
102	103-1	113	LF	Utility Trench Section H3 - 18x41
103	103-1	122	LF	Utility Trench Section H5 - 30x43
104	103-1	362	LF	Utility Trench Section H6 - 12x41
105	103-1	50	LF	Utility Trench Section H6 - 12x42
106	103-1	41	LF	Utility Trench Section H6 - 12x43
107	103-1	67	LF	Utility Trench Section H6 - 12x44
108	103-1	111	LF	Utility Trench Section H6 - 12x45
109	103-1	605	LF	Utility Trench Section H6 - 12x46
110	103-1	94	LF	Utility Trench Section H6 - 12x47
111	103-1	17	LF	Utility Trench Section H6 - 12x48
112	103-1	31	LF	Utility Trench Section H6 - 12x49
113	103-1	129	LF	Utility Trench Section H6 - 12x50
114	103-1	47	LF	Utility Trench Section H6 - 12x51
115	103-1	16	LF	Utility Trench Section H6 - 12x52
116	103-1	39	LF	Utility Trench Section H6 - 12x53
117	103-1	132	LF	Utility Trench Section H6 - 12x54
118	103-1	201	LF	Utility Trench Section H6 - 12x55
119	103-1	136	LF	Utility Trench Section H6 - 12x56
120	103-1	69	LF	Utility Trench Section H6 - 12x57
121	103-1	184	LF	Utility Trench Section H6 - 12x58
122	103-1	326	LF	Utility Trench Section H6 - 12x59
123	103-1	137	LF	Utility Trench Section H6 - 12x60
124	103-1	38	LF	Utility Trench Section H6 - 12x61
125	103-1	176	LF	Utility Trench Section L9 - 12x33
126	103-1	54	LF	Utility Trench Section L10 - 18x35
127	103-1	46	LF	Utility Trench Section L11 - 24x39
128	103-1	173	LF	Utility Trench Section L12 - 18x51
129	103-1	73	LF	Utility Trench Section L13 - 12x38
130	103-1	18	LF	Utility Trench Section L14 - 18x39
131	103-1	164	LF	Utility Trench Section L15 - 12x37
132	103-1	801	LF	Utility Trench Section P - 12x54
133	103-1	13	LF	Utility Trench Section P1 - 18x54
134	103-1	61	LF	Utility Trench Section P2 - 12x56

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
135	103-1	82	LF	Utility Trench Section P3 - 24x52
136	103-1	83	LF	Utility Trench Section P4 - 24x58
137	103-1	139	LF	Utility Trench Section P5 - 12x50
138	103-1	40	LF	Utility Trench Section P6 - 12x55
139	103-1	39	LF	Utility Trench Section P7 - 18x51
140	103-1	17	LF	Utility Trench Section P8 - 18x53
141	103-1	22	LF	Utility Trench Section P9 - 18x56
142	103-1	25	LF	Utility Trench Section P10 - 18x49
143	103-1	81	LF	Utility Trench Section P11 - 18x58
144	103-1	102	LF	Utility Trench Section P12 - 12x51
145	103-1	82	LF	Utility Trench Section P14 - 18x52
146	103-1	338	LF	Utility Trench Section P15 - 12x52
147	103-1	40	LF	Utility Trench Section P17 - 18x53
148	103-1	351	LF	Utility Trench Section P18 - 12x54
149	103-1	50	LF	Utility Trench Section P19 - 18x52
150	103-1	83	LF	Utility Trench Section P20 - 18x57
151	103-1	7	LF	Utility Trench Section P21 - 12x52
152	103-1	55	LF	Utility Trench Section P22 - 18x53
153	103-1	72	LF	Utility Trench Section P23 - 12x52
154	103-1	12	LF	Utility Trench Section P24 - 12x30
155	103-1	12	LF	Utility Trench Section R - 24x49
156	103-1	34	LF	Utility Trench Section R1 - 18x50
157	103-1	26	LF	Utility Trench Section S - 12x49
158	103-1	45	LF	Utility Trench Section S1 - 12x49
159	103-1	208	LF	Utility Trench Section U - 18x41
160	103-1	130	LF	Utility Trench Section U1 - 12x50
161	103-1	48	LF	Utility Trench Section U2 - 24x52
162	103-1	178	LF	Utility Trench Section U3 - 24x58
163	103-1	32	LF	Utility Trench Section U4 - 12x50
164	103-1	36	LF	Utility Trench Section U5 - 18x50
165	103-1	59	LF	Utility Trench Section U6 - 18x51
166	103-1	94	LF	Utility Trench Section U7 - 18x53
167	103-1	261	LF	Utility Trench Section V - 18x56
168	103-1	72	LF	Utility Trench Section V1 - 18x36

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
169	103-1	32	LF	Utility Trench Section V2 - 18x58
170	103-1	55	LF	Utility Trench Section V3 - 12x51
171	103-1	1,380	LF	Utility Trench Section W - 6x35
172	103-1	920	LF	Utility Trench Section W1 - 12x35
173	103-1	38	LF	Utility Trench Section W2 - 18x35
174	103-1	37	LF	Utility Trench Section W3 - 18x49
175	103-1	25	LF	Utility Trench Section W4 - 18x41
176	103-1	144	LF	Utility Trench Section W5 - 12x51
177	103-1	24	LF	Utility Trench Section W6 - 12x34
178	103-1	6	LF	Utility Trench Section W7 - 12x33
179	103-1	5	LF	Utility Trench Section W8 - 12x36
180	103-1	28	LF	Utility Trench Section W9 - 24x34
181	103-1	10	LF	Utility Trench Section W10 - 18x35
182	103-1	333	LF	Utility Trench Section W11 - 18x39
183	103-1	14	LF	Utility Trench Section W12 - 12x35
184	103-1	20	LF	Utility Trench Section W13 - 12x35
185	103-1	160	LF	Jack and Bore Utility Crossing - Trench Section H16 - 36" DIA Casing
186	103-1	160	LF	Jack and Bore Utility Crossing - Trench Section V3 - 24" Casing
187	103-1	160	LF	Jack and Bore Utility Crossing - Trench Section W - 24" DIA Casing
188	103-1	90	LF	Jack and Bore Utility Crossing - Trench Section U7 - 18" DIA Casing
189	103-1	90	LF	Jack and Bore Utility Crossing - Trench Section V - 12" DIA Casing
190	103-1	90	LF	Jack and Bore Utility Crossing - Trench Section H6 - 10" DIA Casing
191	103-1	2	LS	Jack and Bore Preparation - Pits - Jacking Pit
192	103-1	2	LS	Jack and Bore Preparation - Pits - Receiving Pit
193	103-1	2,667	CY	Jack and Bore Preparation - Backfill and Compaction of Pits - Middlefield Road
194	103-1	160	LF	Jack and Bore Preparation - Dewatering - Middlefield Road
195	103-1	160	LF	Jack and Bore Preparation - Pavement Restoration - Middlefield Road

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued on Next Page

ENGINEER'S ESTIMATE (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
196	103-1	160	LF	Jack and Bore Preparation - Shoring - Middlefield Road
197	103-1	1,500	CY	Jack and Bore Preparation - Backfill and Compaction of Pits - UP R/W
198	103-1	90	LF	Jack and Bore Preparation - Dewatering - UP R/w
199	103-1	90	LF	Jack and Bore Preparation - Shoring - UP RW
200	105-3	1	LS	Trench Safety

Engineer's Estimate of SCHEDULE A Costs: $ 22,426,874

Engineer's Estimate of SCHEDULE B Costs: $ 5,505,886

TOTAL BASE BID (SCHEDULE A+B): $ 28,932,760

NOTES:

(1) (F) Final Pay Quantities – See Section 9-1.015, "Final Pay Items," of the Standard Specifications.

(2) (S) Specialty Items – As defined in Section 8-1.01, "Subcontracting," of the Standard Specifications.

(3) Gaps in Schedule A and Schedule B section numbering, above, indicate the Section is blank or does not apply.

The foregoing quantities are approximate only, being given as a basis for the comparison of bids, and the County of San Mateo does not, expressly or by implication, agree that the actual amount of work will correspond herewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit any portion of the work, as may be deemed necessary or expedient by the Engineer.

Payment to the Contractor for materials furnished and work completed shall be made by the County in accordance with Section 9 of the "Special Provisions" portion of these Contract Documents. Pursuant to Section 22300 of the Public Contract Code, Contractor may, upon his request and at Contractor's expense, substitute equivalent securities for any moneys retained from such payment for the fulfillment of the Contract.

When applicable, both Contractor and Subcontractor hereby agrees to pay not less than prevailing rates of wages and be responsible for compliance with all the provisions of the California Labor Code, Article 2-Wages, Chapter 1, Part 7, Division 2, Section 1770 et

seq and Section 1810 et seq. A copy of the prevailing wage scale established by the Department of Industrial Relations is on file in the office of the Director of Public Works, and available at www.dir.ca.gov/DLSR or by phone at 415-703-4774. California Labor Code Section 1776(a) requires each contractor and subcontractor keep accurate payroll records of trades workers on all public works projects and to submit copies of certified payroll records upon request.

Additionally, pursuant to State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015:

A. No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) 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)].

B. 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.

C. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Wage rates for overtime shall be paid at not less than one and one-half (1½) times the above rates. Wage rates for Sundays and holidays shall be paid at not less than two times the above rates.

The holidays upon which such rates shall be paid shall be all holidays recognized in the collective bargaining agreement applicable to the particular craft, classification, or type of worker employed on the Project.

It is the policy of the County that Contractors on public projects employ their workers and craftsmen from the local labor market whenever possible. "Local Labor Market" is defined as the labor market within the geographical confines of the County of San Mateo, State of

California. Consistent with this policy, the Contractor is requested to employ craftsmen and other workers from the local labor market whenever possible to do so.

Each bidder shall submit with the bid, Certificates of Compliance and Intent on a form provided in the "Proposal" section of these Contract Documents, a certificate that bidder is in compliance with the provisions of the Equal Employment Opportunity Requirement of Executive Order 11246, Title VII of the Civil Rights Act of 1964, the California Fair Employment and Housing Act and any other federal, State and local laws and regulations relating to equal employment opportunity. With the execution of said certificates, bidder also agrees that bidder will maintain or develop and implement, during the course of the work concerned, a program of hiring and employment, conducted without regard to race, religion, color, national origin, ancestry, sexual orientation, or sex of the applicants. With this certification, bidder shall submit any and all information that may be required by the County in connection with the particular project.

Each bidder is hereby notified of the Section 9204 and Section 20104 et seq. of the Public Contract Code as those Sections (attached hereto as Appendix E) relate to resolution of construction claims, and to Section 3186 of the Civil Code, as amended January 1, 1999 with regard to stop notices and public entity's rights to retain monies in order to provide for that entity's reasonable cost of litigation. The bidder is further notified that all provisions of Section 9204 and Section 20104 et seq. of the Public Contract Code and Section 3186 of the Civil Code, as outlined above shall be considered as incorporated into and become an integral part of these specifications.

Questions relating to equal employment should be directed to the San Mateo County Department of Public Works, Equal Employment Opportunity Program, 555 County Center, 5th Floor, Redwood City, CA 94063-1665, telephone (650) 363-4100.

Plans and Specifications and forms of Proposal and Contract may be seen and obtained at the office of the Director of Public Works, 555 County Center, Redwood City, California, 94063-1665. Plans and specifications may be obtained for a:

NON-REFUNDABLE FEE OF $100 PER SET

Additional technical questions should be directed to the office of the Director of Public Works, 555 County Center, Redwood City, California, 94063-1665, telephone (650) 363-4100.

The Contractor shall possess either a Class A License or a combination of Class C licenses that are applicable for the majority of the work at the time this contract is awarded. No Contract will be awarded to a Bidder who is not licensed as required by laws of the State of California.

The Contractor is advised that a virtual pre-bid conference will occur on November 12, 2020 at 10:00AM, and shall take place virtually on Microsoft Teams, toll free number: 1-877-286-5733 and conference ID number: 700 637 16#. Subsequently, Contractor shall email mraman@smcgov.org to be invited to the virtual pre-bid conference via an email appointment.

The virtual pre-bid conference is not mandatory; however, the Contractor is advised that inspection of the site prior to the bid submittal and acknowledgement of said inspection will be required for the acceptance of the bid.

The Contractor shall sign and date the Acknowledgement of Site Visit form provided on page 19 of the Proposal Section and submit with the bid. Failure to complete this form shall be grounds for rejection of the bid.

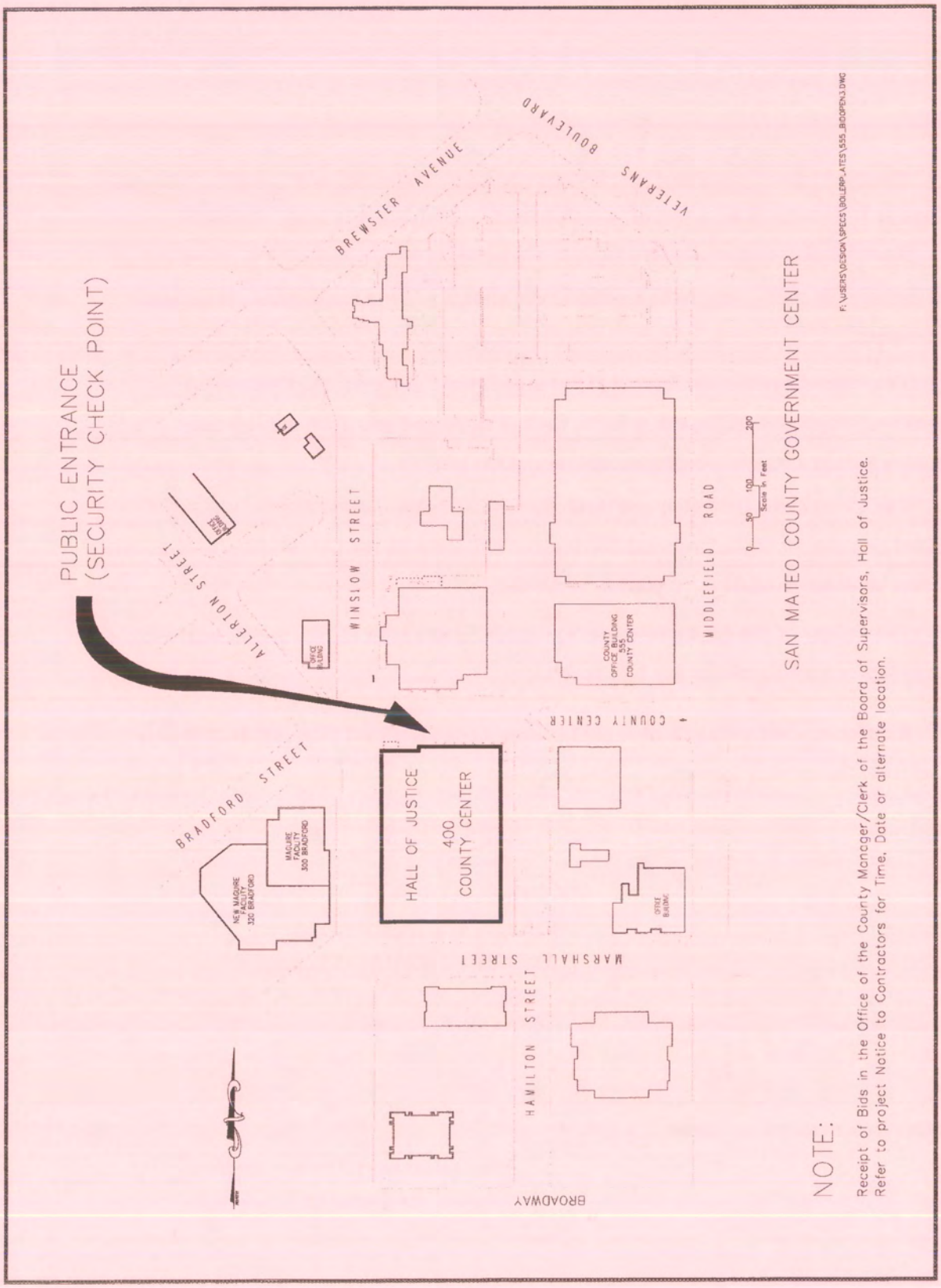
The County of San Mateo reserves the right to reject any or all bids and/or waive any informalities or irregularities in any bid received.

Bidders may not withdraw their bid for a period of **FORTY-FIVE (45) DAYS** after the date set from the opening thereof.

BY ORDER OF THE
BOARD OF SUPERVISORS
COUNTY OF SAN MATEO

DATE: October 20 , 2020

Michael Callagy, County Manager/
Clerk of the Board of Supervisors


PUBLIC ENTRANCE
(SECURITY CHECK POINT)
ALLERTON STREET
BREWSTER AVENUE
VETERANS BOULEVARD
WINSLOW STREET
MIDDLEFIELD ROAD
COUNTY CENTER
BRADFORD STREET
HALL OF JUSTICE
400
COUNTY CENTER
NEW MAGUIRE FACILITY 320 BRADFORD
MAGUIRE FACILITY 350 BRADFORD
COUNTY OFFICE BUILDING 555 COUNTY CENTER
OFFICE BUILDING
MARSHALL STREET
HAMILTON STREET
BROADWAY
0 50 100 200
Scale In Feet
SAN MATEO COUNTY GOVERNMENT CENTER
F:\USERS\DESIGN\SPECS\BOILERP_ATES\555_BLDGPENS.DWG
NOTE:
Receipt of Bids in the Office of the County Manager/Clerk of the Board of Supervisors, Hall of Justice.
Refer to project Notice to Contractors for Time, Date or alternate location.

COUNTY OF SAN MATEO

STATE OF CALIFORNIA

SPECIAL PROVISIONS
FOR

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA

TOTAL PROJECT APPROXIMATELY 0.5 MILE IN LENGTH
WITH APPURTENANT WORK THERETO
IN SAN MATEO COUNTY

COUNTY PROJECT NO. OD420
PROJECT FILE NO. E4931

DATE: October 16, 2020

SECTION 1
DEFINITIONS AND TERMS

Except as specifically stated herein, the definitions contained in the Standard Specifications of the State of California, Department of Transportation, as set forth per Section 2-1, "Plans and Specifications," of these Special Provisions and hereafter referred to as "Standard Specifications," shall be applicable with the understanding that where said definitions specifically refer to the State of California, a department or division of the State or an official, officer or employee of the State, said definition shall be interpreted to refer to the County of San Mateo, the Department of Public Works, or other appropriate department, division, official, officer or employee of the County of San Mateo.

Definition 1-1.40 of the Standard Specifications shall not be interpreted to include the provisions of Article 7.1 of Division 2, Part 2, Chapter 1 of the Public Contract Code.

END OF SECTION

SECTION 2
PROPOSAL REQUIREMENTS AND CONDITIONS

The Bidder's attention is directed to all the provisions of Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these Special Provisions, except that the Bidder's security shall be made payable to the County of San Mateo. The County will accept a Bidder's Bond in the form issued by an admitted surety insurer. The County will not be responsible for any oral interpretations to Bidders with respect to any of the work embraced herein.

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

All proposals must be made upon the blank form contained herein.

2-1 PLANS AND SPECIFICATIONS

Subject to the exceptions stated herein, the work embraced herein shall be done in accordance with the Standard Plans and Specifications as adopted by the County of San Mateo insofar as the same may apply, and in accordance with the following Special Provisions.

As set forth in **Resolution No. 068389** of the Board of Supervisors of the County of San Mateo, adopted **November 14, 2006,** which approved the Standard Plans and Standard Specifications, dated **May 2006,** of the State of California, Department of Transportation as the Standard Plans and Standard Specifications of the County of San Mateo, State of California.

As set forth in **Resolution No. 077277** of the Board of Supervisors of the County of San Mateo, adopted **February 11, 2020,** which approved the **2018** Standard Plans and Standard Specifications of the State of California, Department of Transportation as the concurrent Standard Plans and Standard Specifications of the County of San Mateo, State of California.

Unless specifically stated, the 2006 Caltrans Standard Plans and Specifications as the Standard Specifications shall be considered as the Standard Specifications for this project; only where designated, shall the 2018 Standard Plans and Specifications be used as the Standard Plans and Specifications for this project.

In the event that a discrepancy arises between the project Plans, these Special Provisions, the applicable Standard Plans and the Standard Specifications, the provisions of the second paragraph of Section 5-1.04, "Coordination and interpretation of Plans, Standard Specifications, and Special Provisions," of the 2006 Standard Specifications shall apply.

END OF SECTION

SECTION 3
AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these Special Provisions for the requirements and conditions concerning award and execution of contracts.

However, the following supersedes the second paragraph in Section 3-1.01, "Award of Contract," of the Standard Specifications:

> "The award of contract, if awarded, will be made to the lowest responsible bidder within **NINETY (90) DAYS** after the opening of the proposals. If the lowest responsible bidder refuses or fails to execute the contract, the County may award the contract to the second lowest responsible bidder. If the second lowest responsible bidder refuses or fails to execute the contract, the County may award the contract to the third responsible bidder. The period of time after that specified above within which the award of the contract may be made shall be subject to extension for such further period as may be agreed upon, in writing, between the County and the bidder concerned."

Bidders who wish to lodge a protest for consideration as to the bidding process or the award of a contract to the lowest responsible bidder must do so as follows:

(1) Protests based upon alleged improprieties in a solicitation, which are apparent prior to bid opening, shall be filed **two (2) business days** prior to bid opening.

(2) Protests other than those covered by paragraph 1, above, shall be filed no later than **ten (10) calendar days** after the bid opening.

(3) All protests shall be delivered to:

Director of Public Works
County of San Mateo
555 County Center, 5th Floor
Redwood City, CA 94063

Untimely protests, which do not meet the deadline requirements specified above, will not be accepted or considered.

Bid protests must be submitted in writing to the addressee and address listed above. Bid protests must at a minimum include the following:

- Project Name
- Project File Number
- A complete statement describing the basis for the bid protest, which includes a detailed statement of all legal and factual grounds for the protest
- Documentation supporting the protestor's grounds for the protest
- The type of relief requested and the legal basis for such relief

If a valid protest is filed timely, the Department will investigate the bid protest. The protested bidder shall have **three (3) business days** to respond to the Department and to provide any information requested by the Department. The Department shall respond to the protesting party, stating its findings. The Department Director shall make a recommendation to the San Mateo County Board of Supervisors regarding the bid protest.

Bid protests are to be delivered to the following address: 555 County Center, 5th Floor Redwood City, CA 94063.

The award of the contract, if it is awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

The contract shall be executed by the successful bidder and shall be returned, together with the contract bonds, to the County so that it is received within **ten (10) days**, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address: 555 County Center, 5th Floor Redwood City, CA 94063.

END OF SECTION

SECTION 4
DESCRIPTION OF WORK

The work to be done consists, in general, of construction of an underground joint trench, which will house overhead power and communication lines on Middlefield Road, from McArthur to 5th Avenue; sanitary sewer replacement along Middlefield Road, between Douglas Ave and 6th Avenue. This Project will replace the existing four (4) through-lane configuration with a two (2) through-lane, a turn lane, bike lanes and parallel parking. This Project will also include widening of the sidewalks, construction of stormwater bioretention features, street trees, streetlights, pedestrian lights and other site furnishings such as bike racks, trash receptacles, and public benches, as well as any other items and details not mentioned above, but required by the Project Plans, Standard Specifications and these Special Provisions, and the directions of the Engineer.

END OF SECTION

SECTION 5
CONTROL OF WORK

Attention is directed to the provisions of Section 5, "Control of Work," of the Standard Specifications, except as herein provided, and to Section 2-1, "Plans and Specifications," of these Special Provisions.

5-1 DIFFERING SITE CONDITIONS

This section shall be used in lieu of Section 5-1.116, "Differing Site Conditions," of the Standard Specifications. Section 5-1.116 of the Standard Specifications shall not apply.

The following shall apply to digging trenches or other excavations that extend deeper than four feet (4') below the surface:

A. The Contractor shall promptly, and before the following conditions are disturbed, notify the Engineer, in writing, of any:

(1) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code that is required to be removed to a Class I, II, or III disposal site in accordance with provisions of existing law.

(2) Subsurface or latent physical conditions at the site differing from those indicated.

(3) Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

B. The Engineer shall promptly investigate the conditions, and if he finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work, shall issue a change order, excluding loss of anticipated profits, under the procedures

described in the contract. No contract adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

C. In the event that a dispute arises between the Engineer and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all work to be performed under the contract. The Contractor shall retain any and all rights provided either by contract or by law that pertain to the resolution of disputes and protests between the contracting parties.

D. In the event conditions materially differ from those indicated, the Contractor shall have no claim for construction delays, unless said conditions are determined by the Engineer to impact the controlling item of work.

5-2 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these Special Provisions. The general phasing is listed below as ten (10) phases generally working south to north starting on the west side and then east side, except at the northern end of the project where Redwood Junction will be the last phase. In each phase the following general approach to utilities construction is anticipated (deepest to shallowest): a) GI drainage piping; b) Joint Trench in roadway; c) sanitary sewer piping and manholes in the roadway; d) Joint Trench in sidewalk; and, e) non-Joint Trench utilities, including irrigation.

1	2	3	4	5	6	7	8	9	10
West Side- 5th to 3rd Avenue	West Side- 3rd to 1st Avenue	West Side- 1st to Dumbarton Avenue	West Side- Dumbarton to Pacific Avenue	East Side- 5th to 3rd Avenue	East Side- 3rd to 1st Avenue	East Side- 1st to Dumbarton Avenue	East Side- Dumbarton to Pacific Avenue	East Side- Dumbarton to Pacific	West Side- Pacific to Macarthur + Redwood Junction

The Contractor may, at their option, submit an alternate phasing plan to the Engineer for review. Acceptance of such phasing plan shall be entirely at the discretion of the Engineer, and any additional costs associated with an alternate phasing plan by the Contractor shall be borne solely by the Contractor, and no additional compensation will be allowed therefore. Should the Engineer reject the Contractor's alternate phasing plan, the Contractor shall be required to adhere to the general phasing outlined herein.

The contractor is to comply with Appendix F – Regulatory Environmental Documents:

Mitigation Measures and Mitigation Monitoring and Reporting Program (MMRP). Full compensation for conforming to the provisions in this Section, not otherwise provided for, shall be considered as included in the unit prices paid for the various Contract items of work involved, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 6
CONTROL OF MATERIALS

Attention is directed to Section 6, "Control of Materials," of the Standard Specifications and these Special Provisions.

The Contractor shall furnish all materials required to complete the work under this Contract.

6-1 CERTIFICATES OF COMPLIANCE

Certificates of Compliance, conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications shall be furnished for all manufactured products, unless otherwise waived by the Engineer.

6-2 MATERIALS TESTING

Whenever the specifications require compliance with specified values for the following properties, tests will be made as indicated:

Material to Be Tested	Property Being Tested For	Acceptable Test Method(s)	Description
Aggregate Base	Relative Compaction	CT 231 or ASTM D6938	Determines field densities using a nuclear gage.
Cement Treated Base	Cement Content	CT 338	Determines cement content in treated material by the titration method.
Asphalt Concrete	Relative Compaction	CT 375 or ASTM D2950	Determines field densities using a nuclear gage.
Subbase	Relative Compaction	ASTM D1557	Determines field densities using a nuclear gage.

Any costs to the County for testing layers which fail the compaction requirements may be deducted from any progress payment due to the Contractor when, in the opinion of the Engineer, such failure results from the Contractor's lack of diligence in pursuing compaction effort. In the event that a test fails, any testing after the first shall be at the Contractor's expense.

END OF SECTION

SECTION 7
LEGAL RELATIONS AND RESPONSIBILITY

Attention is directed to the provisions of Section 7, "Legal Relations and Responsibility," of the Standard Specifications and to the provisions of paragraph VIII of the Agreement (AG) portion of the Contract Documents for insurance requirements and the provisions related to Novel Coronavirus Disease 2019 (COVID-19) in the Proposal (PR) and Sections XV, "COVID-19" and XII, "Electronic Signature," of the Agreement (AG) portions of the Contract Documents.

7-1 EQUAL EMPLOYMENT OPPORTUNITY PROGRAM FOR MINORITY EMPLOYMENT

It is the intent of the Board of Supervisors of the County of San Mateo to prohibit and eliminate employment discrimination and to further the opportunities for minority persons to be gainfully employed in the performance of County construction contracts. Award of a contract to a low bidder will not be made until such bidder has complied with the provisions of Title 2, Chapter 2.50, as amended, of the San Mateo County Ordinance Code and with these guidelines.

7-1.1 Definitions

EQUAL EMPLOYMENT OPPORTUNITY PROGRAM: An Equal Employment Opportunity Program (EEOP) is a set of specific and result oriented procedures to which a Contractor commits himself in order to achieve equal employment opportunity.

COMPLIANCE OFFICER: The Compliance Officer (CO) means the County official designated by the County Manager to represent him in the administration of these guidelines and in the enforcement of the provisions of Title 2, Chapter 2.50.

7-1.2 Certifications of Compliance and Intent

Every bidder will submit with his bid, as required by Section 2.50.050 of Title 2, Chapter 2.50, a Certification of Compliance with the laws prohibiting discrimination and a

Certification of Intent to implement an equal employment opportunity program on the form furnished in the Proposal section of these Specifications.

7-1.3 Equal Employment Opportunity Program

In addition to furnishing the Certifications of Compliance and Intent, each bidder will submit his equal employment opportunity program with his bid proposal. The EEOP shall contain the following information:

A. Analysis of current work force

(1) Total number of employees;

(2) Numerical racial breakdown of employees by job classification;

(3) Information on apprentices.

These figures will provide the base by which the low bidder's EEOP will be evaluated. Factors to be considered both in the original statistics and in any plans for future employment will include the percentage of minority population in San Mateo County, the availability of minority construction workers and the present minority representation in the various construction trades.

B. The affirmative actions the bidder has taken and will take to ensure equal employment opportunity. These shall include:

(1) Recruiting and hiring minority persons. If non-union personnel are employed, this would involve employment advertising through sources serving the minority population. These include local minority newspapers, referral agencies, high schools, vocational schools and community groups. Specific information on these sources may be obtained from the Compliance Officer. Union employees will be recruited in accordance with applicable labor agreements. The bidder will seek to have included or will reaffirm clauses in all labor agreements prohibiting discrimination based on race, religion, color, national origin, age, disability,

ancestry, sexual orientation, or sex. It is also suggested that bidders assist in admitting minority workers who are over the traditional apprenticeship entry age to the various craft training programs.

(2) Providing adequate opportunity for the upgrading or further training of all employees to insure equal opportunity in advancement and promotion. This might include a counseling service, information and assistance with night classes, or special career-directed program information.

(3) Appointing an Equal Employment Opportunity Coordinator, full time or as an additional duty. This person will have the responsibility of administering an active program, informing company personnel and union representatives of company policy, and advising all subcontractors of their obligation to this program.

(4) Establishing or maintaining an apprenticeship/training program designed to ensure hiring of additional minority employees in the journeyman and skilled classes. Each bidder is urged to support or develop and implement an Apprenticeship Program for his trade.

(5) Selecting minority subcontractors or subcontractors who are known for their ongoing programs of apprenticeship for minorities. This includes advising minority Contractor associations of opportunities for subcontracts. Joint ventures with minority sub-contractors are encouraged.

C. The EEOP should state any previous experience the bidder has had with similar plans and the results of that effort. Current affirmative action plans should be described in detail.

7-1.4 Equal Employment Opportunity Program Evaluation

A. The Compliance Officer **(CO)** will review the EEOP submitted by the low bidder in order to determine whether the program submitted complies with the provisions of Title 2, Chapter 2.50, as amended, of the San Mateo County Ordinance Code, and these guidelines. If deficiencies are indicated, CO may request additional information from the

bidder or suggest appropriate remedies. The CO will be available to answer questions relative to the guidelines and to advise those seeking assistance of other sources. CO will not be responsible for the service or lack of service rendered by the consultant recommended, nor will the CO develop an EEOP or serve as a recruiter for any bidder.

The low bidder may withdraw his EEOP for revision after consultation with the CO; however, the revised program must be resubmitted by a date not later than fifteen (15) calendar days after the opening of bids.

B. All subcontractors listed in the low bidder's proposal shall be required to file completed Certificates of Compliance and Intent and their EEOP with the Bidder for submission to the County. The EEOP of each subcontractor will be evaluated by criteria established for the low bidder's EEOP.

C. The CO, upon conclusion of the EEOP review, will report his findings and recommendation to the Director of Public Works. The CO will keep acceptable EEOP's on file for six (6) months. During that period of time, if the bidder or subcontractors bid for other County contracts, they may refer to the EEOP on file and state any changes, but will not be required, unless specifically requested, to re-file their program.

7-1.5 Inclusion of EEOP and Certificates

Upon award of the Contract by the Board of Supervisors, the EEOP and certifications for the bidder and all subcontractors, which have been approved and accepted by the County, will become an integral part of the Contract and subject to the provisions thereof.

7-1.6 Compliance of Contractor

A. The Contractor will post, in conspicuous places available to employees and applicants for employment, notices, provided by the County, stating that the Contractor is obliged to comply with the provisions of these guidelines and the provisions of Title 2, Chapter 2.50, as amended, of the San Mateo County Ordinance Code. These notices will

also be sent to all unions, employee organizations and other recruiting sources providing employees to the Contractor.

B. All announcements of job openings will include the statement, "An Equal Opportunity Employer."

C. The Contractor will make written progress reports on a form provided by the County to illustrate the effectiveness of his EEOP at intervals established by the County.

D. The **CO** will monitor the Contractor's EEOP until completion of the Contract and will report non-compliance of the Contractor in adhering to his EEOP to the Director of Public Works.

E. The Contractor will permit, during Contractor's normal business hours and at Contractor's place of business, access by the County to his records of employment, employment advertisements, application forms and other data and records pertaining to Contractor's employment practices, for the purpose of determining whether Contractor is complying with the non-discrimination and equal employment opportunity rules of the County.

7-1.7 Compliance of Subcontractor

All subcontractors listed by the bidder are subject to all the provisions of these guidelines and the provisions of Title 2, Chapter 2.50, as amended, of the San Mateo County Ordinance Code.

7-1.8 Penalties for Non-Compliance

The penalties for non-compliance are listed in Title 2, Chapter 2.50, Section 2.50.050, which states:

a. "Every public works contract shall provide that a contractor who, within the time specified in the contract, does not submit an equal employment

plan and make the certifications required in this chapter shall be in breach of the contract."

b. "If, after an award is made, the contractor is found by the County or by a Federal or State agency empowered to make such findings to be in substantial or material violation of the Fair Employment Practices Act of the State of California, the Equal Employment Opportunity Requirement of Executive Order 11246, title VII of the Civil Rights Act of 1964, or of the provisions of this chapter or of the Board-established guidelines implementing them, he may be found to be in material breach of contract, and the County shall have the power to cancel the contract in whole or in part, or alternatively, to deduct for each working day during which the contractor is found to have been in such non-compliance, two percent (2 percent) of the total amount payable to the contractor."

7-1.9 Waiver of Compliance

In the event that any of the requirements of Title 2, Chapter 2.50, as amended, of the San Mateo County Ordinance Code, are found to result in an undue hardship upon a low bidder, bidder may submit evidence of hardship and a petition for waiver of such requirements to the Director of Public Works for recommendation to the Board of Supervisors. Such a waiver may only be granted by the Board and, if approved, shall become an integral part of the contract.

7-1.10 Employee Benefits

All Contractors with contracts with the County of $5,000 or more shall comply with the provisions of Title 2, Chapter 2.84, as amended, of the San Mateo County Ordinance Code with respect to the provisions on employee benefits. As set forth in the ordinance, such contractors are prohibited from discriminating in the provisions of employee benefits between an employee with a domestic partner and an employee with a spouse. A copy of the Ordinance and Compliance form is attached to the Proposal Section of these Specifications.

In the event that it is determined, by the County, that any portion of the County Ordinance Code regarding employee benefits conflict with Federal or State regulations, the Federal or State regulations shall take precedence over the County Ordinance Code.

7-1.11 Non-Discrimination

No person shall be excluded from participation in, denied benefits of, or be subject to discrimination under this Agreement on the basis of their race, color, religion, national origin, age, sex, sexual orientation, pregnancy, childbirth or related conditions, medical condition, mental or physical disability or veteran's status. Contractor shall ensure full compliance with Federal, State and local laws, directives and executive orders regarding non-discrimination for all employees and Subcontractors under this Agreement.

Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to:

i) termination of this Agreement;

ii) disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 3 years;

iii) liquidated damages of $2,500 per violation;

iv) imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this paragraph, the County Manager shall have the authority to:

i) examine Contractor's employment records with respect to compliance with this paragraph;

ii) set off all or any portion of the amount described in this paragraph against amounts due to Contractor under the Contract or any other Contract between Contractor and County.

Contractor shall report to the County Manager the filing by any person in any court of any complaint of discrimination or the filing by any person of any and all charges with the Equal Employment Opportunity Commission, the Fair Employment and Housing Commission or any other entity charged with the investigation of allegations within thirty (30) days of such filing, provided that within such thirty (30) days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include the name of the complainant, a copy of such complaint and a description of the circumstance. Contractor shall provide County with a copy of its response to the Complaint when filed.

In the event that it is determined, by the County, that any portion of these requirements regarding non-discrimination conflict with Federal or State regulations, the Federal or State regulations shall take precedence over County requirements.

7-2 REPAIR OF EQUIPMENT

Attention is directed to the provisions of Section 7-1.21, "Repair of Equipment," of the Standard Specifications.

7-3 COOPERATION

Attention is directed to Section 7-1.14, "Cooperation," and 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications. The utility companies may be rearranging their facilities within the project area and it is expected that they will cooperate with the Contractor to the end that the work may be handled in an efficient manner.

The Contractor shall contact USA North811 (USA) service alert a minimum of 48 hours in advance of any excavation or trenching work. USA may be contacted either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811.

7-4 PREVAILING WAGES

Attention is directed to Section 7-1.01A(2), "Prevailing Wage," of the Standard Specifications.

In accordance with the provisions of Section 1770 of the California Labor Code, the Board of Supervisors of the County of San Mateo has ascertained the prevailing rate of wages applicable to the work to be done, which prevailing wage rates have been established as indicated in the Notice to Bidders and are incorporated herein by reference.

The Contractor's attention is further directed to the following requirements of State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015:

(1) No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) 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) 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) This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

7-4.1 Payroll Records

Reference is made to Section 7-1.01A(3), "Payroll Records," of the Standard Specifications. The Contractor's attention is directed in particular to the second to last paragraph, which is amended to read:

"If by the 7th working day after the 25th of the month, the Contractor has not submitted satisfactory payrolls for all work performed during the monthly

period ending on or before the 25th of that month, the Department may withhold an amount equal to ten percent (10 percent) of the estimated value of the work performed (exclusive of Mobilization) from that month's estimate, except that this withholding shall not exceed $10,000 nor be less than $1,000. Withholdings for failure to submit satisfactory payrolls shall be additional to all other withholdings or retentions provided for in the contract. The withholding for failure to submit payrolls for any monthly period will be released for payment on the monthly estimate for partial payments following the date that all the satisfactory payrolls for which the withholding was made are submitted."

The Contractor is advised that Contractor shall submit either Contractor's Daily Dispatch Report at the start of each working day OR a Daily Personnel and Equipment Log to the Engineer by the start of the first working day subsequent to the performance of the work, or Contractor may incur task-specific liquidated damages in the amount of $500 per calendar day for every day hence until submittal is made. Reference is made to Appendix D of these Special Provisions.

The Contractor is further advised that, pursuant to State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015, all contractors and subcontractors working on a contract for public work on a public works project (awarded on or after April 1, 2015) must furnish electronic certified payroll records to the Labor Commissioner.

7-4.2 Contractor Employee Jury Service

All Contractors with contracts with the County of $100,000 or more shall comply with the provisions of Title 2, Chapter 2.85, as amended, of the San Mateo County Ordinance Code, with respect to provision of jury duty pay to employees and have and adhere to a written policy that provides that its employees shall receive from the Contractor, on an annual basis, no less than 5 days of regular pay for actual jury service in San Mateo County. The policy may provide that employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the employees' regular pay the fees received for jury service. A copy of the Ordinance and a Compliance Form is attached to the Proposal Section of these Specifications.

Award of a Contract to a low bidder will not be made until such bidder has certified compliance with the provisions of Title 2, Chapter 2.85, as amended, of the San Mateo County Ordinance Code.

7-5 PERMITS AND LICENSES

Attention is directed to Section 7-1.04, "Permits and Licenses," of the Standard Specifications, and to these Special Provisions.

The Contractor shall have at least two employees trained in confined space entry regulations CAL/OSHA Confined Space Regulations, Title 8 CCR GISO 5156, 5157, and 5158 at the site whenever there are open trenches or underground work going on. It is understood that -all fall protection, retrieval and atmospheric monitoring equipment shall be furnished and maintained by the Contractor at the Contractor's expense. This shall include but not be limited to cost associated with compliance with Confined Space Entry Regulations shall be at the expense of the Contractor.

Contractor's attention is directed to the fact that Encroachment Permits will be required prior to start of work either within City of Redwood City, San Francisco Public Utilities Commission (Hetch Hetchy), Union Pacific Railroad, and San Mateo County Transit District rights-of-way. As noted in Section 2.5 of the IS/MND, implementation of the project will require the following permits and/or approvals.

- County of San Mateo Board of Supervisors' adoption of the IS/MND and the Mitigation Monitoring and Reporting Program
- UPRR Encroachment Permit
- Coordination with SFPUC to cross the Hetch Hetchy ROW
- State Water Resources Control Board (SWRCB) approval of Notice of Intent for construction General Permit

The project, or components thereof, may also require approvals from the following agencies:

- CPUC
- Caltrain
- SamTrans

- PG&E
- Fair Oaks Sewer Maintenance District
- Cal Water

Contractor is advised that encroachment permits shall be obtained within ten (10) calendar days after pre-construction meeting, prior to issuance of the Notice to Proceed.

Unless otherwise extended by the Engineer, should Contractor fail to adhere to the above schedule, Contractor may incur task-specific liquidated damages in the amount of $500 per permit per calendar day for every day hence until Contractor has provided proof of obtaining encroachment permit.

Full compensation for conforming to the requirements of these permits, including the cost of the permit, if any, shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

Contractor's attention is directed to:

(1) **Section 113, "Jack and Bore Steel Casing Under Railway, and Install Steel Casing Pipe;"**

(2) **Section 116, "Agency Relations;"**

(3) Appendix F, "Mitigation Measures and Mitigation Monitoring and Reporting Program," for additional requirements of the Initial Study/Mitigated Negative Declaration; and

(4) Appendix G, "Inter-Agency Permits and Requirements," of these Project Specifications.

Contractor is solely assumed responsible for any permits and/or conditions associated with permits and environmental obtained by the County (see Appendix G for copies of permits obtained by the County and associated conditions) that would be required to directly be present or work in, or adjacent to the aforementioned areas. All contractors

working on or near railroad tracks must successfully pass Caltrain's On-Track Safety Training before commencing work.

7-6 HIGHWAY CONSTRUCTION EQUIPMENT

Attention is directed to Section 7-1. 01D, "Vehicle Code," of the Standard Specifications, and to these Special Provisions.

Pursuant to the authority contained in Section 591 of the Vehicle Code, the County has determined that, within such areas as are within the limits of the project and are open to public traffic, the Contractor shall comply with all the requirements set forth in Divisions 11, 12, 13, 14, and 15 of the Vehicle Code. Attention is directed to the statement in Section 591 that this section shall not relieve him or any person from the duty of exercising due care. The Contractor shall take all necessary precautions for safe operation of his equipment and the protection of the public from injury and damage from such equipment.

7-7 PROJECT APPEARANCE

The Contractor shall maintain a neat appearance to the work. Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in the unit prices paid for the various Contract items of work involved, and no additional compensation will be allowed therefore.

7-8 PRESERVATION OF PROPERTY

The Contractor's attention is directed to Section 7-1.11, "Preservation of Property," and Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.

7-9 AIR POLLUTION CONTROL

Air pollution control shall conform to the provisions of Section 7-1.01F, "Air Pollution Control," of the Standard Specifications.

7-10 OBSTRUCTIONS

Attention is directed to the provisions in Sections 8-1.10, "Utility and Non-Highway Facilities," 15, "Existing Highway Facilities," and 51-1.19, "Utility Facilities," of the Standard Specifications.

7-11 SOUND CONTROL

Sound control shall conform to the provisions in Section 7-1.01I, "Sound Control Requirements," of the Standard Specifications.

7-12 PUBLIC CONVENIENCE

Public Convenience shall conform to the provisions in Section 7-1.08, "Public Convenience," of the Standard Specifications and to these Special Provisions. The first sentence of the 15th paragraph of Section 7-1.08 is amended to read as follows:

> "After the surface of the roadbed has been brought to a smooth and even condition for the passage of public traffic, as above provided, any work ordered by the Engineer for the accommodation of public traffic prior to commencing subgrade operations shall be at the Contractor's expense."

7-13 PUBLIC SAFETY

Public Safety shall conform to the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and to these Special Provisions.

Full compensation for conforming to the requirements of this section shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

7-14 TRENCH SAFETY

Trench Safety shall conform to the provisions of Section 105-3, "Trench Safety," of these Special Provisions.

7-15 DISPOSAL OF MATERIAL OUTSIDE THE HIGHWAY RIGHT-OF-WAY

Disposal of Material outside the Highway Right-of-Way shall conform to the provisions of Section 7-1.13, "Disposal of Material Outside the Highway Right-of-Way," of the Standard Specifications, and Section 10, "Construction Waste Management," of these Special Provisions. The Contractor's attention is further directed to Appendix "A," "Construction Waste Management Plan," of these Special Provisions.

7-16 SANITARY SEWER MONITORING AND REPORTING REQUIREMENTS

The Contractor's attention is directed to Appendix B for sanitary sewer monitoring and reporting requirements.

END OF SECTION

SECTION 8
PROGRESS OF WORK AND TIME OF COMPLETION

Attention is directed to the provisions of Section 8, "Prosecution and Progress," of the Standard Specifications, except as herein provided.

8-1 TIME OF COMPLETION

The Contractor shall begin work within **TEN (10) CALENDAR DAYS** after receiving Notice to Proceed from the Department of Public Works, and shall diligently prosecute the same to completion before the expiration of

THREE HUNDRED AND FORTY (340) WORKING DAYS

from the date of said beginning, as described above.

The Contractor is advised that punch list items are required to be completed before the expiration of the working days stated above.

The Contractor may request, in writing, an extension of working days, which request shall state the reason for said request and the number of additional working days. The Engineer will consider said request and respond, in writing, stating either the number of additional working days approved or the reason for denying the request.

8-2 LIQUIDATED DAMAGES

Attention is directed to Section 8-1.03, "Beginning of Work," Section 8-1.06, "Time of Completion," and Section 8-1.07, "Liquidated Damages," of the Standard Specifications. The Contractor shall pay to the County of San Mateo the sum of Five Thousand Dollars ($5,000.00) per calendar day for each and every calendar day delay over and above the number of working days above prescribed for finishing the work.

The Contractor is advised that Contractor shall provide and maintain walkways and ADA access to local businesses. Should access be impacted, Contractor may incur

liquidated damages in the amount of $1,000 per calendar day for every day hence until access is restored, as specified in these Special Provisions and as directed by the Engineer.

The Contractor is advised that task-based liquidated damages may be enforced in conformance with the following bid item-specific Special Provisions:

(1) Section 7-4.1 "Payroll Records"

(2) Section 84, "Traffic Stripes and Pavement Markings"

(3) Section 85, "Pavement Markers"

(4) Section 116, "Agency Relations"

8-3 PROGRESS SCHEDULE

The Contractor is advised that an initial/baseline project schedule and subsequent schedule updates **is required** for the work included under this Contract, and such schedules shall be in accordance with these Special Provisions.

The provisions of Section 8-1.04, "Progress Schedule," of the Standard Specifications are superseded by the following:

"The Contractor shall submit a baseline project schedule to the Engineer within five **(5) working days** after receipt of the Notice to Proceed from the Department of Public Works. This baseline schedule and any subsequent schedule updates shall show:

1. Completion of all work within the specified contract time;

2. The proposed order of work; and

3. Projected starting and completion times for major phases of the work, for the total project, including dates for ordering materials and for substantial completion of the project. Reference is made to Section 8-1, "Time of Completion," of these Special Provisions."

The Contractor is advised that:

A. Contractor shall notify the Engineer a minimum of twenty-four (24) hours, prior to cancellation of any scheduled work. Should the Contractor fail to provide such notice, the cost for any travel time and mileage incurred by the Engineer will be deducted from the total amount due to the Contractor.

B. When requested, Contractor shall submit subsequent schedule updates within five (5) calendar days after receipt of written request from the Engineer. Failure to provide such subsequent schedule updates may be sufficient enough cause for the Engineer to issue a "Stop Notice," and work may not be allowed to proceed until such subsequent schedule update has been submitted and approved.

C. Due to the number of streets involved, each street shall be diligently prosecuted in accordance with the approved schedule until completion, unless otherwise authorized, in writing, by the Engineer.

D. Lane closure schedule shall follow the traffic handling and staging plan, and the Contractor's traffic control plans. For specific unavoidable instances when side streets require closure to facilitate work, as approved by the County, side streets may be closed for construction between the hours of 7:00 AM and 6:00 PM. Construction is only allowed between 8:00 AM and 5:00 PM Monday through Friday. If additional construction outside of those hours is required, it will require written request for approval and would comply with the County's restrictions on construction hours (i.e., 7:00 AM to 6:00 PM Monday through Friday; 9:00 AM to 5:00 PM Saturday; no construction on Sundays, Thanksgiving, or Christmas). Saturday work shall be requested and approved in writing by the County.

Such lane and side street closures shall conform to the provisions of Section 12, "Maintaining Traffic 12, "Maintaining Traffic," of these Special Provisions.

The schedule shall be developed by a critical path method. The baseline progress schedule shall have as many activities as necessary, and as approved by the Engineer, to be sufficient to assure adequate planning of the project, and to permit monitoring and evaluation of

progress and the analysis of time impacts. The Contractor shall provide sufficient material, equipment, and labor to meet the completion times in this schedule.

The baseline project schedule submitted shall meet in all respects the time and order of work requirement of the contract. If the Contractor fails to define any element of work, activity or logic, and the error is discovered by either party, it shall be corrected by the Contractor at the next scheduled monthly update or revision.

The Engineer shall have **five (5) working days** to review and accept, reject or return a submitted schedule for revision. The Contractor shall not commence project work until after receipt of written approval of the preliminary project schedule from the Engineer.

The Contractor shall submit a revised progress schedule within **five (5) working days** when requested by the Engineer, or when there is significant change in the Contractor's operations that will affect the work schedule.

During the period of the Contract, on or before the first calendar day of each month, the Contractor shall submit to the Engineer a complete, updated progress schedule. Said updated schedules shall provide a complete analysis of work previously completed and work yet to be performed, including a status update of each salient component that is delayed or not on schedule, the impact such delays will have on each of the remaining salient features of the work (with revised completion dates), and a revised completion date for all of the project work. Updated schedules shall incorporate all current schedule information, actual progress, approved adjustments of time and proposed changes in sequence and logic.

The Engineer may require the Contractor to also submit, on a weekly basis, a schedule of work for the following workweek. The Engineer will determine the dates for submittal of weekly schedules.

If the Contractor or the Engineer considers that an approved or anticipated change will impact the contract progress, a schedule analysis and revised schedule supporting the proposed adjustment of time shall be submitted to the Engineer for review and approval.

If the Engineer deems that the baseline progress schedule, any necessary progress schedules and/or required supplemental schedules do not provide the information required in the section and/or is unacceptable in size, appearance, neatness and legibility, progress payments will be withheld by the Engineer until a schedule containing the required information and/or with improved appearance has been submitted by the Contractor and approved in writing by the Engineer.

The Engineer's written approval of any schedule shall not transfer any of the Contractor's responsibilities to the Engineer. The Contractor alone shall remain responsible for adjusting forces, equipment, and work schedules to ensure completion of the work within the time(s) specified in the contract. Full compensation for conforming to all of the provisions of this section, "Progress Schedule," shall be considered as included in the unit prices paid for the various Contract items of the work, and no additional compensation will be allowed therefore.

8-4 SUBCONTRACTING

Attention is directed to the provisions in Section 8-1.01, "Subcontracting," of the Standard Specifications.

END OF SECTION

SECTION 9
MEASUREMENT AND PAYMENT

9-1 FORCE ACCOUNT WORK

Attention is directed to the provisions of Section 9-1.03, "Force Account Payment," of the Standard Specifications, and to these Special Provisions.

Section 9-1.03A(1b), "Labor Surcharge," of the Standard Specifications is amended to read:

> To the actual wages, as defined in Section 9-1.03A(la), "Actual Wages," will be added a labor surcharge, as set forth in the Department of Transportation publications entitled, "Labor Surcharge and Equipment Rental Rates" and "General Prevailing Wage Rates," and which are in effect on the date upon which the work is accomplished and which is a part of the Contract. Said labor surcharge shall constitute full compensation for all payments imposed by the State and Federal laws and for all other payments made to or on behalf of the workers, other than actual wages, as defined in Section 9-1.03A(1a), and subsistence and travel allowances, as specified in Section 9-1.03A(1c), "Subsistence and Travel Allowance."

With respect to extra work, the Bidder's attention is directed to the provisions of Section 4-1.03D, "Extra Work," of the Standard Specifications. No extra work or change shall be made, unless pursuant to a written contract change order from the Engineer. No claim for an addition to the Contract sum shall be valid unless so ordered.

9-2 PAYMENTS TO CONTRACTOR

Payments shall be made according to the provisions of Section 9, "Measurement and Payment," of the Standard Specifications, and to these Special Provisions. Attention is directed to Section 9-1.06, "Partial Payments," regarding progress or partial payments, and to Section 9-1.07, "Payment After Acceptance," regarding final estimates and payments.

Paragraph three of Section 9-1.06 of the Standard Specifications is superseded by the following:

> The County of San Mateo shall retain 5 percent of such 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. In no event shall the County of San Mateo withhold less than 5 percent of the total Contract price until final completion and acceptance of the project.

The Contractor may, upon request and at the Contractor's own expense, substitute security for any money withheld to ensure performance of the Contract in accordance with Government Code Section 4590.

The filing of a Notice of Completion for the work herein provided shall not constitute an acceptance by the County of latent defects in said work.

9-3 PAYMENTS WITHHELD FROM CONTRACTOR

The County may withhold sufficient monies from any sum otherwise due the Contractor, pursuant to this Agreement, to protect the County against loss on account of:

A. Repair or replacement of street pavement or base, and/or culverts or other structures, on or near the work, damaged by reason of the Contractor's operations due to hauling materials or moving heavy equipment.

B. Defective work not corrected.

C. Claims filed or reasonable evidence indicating probable filing of claims.

D. Failure of the Contractor to make payments properly to the subcontractors for material or labor.

E. Reasonable doubt that the Contract can be completed for the balance then unpaid.

F. Damage to another Contractor.

G. Failure of the Contractor to provide water pollution control.

Payment of the amounts withheld shall be made upon the determination by the County that the withholding of such amounts is no longer necessary.

9-4 STOP NOTICES

Section 9-1.05, "Stop Notices," of the Standard Specifications is superseded by the following:

> "The County of San Mateo, by and through the Department of Public Works or other appropriate County office or officers, may at its option and at any time retain any amounts due the Contractor, sums sufficient to cover claims filed pursuant to Section 3179 et seq. of the Civil Code."

9-5 CONSTRUCTION CLAIMS

Each Bidder is hereby notified of Section 9204 and Section 20104 et seq. of the Public Contract Code as those Sections (attached hereto as Appendix E) relate to the resolution of construction claims and to Section 3186 of the Civil Code, as amended January 1, 1999 with regard to stop notices and public entity's rights to retain monies in order to provide for that entity's reasonable cost of litigation. The Bidder is further notified that all provisions of Sections 9204 and 21014 et seq. of the Public Contract Code and Section 3186 of the Civil Code, as outlined above, shall be considered as incorporated into and become an integral part of these Specifications.

END OF SECTION

SECTION 10
CONSTRUCTION WASTE MANAGEMENT

The County has established that this Project shall minimize the creation of construction and demolition waste on the job site. Factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination, shall be minimized. For any waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

The contract lump sum price paid for this item, "Construction Waste Management," shall include full compensation for furnishing all labor, equipment and incidentals, including the provision of required documentation of proper materials disposal and the development of a Waste Management Plan, all as described herein, and no separate payment will be made therefore.

No partial payment will be made for this Contract item of work until all work required, as specified herein, is completed to the satisfaction of the County, and all necessary documentation provided.

10-1 DIVERSION GOALS

One hundred percent (100 percent) of inert wastes, and at least 50 percent of the remaining construction and demolition debris shall be diverted from landfills.

Inert wastes, such as concrete, brick, rock, asphalt, and soil not intended for on-site use, shall be taken to a facility that will reuse or recycle them.

Other mixed construction and demolition (C&D) wastes shall be taken to a facility with a C&D sorting program, as listed in the Construction and Demolition Guide referenced below, if additional recycling is needed in order to meet the requirements set forth in this section. If debris box service is used, the debris boxes must be taken to a C&D sorting facility if materials are not separated on-site for recycling. **The Contractor attention is directed to the "Pothole & Coring Data" table on Sheet PP-12 of the Plans, showing the thickness of various pavement**

types. The Contractor's attention is further directed to the fact that, although not specifically identified in the pothole and coring data table, the Contractor should expect layer(s) of Petromat in all project areas, at least at an estimated depth of approximately two inches (2"), and shall plan for removal, handling, and disposal of pavement accordingly. The County makes no guarantee as to the actual depth at which Petromat layers will be found.

The Contractor has the option of separating on-site for recycling non-inert materials, such as cardboard, paper, wood, metals, green waste, and other easily recycled materials, and directing them to recycling facilities and taking the remaining mixed waste (but no more than 50 percent by weight or yardage) to a facility for disposal. If waste is taken for disposal, documentation must be provided to show that 50 percent of C&D wastes (in addition to 100 percent of inert wastes) have been diverted.

10-2 REFERENCES AND RESOURCES

A Construction and Demolition Guide (C&D Guide) is available online at **https://www.smcsustainability.org/waste-reduction/construction-demolition/.** For more information or resources, contact the County of San Mateo's Office of Sustainability by phone at (888) 442-2666 or by email at sustainability@smcgov.org. The Contractor's attention is directed to **Appendix A** for the County of San Mateo Waste Management Plan Form and the Waste Management Daily Transport Report.

10-3 WASTE MANAGEMENT PLAN AND DAILY TRANSPORT REPORT

The Contractor is required to complete a Waste Management Daily Transport Report, listing details of the material transported on that particular day, which is to be signed by both the Contractor's representative and the County inspector on the job site.

The Waste Management Plan shall be submitted to the Engineer, Department of Public Works, 555 County Center – 5th Floor, for approval within SEVEN (7) WORKING DAYS after the pre-construction conference. The Waste Management Plan shall include a

description of how the contractor will meet the requirements of this contract and shall include a list of disposal and recycling facilities where waste materials will be taken, a description of what will be taken to each facility (inert wastes, metals, wood, glass, plastics, mixed waste, etc.), a description of the means of transportation of recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and designated center, or whether mixed materials will be collected by a waste hauler and removed from the site), and an estimated amount (weight, yardage, etc.). Approval will be granted if the plan shows:

- One hundred percent (100 percent) of inert wastes being reused or recycled AND at least 50 percent of C&D wastes being reused or recycled; OR
- All waste that is not separated on-site for recycling is sent to a mixed C& D sorting facility for recycling.

10-4 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Plan Distribution: The contractor shall provide copies of the approved Waste Management Plan to the project superintendent and each subcontractor.

B. Instruction: The contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.

C. Meetings: The contractor shall conduct monthly Construction Waste Management meetings or at least one meeting for projects with length of less than 20 working days. Meetings shall include subcontractors affected by the Waste Management Plan. At a minimum, waste management goals and issues shall be discussed at regularly scheduled project meetings.

D. Separation Facilities: The contractor shall designate a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid co-

mingling of materials. Bins set within the County Right-of-Way shall be subject to approval by the County. All bins used shall be protected during non-working hours from offsite contamination.

E. Materials Handling Procedures: Materials to be recycled shall be protected from contamination, and shall be handled, stored and transported in a manner that meets the requirements set by the designated facilities for acceptance.

F. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to State and local regulations. Unless specified in other section, the County is not aware of any hazardous wastes within the project site. Notify the Engineer if hazardous waste is encountered. If excavated material has been found to have levels of Total Petroleum Hydrocarbons (TPH) by EPA Method 8015 Modified less than 50 mg/kg, it shall be placed back into the excavation pit.

G. Reporting: As a condition of final approval and retention release, submit documentation to the Engineer. Projects that establish monthly progress payments shall also require monthly reporting on the Waste Management Plan. Such reports shall be submitted prior to the monthly cutoff for progress payments and shall include, at a minimum, a summary of waste materials recycled, salvaged and disposed of for the Project. Submitted with this summary will be documentation (receipts/scale tickets, waybills) showing the quantities and types of materials diverted and disposed. The documentation shall coincide with the Waste Management Daily Transport Reports (in Appendix A) that were signed by both the Contractor and the County inspector. A Notice of Completion will not be filed for the project and retention released until all reports as required for the project are submitted and approved.

The above-mentioned summary and documentation shall contain the following information:

A. For each material recycled and salvaged from the Project, include the amount (in cubic yards or tons, or in the case of salvaged items, state quantities by number, type and size

of items) and the destination (i.e., recycling facility, used building materials yard or other local users).

B. For each material landfilled or incinerated from the Project, include the amount (in cubic yards or tons) of material and the identity of the landfill, incinerator and/or transfer station. All projects are subject to inspection.

C. Documentation shall consist of photocopies of receipts and weight tags or other records of measurement or equivalent documentation from recycling companies, deconstruction contractors, and landfill and disposal companies. The contractor shall sign the completed Waste Management Plan to certify its accuracy as part of the documentation of compliance.

It is unlawful for any person to submit documentation to the County for an approved Waste Management Plan that that said person knows to contain any false statements, including but not limited to false statements regarding weight and/or yardage of materials recycled or diverted, or to submit any false or fraudulent receipt or weight tag or other record of measurement.

END OF SECTION

SECTION 11
MOBILIZATION

Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications and to these Special Provisions.

The Contract lump sum price paid for this item, "Mobilization," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the applicable work specified in Section 11, "Mobilization," of the Standard Specifications, these Special Provisions and as directed by the Engineer.

11-1 PROPERTY OWNER PRIMARY NOTIFICATION

The Contractor shall furnish all affected property owners and/or residents written notification that describes the proposed work. The notices shall include relevant dates and describe anticipated impacts to property owners during the work, including, but not limited to, a description of landscaping and improvements that may be affected and/or removed and a statement that the owners/residents have a right to salvage all such existing landscaping, improvements and/or materials that the Contractor may remove to facilitate construction within the right-of-way. The content, format and method of delivery of such notices shall be approved by the Engineer prior to distribution. The Contractor is advised that these notices shall not be placed in mailboxes, as it is a violation of Federal postal regulations.

Affected property owners and residents shall be considered all those who:

A. Front on or are contiguous to the Project limits.

B. Have ingress/egress route only from within the Project limits.

C. Have executed a Right-of-Entry Agreement with the Real Property Division, County of San Mateo.

The Contractor shall provide approved notification to all affected owners/residents a minimum of **TEN (10) CALENDAR DAYS** prior to the commencement of any Project site

work. Failure to distribute notices shall be sufficient cause for the Engineer to suspend the work until such notices are distributed.

Full compensation for conforming to the requirements of this section 11-1, "Property Owner Primary Notification," shall be considered as included in the Contract lump sum price paid for Mobilization, and no additional compensation will be allowed therefore.

For additional property owner notification requirements, the Contractor's attention is directed to Section 12, "Maintaining Traffic," of these Special Provisions.

11-2 RIGHTS OF ENTRY

The Contractor is advised that the "Right of Entry" areas, as shown on the Plans, shall not be entered upon until specifically authorized, in writing, by the Engineer.

It is anticipated that authorization to enter shall be granted for the areas shown on the Plans no later than **THIRTY (30) CALENDAR DAYS** after the Contractor receives the Notice to Proceed. However, should authorization not be granted within the above time, the Contractor shall have no basis for a claim for damages or extra compensation in the event the Contractor's work is hindered or delayed until the expiration of **SIXTY (60) CALENDAR DAYS** after receiving the Notice to Proceed. Any such claim shall be valid only for a controlling item of work and only for the specific property for which a right of entry is required.

The right is reserved to designate additional right of entry areas or to delete areas shown on the Plans at any time and no claim for damages or compensation will be allowed therefore.

The right of entry areas, as indicated on the Plans, are approximate only. The Engineer shall designate and/or stake the limits of such areas as required for the Contractor's work prior to commencement of any such work.

The Contract lump sum price paid for this item, "Mobilization," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing

all the applicable work specified in Section 11, "Mobilization," of the Standard Specifications, these Special Provisions and as directed by the Engineer.

11-3 WATER POLLUTION CONTROL

The provisions of Section 7-1.01G, "Water Pollution," of the Standard Specifications are superseded by these Special Provisions and the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP). Information regarding this program is available at www.flowstobay.org.

The Contractor is advised that failure to fully comply with the provisions of this section, and all requirements listed in the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit Order No. R2-2015-0049 (MRP), and where applicable, the State Water Resources Control Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2010-0014-DWQ (Construction General Permit), and any resource agency permits obtained for the project, where applicable, except where amended in writing and signed by the Director of Public Works or his duly authorized representative, shall constitute substantial non-compliance with the requirements of the Clean Water Act, the NPDES permit program, and the Contract.

The County shall provide periodic site monitoring to ensure that the work complies with the requirements specified herein and in any resource agency permits. The County will provide the Contractor with copies of the completed monitoring reports. Should any work be found to be non-compliant, a follow up site monitoring visit will be conducted to ensure the items have been corrected. If deficiencies noted during a monitoring visit are not corrected before the follow up monitoring visit, the costs associated with additional follow up visits to correct the noted deficiencies shall be deducted from the final payment for all of the Contract work.

Attention is directed to Section 20, "Erosion and Sediment Control," of these Special Provisions and the plans for erosion control requirements.

Construction sites are common sources of water pollution. Materials and wastes that blow or wash into a storm drain, gutter, or street have a direct impact on local creeks and wetlands, San Francisco Bay and the Pacific Ocean. The Contractor shall be responsible for any environmental damage caused by his operations and those of his subcontractors or employees.

Water pollution shall be defined as including the introduction of any material, including sediment, trash, or other debris, equipment or vehicles into any watercourse, including creeks, ponds, ditches, storm drain facilities, and any surfaces immediately tributary to those areas, except as specifically authorized by any resource agency permits. Water pollution controls are materials and measures that prevent the introduction of any material to any watercourse. Water pollution control materials and measures may consist of temporary silt fencing; straw mulch/straw logs; spill cleanup materials; pavement sweepers; sandbags or continuous berms; etc.

Water pollution controls shall be applied, maintained and removed by the Contractor as specified herein and as directed by the Engineer. For construction activities occurring between June 15 and September 15, sufficient quantities of applicable water pollution control materials shall be available at the work site prior to commencing any work. For construction activities occurring between September 15 and June 15, all applicable water pollution control measures shall be installed and all applicable water pollution control materials shall be available at the work site prior to commencing any work.

11-3.1 Water Pollution Control Program

Before starting any work on the project, the Contractor shall submit, for acceptance by the Engineer, a written program including Storm Water Pollution Prevention Plans (SWPPPs) and applicable plan drawings and details to control water pollution effectively during construction of the project. The program shall show the schedule for any erosion control work included in the contract and for all water pollution control measures that the Contractor proposes to take in connection with construction of the project to minimize the effects of the operations

upon water resources. The Contractor shall not perform any clearing and grubbing or earthwork on the project, other than that specifically authorized in writing by the Engineer, until the program has been approved by the Engineer.

The Contractor is advised that this project, although only having between one (1) and five (5) acres of disturbed area, does not qualify for a waiver. ***Therefore, the SWPPP shall be prepared by a Qualified SWPPP Developer (QSD) and implemented by a Qualified SWPPP Practitioner (QSP) in accordance with the requirements of the Construction General Permit.*** The SWPPP shall list the name and telephone number of the designated QSD. All amendments to the SWPPP shall be signed by the QSD and shall include a listing of the date of initial preparation and the date of each amendment. The SWPPP shall also include a list of names of all subcontractors and individuals who will be directed by the QSP, their telephone numbers and work addresses, the specific areas of responsibility and emergency contact numbers.

If the measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may direct the Contractor to revise the operations and the water pollution control program. The directions will be in writing and will specify the items of work for which the Contractor's water pollution control measures are inadequate. No further work shall be performed on those items until the water pollution control measures are adequate and, if also required, a revised water pollution control program has been approved. Attention is directed to "Contractor Response" of this section for additional provisions relating to correction of the Contractor's water pollution control program, and payment.

The Contractor shall submit the SWPPP Plan **within TEN (10) WORKING DAYS after the pre-construction conference** or as directed by the Engineer. The Engineer shall establish the time and place for said pre-construction conference. Delays upon the part of the Contractor in submitting a Plan, in the format as outlined in these Special Provisions and as directed by the Engineer, shall not constitute a valid reason for time extension should the Contract time elapse before completion of said project.

The Engineer will notify the Contractor of the acceptance or rejection of any submitted or revised water pollution control program within **FIVE (5) WORKING DAYS.**

The County will not be liable to the Contractor for failure to accept all or any portion of an originally submitted or revised water pollution control program, nor for any delays to the work due to the Contractor's failure to submit an acceptable water pollution control program or failure to adhere to the provisions of an accepted water pollution control program.

11-3.2 Contractor Response

The Contractor is advised that he may be required to respond to the work site after hours and/or on weekends or holidays to mitigate potential water pollution, soil erosion or sedimentation and/or to repair damaged water pollution controls. Failure to respond within four (4) hours of notification by the Department of Public Works shall constitute substantial non-compliance with these Special Provisions.

Should the County Road Maintenance Division be required to provide any after-hours, weekend or holiday repairs to the Contractor's water pollution controls due to the Contractor's failure to respond, all costs associated with providing that response, including overtime wages, equipment and material costs, shall be deducted from the Contractor's final payment. The Contractor shall also be fully responsible for any fines, penalties or mitigations imposed by any regulatory agency caused by his failure to respond, regardless if the County Road Maintenance Division attempts any repairs or pollution prevention work in his absence.

11-3.3 Excavation and Grading

The Contractor shall not commence any excavation, backfilling, grading or stockpiling operations until water pollution control materials have been delivered to the work site. The Contractor shall certify in writing that the quantity of water pollution control materials at the site is sufficient to protect against water pollution caused by the work, and shall specify the type of material and intended use in the written certification.

Excavation and grading activities shall be scheduled for dry weather periods. Excavation and grading activities shall not be allowed to commence or continue during periods of rainfall or runoff.

The Contractor may elect to perform excavation or grading activities immediately prior to periods of forecasted rain if he certifies in writing to the Engineer that the site will be completely secured against erosion and/or water pollution at the conclusion of the workday and prior to any rainfall. The work site shall be considered as completely secured against erosion and/or water pollution during or prior to forecast periods of rain if the turbidity of runoff from the site does not exceed the turbidity of runoff from adjacent, undisturbed sites by more than 50 NTUs (Nephelometric Turbidity Units). Should the turbidity of runoff from the work site exceed this limit, the Contractor shall be required to immediately place additional erosion and/or water pollution controls at his expense as directed by the Engineer, and shall be subject to any administrative fines or penalties associated with water quality or permit violations, and no additional compensation will be allowed therefore.

11-3.4 General Housekeeping

The Contractor shall control the amount of runoff entering upon disturbed construction and staging areas, particularly during excavation, to reduce the amount of water pollution controls required. Temporary diversion berms and/or sandbags may be employed to divert runoff from entering upon construction and staging areas as approved by the Engineer.

Paved surfaces shall be broom-swept as necessary to prevent water pollution. Water spray system of the sweeper units shall be used as appropriate to reduce dust generation. If pavement flushing is necessary, silt ponds or other techniques to trap sediment and other pollutants shall be required.

Dumpsters shall be covered, maintained, and checked frequently for leaks. It is recommended that dumpsters be lined with plastic to prevent leakage of liquids. At no time will the Contractor be permitted to wash dumpsters at the site.

The Contractor shall place trashcans and recycling receptacles around the site for use by his forces. Trashcans and recycling receptacles shall be kept covered and shall be emptied at appropriate intervals to reduce litter at the site.

All wastes shall be disposed of properly outside the highway right-of-way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right-of-Way," and Section 10, "Construction Waste Management," of these Special Provisions.

The Contractor shall maintain portable toilets in good working order and wastes shall be disposed of properly. The Contractor shall check toilets frequently for leaks, and repair or replace any toilets found to be leaking. Portable toilets shall be protected against tipping by ground anchors, bollards, or any other suitable means as approved by the Engineer.

11-3.5 Stockpiles

All soil and/or rock stockpiles shall be protected against wind, rainfall and runoff at all times. Plastic sheeting may be used to cover soils (including aggregate base), and shall be securely anchored by sandbags or other suitable means. At no time will any stockpiled materials be allowed to erode into any watercourse or onto any roadway or other tributary surface.

11-3.6 Vehicle Maintenance

The Contractor shall designate a completely contained area of the construction site, well away from watercourses and tributary areas, for auto and equipment parking, refueling, and routine vehicle and equipment maintenance. The Contractor shall require the use of drip pans or drop cloths to catch drips and spills if any vehicle or equipment fluids (e.g. motor oil, radiator coolant, etc.) must be drained on site. Diesel oil shall not be used to lubricate or clean equipment or parts. All spent fluids shall be stored in separate containers, and recycled whenever possible, or disposed of as hazardous waste.

Spills or leaks shall be immediately contained and cleaned up by the Contractor at his expense, and shall be reported to the Engineer immediately after containment.

All vehicles and equipment shall be maintained in good repair. The Contractor shall inspect frequently for and immediately repair any leaks. The Contractor shall perform major maintenance, repair jobs, and vehicle and equipment washing off site.

11-3.7 Spill Prevention and Response

Fluid spills shall not be hosed down. The Contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the Contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse.

Spilled dry materials shall be swept up immediately. The Contractor shall not wash down or bury any dry spills. Spills on dirt areas shall be removed by digging up and properly disposing of contaminated soil. The Contractor shall report significant spills to the Engineer immediately.

11-3.8 Tire Washing

Should the Contractor's equipment be tracking soil onto a public road, the Engineer shall require a tire-washing swale at the exit from the construction site and/or staging areas. The Engineer shall also require that soil be removed from the traveled way by whatever means necessary to prevent water pollution.

11-3.9 Roadwork and Paving

The Contractor shall avoid creating excess dust when breaking and/or removing asphalt or concrete. Broken asphalt and/or concrete pieces shall be completely removed from the site as soon as possible, or shall be stored in a separate, secure stockpile protected against from wind, rainfall and runoff. Material derived from roadway work shall not be allowed to enter any watercourse, or tributary area.

Slurry resulting from saw cutting operations shall be shoveled or vacuumed and completely removed from the site. The Contractor shall not be permitted to sweep or flush any saw cutting debris or slurry into any watercourse, or tributary area.

11-3.10 Concrete and Mortar

The Contractor shall ensure that concrete and mortar are contained within the lines and grades shown on the Plans and not allowed to leave the construction site. Any excess concrete, mortar and/or mix water placed or spilled beyond the limits of concrete construction as shown on the Plans shall be immediately collected, removed and disposed of properly.

No washout of concrete mixers or trucks will be permitted at the project site.

Dry sacks of cement shall be protected against wind, rainfall and runoff. Opened sacks of cement shall be secured and protected from spilling.

11-3.11 Training

Contractor shall ensure that all persons responsible for preparing, amending and implementing SWPPPs be appropriately trained in accordance with the requirements of the Construction General Permit and these Special Provisions. The Contractor shall provide documentation of all training for persons responsible for implementing these requirements upon request by the Engineer.

When required, the County will provide introductory training to the Contractor, his employees and subcontractors at the job site before work commences for any project with resource agency permits. The training will provide background information on sensitive species, permit requirements and site-specific water quality issues. When not required, the County is available to provide such training at the Contractor's request.

11-3.12 Payment

The Contract lump sum price paid for this item, "Water Pollution Control," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work required by these Special Provisions for Water Pollution Control, including submittal of a written program, SWPPP, and working drawings, in a form approved by the

Engineer, as specified in these Special Provisions, the Standard Specifications and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 12
MAINTAINING TRAFFIC

Attention is directed to Sections 4-1.04, "Detours," 7-1.08, "Public Convenience," 7-1.09, "Public Safety," 12-3, "Traffic Handling Equipment and Devices" and 12-2.02, "Flagging Costs," of the Standard Specifications, these Special Provisions, the Standard Plans, the Project Plans and the directions of the Engineer. The first paragraph of Section 12-2.02, "Flagging Costs," shall not apply. In connection with said sections, it is understood that all lights, signs, barricades, flaggers or other necessary devices shall be furnished and maintained by the Contractor at the Contractor's expense.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners. Convenient access to cross streets, driveways, houses and buildings along the line of work shall be maintained. Existing roadway surfaces within the project limits shall remain, except as required for subsurface work, until removal is necessary for construction of the roadway structural section. In this regard, general roadway excavation shall not commence until authorized by the Engineer.

12-1 PROPERTY OWNER SECONDARY NOTIFICATION

The Contractor shall furnish all affected property owners and/or residents secondary written notification **specific to each construction phase** that describes the proposed work, including relevant dates; the Contractor's attention is directed to Section 11, "Mobilization," for primary notification requirements. The content, format and method of delivery of such secondary notices shall be approved by the Engineer prior to distribution. Affected property owners and residents shall be considered all those who:

A. Front on or are contiguous to the Project limits.
B. Have ingress/egress route only from within the Project limits.
C. Have executed a Right-of-Entry Agreement with the Real Property Division, County of San Mateo.

The Contractor shall provide approved notification to all affected owners/residents a minimum of **FORTY-EIGHT (48) HOURS** prior to the commencement of any Project specific

site work to allow residents to move their vehicles away from the work area. Failure to distribute notices shall be sufficient cause for the Engineer to suspend the work until such notices are distributed.

The Contractor shall furnish an overall Traffic Control Plan for all phases of work. The Plan shall be in accordance with Standard Plan T-13 (Page 222) unless these requirements are modified as directed by the Engineer. The Contractor shall submit the Traffic Control Plan within **FIVE (5) WORKING DAYS** after the pre-construction conference. The Engineer shall establish the time and place for said pre-construction conference. Delays upon the part of the Contractor in submitting a Plan, in the format as outlined in these Special Provisions and as directed by the Engineer, shall not constitute a valid reason for time extensions should the Contract time elapse before completion of said project. The Contractor is further advised that consideration for adequate review time, as determined by the Engineer, shall be included in the work schedule.

The Traffic Control Plan shall include orange advisory signs (aluminum or plywood, or as approved by the Engineer), **3 feet by 6 feet minimum,** stating expected delays, road closures including dates, times and affected streets, detours, and directions on how to access businesses (for pedestrians, vehicles, and delivery vehicles). Wording of advisory signs shall be as follows:

COUNTY OF SAN MATEO

MIDDLEFIELD ROAD IMPROVEMENT PROJECT

EXPECT DELAYS – ALTERNATE ROUTES ADVISED

8:00 AM – 5:00 PM
FROM MM/YY TO MM/YY

Advisory signs shall be set in accordance to the locations as required by California MUTCD guidelines and Contractor traffic control plan. Two (2) Portable Changeable Message Signs (a minimum of one [1] each at either end) shall be set in place a minimum of **SEVEN (7) CALENDAR DAYS** prior to commencement of construction site work at both ends of the project, unless otherwise directed by the Engineer. No construction site work shall commence prior to the Engineer's approval of the Traffic Control Plan and installation of required signs.

The Contractor is advised that the cross streets within the project limits may be closed for certain construction operations but shall be open by 5:00 P.M. at the end of the workday. Said cross street closures may only occur by block, and Middlefield Road shall remain open, except as required for certain construction operations and as approved by the Engineer. Additionally, and concurrent to the aforementioned advisory signs, the Contractor shall also provide advisory signage advising of dates, times and recommended detour routes for road closures. Furthermore, the Contractor's attention is directed to Section 8-3, "Progress Schedule," of these Special Provisions.

The Contractor shall provide road closure advisory signage a minimum of seven (7) days in advance of beginning work advising of dates, times and recommended detour routes for road closures.

Handwritten signs will not be permitted.

Proposals by the Contractor to close portions of roadways within the Project limits to through traffic during and/or outside of working hours shall be submitted, as a part of the Traffic Control Plan, to the Engineer for review. Acceptance of such proposals shall be entirely at the discretion of the Engineer. Should the Engineer reject the Contractor's road closure proposals, the Contractor shall be required to adhere to the provisions herein relating to passage of public traffic through the work and maintenance of traffic lanes through the work.

The Contractor shall provide a minimum of one (1) unobstructed traffic lane in each direction, not less than eleven feet (11') wide, in each direction at all times. The Contractor may,

at his option, submit an alternate work hour proposal to the Engineer for review. Acceptance of such proposal shall be entirely at the discretion of the Engineer, and any additional costs associated with alternate work hours proposed by the Contractor shall be borne solely by the Contractor, and no additional compensation will be allowed therefore. Should the Engineer reject the Contractor's alternate work hour proposal, the Contractor shall be required to adhere to the work schedule outlined herein.

When ordered by the Engineer, the Contractor shall furnish additional flaggers, or Portable Changeable Message Signs for the purpose of expediting the passage of public traffic through the work under one-way controls. The Contractor may also, at his option, utilize a pilot car. During all non-working days, one channelized and unobstructed traffic lane, not less than eleven feet (11') wide, shall be provided in each direction. Traffic may be stopped in both directions only as specifically authorized by the Engineer.

If any component in the traffic control system is damaged, displaced or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair or replace said component to its original condition and reinstall the component to its original location.

The provisions in this Special Provision will not relieve the Contractor from responsibility to provide additional devices or take such measures as may be necessary to comply with the provisions in Section 7-13, "Public Safety," of the Standard Specifications.

At locations where traffic is being routed through construction under one-way controls, the movement of the Contractor's equipment from one portion of work to another shall be governed in accordance with such one-way controls.

During paving and striping operations, the Contractor shall furnish and place sufficient barricades and detour signs at all cross streets to protect new pavement surfaces and markings. The duration of placement of said barricades shall be as approved by the Engineer.

Whenever the Contractor's operations create a condition hazardous to traffic or to the public, the Contractor shall take the necessary precautions and provide additional traffic control measures to protect those who must pass through the work. If the Contractor shall appear to be neglectful or negligent in providing warning or protective measures, the Engineer may direct attention to the existence of a hazard, and require that additional barricades, flashers, warning and detour signs or lights be installed by the Contractor, or additional flaggers provided. Any action or lack of action by the Engineer as provided herein shall not relieve the Contractor from responsibility for public safety.

The Contractor may, at his option, submit an alternate traffic control plan to the Engineer for review. Acceptance of such traffic control plan shall be entirely at the discretion of the Engineer, and any additional costs associated with an alternate traffic control plan by the Contractor shall be borne solely by the Contractor, and no additional compensation will be allowed therefore. Should the Engineer reject the Contractor's alternate traffic control plan, the Contractor shall be required to adhere to the traffic control plan outlined herein.

12-2 TEMPORARY PAVEMENT DELINEATION

The Contractor is reminded of the importance of public safety and, unless otherwise approved in writing by the Engineer, Contractor shall perform same-day completion of all temporary pavement delineation for streets for which resurfacing has been completed.

This work shall consist of furnishing, applying, maintaining, and removing temporary pavement striping and/or markings in conformance with the provisions of Section 12-1, "General," of the Standard Specifications and with these Special Provisions. Nothing in these Special Provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Control published by the California Department of Transportation or to relieve the Contractor from his responsibility as provided in Section 7-13, "Public Safety," of the Standard Specifications.

The Contractor will be responsible for setting the control for placing temporary striping on roads with existing centerlines and traffic lanes, including turn lanes and bicycle lanes. Unless

otherwise shown on the Plans or directed in writing by the Engineer, centerline striping shall match existing centerline striping and shall be straight on tangent alignment and shall be on a true arc on curved alignment.

Temporary pavement delineation shall be applied by any means satisfactory to the Engineer.

Surfaces on which temporary pavement delineation is to be applied shall be cleaned of all dirt and loose material and shall be dry when the temporary pavement delineation is applied.

All work necessary to establish satisfactory lines for temporary pavement delineation shall be performed by the Contractor. Temporary pavement delineation that is damaged from any cause during the progress of the work shall be immediately repaired or replaced by the Contractor at his own expense.

12-2.1 Temporary Pavement Delineations for Centerlines and Traffic Lanes

Except as provided for below, and unless otherwise approved by the Engineer, temporary pavement delineation for centerlines and traffic lanes, including turn lanes and bicycle lanes, shall consist of temporary reflective pavement markers placed at longitudinal intervals of not more than twenty-four feet (24') apart. Any changes in the longitudinal intervals shall be at the option of the Contractor, with the pre-approval of the Engineer. Temporary reflective pavement markers shall be the same color as the centerline or lane line markers/markings that they replace. The type of temporary pavement markers used shall be at the option of the Contractor, with pre-approval from the Engineer.

Temporary reflective pavement markers shall be applied in accordance with the manufacturer's recommendations. Butyl adhesive pads shall be used to apply temporary reflective pavement markers to the top layer of permanent surfacing.

Temporary pavement delineation shall be maintained until replaced with permanent pavement delineation. Temporary pavement delineation that is damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at his own expense.

When no longer required, temporary pavement delineation that conflicts with permanent pavement delineation, or new traffic patterns for the area, as determined by the Engineer, shall be removed and disposed of in accordance with the provisions in Section 7-15, "Disposal of Material Outside the Highway Right-of-Way," of these Special Provisions.

12-2.2 Temporary Stripes and Markings – Traffic Tape or Paint

After new pavement has been completed, temporary traffic tape or paint shall be applied for all crosswalks, stop bars and legends, as well as at the locations shown on the plans or designated by the Engineer.

The temporary traffic tape or painted traffic stripes and pavement markings shall be complete in place at the designated locations, as shown on the plans or as designated by the Engineer, prior to opening the traveled way to public traffic.

Temporary Traffic Tape and Temporary Paint shall conform to the following:

12-2.2.1 Temporary Traffic Tape:

Temporary traffic tape consisting of removable type traffic tape shall be applied for all crosswalks and stop bars, as well as at the locations shown on the plans or designated by the Engineer.

Surfaces on which the tape is to be applied shall be cleaned of all dirt and loose material and shall be dry when the tape is applied. The air temperature and pavement temperature at the time the tape is applied shall be not less than 50 degrees Fahrenheit (°F), unless otherwise directed by the Engineer.

Temporary traffic tape that is damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at his own expense.

Removable type traffic tape shall be removed when determined by the Engineer that it is no longer required for the direction of public traffic, conflicts with new traffic pattern for the area, or is applied to the final layer of surfacing or existing pavement to remain in place.

Disposal of the tape shall conform to Section 7-15, "Disposal of Material Outside the Highway Right-of-Way," of these Special Provisions.

12-2.2.2 Temporary Paint:

Temporary painted traffic stripes and pavement markings shall be located such that the temporary painted traffic stripes and markings will be completely covered by the permanent traffic stripes or markings.

Should, upon application of the permanent traffic stripes or markings, the temporary painted traffic stripes and markings still be visible, the Contractor will remove the paint, as directed by and to the satisfaction of the Engineer, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

12-3 PAYMENT

The Contract lump sum price paid for "Maintaining Traffic," shall include full compensation for furnishing Property Owner Secondary Notification, a complete Traffic Control Plan, providing all labor (including flagging costs and pilot car), materials (including all stationary and portable changeable message signs, lights, traffic cones, and lane delineators), tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system as shown on the Plans, the approved Traffic Control Plan, and the Standard Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be allowed therefore.

The Contract lump sum price for "Temporary Pavement Delineation" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing, applying, maintaining and removing and disposing of temporary pavement delineation (reflective markers or tape or paint), as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 15
EXISTING HIGHWAY FACILITIES

15-1 GENERAL

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications, Sections 7-14, "Trench Safety," and 15, "Existing Highway Facilities," of these Special Provisions, Appendix B of these Project Specifications, the Project Plans, and the direction of the Engineer.

It is anticipated that utilities not shown on the Plans may exist within the right-of-way and may interfere with construction progress. In the event such utilities are discovered, the County shall be notified. Attention is directed to Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications, the Plans and to and these Special Provisions.

The Contractor shall be responsible for locating existing utilities before proceeding with sanitary sewer, sidewalk and sidewalk access ramps, road resurfacing and road excavation work to avoid unnecessary breakage of the existing sanitary sewer laterals and any other utilities to remain. The Contractor's attention is directed to the provisions of Section 15-8, "Pothole and Protect Existing Utilities," of these Special Provisions.

Facilities not designated on the Plans or by the County for removal shall remain in place. Damage to these facilities, as a result of the Contractor's operations, shall be repaired by and/or at the expense of the Contractor to the satisfaction of the County and no additional compensation will be allowed therefore.

The Contractor's attention is directed to Section 103, "Joint Trench and Sanitary Sewer Facilities," for the provisions specifically applicable to sanitary sewer facilities. Reference is specifically made to the requirements to maintain flows within the sanitary sewer system at all times and to Section 103-3.7, "Sanitary Sewer Lateral Repair," of these Special Provisions in the event that any unavoidable sanitary sewer lateral breakage occurs.

The Contractor's attention is directed to the following:

(1) Maintaining Emergency Access to Sanitary Sewer and Storm Drain Systems

Due to the inherent risk of backup and overflow incidents associated with sanitary sewer and storm drain systems, the Contractor is advised of the importance of maintaining access to the facilities of said systems, in order to provide emergency maintenance service in the event of such an incident. With respect to this risk, reference is made to Section 39, "Asphalt Concrete (Type B)," of these Special Provisions.

The Contractor's attention is directed to Appendix B of these Special Provisions for sanitary sewer monitoring and reporting requirements.

(2) Sanitary Sewer Facilities

Maintaining Flows:

Flows within the sanitary sewer system shall be maintained at all times during this Project.

The Engineer, or designated representative of the Fair Oaks Sewer Maintenance District (District), must be present during all operations to perform work on sanitary sewer facilities to ensure conformance with District's requirements. The Contractor shall request for the Engineer to contact and coordinate with the District a minimum of five (5) working days prior to start of any work on the District's sanitary sewer facilities. ***No inspections***

shall occur on Fridays, weekends or holidays unless special arrangements are made with the District.

(3) Utility Adjustments

Utilities shall not be adjusted to final grade until the adjacent surfacing has been completed.

Same-day paving of adjusted utilities shall not be allowed. Once utility adjustments are completed, traffic cones shall be placed over the adjusted utilities, the newly poured concrete collars allowed to cure over-night, and utility paving completed the following day, unless otherwise authorized by the Engineer.

If paving of adjusted utilities is not to be done the following day, the Contractor shall place cutback to temporarily bring the surface around adjusted utilities to grade until paving can be completed, unless otherwise directed by the Engineer.

The Contractor is encouraged to protect the concrete collars from the cutback. Should the Contractor choose not to protect the concrete collars from the cutback, the Contractor will be required to thoroughly clean the concrete collars, to the satisfaction and approval of the Engineer, to ensure asphalt concrete pavement will properly adhere to the concrete collar. The Contractor shall not proceed without the Engineer being present during such cleaning operations.

The cost for placing and removing said cutback, and, if necessary, cleaning concrete collars, shall be considered as included in the Contract unit prices paid for the various utility adjustments and no additional compensation will be allowed therefore.

The Contractor is advised that utilities will not be considered as having been completed nor paid for until after final paving has been done and, in the case of manholes, debris

removed from inside the manhole when such debris is considered to be due to work performed by the Contractor.

The Contractor's attention is further directed to the following:

(1) Prior to construction of roadway pavement sections, sidewalks, curbs and gutters, drainage inlet work and valley gutters, work shall be completed for items 103-1, "Joint Trench," 103-3-1, "Closed Circuit Television (CCTV) Inspection of Sanitary Sewer Lines," 103-3-3, "Remove and Replace Existing Sanitary Sewer Manholes," 103-3.7, "Sanitary Sewer Lateral Connection," and 103-3-7, "Sanitary Sewer Lateral Repair," of these special Provisions.

(2) Additional provisions applicable to sanitary sewer facilities in Section 103, "Joint Trench and Sanitary Sewer Facilities," of these Special Provisions. Reference is specifically made to the requirements to maintain flows within the sanitary sewer system at all times, Section 103-3.1, "Closed Circuit Television (CCTV) Inspection of Sanitary Sewer Lines," and Section 103-3.7, "Sanitary Sewer Lateral Repair," in the event that any unavoidable sanitary sewer lateral breakage occurs.

The Contractor shall be responsible for providing, by any means necessary, reference points for existing highway facilities (such as water valves, manholes, monuments) that are to be adjusted such that said facilities can be located after the roadway has been paved by the Contractor. All tie-out points shall be removed upon completion of the work. If paint markings are used to locate facilities, the Contractor shall remove these markings by power washing or other method, as approved by the Engineer. The Contractor shall be required to clean any markings placed in association with this project. The cost for removing said markings shall be fully borne by the Contractor, and no additional compensation will be allowed therefore.

The Contractor shall contact USA North811 (USA) service alert a minimum of 48 hours in advance of any excavation or trenching work. USA may be contacted either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811.

15-2 SAW CUT ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE

Saw Cut Asphalt Concrete and Portland Cement Concrete shall conform to these Special Provisions, the Plans, and the directions of the Engineer.

Existing asphalt concrete and Portland cement concrete shall be saw cut at roadway, driveway, and shoulder conforms, along sanitary sewer and joint trenches and insertion and pulling pits, and where existing concrete is to be removed to facilitate construction of sidewalk access ramps, curb and gutter, sidewalk, valley gutter, and at other locations shown on the Plans or directed by the Engineer. The exact limits shall be as shown on the Plans, unless prior written approval for adjustment is given by the Engineer. The Contractor shall provide a neat, clean, and uniform joint at all conforms, as directed by the Engineer. The Contractor shall be compensated for providing said joint at the Contract unit price paid per linear foot for this item, "Saw Cut Asphalt Concrete and Portland Cement Concrete," regardless of the method used to provide said joint. The Contractor is advised that the method used to provide a neat, clean, uniform joint shall be subject to the approval of the Engineer.

All saw cutting operations shall be performed with a power-driven saw and the saw cut shall extend completely through the asphalt concrete and Portland cement concrete (or other facilities). The use of pavement breakers or other devices for cutting pavement will not be permitted unless specifically authorized, in writing, by the Engineer.

No over-cutting shall be allowed; and saw cutting shall be to a minimum of fourteen inches (14") deep for asphalt concrete paving, concrete, Asphalt Fabric (Petromat or similar where present), aggregate and/or concrete base, and sub-base (as necessary) removal. Water and slurry from saw cutting shall not be allowed to flow across pedestrian or vehicular way. The Contractor is advised the saw cut depth varies across the Project site with a maximum depth of eighteen inches (18").

Cracked or broken pavement caused by, or new or existing improvements damaged by, the Contractor's operations shall be removed to a line established by the Engineer, and shall be

replaced with new asphalt concrete or Portland cement concrete, all at the Contractor's expense and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contractor's attention is directed to Section 11-3, "Water Pollution Control," of these Special Provisions regarding slurry resulting from saw cutting operations, which must be shoveled or vacuumed and completely removed from the site. Any slurry shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Measurement for this item, "Saw cut Asphalt Concrete and Portland Cement Concrete," shall be made per linear foot on the horizontal.

The Contract unit price paid per linear foot for this item, "Saw cut Asphalt Concrete and Portland Cement Concrete," regardless of the method used, shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all work involved in, but not necessarily limited to, saw cutting asphalt concrete and removal of resultant slurry from the site, and for providing neat, clean, uniform joints at all roadway and driveway conforms and other areas, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contractor is advised that areas other than those shown on the Plans, specified herein, or designated by the Engineer that are saw cut by the Contractor shall not be calculated nor paid for under this item, "Saw cut Asphalt Concrete and Portland Cement Concrete," but shall be included in the Contract unit prices paid for the various Contract items of work, and no additional compensation will be made therefore.

No adjustment in the Contract bid price will be made for any increase or decrease in the quantity of this item, "Saw cut Asphalt Concrete and Portland Cement Concrete," required. The provision in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item

15-3 ADJUST STORM DRAIN AND TELECOM MANHOLES TO GRADE

Existing storm drain and telecom manholes shall be adjusted to planned finish grade in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frames, Covers, Grates and Manholes," of the Standard Specifications, the Plans, these Special Provisions, and as directed by the Engineer.

The Contractor is advised to inspect existing manhole frames, covers, grade rings, and cone sections prior to removal, and to call to the attention of the Engineer any defects that may preclude their reuse. Damage, as a result of the Contractor's operations, to frames, covers, grade rings, and cone sections, shall be sufficient cause for the Engineer to require new frames, covers, rings and/or cone sections, to be provided and installed at the Contractor's expense, and no additional compensation will be allowed therefore. The existing manhole frames, covers, cone sections and grade rings are considered to be in a serviceable condition, and shall be salvaged and reused, and no additional compensation will be allowed therefore.

Manholes shall not be adjusted to final grade until the adjacent surfacing has been completed and approved of, in writing, by the Engineer.

Adjustment of manholes shall be accomplished by removing the existing frame, cover, and concrete encasement, and adding as many grade rings as necessary when possible to raise the manhole to the adjacent final pavement grade, or by using an alternate method approved by the Engineer, to raise the manhole to the adjacent final pavement grade, pouring a new concrete encasement with reinforcing steel, resetting the existing frame and cover, and then placing asphalt concrete as necessary. **If there are an insufficient number of grade rings to lower the manhole to the design grade, the manhole shall be reconstructed as provided for in Section 15-4, "Reconstruct Manholes to Grade," of these Special Provisions.**

The manhole base shall be covered during the entire operation to prevent debris from entering the sanitary sewer or storm drain systems and said protection system shall be inspected and approved of by the Engineer prior to proceeding with this item of work. If debris does fall into the storm drain system due to work performed by the Contractor, the Contractor shall

remove such debris at his/her own expense, at the direction of the Engineer, and no additional compensation will be allowed therefore.

The existing surface to receive a new grade ring or upon which the existing frame will be placed shall be cleaned, and all cracks and chips are to be filled with cement mortar to form a clean, neat surface equivalent to the surface of a new component.

Concrete removal shall be performed without damage to any portion of the manhole that is to remain in place. All existing concrete that is to remain and, in the Engineer's judgment, is damaged by the Contractor's operations shall be repaired with a cement mortar mix to a condition equal to that of a new manhole. If, in the Engineer's judgment, the repaired manhole is not equivalent to or better than a reconstructed manhole, the Contractor shall remove the damaged part and all parts above it and shall reconstruct the manhole. The cost of repairing and/or replacing existing concrete that, in the Engineer's judgment, was damaged by the Contractor's operations shall be at the Contractor's expense, and no additional compensation will be allowed therefore.

All materials removed during adjustment, except the existing frame and cover, shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions. If, in the Engineer's judgment, the existing frame or cover is unsuitable, the existing frame or cover shall be replaced with new frame and cover. Unsuitable frames and covers shall become the property of the Contractor and shall be disposed of as provided above. The cost of replacing unsuitable frames and covers that, in the Engineer's judgment, were damaged by the Contractor's operations shall be at the Contractor's expense, and no additional compensation will be allowed therefore. The cost of replacing unsuitable frames and covers that, in the Engineer's judgment, are unsuitable and not due to the Contractor's operations shall be paid for on a Force Account basis, as provided for in Section 9-1.03, "Force Account Payment," of the Standard Specifications.

Quantities for adjusting manholes to grade will be determined as units from actual count to be determined by the Engineer.

The Contract unit price paid per each for the item, "Adjust Storm Drain Manholes to Grade" and "Adjust Telecom Manholes to Grade" shall include, but not be limited to, full compensation for furnishing all labor, tools, materials and incidentals necessary for doing all work involved to adjust manholes to grade, complete in place, as shown on the Plans and as directed by the Engineer, including, but not limited to, all excavation and backfill, repair or replacement of facilities damaged by the Contractor, and removal of debris that falls into manholes as a result of Contractor's operations, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Any manhole or part of a manhole, whether required to adjusted or not, that may be damaged, altered, removed, lost, or otherwise rendered useless or impaired due to the Contractor's operation, shall be repaired or restored to prior condition by the Contractor, all at the Contractor's expense.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities of the items, "Adjust Storm Drain Manholes to Grade" and "Adjust Telecom Manholes to Grade" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

Manholes located outside of the paving areas shall not be adjusted to grade as part of this contract unless directed by the County.

15-4 RECONSTRUCT STORM DRAIN OR TELECOM MANHOLES TO GRADE

Existing manholes to be reconstructed shall be determined in the field by the Engineer.

Existing manholes shall be reconstructed in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and

Manholes," of the Standard Specifications, the Plans, these Special Provisions and the directions of the Engineer.

The Contractor is advised to inspect existing manhole frames, covers, grade rings, and cone sections prior to removal, and to call to the attention of the Engineer any defects that may preclude their reuse. Damage, as a result of the Contractor's operations, to frames, covers, grade rings, and cone sections, shall be sufficient cause for the Engineer to require new frames, covers, rings and/or cone sections, to be provided and installed at the Contractor's expense, and no additional compensation will be allowed therefore. The existing manhole frames, covers, cone sections and grade rings are considered to be in a serviceable condition.

The Engineer, or designated representative, must be present during operations to reconstruct manholes to grade.

Reconstructing manholes shall be accomplished by removing the existing frame and cover, removing the existing concrete encasement, removing grade rings, removing the existing cone section and replacing with a shorter cone section where necessary, resetting and/or installing grade rings as necessary, pouring a new concrete encasement with reinforcing steel, resetting the existing frame and cover, and then replacing the asphalt concrete as necessary.

Manholes shall be reconstructed on the existing base. Existing frames and covers shall be salvaged and reused, and no additional compensation will be allowed therefore.

The manhole base shall be covered during the entire operation so that no debris can fall into the storm drain system. Service shall be maintained at all times during this Project.

The existing surface upon which the existing frame will be placed is to be cleaned, and all cracks and chips are to be filled with cement mortar to form a clean, neat surface equivalent to the surface of a new component. Manholes shall not be adjusted to final grade until the adjacent surfacing has been completed.

Concrete removal shall be performed without damage to any portion of the manhole that is to remain in place. All existing concrete that is to remain in place and, in the Engineer's

judgment, is damaged by the Contractor's operations, shall be repaired with a cement mortar mix to a condition equal to that of a new manhole. If, in the Engineer's judgment, the repaired manhole is not equivalent to or better than a reconstructed manhole, the Contractor shall remove the damaged part and all parts above it and reconstruct the manhole. The cost of repairing and/or replacing existing concrete that, in the Engineer's judgment, was damaged by the Contractor's operations shall be at the Contractor's expense, and no additional compensation will be allowed therefore.

All materials removed during reconstruction, except the existing base, and frame and cover, shall become the property of the Contractor and shall be disposed of as provided in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions. If, in the Engineer's judgment, the existing frame and cover is unsuitable, the unsuitable frame or cover shall be replaced with a new frame and cover. Unsuitable frames and covers shall become the property of the Contractor and shall be disposed of as provided above. The cost of replacing unsuitable frames and covers that, in the Engineer's judgment, were damaged by the Contractor's operations shall be at the Contractor's expense. The cost of replacing unsuitable frames and covers which, in the Engineer's judgment, are unsuitable and not due to the Contractor's operations shall be paid for as specified in Section 75, "Miscellaneous Metal," of the Standard Specifications and Section 75, "Miscellaneous Iron and Steel," of these Special Provisions.

Quantities for reconstructing manholes to grade will be determined as units from actual count to be determined by the Engineer.

The Contract unit price paid per each for the items, "Reconstruct Storm Drain Manhole to Grade," and "Reconstruct Telecom Manhole to Grade," shall include, but not be limited to, full compensation for furnishing all labor, materials, as specified herein, tools, equipment and incidentals necessary for doing all work involved to reconstruct manholes to grade, complete in place, as shown on the Plans and as directed by the Engineer, including, but not limited to, all excavation and backfill, repair or replacement of facilities damaged by the Contractor, and removing debris which falls into manholes as a result of Contractor's operations, as shown on the

Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Manholes that can be adjusted to grade by simply removing grade rings shall not be paid for as Reconstructed Manholes but shall be paid for under Section 15-3 "Adjust Manholes to Grade," of these Special Provisions.

The Contractor is advised that the approximately one (1) storm drain manhole and one (1) telecommunications manhole to be reconstructed are being provided for estimating purposes only and the County makes no guarantee as to the actual quantity required. For the telecommunications manhole, it is assumed to consist of the AT&T manhole north of Fifth Avenue where the roadway centerline will be lowered by approximately of 11 inches).

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities of the items, "Reconstruct Storm Drain Manhole to Grade" and "Reconstruct Telecom Manhole to Grade," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate either or both of the items, "Reconstruct Storm Drain Manhole to Grade," and/or "Reconstruct Telecom Manhole to Grade" from the Project either completely or by a reduction in quantities. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred, should he proceed in advance of receiving written authorization from the County.

15-5 ADJUST WATER VALVE BOX TO GRADE (CAL WATER)

Water valve boxes shall be adjusted to grade in conformance with Section 15-2, "Miscellaneous Highway Facilities," of the Standard Specifications, the Plans, these Special Provisions, the standards of the California Water Service Company (Cal Water), and the directions of the Engineer.

The Contractor shall request for the Engineer to contact and coordinate with Cal Water (Dawn Smithson, dsmithson@calwater.com) a minimum of five (5) working days prior to adjusting the water valve boxes to ensure conformance to Cal Water's requirements.

Water valve boxes shall be adjusted by removing the existing concrete pad and pouring a new pad of Class 2 concrete. Adjustment of water valve box riser may be required. Extension rings will not be acceptable.

Quantities of water valve boxes adjusted to grade will be determined as units from actual counts.

The Contract unit price paid per each for this item, "Adjust Water Valve Box to Grade (Cal Water)," shall include, but not be limited to, full compensation for furnishing all labor, material, equipment and incidentals necessary for doing all work involved to adjust water valve boxes to grade, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contractor bid price will be made for any increase or decrease in the quantities of this item, "Adjust Water Valve Box to Grade (Cal Water)," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

The County reserves the right to eliminate this item, "Adjust Water Valve Box to Grade (Cal Water)," from the Project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

15-6 ADJUST WATER METER BOX TO GRADE (CAL WATER)

Water meter boxes shall be adjusted to grade in conformance with Section 15-2, "Miscellaneous Highway Facilities," of the Standard Specifications, the Plans, these Special Provisions, the standards of the California Water Service Company (Cal Water), and the directions of the Engineer.

The Contractor shall request for the Engineer to contact and coordinate with Cal Water (Dawn Smithson, dsmithson@calwater.com) a minimum of five (5) working days prior to adjusting the water meter boxes to ensure conformance to Cal Water's requirements.

Water meter boxes shall be adjusted to grade prior to installation of new sidewalk.

Quantities of water meter boxes adjusted to grade will be determined as units from actual counts.

The Contract unit price paid per each for this item, "Adjust Water Meter Box to Grade (Cal Water)," shall include, but not be limited to, full compensation for furnishing all labor, material, equipment and incidentals necessary for doing all work involved to adjust water valve boxes to grade, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contractor bid price will be made for any increase or decrease in the quantities of this item, "Adjust Water Meter Box to Grade (Cal Water)," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

15-7 ADJUST MONUMENT BOX COVER TO GRADE

Existing monument boxes shall be adjusted to conform to the surface of the new pavement in conformance with these Special Provisions, the Plans and the directions of the Engineer

The Contractor will be responsible for preserving the survey point in its original position.

Prior to adjustment of any monuments, Contractor is required to inform the Engineer a minimum of **two (2) working days** in advance, to allow the County to tie-out monument locations.

Monument boxes shall be adjusted by removing the existing concrete pad and pouring a new pad of Class 2 concrete. Extension rings will not be acceptable.

Quantities of monuments adjusted to grade will be determined as units from actual count.

The Contract unit price paid per each for this item, "Adjust Monument Box Cover to Grade," shall include, but not be limited to, full compensation for furnishing all labor, tools, material, equipment and incidentals necessary for doing all work involved to adjust monument boxes to grade, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contractor bid price will be made for any increase or decrease in the quantities of this item, "Adjust Monument Box Cover to Grade," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

15-8 REMOVE PORTLAND CEMENT CONCRETE PAVEMENT

Removal of Portland cement concrete pavement shall conform to the provisions in Section 15-3, "Removing Concrete," of the Standard Specifications, and the Plans and these Special Provisions.

Existing concrete, as shown on the Plans or as designated by the Engineer to be removed, shall become the property of the Contractor and shall be completely removed. Removed material shall be disposed of in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Where no joint exists in the pavement on the line at which the concrete is to be removed, a straight, neat cut with a power driven saw shall be made along said line to a minimum depth of 2 inches (2") or one-sixth of a foot (0.17 foot), before removing concrete pavement. Payment for saw cutting Portland cement concrete pavement shall be in accordance with Section 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete Pavement," of these Special Provisions.

The quantities of Portland cement concrete pavement removed will be measured and paid for by the square yard.

The Contract unit price paid per square yard for this item, "Remove Portland Cement Concrete Pavement," shall include, but not be limited to, full compensation for furnishing all labor, material, tools, equipment and incidentals necessary for doing all work involved (including removal of bituminous or other overlaying material) in the removal and disposal of existing Portland cement concrete, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No deduction will be made from any excavation quantity for the quantity of Portland cement concrete pavement removed.

15-9 POTHOLE AND PROTECT EXISTING UTILITIES

Potholing, or exploratory excavation, shall be undertaken by the Contractor at locations of existing utility crossings, proposed utilities, and proposed light pole/utility foundations, as discussed on the Plans (including, but not limited to, locations where CCTV information could not be obtained), or as directed by the Engineer, where proposed work is suspected of conflicting with existing utilities, and to confirm size and material of existing utilities. The Contractor's attention is directed to the fact that segments of sanitary sewer lines where CCTV information could not be obtained have been designated on the Plans as "Unable to CCTV, No SS Lat information available."

Contractor shall verify with the Engineer the proposed pothole locations and provide pothole information (location, depth, pipe type, pipe diameter, etc.) to the Engineer.

Potholing shall be accomplished by excavating a minimum two-foot (2') and maximum four-foot (4') square hole to a **maximum depth of four feet (4'),** and care to not disturb adjacent pavement must be taken. Backfill shall be compacted in eight-inch (8") lifts to ninety-five (95%) percent relative density, unless otherwise directed by the Engineer. Surface material shall be replaced in kind so that no discontinuity in smooth surface results.

Existing utilities shall be protected from damage in conformance with the provisions in Section 8-1.10, "Utility and Non-Highway Facilities" of the Standard Specifications, the Plans, these Special Provisions, and as directed by the Engineer.

The Contract unit price paid per each for this item, "Pothole and Protect Existing Utilities," shall include full compensation for providing all labor, tools, materials and incidentals, and for doing all work required to pothole, protect existing utilities, replace surface material in kind, if necessary, and compacting backfill material, and no additional compensation will be allowed therefore.

The Contractor is advised that the approximately fifty (50) potholes are provided for estimating purposes only and the County makes no guarantee as to the actual quantity required.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantities of this item "Pothole to Protect Existing Utilities" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item.

The County reserves the right to eliminate or reduce in quantities of this item, "Pothole and Protect Existing Utilities," from the project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

15-10 TEMPORARY RELOCATION AND REINSTALLATION OF UNITED STATES POSTAL SERVICE MAILBOXES

Existing United States Postal Service (USPS) mailboxes within the Project limits shall be kept in use. However, any USPS mailboxes that need to be temporarily relocated, as determined by the Engineer for construction purposes, shall be accomplished only as approved by the United State Postal Service."

Upon completion of sidewalk work that necessitated the temporary relocation of USPS mailboxes, said USPS mailboxes shall be reinstalled to their original location, or such other location approved by the USPS. Contractor shall not reinstall USPS mailboxes until the permanent location has been approved by the USPS. Should the Contractor reinstall USPS mailboxes prior to receiving said USPS approval, if necessary, Contractor shall remove and re-locate USPS mailbox to the USPS-approved location and repair the damaged concrete, all at Contractor's sole expense.

The Contract unit price paid per each for this item, "Temporary Relocation and Reinstallation of United States Postal Service Mailboxes" shall include full compensation for providing all labor, tools, materials and incidentals, and for doing all work required to temporarily relocate and permanently reinstall USPS mailboxes, and no additional compensation will be allowed therefore.

The Contractor is advised that the approximately two (2) USPS Mailboxes to be temporarily relocated and reinstalled is provided for estimating purposes only and the County makes no guarantee as to the actual quantity required.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities of the items, "Temporary Relocation and Reinstallation of United States Postal Service Mailboxes" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate either of these items, "Temporary Relocation and Reinstallation of United States Postal Service Mailboxes," from the Project completely. The Contractor shall request and receive written confirmation from the County as to the status of these items of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under either of these items of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

15-11 REMOVE TELEPHONES

The Contractor is advised that there are public telephones within the project limits that may be impacted, as shown on the Plans. These phones are under unknown private ownership and shall remain in place unless construction operations cannot proceed, as determined by the Engineer, without removal of the telephone. If removal for construction operations is necessary, as determined by the Engineer, the Engineer will verify the active or abandoned status of the telephone and direct the Contractor accordingly:

A. If the Engineer determines that the telephone has been abandoned, the telephone shall be removed by the Contractor. The telephone shall become the property of the Contractor and be disposed of in conformance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

B. If the Engineer determines that the telephone is active and is to be removed and replaced, Contractor shall remove the telephone only after the owner has been given the opportunity to perform this task themselves; otherwise, said telephones shall be removed and salvaged until such time as the telephone can be given to the telephone owner. Telephone owner shall be responsible for re-installation of the telephone.

All materials removed shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Remove Telephones," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to remove telephones, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantity for the item "Remove Telephones" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate this item, "Remove Telephones," from the Project either completely or by a reduction in quantities. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred, should he proceed in advance of receiving written authorization from the County.

15-12 ADJUST SANITARY SEWER CLEANOUT BOX TO GRADE

Existing sanitary sewer cleanout boxes requiring adjustment, as shown on the Plans, shall be adjusted to grade in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and Manholes," of the Standard Specifications, the detail in the Plans, these Special Provisions, and the directions of the Engineer.

The Engineer, or designated representative, must be present during operations to ascertain if replacement of the cleanout box is warranted and subsequently to confirm adjustment sanitary sewer cleanout boxes to grade.

Unless otherwise directed by the Engineer, sanitary sewer cleanout boxes shall not be adjusted to final grade until the adjacent surfacing has been completed and approved of, in writing, by the Engineer.

All materials removed during adjustment shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Adjust Sanitary Sewer Cleanout Box to Grade," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to adjust cleanout box to grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantity for the item "Adjust Sanitary Sewer Cleanout to Grade" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

15-13 ADJUST PG&E UTILITY VAULT TO GRADE

Existing PG&E utility vault requiring adjustment, as shown on the Plans, shall be adjusted to grade in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and Manholes," of the Standard Specifications, the detail in the Plans, these Special Provisions, and the directions of the Engineer.

The Engineer, or designated representative, must be present during operations to adjust utility vaults to grade.

Unless otherwise directed by the Engineer, utility vaults shall not be adjusted to final grade until the adjacent surfacing has been completed and approved of, in writing, by the Engineer. It is assumed the entire top of the affected vault will need to be removed and section(s) added or removed to raise or lower the top to match proposed grade.

All materials removed during adjustment shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Adjust PG&E Utility Vault to Grade," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to adjust PG&E utility vault to grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore

No adjustment to the Contract bid price will be made for any increase or decrease in the quantity for the item "Adjust PG&E Utility Vault to Grade" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate this item, "Adjust PG&E Utility Vault to Grade," from the Project completely. The Contractor shall request and receive written

confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred, should he proceed in advance of receiving written authorization from the County.

15-14 RELOCATION OF HEALTH CLINIC EXISTING FIRE HYDRANT, FIRE DEPARTMENT CONNECTION AND SIGN AND REGRADING AND REPLANTING OF BIORETENTION AREA

Existing fire hydrant, fire department connection and sign as shown on the Plans shall be relocated in conformance with the provisions in 15-2.05, "Reconstruction" of the Standard Specifications, the detail in the Plans, these Special Provisions and the direction of the Engineer. Contractor to locate and expose existing supply water lines to the fire hydrant and fire department connection to confirm sizing, de-pressurize, install additional piping and reinstall the fire hydrant and fire department connection at the proposed locations. Contractor to coordinate with Health Clinic and fire department as-needed on work times to not affect occupancy requirements and Health Department/Cal Water as necessary to put the fire hydrant and fire department connection back into service.

Contractor to disassemble existing roadside sign, excavate and move foundation to planned location after preparing the new location with proper depth of excavation, placement of AB and compaction to the satisfaction of the Engineer.

Contractor to fill/regrade, plant and update the irrigation system of the existing bioretention planter as shown on the Plans.

All materials removed during relocation shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Materials Outside the Highway Right of Way," of these Special Provisions.

The Contract lump sum prices paid for "Relocation of Health Clinic Existing Fire Hydrant, Fire Department Connection and Sign and Regrading and Replanting of Bioretention Area" shall include full compensation for furnishing all labor, materials, tools, equipment, and

incidentals, and for doing all work involved in removing concrete curbs, gutters, sidewalks, driveway openings, sidewalk access ramps, valley gutters and medians, and disposing of material removed, as specified in these Special Provisions and as directed by the County.

15-15 ADJUST EXISTING GAS VALVE TO GRADE

Existing gas valves requiring adjustment, as shown on the Plans, shall be adjusted to grade in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and Manholes," of the Standard Specifications, the detail in the Plans, these Special Provisions, and the directions of the Engineer.

The Engineer, or designated representative, must be present during operations to adjust utility vaults to grade.

Unless otherwise directed by the Engineer, gas valves shall not be adjusted to final grade until the adjacent surfacing has been completed and approved of, in writing, by the Engineer. The contractor will need to provide any and all assistance for PG&E to access their valves as-needed. Contractor to construct concrete collar if required and protect during construction. Contractor shall confirm in writing with the engineer prior to adjusting the gas valves to grade.

All materials removed during adjustment shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Adjust Existing Gas Valve to Grade," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to adjust gas valves covers to grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantity for the item "Adjust Existing Gas Valve to Grade" required. The provisions of

Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate this item, "Adjust Existing Gas Valve to Grade," from the Project either completely or by a reduction in quantities. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred, should he proceed in advance of receiving written authorization from the County.

15-16 ADJUST PULL BOXES

Existing pull boxes requiring adjustment, as shown on the Plans, shall be adjusted to grade in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and Manholes," of the Standard Specifications, the detail in the Plans, these Special Provisions, and the directions of the Engineer.

Unless otherwise directed by the Engineer, pull boxes requiring adjustment shall not be adjusted to final grade until the adjacent surfacing has been completed and approved of, in writing, by the Engineer. Contractor to utilize existing pull boxes and reset in granular base material or concrete to match existing conditions.

All materials removed during adjustment shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Adjust Pull Boxes," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to adjust pull boxes to grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantity for the item "Adjust Pull Boxes" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate this item, "Adjust Pull Boxes," from the Project either completely or by a reduction in quantities. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred, should he proceed in advance of receiving written authorization from the County.

15-17 RELOCATE PULL BOXES

Existing pull boxes requiring relocation, as shown on the Plans, shall be removed and relocated in conformance with the provisions in Section 15-2.05, "Reconstruction," and Section 15-2.05A, "Frame, Covers, Grates and Manholes," of the Standard Specifications, the detail in the Plans, these Special Provisions, and the directions of the Engineer.

Unless otherwise directed by the Engineer, pull boxes requiring relocation shall be relocated prior to paving operations and adjusted to final grade after the adjacent surfacing has been completed and approved of, in writing, by the Engineer. Contractor to utilize existing pull boxes and reset in granular base material or concrete to match existing conditions.

All materials removed during removal and relocation work shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Relocate Pull Boxes," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to remove and relocate pull boxes and adjust to final grade, including but not limited to, all excavation and backfill, as shown on the Plans, as

specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

15-18 PROTECT BOLLARD

The Contractor is advised that an existing bollard to remain, as shown on the Plans and located north of Fifth Avenue and Middlefield Road, shall be protected in-place in conformance with these Special Provisions and the directions of the Engineer.

Contractor to protect existing bollard with enclosure mounted to northerly face in-place. Also, Contractor to protect wiring extending to below grade (as described in Section 15-17 below).

The Contract unit price paid per each for this item, "Protect Bollard," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to remove and relocate pull boxes and adjust to final grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

15-19 ADJUST EXISTING MONITORING WELL TO GRADE

The Contractor is advised that an existing monitoring well located northeast of Fifth Avenue and Middlefield Road to be removed, as shown on the Plans.

Unless otherwise directed by the Engineer, monitoring well shall be adjusted to final grade after the adjacent surfacing has been completed and approved of, in writing, by the Engineer. Contractor to coordinate with owner to adjust the existing surface access box/cover and protecting any wiring connections to the existing bollard located on the sidewalk.

All materials removed during adjustment shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Adjust Existing Monitoring Well to Grade," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to remove and relocate pull boxes and adjust to final grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

15-20 REMOVE EXISTING PEDESTRIAN SIGNAL

Existing pedestrian signals to be removed, as shown on the Plans, shall be removed in conformance with these Special Provisions, and the directions of the Engineer. Contractor to de-energize and disconnect signals from power source and safely cap power supply conduit(s).

All materials removed shall become the property of the Contractor and shall be disposed of as specified in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Remove Existing Pedestrian Signal," shall include, but not be limited to, full compensation for furnishing all labor, tools, equipment, material and incidentals necessary for doing all work involved to remove and relocate pull boxes and adjust to final grade, including but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

15-21 REMOVE CONCRETE CURBS, GUTTERS, SIDEWALKS, DRIVEWAY OPENINGS, SIDEWALK ACCESS RAMPS, VALLEY GUTTERS AND MEDIANS

Concrete curbs, gutters, sidewalks, driveway openings, sidewalk access ramps, valley gutters, medians and the aggregate base materials below them designated on the plans to be removed, shall be removed and disposed of off-site.

The following approximate quantities are provided to assist the Contractor in developing pricing. The County is not responsible for the quantities and are only provided as a reference, to be verified by Contractor.

Remove concrete curb & gutter:	7,750 SF
Remove concrete curb:	25 SF
Remove concrete sidewalks:	23,100 SF
Remove concrete driveway openings:	5,395 SF
Remove concrete sidewalk access ramps:	230 SF
Remove concrete valley gutters:	290 SF
Remove concrete medians:	1,655 SF

The Contractor's attention is directed to Section 51-3, "Class 3 Concrete," of these Special Provisions. The Contractor is advised that the progression and sequence of the various phases of the concrete removal and replacement work shall be approved, in writing, by the Engineer. Work within a particular location or area shall not commence without written approval of the Engineer.

Work within the overall limits of removal and replacement shall be done on one side of the street at any given time or by staggering the blocks so that pedestrian travel is not impeded or interrupted unless said work sequence is modified with written approval from the Engineer. No new demolition shall begin on Fridays. There shall be no instances where sidewalks on both sides (or all four corners at an intersection) of the street are demolished at the same time leaving no room for the pedestrian traffic to walk through the area.

For each Phase of construction, Contractor to provide pedestrian customers, customer vehicles, and delivery vehicles access to businesses when the area is closed to through traffic. In general, Contractor shall immediately provide access to all entrances after the removal of adjacent concrete improvements (during demolition), prior to and after placement of formwork and after placement of concrete. Contractor shall maintain access facilities to all affected entrances at Contractor expense until Engineer has approved

removal. The method and type of access shall be submitted to Engineer for approval. Should work necessarily obstruct entry to businesses unavoidably, said businesses shall be provided 48 hour advance notification, as approved by the Engineer, and access shall be restored same day. If special circumstances are present requiring a longer duration of interruption of access, a maximum driveway closure of two days may be requested and must be approved by the business/property owner and Engineer.

Existing improvements, such as fences, sprinklers and landscaping, that need to be relocated or removed, as determined by the Engineer for removal or construction purposes, shall be accomplished only after the property owners have been notified and given an opportunity to perform this task themselves. If the property owners do not perform this task, then the Engineer may direct the Contractor to perform this operation. Existing improvements removed shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions by the Contractor, unless arranged with the property owners to deposit the existing improvements on their property at a location designated by the property owner.

The Contractor shall notify the Engineer 48 hours prior to beginning concrete work and shall provide 24-hour advance notification whenever Contractor's work is interrupted. The Contractor's attention is directed to Sections 12, "Maintaining Traffic," of these Special Provisions for property owner notification.

Concrete to be removed shall be removed in accordance with the provisions in Section 15-3, "Removing Concrete," of the Standard Specifications. Any removed concrete shall become the property of the Contractor and shall be disposed of outside of the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Damage to existing concrete improvements not designated on the Plans or by the Engineer for removal, and as a result of the Contractor's operations, shall be repaired by the

Contractor, all at the expense of the Contractor and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Areas where asphalt concrete and base are removed beyond the limits of the existing concrete for the installation of concrete formwork shall be backfilled with full depth asphalt concrete. The cost of asphalt concrete for this work shall be included in the Contract unit price paid for the various Contract items of work under Section 51-3, "Class 3 Concrete," and no additional compensation will be allowed therefore.

Attention is directed to the provisions in Sections 16, "Clearing and Grubbing," and 19-1.04, "Removal and Disposal of Buried Man-Made Objects," of the Standard Specifications.

The Contractor shall provide a neat, clean, and uniform joint at all curb, gutter, and sidewalk conforms and, when possible, joints shall be located at existing score lines. When working within a driveway area, the Contractor shall saw cut and replace concrete from cold joint to cold joint, or as directed by the Engineer. The Contractor is advised that the method used to provide joints at conforms shall be subject to the approval of the Engineer.

The Contract lump sum prices paid for "Remove Concrete Curbs, Gutters, Sidewalks, Driveway Openings, Sidewalk Access Ramps, Valley Gutters and Medians" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in removing concrete curbs, gutters, sidewalks, driveway openings, sidewalk access ramps, valley gutters and medians, and disposing of material removed, as specified in these Special Provisions and as directed by the County.

15-22 REMOVE ASPHALT CONCRETE PAVING, PAVING FABRIC, AND AGGREGATE AND/OR CONCRETE BASE

Existing asphalt surfacing and aggregate and/or concrete base shall be removed to the limits and elevations shown on the plans and disposed of off-site at an approved materials recycling center.

In general, between the existing curbs, the depth of removal of asphalt concrete paving, paving fabric, and aggregate and/or concrete base will be as follows: top 3 inches of existing pavement will be removed south of the Northside (approximately Station 16+60 SB and Station 17+50 NB) to Station 19+00; top 3 inches of existing pavement below proposed grade between Station 19+00 and Station 29+00; and, full depth of existing pavement section between Station 29+00 and Station 43+00 (varies between 14.5 inches and 16 inches per pothole data listed on plans). Where a portion of existing surfacing is to be removed, the outline of the area to be removed shall be cut on a neat line with a power-driven saw to a minimum depth of 0.17-foot before removing the surfacing. Where the full depth of existing pavement is removed, existing subbase material below the existing pavement section will be removed to allow for a new pavement section of 18 inches thick. Removal shall include asphalt paving, including pavement fabric and full depth of existing aggregate and/or concrete base, and subbase as necessary. Contractor is advised that in the areas with full removal of existing pavement, the removal thickness of existing pavement and underlying subbase material varies with a maximum depth of approximately 29 inches.

The material removed shall be disposed of as provided in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The contract price paid per square yard for "Remove Asphalt Concrete Paving, Paving Fabric, Aggregate Base" and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in removing asphalt concrete paving and base and disposing of material removed, including saw cutting, as specified in these Special Provisions and as directed by the County.

Full compensation for saw cutting existing surfacing shall be considered as included in the contract price paid per square yard for "Remove Asphalt Concrete Paving, Pavement Fabric, Concrete Base, Aggregate Base" and no additional compensation will be allowed therefore.

The Contractor is advised that where full-depth pavement removal is required, that approximately nine thousand seven hundred and seventy five (9,775) SY of Asphalt

Concrete Pavement on Aggregate Base are provided for estimating purposes only and the County makes no guarantee as to the actual quantity required.

Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantities of the items "Remove Asphalt Concrete Paving, Pavement Fabric, Aggregate Base" required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items.

END OF SECTION

SECTION 16
CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions of Sections 15, "Existing Highway Facilities," and 16, "Clearing and Grubbing," of the Standard Specifications, these Special Provisions, the Plans and the directions of the Engineer.

The Contractor attention is directed to Subsection 10-2, "References and Resources," of Section 10, "Construction Waste Management," of these Special Provisions.

Areas within the limits of work, as shown on the Plans, or as directed by the Engineer, shall be cleared as necessary for the construction of improvements and related work. The areas to be cleared and grubbed will not necessarily extend to all right-of-way lines. The exact limits for clearing and grubbing shall be approved by the Engineer in advance of commencing any work.

Construction easements, as shown on the Plans, shall be cleared only as necessary for the construction of improvements and related work, or as directed by the Engineer.

Existing trees and shrubs within the limits of work shall be removed, unless otherwise specified in these Special Provisions or directed by the Engineer. The Contractor's attention is directed to Section 16-1, "Remove Trees," of these Special Provisions.

All existing vegetation, fencing, driveways, and walks outside the areas to be cleared and grubbed, shall be protected from injury and damage resulting from the Contractor's operations.

All existing trees requiring trimming and/or protection shall conform to the provisions of Section 102, "Trimming and Protection of Existing Trees," of these Special Provisions.

Removal of any concrete improvements (sidewalks, curbs and gutters, valley gutters), driveway drainage pipes, roadside signs, fences, trees, shrubs and hedges shall be as shown on the Plans and as directed by the Engineer.

The Contractor shall not remove fences, trees, shrubs, hedges, mailboxes or any other landscaping or improvements prior to receiving written approval from Engineer. Additionally,

reference is made to Section 15-9, "Temporary Relocation and Reinstallation of United States Postal Service Mailboxes," of these Special Provisions.

Existing improvements, such as fences, mailboxes, and landscaping, that need to be removed and/or relocated, as determined by the Engineer for construction purposes, shall be accomplished only after the property owners have been given an opportunity to perform this task themselves. If the property owners do not perform this task, then the Engineer may direct the Contractor to perform this operation. Existing improvements removed shall become the property of the Contractor and shall be hauled away by the Contractor, unless arranged with the property owners to deposit the existing improvements on their property at a location designated by the property owner. Written proof of any arrangements made between the Contractor and property owners shall be provided to the Engineer.

Removing, salvaging and/or relocating existing improvements shall conform to the provisions of Section 15-2, "Miscellaneous Highway Facilities," and Section 80, "Fences," of the Standard Specifications and these Special Provisions. Mailboxes, if directed by the Engineer, shall be relocated to a temporary location that is satisfactory to the U.S. Postal Facility that services this area and to the Engineer. Mailboxes that are to be relocated to temporary locations shall be placed in 5-gallon containers filled with concrete as shown in the detail on the Plans. Final locations for any mailboxes temporarily relocated shall be the responsibility of the property owner.

Underdrain pipes that are within the grading conform limits, shall be cutoff or adjusted to be flush with the final grade, as directed by the Engineer.

Concrete removal shall conform to the provisions of Section 15, "Existing Highway Facilities," of the Standard Specifications and these Special Provisions and shall be removed as shown on the Plans and as directed by the Engineer and in accordance with Section 15-3, "Removing Concrete," of the Standard Specifications.

All materials removed shall become the property of the Contractor and shall be disposed of in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Where conforms are made to existing concrete and no joints exist between concrete to be removed and concrete to remain, the concrete shall be cut in a neat line to a minimum depth of 0.17 foot with a power-driven saw before concrete is removed.

Nothing herein shall be construed as relieving the Contractor of his responsibility for final cleanup of the highway, as provided in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

The Contract lump sum price paid for this item, "Clearing and Grubbing," shall include, but not be limited to, full compensation for furnishing all labor, materials, including structure backfill, as required, equipment and incidentals necessary for doing all work involved in clearing and grubbing, including, but not limited to, the removal and disposal of concrete, fencing (or relocation and salvaging thereof), mailboxes, underdrain pipes, trees (except as provided for under Section 16-1, "Remove Trees"), shrubs, hedges, and stumps to a depth as required for construction of six inches (6") below existing ground levels, miscellaneous highway facilities, minor trimming of hedges and shrubs as necessary, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

16-1 REMOVE TREES

The Contractor is advised that trees may require removal for this project. Such trees have been shown on the demolition plans. Trees designated for potential removal and determined, by the Engineer, to require removal shall be removed in accordance with Section 16, "Clearing and Grubbing," of the Standard Specifications, the Plans, these Special Provisions, and the directions of the Engineer.

No trees shall be removed without the prior written approval of the Engineer. Voids left by removed tree and roots shall be backfilled immediately upon completion of tree removal, in conformance with Section 19, "Earthwork," of the Standard Specifications, the Standard Trench Backfill and Bedding Details on the Plans, and the directions of the Engineer.

Said removed tree and roots shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contractor shall take care not to damage existing facilities that are to remain. Any damage to such facilities caused by the Contractor's operations, as determined by the Engineer, shall be repaired to the satisfaction of the Engineer, all at the Contractor's expense, and no additional compensation will be allowed therefore.

Prior to excavation and removal of tree root systems, the Contractor shall verify the locations of existing utilities or other obstacles within the vicinity of the tree.

The Contractor is advised that active water and gas lines are located in the area. The locations of existing water and gas facilities, as based on data provided by the utility companies, are shown the Plan Sheets at their approximate locations, and no assurance is given as to the actual horizontal and vertical locations of these or other unknown facilities that may exist within the line of work. **The Contractor shall contact USA North811 (USA) a minimum of 48 hours in advance of any excavation or trenching work. USA may be contacted either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811.**

Said removed trees shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contractor is advised that all trees designated for removal which are:

(1) Less than ten inches (10") in trunk diameter, as well as stumps of any diameter, shall be considered as included under the Contract lump sum price paid for "Clearing and Grubbing," and no additional compensation will be allowed therefore.

(2) Trees ten inches (10") or greater in trunk diameter shall be paid for per each under this item of work, "Remove Trees."

The Contractor is encouraged to review the project site to assess the trees and root balls that will require removal.

The Contract unit price paid per each for this item, "Remove Trees," shall include full compensation for furnishing all labor, tools, materials, equipment and incidentals necessary for all work involved to remove trees, including excavation, grinding of stumps and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no separate payment will be made therefore.

The Contractor is advised that the approximately one (1) tree(s) designated for removal are provided for estimating purposes only and the County makes no guarantee as to the actual quantity required.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities for this item, "Remove Trees," required. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

The County reserves the right to eliminate this item, "Remove Trees," from the Project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

END OF SECTION

SECTION 17
DEVELOP AND APPLY WATER

Develop and apply water shall conform to the provisions of Section 10, "Dust Control," Section 17, "Watering," and Section 18, "Dust Palliative," of the Standard Specifications, these Special Provisions and the directions of the Engineer. The provisions of Section 10-1.04 and Section 18-1.05, "Payment," shall not apply to this item. Payment for this item, "Develop and Apply Water," shall be made on a lump sum basis.

In addition to all other water supply requirements for the construction work, the Contractor's attention is directed to the importance of dust control. The Contractor shall provide dust control at all times, including Saturdays, Sundays and holidays, as ordered by the Engineer. The Contractor shall diligently control dust resulting from the Contractor's operations and from public traffic passing through the work by the application of water and/or dust palliative. Whenever the Contractor appears to be negligent in controlling dust, as determined by the Engineer, the Engineer may direct attention to the existence of a dust hazard and instruct the Contractor to immediately alleviate said hazard. If the Contractor fails to follow the Engineer's instructions, the Engineer may have this completed by the County and deduct the costs incurred by the County from the Contractor's payment for this item.

For the purpose of progress payments, payment for this item shall be based on the pro rata share of the work completed. When, in the opinion of the Engineer, the Contractor has been inattentive to a dust hazard, any portion of the progress payment for this item, "Develop and Apply Water," may be withheld until the dust hazard has been corrected.

The Contract lump sum price paid for this item, "Develop and Apply Water," shall include full compensation for furnishing all labor, materials (including dust palliative binder and water), tools, equipment and incidentals necessary for doing all work involved in developing and applying all water and/or dust palliative required for the work, and for controlling dust resulting from the Contractor's operations, public traffic, wind or other conditions at all times (including Saturdays, Sundays, holidays) and when ordered by the Engineer, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional or separate payment shall be made therefore.

END OF SECTION

SECTION 19
EARTHWORK

Earthwork shall conform to the provisions of Section 19, "Earthwork," of the Standard Specifications, these Special Provisions, and the directions of the Engineer. Roadway excavation work shall be coordinated with utility companies with interest on Middlefield Road, including but not limited to PG&E, AT&T, Comcast, Cal Water, and the County of San Mateo. The Contractor's attention is directed to Section 7-3, "Cooperation," of these Special Provisions.

Pursuant to State law regulations, all open excavations greater than 5 feet in depth shall be constructed with bracing, sheeting, shoring or other equivalent method designed for the protection of life and limb. The Contractor must at all times comply with the requirements of the construction safety orders of the Division of Industrial Safety, uniform Building Code, Cal/OSHA, and other governing codes and restrictions.

The above-stipulated requirements shall be considered the minimum to be provided. It shall be the Contractor's responsibility to provide the additional strength required to support the sides of the excavation against loads which may exceed those employed to derive the criteria set forth in the Industrial Safety orders. The Contractor shall be solely responsible for any and all liabilities which may arise from his failure to provide adequate shoring, bracing or sheeting as necessary to support the excavation under any and all of the conditions of loading which may exist or which may arise during construction of the project.

The Contractor shall assign a project safety supervisor who shall, by training and experience, be fully qualified to supervise the installation, maintenance and removal of sheeting, shoring and bracing. The project safety supervisor shall have full authority over the work in all job safety matters and shall be present at all times when work is in progress in excavations and trenches greater than 5 feet in depth.

The Contractor's attention is further directed to Section 19-1.02, "Preservation of Property," of the Standard Specifications. Damages, as a result of the Contractor's operations to properties and facilities to remain, shall be repaired or replaced at the Contractor's expense.

19-1 ROADWAY EXCAVATION

Roadway excavation shall consist of all excavation involved in this construction, including, but not limited to, the removal of asphalt concrete and other materials in the roadway prism, including any pavement reinforcement material and shall conform to the provisions of Section 19-2, "Roadway Excavation," of the Standard Specifications, these Special Provisions, the Plans and the directions of the Engineer. Roadway excavation work shall be coordinated with utility company work, if any. The Contractor's attention is directed to Section 7-3, "Cooperation" of these Special Provisions.

The Contractor's attention is further directed to Section 19-1.02, "Preservation of Property," of the Standard Specifications. Damages, as a result of the Contractor's operations to properties and facilities to remain, shall be repaired or replaced at the Contractor's expense.

Roadway excavation shall be performed to the limits and elevations shown on the Plans and as specified in these Special Provisions, or as designated by the Engineer. The Contractor's attention is directed to the close grade tolerances that may be required to assure positive drainage within street and valley gutter areas. Failure to adhere to the grades indicated and the tolerances allowed, and failure of drainage tests, as determined by the Engineer, will require the Contractor to take all corrective actions stipulated by the Engineer, all at the Contractor's expense.

The Contractor is advised that the locations of existing utilities are at approximate depths, and the Contractor is responsible for locating the exact depth of utilities.

Damage to property, facilities, improvements and/or landscaping to remain, whether inside or outside the Project limits, which, in the Engineer's judgment, were due to the Contractor's operations, shall be repaired or replaced to the satisfaction of the Engineer by the Contractor entirely at his expense, and no additional compensation will be allowed therefore.

It is anticipated that unknown live and abandoned utilities and service laterals may be located within the planned structural section or immediately below the grading plane. The Contractor shall determine the exact locations and depths of the utilities and service laterals

before starting excavation, at the Contractor's own expense, and no additional compensation will be allowed therefore.

Conform lines, as shown on the Plans, shall be saw cut in accordance with 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete," of these Special Provisions.

Removal of existing asphalt concrete pavement, sidewalks, curbs and gutters, and valley gutters shall not be permitted until all joint trench, storm drain, and sanitary sewer work is completed and approved. Any proposals to deviate from this order of work must be submitted to the Engineer in writing for review and approval or rejection. Removal of existing pavement, as shown on the Plans, shall be considered as included in this item of work, "Roadway Excavation," and no additional compensation will be allowed therefore.

The Contractor's attention is directed to the fact that areas at side street conforms and in the vicinity of new and existing inlets will be require grading to achieve positive drainage.

Any newly installed valley gutters and aprons that are shown by water tests to pond water, shall be removed and reinstalled, as directed by the Engineer and at the Contractor's expense, before road work commences. Removal of existing pavement, concrete base, base, subbase, and basement soil shall be considered as included in this item of work, "Roadway Excavation," and no additional compensation will be allowed therefore.

Surplus material shall become the property of the Contractor and shall be disposed of outside the highway right-of-way in accordance with the provisions in Section 7-15, "Disposal of Material Outside the Highway Right-of-Way," of these Special Provisions, as well as with local agency requirements.

Excavation of existing travel way shall not commence until authorized, in writing, by the Engineer. The Contractor's attention is directed to Section 12, "Maintaining Traffic," and Section 7-12, "Public Convenience," of these Special Provisions.

The Contractor is advised that excavation may conflict with existing tree roots and care must be taken to avoid damaging the roots of trees to remain. The Engineer shall be notified

immediately if conflicts with tree roots greater than **four inches (4")** in diameter are identified so that the Engineer may call an arborist to the site to evaluate. **No tree roots greater than four inches (4") in diameter shall be cut without prior written authorization from the Engineer.** Where roots greater than four inches (4") in diameter are encountered, the Contractor may be required by the Engineer to hand excavate material in order to conform to the project structural section requirements.

Tree roots requiring removal must be severed by means of a root cutter.

The quantity of material hand excavated will be paid for on a cubic yard basis as roadway excavation, and no additional compensation will be allowed therefore.

Any "Special Excavation" techniques, including excavation around tree roots that are to be saved, as required by the Engineer shall be considered as work included in this item, "Roadway Excavation," and no additional compensation will be allowed therefore.

Root barriers shall be installed as directed by the Engineer. Root barriers shall be mechanical barriers. The installation of root barriers, if required, shall be paid for either on a force account basis, in accordance with Section 9-1.03, "Force Account Payment," of the Standard Specifications, or on an agreed upon lump sum price of Extra Work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications.

The Contractor's attention is further directed to Section 19-1.02, "Preservation of Property," of the Standard Specifications.

Excavation required for driveway and shoulder conforms, swales, concrete valley gutters and aprons, grade to drain areas, and asphalt concrete, and establishment of designed grading plane, as shown on the Plans and as directed by the Engineer, shall be considered as included in the Contract unit price paid per cubic yard for this item, "Roadway Excavation," and no separate payment will be made therefore. The Contractor is advised that excavation quantities for grade to drain areas will not be calculated separately for purposes of payment. Said quantities shall be considered as included in the various quantities for roadway excavation specified herein.

Upon completion of rough grading at the grading plane, or placement of any subsequent layer thereon, the surface of the roadbed shall be brought to a smooth, even condition free of humps and depressions, satisfactory for use of public traffic.

After the surface of the roadbed has been brought to a smooth and even condition for the passage of public traffic as above provided, any work ordered by the Engineer for the accommodation of public traffic prior to commencing subgrade operations shall be performed by the Contractor, entirely at his expense. Paragraph 15 of Section 7-1.08, "Public Convenience," of the Standard Specifications shall not apply. After subgrade preparation for a specified layer of material has been completed, the Contractor shall, at his expense, repair any damage to the roadbed or completed subgrade, including damage caused by his operations or use by public traffic.

The measurement of roadway excavation quantities shall conform to Section 19-2.08, "Measurement," of the Standard Specifications, and to these Special Provisions. Quantities of roadway excavation will be computed by means of average end areas. The cost of excavation and disposal of excess material shall be considered included in the Contract unit price paid per cubic yard for roadway excavation, and no separate payment shall be made therefore. Additionally, the Contractor shall be responsible for the cost of all remedial work associated with over-excavated areas, and such work shall be performed in a manner as directed by the Engineer.

The Contractor is advised to review the project site for material to be excavated. Regardless of material encountered, full compensation for performing roadway excavation as described herein shall be included in the Contract unit price for this item, "Roadway Excavation," and no additional compensation will be allowed therefore.

The Contractor shall provide the Engineer all documentation as to the weight of materials removed and recycled during the course of the project. The Contractor shall provide a copy of all receipts or other proof from any recycling center used by the Contractor. The Contractor's attention is directed to Section 10, "Construction Waste Management," of these Special Provisions.

The Contract unit price paid per cubic yard for this item, "Roadway Excavation," shall include full compensation for furnishing all labor, tools, materials, equipment and incidentals necessary for doing all work involved in excavating, hand excavating, hauling, filling, spreading, grading and compacting, as specified in these Special Provisions, including, but not limited to, disposing of surplus excavated material outside of the highway right-of-way, and grading areas for positive drainage flow, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

19-1.1 Excavation Dewatering

The Contractor shall take whatever measures necessary, as determined by the Engineer, and shall furnish, install and operate pumps or other devices as may be necessary to remove seepage, storm water or sewage that may be found or accumulate in the excavations during the progress of the work. Once seepage or ground water conditions in excavated areas are encountered, no further trenching will be allowed until suitable dewatering procedures are in operation.

The Contractor shall keep all excavations free from water at all times during construction and until the County gives permission to cease pumping. The Contractor shall also keep all excavations free from the accumulation of water or sewage at all times, as may be required by the County for inspection or other purposes. Excavated areas shall include but not be limited to areas in front of each business or residence.

Full compensation for this item, "Excavation Dewatering," shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be made therefore.

END OF SECTION

SECTION 20
EROSION AND SEDIMENT CONTROL

The Contractor is advised of the importance of protecting the infiltration capabilities of the bioretention features during construction.

The Contractor shall install sediment and erosion controls upstream of the bioretention features during construction to prevent sediment from entering the bioretention features during construction or after planting.

Wattles/silt fences shall be installed upgradient of the bioretention features where soil is to be disturbed and may cause runoff to and sedimentation of bioretention features.

Inlets to the bioretention features shall be blocked off with sandbags during construction to keep stormwater and sediment from entering the bioretention features. Sandbags shall be left in place after construction at the direction of the Engineer to protect bioretention features during the plant establishment period.

Wattles, silt fences, and sandbags shall be inspected, and any necessary repairs shall be made by the Contractor at his expense daily.

Wattles, silt fences, and sandbags shall be completely removed by the Contractor at the conclusion of work. Wattles, silt fences, and sandbags shall be disposed of outside of the ROW, in accordance with the provisions of Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract lump sum price paid for "Erosion and Sediment Control" shall include full compensation for furnishing all labor, materials (including temporary wattles, silt fences, and sandbags), tool, equipment, and incidentals, and for doing all work involved with installing temporary wattles and silt fences required by the Engineer, including trenching, securing and backfilling, inspection, maintenance, and removal and disposal outside the project limits.

END OF SECTION

SECTION 25
AGGREGATE BASE (CLASS 4)

Aggregate base must comply with Section 25, "Aggregate Subbases," of the Standard Specifications and these special provisions.

Aggregate base must be Class 4 where designated on the Plans. Aggregate Base (Class 4) shall be placed adjacent to the Redwood junction driveway, along the railroad right-of-way, as shown on the Plans and as directed by the Engineer.

Placement of Class 4 shall be over Mirafi 180-N non-woven geotextile filter fabric (or approved equal). Geotextile filter fabric to be placed below and along sides of area excavated for aggregate base per direction of Engineer.

Do not store reclaimed asphalt concrete or aggregate base with reclaimed asphalt concrete within 100 feet measured horizontally of any culvert, watercourse, or bridge.

Class 4 aggregate base must comply with:

Grading (Percentage Passing)

Sieve Sizes	Operating Range	Contract Compliance
2.5 inch	100	100
No. 4	30-65	25-70
No. 200	0-15	0-18

Quality

Test	Operating Range	Contract Compliance
Sand Equivalent	21 Min.	18 Min.
Resistance (R-value)	----	50 Min.

If tests show grading or sand equivalent does not comply with the "Operating Range" specifications but complies with the "Contract Compliance" specifications, you may place

aggregate base for the remainder of that day. Do not start another day's work until tests or other information indicate the next day's material complies with the "Operating Range" specifications.

If tests show grading or sand equivalent does not comply with the "Contract Compliance" specifications, remove the aggregate base represented by the tests. If you request and the Engineer approves, that aggregate base may remain in place and the County reduces payment by $2.00 per cubic yard for that aggregate base. If both the grading and sand equivalent do not comply with "Contract Compliance" specifications, and the subbase remains in place, the County only makes one payment reduction.

No single grading or sand equivalent test may represent more than the smaller of 500 cubic yards or one day's production.

The Contract unit price paid per cubic yard for aggregate base (Class 4) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved with installing aggregate base and filter fabric below and along the subbase as required by the Engineer, including excavation, backfilling and compaction.

END OF SECTION

SECTION 26
AGGREGATE BASE (CLASS 2)

Aggregate base shall be Class 2 and shall conform to the provisions in Section 23, "Aggregate Bases," of the Standard Specifications and these Special Provisions.

Aggregate base shall be placed where shown on the Plans (including placement, as necessary, for final connections at driveway openings), as specified in these Special Provisions, and as directed by the Engineer. In areas of full-depth pavement section, Contractor to place filter fabric (Mirafi 180N or approved equal) on native soil before placing Aggregate Base (Class 2) under roadway areas. For reference, area of full-depth roadway section is estimated at on the order of **87,855 SF**.

Aggregate base shall be produced from commercial quality aggregate consisting of broken stone, crushed gravel, natural, clean, rough-surfaced gravel and sand, or a combination thereof.

Aggregate base shall consist of reclaimed aggregate material up to 50 percent of the total volume whenever possible, as allowed in the first paragraph of Section 23-1.02A, "Class 2 Aggregate Base," which states:

> "…. Aggregate may include material processed from reclaimed asphalt concrete, portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used."

Except as provided for under Section 39, "Asphalt Concrete Pavement," of these Special Provisions, the grading of the material shall conform to the three-quarter inch (3/4") maximum specified in Section 23-1.02A, "Class 2 Aggregate Base," of the Standard Specifications.

Spreading and compacting shall be performed by methods that will produce a uniform base, firmly and properly compacted to not less than ninety-five percent (95%) relative compaction, and free from pockets of course or fine material. All compacted materials may be tested by the County. The Contractor's attention is directed to Section 6-2, "Materials Testing,"

of these Special Provisions. Acceptance testing shall be performed using California Test Method (CT) 338 or ASTM D6938, as directed by the Engineer.

The Contractor shall notify the County a minimum of one (1) working day prior to when compacted materials are ready to be tested. The County pays for Contractor's call for first test only. Should the first test fail, or the Engineer's designee to perform the first test arrive and the Contractor not be ready for the test, then all subsequent tests will be paid for by the Contractor until the desired compaction is reached, and no additional compensation will be allowed therefore.

Aggregate base that is used to provide temporary access to work areas and driveways, as well as all other work that is necessary to comply with Section 7-12, "Public Convenience," of these Special Provisions, shall not be included in the Contract quantity for Aggregate Base (Class 2), and shall be considered as included in the various Contract items of work, and no additional compensation shall be allowed therefore.

Aggregate base that is used for Sidewalk Access Ramps, as well as all other work that is necessary to comply with Section 51-4, "Sidewalk Access Ramps," of these Special Provisions, shall not be included in the Contract quantity for Aggregate Base (Class 2), and shall be considered as included in the unit Contract unit price paid per each for the item "Sidewalk Access Ramps," and no additional compensation shall be allowed therefore.

Aggregate base that is used for Textured Concrete and Colored Concrete Surfaces, as well as all other work that is necessary to comply with Section 51-6, "Textured Concrete and Colored Concrete Surfaces," of these Special Provisions, shall not be included in the Contract quantity for Aggregate Base (Class 2), and shall be considered as included in the unit Contract unit price paid per square foot for "Textured Concrete and Colored Concrete Surfaces," and no additional compensation shall be allowed therefore.

The Contract unit price paid per cubic yard for this item, "Aggregate Base (Class 2) – Open Trench SS," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all the work involved in furnishing, hauling and placing aggregate base, complete in place, as shown on the Plans, as specified in the Standard

Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 36
DRAINAGE INLET MARKERS

The Contractor is advised that this Section 36, "Drainage Inlet Markers," conforms to Section 36, "Miscellaneous Drainage Facilities," Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 36.

36-1 GENERAL

36-1.1 General

Section 70-5.01 includes general specifications for fabricating and installing appurtenances to drainage facilities. Drainage appurtenances include:

A. Drainage inlet markers

36-1.2 Materials

Not Used

36-1.3 Construction

Construct concrete appurtenances under Section 51.

36-2 DRAINAGE INLET MARKERS

36-2.1 General

Section 70-5.05 includes specifications for installing drainage inlet markers.

36-2.2 Materials

If a specific type of drainage marker is not shown, choose one of the following:

A. Thermoplastic

The thermoplastic drainage inlet marker must be free of lead and chromium and must comply with the requirements shown in the following table:

Thermoplastic Inlet Marker Requirements		
Quality Characteristic	**Test Method**	**Requirement**
Thickness (in)	----	0.080 to 0.160
Legend color, nonreflective	----	Blue or green
Background color, nonreflective	AASHTO M 249	White
Skid resistance (min, BPN[a])	ASTM E303	60

[a] BPN means British Pendulum Number

36-2.3 Construction

Install prefabricated drainage inlet markers by:

A. Mechanically cleaning and preparing the surface

B. Attaching the prefabricated drainage inlet markers to the surface with adhesives, fasteners, or heat as recommended by the manufacturer

36-2.4 Payment

The Contract unit price paid per each for this item, "Drainage Inlet Markers," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all the work involved in furnishing and installing drainage inlet markers, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities for this item, "Drainage Inlet Markers," required. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

END OF SECTION

SECTION 37
DRAINAGE FACILITIES

The Contractor is advised that this Section 37, "Drainage Facilities," conforms to Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 37.

37-1 GENERAL

37-1.1 General

Work under this section will install drainage inlets where needed for the new project sidewalk configuration and ensure existing drainage inlets and associated piping will be clean and serviceable at project completion.

Section 71-1 includes general specifications for performing work on existing drainage facilities.

Section 71-2 includes general specifications for removing existing drainage facilities.

Drainage facilities include inlets, drains, pipes, gutters, gutter depressions, valley gutters, and junction structures.

The Contractor is advised that all drainage inlets shall be labeled with "Drain To Bay" in accordance with Section 36, "Drainage Inlet Markers," of these Special Provisions and the directions of the Engineer.

37-1.2 Materials

Temporary pipe plug must be one of the following:

A. Wall of minor concrete not less than 6 inches thick
B. Tight brick wall not less than 8 inches thick with cement mortar joints
C. Commercially manufactured plug if its use is required for less than 6 months

37-1.3 Payment

Not Used

37-2 RELOCATE EXISTING OR INSTALL NEW DRAINAGE INLET

37-2.1 General

Section 71-2 includes work for removing drainage facilities.

At locations shown on the Plans, contractor to construct new drainage inlets per Plan details and in conformance with Standard Specifications. Concrete to be per Section 51-2, "Class 2 Concrete". [Materials

Not Used

37-2.2 Construction

An existing drainage inlet along Middlefield Road at Pacific will be removed to allow for widening of sidewalk. New pipe will need to be installed from the new inlet to connect to the existing drainage pipe. Also, two (2) new inlets will be installed, one along the westerly side of Middlefield Road south of Dumbarton and one along the northerly side of Fifth Avenue west of Middlefield Road.

Except for concrete pipe, removing PCC components of drainage facilities must comply with Section 15-1.03B.

All materials removed and to be disposed of shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Reuse frame, grate, and cover at the location shown and provide new frame and grates at the two (2) new drainage inlets in conformance with details in the Plans. The

37-2.3 Payment

The Contract unit price paid per each for "Remove and Relocate Existing Drainage Inlet" consisting of demolition and disposal of existing and installation of new drainage inlet, associated pipe, and reuse of frames, grates, and covers to include all labor, materials, tools, equipment, and incidentals required to complete the relocation, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contract unit price paid per each for "Install New Drainage Inlet" shall include full compensation for all labor, materials, tools, equipment and incidentals, required to install new drainage inlets, complete in place, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

37-3 CLEAN AND INSPECT EXISTING DRAINAGE STRUCTURES

37-3.1 General

37-3.1.1 General

A. Summary

Section 71-3 includes specifications for cleaning and preparing, inspecting and evaluating, drainage inlets.

1. Construction

A. General

Comply with the following work sequence and notify the Engineer before you start each of the following steps:

1. Clean and prepare
2. Inspect and evaluate

Before starting the inspection, the drainage inlets must be clean and free of water and debris. During all drainage inlet work, keep drainage inlets clean and free of water and debris.

B. Cleaning and Preparation

Remove all debris, sediment, and other accumulated material from the drainage inlets and restore the flow area to the original flow area or to the diameter shown.

C. Inspection and Evaluation

After cleaning and preparation is complete, perform a thorough visual inspection of the drainage inlets and submit the inspection and evaluation report.

If sediment, debris, or other accumulated material is found during inspection, stop the inspection and reclean the drainage inlets.

37-3.1.2 Payment

Payment for the following work is included in the payment for cleaning, inspecting, and preparing the drain inlets:

A. Cleaning and preparation
B. Quality control and assurance
C. Keeping the drainage inlets free of water and debris
D. Inspection and evaluation

END OF SECTION

SECTION 39
ASPHALT CONCRETE (TYPE B)

39-1 GENERAL

Asphalt concrete shall be Type B and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and these Special Provisions.

The Contractor shall be responsible for locating and reference marking all existing highway facilities (such as manholes, valves, and monuments) within the Project limits prior to any paving work.

Asphalt concrete to be used for roadway area, including the conform areas on cross streets (Hurlingame, Northside, Pacific, Dumbarton, Berkshire, First, Second, Third Fourth and Fifth Avenues), driveway conform areas, and miscellaneous asphalt concrete areas, as shown on the Plans and as designated by the Engineer, shall be Type B, 1/2" maximum, medium grading.

The Contractor's attention is directed to the importance of providing emergency access in the event of backups and/or overflows in the sanitary sewer system and, when rain is forecast, in the storm drain system. To provide said emergency access for responding to backups and/or overflows, the Contractor shall conform to the following provisions and the directions of the Engineer:

(1) Sanitary sewer and, if required, storm drain manholes shall be exposed no more than three (3) days after paving operations have buried said manholes, unless otherwise directed, in writing, by the Engineer. This requirement is regardless of the Contractor's proposed schedule to adjust utilities to final grade.

(2) Prior to the three (3) days, or until the Contractor has uncovered any manhole, whichever is sooner, the Contractor shall be available to arrive at the site within ONE (1) HOUR of notice provided by the owner of said manholes. The Contractor shall arrive at the site with personnel and equipment to uncover the manhole where access is needed. All costs associated with uncovering the manholes and making

them safe for public travel afterwards shall be the responsibility of the Contractor. The Contractor shall also be responsible for all costs involved in repairing or correcting any damage to either public facilities or private properties and resolving liabilities arising as a result of the Contractor not complying with this condition.

The Contractor's attention is further directed to the provisions of the second to last paragraph of Section 39-6.03, "Compaction," of the Standard Specifications for smoothness tolerance requirements and the importance of maintaining pavement smoothness that is equal to or better than currently exists.

Should the newly paved roadway fail to meet the County's smoothness tolerances in conformance with the Standard Specifications and these Special Provisions, the Contractor shall, at the Contractor's own expense, perform corrective measures. Such corrective measures shall be approved of by the Engineer. Failure to obtain County approval of proposed corrective measures may result in additional corrective measures, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

Following any initial corrective measures, the Engineer will again make a determination as to roadway smoothness.

Asphalt concrete to be used for the adjustment of existing utilities and monument box covers and installation of new survey monuments shall be Type B, 3/8" maximum grading and shall not be calculated nor paid for under this item, "Asphalt Concrete (Type B)," but shall be included in the Contract unit prices paid for the various Contract items of work to adjust existing utilities to grade, and no additional compensation will be made therefore. Reference is made to Sections 15, "Existing Highway Facilities," and 81, "Install New Survey Monument," of these Special Provisions.

The Contractor will be responsible for removing all existing traffic stripes, pavement markings, and pavement markers within the Project limits prior to any paving work. Removal of existing traffic stripes, pavement markings and pavement markers shall be in conformance with the Standard Specifications, these Special Provisions and the directions of the Engineer.

Reference is made to Section 84, "Traffic Stripes and Pavement Markings," and Section 85, "Pavement Markers," of these Special Provisions.

The amount of asphalt binder to be mixed with the aggregate shall be between four percent (4%) and six percent (6%) by weight of dry aggregate. The exact amount of asphaltic binder to be mixed with the aggregate shall be as determined by the Engineer.

Areas to which asphaltic emulsion has been applied shall be closed to public traffic. Care shall be taken to avoid tracking asphaltic emulsion onto existing pavement surfaces beyond the limits of construction.

The Contractor will be responsible for any damage to existing curbs, gutters, valley gutters, sidewalks, medians, and driveways. Any asphalt concrete or asphaltic emulsion stains occurring during the course of this Contract will be cleaned by sandblasting, or any other method satisfactory to the Engineer. The cost of repairing this damage shall be considered as included in the Contract unit price paid per ton for Asphalt Concrete (Type B, 1/2" Maximum, Medium Grading), and no additional compensation will be allowed therefore.

The Contractor will not be allowed to remove existing roadway surface to place the asphalt concrete pavement until an approved water drainage test is performed on all concrete valley gutters, curbing, and asphalt concrete swales. Any valley gutter, curbing, and/or swales not meeting grade requirements specified shall be removed and replaced at the Contractor's expense. The Contractor's attention is directed to Section 19-1.03, "Grade Tolerances," of the Standard Specifications.

At road conforms and driveway openings designated by the Engineer, additional asphalt concrete surfacing material shall be placed, and hand raked, if necessary, and compacted to form smooth tapered connections. The Contractor is further advised that it will be his/her responsibility to ensure that the existing drainage patterns are maintained at all locations, as indicated on the Plans or as directed by the Engineer. Full compensation for furnishing all labor, tools, incidentals necessary for doing all work to hand rake said connections shall be considered

as included in the Contract price paid per ton of asphalt concrete, and no additional compensation will be allowed therefore.

The Contractor's attention is directed to Paragraph 12 of Section 39-6.01, "General Requirements," of the Standard Specifications for spreading and compacting asphalt concrete:

> Longitudinal joints in the top layer shall correspond with the edges of proposed traffic lanes. Longitudinal joints in all layers shall be offset not less than 0.50 foot alternately each side of the edges of traffic lanes."

Any asphalt concrete placed outside the lines and dimensions shown on the Plans, and that is not authorized by the Engineer in writing, shall not be paid for. Such quantity of asphalt concrete will be determined by the Engineer using any method he/she deems best suited to obtain an accurate quantity, and such quantity will be deducted from the total paid the Contractor, and no additional compensation will be allowed therefore. The unit weight of asphalt concrete for purposes of deduction shall be the average tested weight of the asphalt concrete used on this Project, or, absent any testing, 155 pounds per cubic foot.

The Contract unit price paid per ton for the item, "Asphalt Concrete (Type B, 1/2" Maximum, Medium grading)," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in furnishing and placing asphalt concrete, as shown on the Plans and excluding placement of miscellaneous asphalt concrete areas, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Asphalt concrete used in miscellaneous asphalt concrete areas shall also be paid at the Contract unit price paid per ton for Asphalt Concrete (Type B, 1/2" Maximum, Medium Grading). Placing asphalt concrete in miscellaneous areas shall be paid for in conformance with Section 39-3, "Place Asphalt Concrete (Miscellaneous Areas)".

Full compensation for Asphalt Concrete (Type B, 3/8" Maximum grading), to be used for adjustment of existing utilities and monument box covers and installation of new survey monuments shall be included in the Contract unit prices paid per each for the various Contract

items found under Section 15, "Existing Highway Facilities," of these Special Provisions, and no additional compensation will be allowed therefore.

For Asphalt Concrete (Miscellaneous Areas) – Asphaltic emulsion shall be applied as a prime coat for asphalt concrete (miscellaneous areas), as shown on the Plans, as indicated in these Special Provisions and as directed by the Engineer. Asphaltic Emulsion for asphalt concrete (miscellaneous areas) shall be Type SS1. Reference is made to Sections 39-2, "Liquid Asphalt (Prime Coat)," and 39-3, "Place Asphalt Concrete (Miscellaneous Areas)," of these Special Provisions.

The areas to which asphaltic emulsion has been applied shall be closed to public traffic, as specified in these Special Provisions and as directed by the Engineer; and the Contractor shall avoid tracking asphaltic emulsion onto existing pavement surfaces beyond the limits of construction.

The Contractor will be responsible for any asphaltic emulsion stains occurring during the course of this Contract. Such stains will be cleaned by sandblasting, or any other method satisfactory to the Engineer. The cost of repairing this damage shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all work involved in furnishing and applying asphaltic emulsion for this item, "Asphaltic Emulsion (Tack Coat)," as specified in the Standard Specifications and these Special Provisions, as shown on the Plans, and as directed by the Engineer, shall be considered as included in the unit prices paid for the various Contract items of work, and no separate payment or additional compensation will be allowed therefore.

39-2 LIQUID ASPHALT (PRIME COAT)

Liquid asphalt shall conform to the provisions of Sections 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," and 93, "Liquid Asphalts," of the Standard Specifications, and these Special Provisions.

Liquid asphalt shall be SC-70 or of the type designated by the Engineer and shall be placed at locations as shown on the Plans and as directed by the Engineer.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for doing all work involved in furnishing and placing liquid asphalt (prime coat), as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, shall be considered as included in the unit prices paid for the various Contract items of work, and no separate payment will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in quantities of this item, "Liquid Asphalt (Prime Coat)," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

39-3 PLACE ASPHALT CONCRETE (MISCELLANEOUS AREAS)

Place Asphalt Concrete (Miscellaneous Areas) shall conform to the provisions of Sections 39-7, "Miscellaneous," of the Standard Specifications, these Special Provisions, the Plans, and the directions of the Engineer.

Paragraph 1 of Section 39-7.01, "Miscellaneous areas," is amended to read:

> "The surfacing of miscellaneous areas to be paid for at the Contract price per square yard for Place Asphalt Concrete (Miscellaneous Areas), in addition to the price paid for the materials involved, shall be limited to designated pedestrian walkway areas, areas outside the traveled way which are shown on the plans as miscellaneous areas, and other areas designated by the Engineer."

Asphalt concrete used for miscellaneous asphalt concrete areas shall be Type B (1/2" maximum, medium grading) and shall conform to the provisions of Section 39, "Asphalt Concrete (Type B)," of these Special Provisions.

Aggregate base required for miscellaneous asphalt concrete areas shall conform to the provisions of Section 26, "Aggregate Bases," of these Special Provisions.

Asphaltic Emulsion (Prime Coat) required for miscellaneous asphalt concrete areas shall conform to the provisions of Section 39-2, "Liquid Asphalt (Prime Coat)," of these Special Provisions.

The Contractor is advised that it will be his responsibility to assure that existing drainage patterns are maintained at all locations, as indicated on the Plans, unless otherwise directed by the Engineer.

Any miscellaneous asphalt concrete placed beyond the limits, as shown on Plans or as directed by the Engineer, and resulting from the Contractor's operations, shall be at the Contractor's expense, and no additional compensation will be allowed therefore.

The Contractor's attention is directed to the fact that payment for furnishing asphalt concrete (Type B) and aggregate base shall be paid for separately in accordance with the provisions of Section 26, "Aggregate Base (Class 2)," and Section 39, "Asphalt Concrete (Type B)," of these Special Provisions; and payment for saw cutting of existing asphalt concrete and Portland cement concrete shall be compensated for under the various Contract items of work, and no additional compensation will be allowed therefore, as per Section 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete Pavement," of these Special Provisions.

The Contractor's attention is directed to the fact that full compensation for furnishing and placing asphaltic emulsion (prime coat), complete in-place, shall be considered as included in the Contract price paid per square yard for this item, "Place Asphalt Concrete (Miscellaneous Areas)."

The Contract price paid per square yard for this item, "Place Asphalt Concrete (Miscellaneous Areas)," shall include full compensation for preparing areas to receive asphalt concrete and for furnishing all labor, materials (except for asphalt concrete (Type B) and aggregate base), tools, equipment and incidentals, and for doing all work involved in placing asphalt concrete in miscellaneous areas, including, but not limited to, all excavation, backfill, and sub-grade preparation, hauling, placing, spreading, and compacting of asphalt concrete in miscellaneous areas, as shown on the Plans, as specified in the Standard Specifications and these

Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

39-4 PLANE ASPHALT CONCRETE PAVEMENT (FULL WIDTH)

Plane Asphalt Concrete Pavement (Full Width) shall conform to these Special Provisions, the Plans and the directions of the Engineer.

All concrete work (curbs, gutters, valley gutters, sidewalks, and medians) shall be installed prior to planing operations. Any damage to new concrete valley gutters resulting from the Contractor's planning operations shall be repaired by the Contractor, all at the expense of the Contractor and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Full width planing shall be to a depth of 0.25 foot below the proposed grades. Actual planning depths will vary. It is anticipated that existing pavement depths are greater than 0.25 foot within the planing section.

Planing of asphalt concrete pavement shall be performed by cold planing. The cold planing machine shall have a cutter head at least thirty inches (30") wide and shall be operated so as not to produce fumes or air pollution.

The Contractor is advised that more than one pass may be necessary to develop the specified depth and width. The final planing cut shall result in a uniformly rough surface.

Planed cut lines at conforms to existing asphalt concrete and Portland cement concrete to remain shall be neat and uniform, and shall be straight and the edges vertical to the depth specified. Planing shall be contiguous to Portland cement concrete.

Existing highway facilities within the roadway area to be planed shall not be damaged in any way. Any damage, as a result of the Contractor's operations, to existing highway facilities shall be repaired or replaced by the Contractor at his expense, and no additional compensation will be allowed therefore. Repair or replacement of such facilities shall conform to the standards

and specifications of the facility owner, and shall be inspected and approved of, in writing, by the facility owner.

Material planed from the roadway surface shall remain the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions of Section 7-15, "Disposal of Material outside the Highway Right of Way," of these Special Provisions.

The Contractor may propose an alternative method to planing, provided that the contractor's alternative method produces the desired result. The alternative method is subject to the Engineer's approval.

Plane Asphalt Concrete Pavement (Full Width) will be measured by the square yard. The square yard quantity to be paid for this item, "Plane Asphalt Concrete Pavement (Full Width)," will be the actual surface area planed regardless of the number of passes required.

The Contractor shall provide temporary **three-foot (3') wide** ramps, of cutback or other approved material, at all planed joints for transverse conforms, and at cross-streets and driveways, as well as at any other locations designated by the Engineer, unless otherwise directed by the Engineer. All labor and material costs associated with conform ramp construction and removal prior to paving operation shall be considered as included in the Contract unit price paid per square yard for this item, "Plane Asphalt Concrete Pavement (Full Width)," and no additional payment will be allowed therefore.

The Contractor is reminded of the importance of public safety and the need to install the temporary cutback ramps the same day planing of asphalt concrete pavement occurs.

The Contractor is advised that Contractor may incur task-specific liquidated damages in the amount of $2,000 per calendar day for every day hence until either temporary cutback ramps are installed or final pavement is completed.

The Contract price paid per square yard for this item, "Plane Asphalt Concrete Pavement (Full Width)," shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in planing asphalt concrete pavement full width, including, but not limited to, transporting, placing, and/or disposing of asphalt concrete surfacing, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

39-5 SAW CUTTING

Saw cutting shall conform to Section 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete," of these Special Provisions.

END OF SECTION

SECTION 40
PORTLAND CEMENT CONCRETE PAVEMENT

The Contractor is advised that this Section 40, "Portland Cement Concrete Pavement," conforms to Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 40.

40-1 GENERAL

This Section 40, "Portland Cement Concrete Pavement," applies to the Concrete Bus Stop Pad, as shown on the Plans.

40-1.1 Summary

Section 40-1 includes general specifications for constructing concrete pavement.

40-1.2 Definitions

action limit: Test results at which corrective actions must be made while production continues.

full-depth crack: Crack other than a working crack that runs from one edge of a slab to the opposite or adjacent side of the slab.

raveling: Progressive disintegration of the concrete pavement surface resulting in dislodged aggregate.

suspension limit: Test results at which production must be suspended while corrections are made.

working crack: Crack that extends through the full depth of a slab and is parallel to and within 0.5 foot of a planned contraction joint.

40-1.3 Submittals

40-1.3.1 General

At least 15 days before delivery to the job site, submit the manufacturer's instructions for storage and installation of:

A. Joint filler

Submit updated QC charts each paving day as an informational submittal.

If repair or replacement of noncompliant concrete is required, submit a repair or replacement plan.

40-1.3.2 Certificates of Compliance

Submit a certificate of compliance for:

A. Tie bars
B. Joint filler
C. Epoxy-powder coating

40-1.3.3 Quality Control Plan

Submit a concrete pavement QC plan. Allow 30 days for review.

40-1.3.4 Mix Design

At least 15 days before testing for mix proportions, submit a copy of the AASHTO accreditation for the laboratory determining the mix proportions as an informational submittal.

At least 15 days before starting field qualification, submit the proposed concrete mix proportions, the corresponding mix identifications, and laboratory test reports, including measurements of the modulus of rupture, for each trial mixture at 10, 21, 28, and 42 days.

40-2 MATERIALS

40-2.1 General

Tack coat must comply with Section 39.

40-2.2 Concrete

40-2.2.1 General

Concrete placed for tapered edges after the pavement has been placed may be minor concrete.

40-2.2.2 Cementitious Material

Concrete must contain from 505 pounds to 675 pounds of cementitious material per cubic yard. A 30-day compressive strength of 5,000 psi is required.

40-2.2.3 Bar Reinforcement

Bar reinforcement must be deformed bars complying with Section 52.

A. Epoxy-coated bar reinforcement under Section 52-1.02B and bars must comply with ASTM A706/A706M, Grade 40 or 60. Bars must be handled under ASTM D3963/D3963M and Section 52-2.02C.

40-2.3 Joint Filler

Joint filler for an isolation joint must be a preformed, asphalt-type, expansion joint filler for concrete complying with ASTM D994.

40-3 CONSTRUCTION

40-3.1 General

Proportion aggregate and bulk cementitious material by weight using an authorized automatic proportioning device.

For widenings and lane reconstruction, construct only the portion of the pavement where the work will be completed during the same closure. If you do not complete the construction during the same closure, construct temporary roadway pavement under Section 41-1.02E.

40-3.2 Joints

40-3.2.1 General

Do not bend tie bars or reinforcement in existing concrete pavement joints.

For contraction joints and isolation joints, saw cut a groove with a power-driven saw equipped with a diamond blade. After cutting, immediately wash slurry from the joint with water below 100 psi gauge pressure.

Keep joints free from foreign material, including soil, gravel, concrete, and asphalt. To keep foreign material out of the joint, you may use filler material. The filler material must not react adversely with the concrete or damage the pavement. After sawing and washing, install the material such that it keeps moisture in the adjacent concrete during the 72 hours after paving. If you install filler material, the specifications for spraying the sawed joint with additional curing compound in Section 40-3.9 do not apply. If you use absorptive filler material, moisten the filler immediately before or after installation.

40-3.2.2 Construction Joints

Construction joints must be vertical.

Before placing fresh concrete against hardened concrete, existing concrete pavement, or structures, apply curing compound No. 1 or 2 to the vertical surface and allow it to dry.

At joints between concrete pavement and asphalt concrete pavement, apply a tack coat between the two pavements.

Use a metal or wooden bulkhead to form transverse construction joints. If dowel bars are described, the bulkhead must allow dowel bar installation.

40-3.2.3 Contraction Joints

Saw contraction joints before cracking occurs and after the concrete is hard enough to saw without spalling, raveling, or tearing.

Except for longitudinal joints parallel to a curving centerline, saw the contraction joints such that they are no more than 0.1 foot from either side of a 12-foot straight line.

Cut transverse contraction joints within 0.5 foot of the spacing described. Adjust spacing if needed such that slabs are at least 10 feet long.

For widenings, do not match transverse contraction joints with existing joint spacing or skew unless described.

Cut transverse contraction joints straight across the full width of the concrete pavement between isolation joints and edges of pavement. In areas of converging and diverging pavements, space transverse contraction joints such that the joint is continuous across the maximum pavement width. Longitudinal contraction joints must be parallel with the concrete pavement centerline except where lanes converge or diverge.

40-3.2.4 Isolation Joints

Before placing concrete at isolation joints, saw cut the existing concrete face to make a clean, flat, vertical surface and secure the joint filler. Make the saw cut the same depth as the depth of the new pavement.

40-3.3 Bar Reinforcement

Place bar reinforcement under Section 52.

Bar reinforcement must be more than ½ inch below the saw cut depth at concrete pavement joints.

40-3.4 Placing Concrete

40-3.4.1 General

Immediately before placing concrete, the surface to receive the concrete must be:

A. Within the compaction and elevation tolerances

B. Free of loose and extraneous material

C. Uniformly moist but free of standing or flowing water

Place concrete pavement with stationary side forms or slip form paving equipment.

Place consecutive concrete loads within 30 minutes of each other. Construct a transverse construction joint if the concrete placement is interrupted by more than 30 minutes. The transverse construction joint must be at the same longitudinal location as the contraction joint in the adjacent lane location, or you must remove the concrete pavement to the preceding transverse joint.

Place the concrete pavement in full-lane widths separated by construction joints or monolithically with contraction joints.

Do not re-temper concrete.

If the surface width is constructed as shown, you may construct the pavement sides on a batter not flatter than 6:1 (vertical: horizontal).

40-3.4.2 Paving Adjacent to Existing Concrete Pavement

Wherever pavement is placed adjacent to existing concrete pavement:

A. Grind the adjacent pavement before placing the new pavement.

B. Match the pavement grade with the elevation of the existing concrete pavement after grinding.

40-3.4.3 Concrete Pavement Transition Panel

For concrete pavement placed in a transition panel, texture the surface with a drag strip of burlap, broom, or spring steel tine device that produces scoring in the finished surface. Scoring must be either parallel or transverse to the centerline. Texture at the time that produces the coarsest texture.

40-3.4.4 Stationary Side-Form Construction

Stationary side forms must be straight and without defects, including warps, bends, and indentations. Side forms must be metal except at end closures and transverse construction joints where other materials may be used.

You may build up side forms by attaching a section to the top or bottom. If they are attached to the top of metal forms, the attached section must be metal.

The side form base width must be at least 80 percent of the shown concrete pavement thickness.

Side forms, including interlocking connections with adjoining forms, must be rigid enough to prevent springing from (1) subgrading and paving equipment and (2) concrete pressure.

Construct the subgrade to the final grade before placing the side forms. The forms must bear fully on the foundation throughout their length and base width. Place the forms to the grade and alignment of the finished concrete pavement edge. Support the forms during concrete placement, compaction, and finishing.

After completing the subgrade and immediately before placing the concrete, true up the side forms and set to the line and grade for a distance that avoids delays due to form adjustment.

Clean and oil the forms before each use.

Side forms must remain in place for at least 1 day after placing the concrete and until the pavement edge no longer requires protection from the forms.

Spread, screed, shape, and consolidate concrete with one or more machines. The machines must uniformly distribute and consolidate the concrete. The machines must operate to place the concrete to the shown cross section with minimal hand work.

Consolidate the concrete without segregation. If you use concrete vibrators:

A. Vibration rate must be at least 3,500 cycles per minute for surface vibrators and 5,000 cycles per minute for internal vibrators. Use a calibrated device to measure the frequency of vibration.

B. Amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element.

C. Vibrators must not rest on side forms or new concrete pavement.

D. Power to vibrators must automatically cease if forward or backward motion of the paving machine is stopped.

E. High-frequency internal vibrators must be used within 15 minutes of depositing concrete on the subgrade to uniformly consolidate the concrete across the paving width, including the area adjacent to the forms.

F. Mass of concrete must not be shifted with the vibrators.

40-3.4.5 Slip Form Construction

If you use slip form construction, spread, screed, shape, and consolidate the concrete to the shown cross section with slip form machines and minimal hand work. Slip form paving machines must be equipped with traveling side forms and must not segregate the concrete.

Do not deviate from the pavement alignment by more than 0.1 foot.

Slip form paving machines must use high-frequency internal vibrators to consolidate concrete. You may mount the vibrators with their axes parallel or normal to the pavement alignment. If vibrators are mounted with their axes parallel to the pavement alignment, space the

vibrators no more than 2.5 feet center-to-center. If vibrators are mounted with their axes normal to the pavement alignment, space vibrators with a maximum 0.5-foot lateral clearance between individual vibrators.

Each vibrator must have a vibration rate from 5,000 to 8,000 cycles per minute. The amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element. Use a calibrated tachometer to measure the frequency of vibration.

40-3.5 Edge Treatment

If required, regrade the area for the preparation of tapered edge treatment.

For tapered edges placed after the concrete pavement is complete, install connecting bar reinforcement under Section 52.

You may construct the tapered edges by saw cutting or grinding.

The angle of the tapered edge slope must not deviate by more than ±5 degrees from the angle shown measured from the plane of the adjacent finished pavement surface.

40-3.6 Finishing

40-3.6.1 General

Reserved

40-3.6.2 Preliminary Finishing

A. General

Preliminary finishing must produce a smooth and true-to-grade finish.

Do not apply water to the pavement surface before float finishing.

B. Stationary Side Form Finishing

If you use stationary side-form construction, apply a preliminary finish to the pavement by machine-float or hand method.

For the machine-float method:

1. Use self-propelled machine floats.

2. Determine the number of machine floats required to perform the work at a rate equal to the pavement placement. If the time from paving to machine-float finishing exceeds 30 minutes, stop pavement placement. When machine floats are in proper position, you may resume pavement placement.

3. Run machine floats on side forms or adjacent pavement lanes. If running on adjacent pavement, protect the adjacent pavement surface under Section 40-3.10. Floats must be hardwood, steel, or steel-shod wood and equipped with devices that adjust the underside to a true flat surface.

For the hand method, finish the pavement smooth and true to grade with manually operated floats or powered finishing machines.

C. Slip Form Finishing

For slip form construction, the slip form paver must give the pavement a preliminary finish. You may supplement the slip form paver with machine floats.

Before the pavement hardens, correct the slump of the pavement edge in excess of 0.02 foot except for the edge rounding.

40-3.6.3 Final Finishing

After completing preliminary finishing, round the edges of the initial paving widths to a 0.04-foot radius. Round the transverse and longitudinal construction joints to a 0.02-foot radius.

Texture the pavement before curing it. Perform the initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform the final texturing with a spring-steel tined device that produces grooves parallel with the centerline.

40-3.7 Curing

Cure the concrete pavement exposed area using the waterproof membrane method or curing compound method with curing compound No. 1 or 2. If you remove the side forms within 72 hours of the start of curing, also cure the pavement edges.

Apply curing compound with mechanical sprayers. Reapply curing compound to saw cuts and disturbed areas.

40-3.8 Protecting Concrete Pavement

Maintain the concrete pavement surface temperature at not less than 40°F for the initial 72 hours.

Protect the surface from activities that cause damage and reduce the texture or coefficient of friction. Prevent soil, gravel, petroleum products, concrete, or asphalt mixes from being deposited on the pavement surface.

Do not allow traffic on concrete pavement or use equipment on it (1) for 10 days after paving and (2) before the concrete has attained a modulus of rupture of 550 psi based on the Department's testing unless:

A. Equipment is for sawing contraction joints.

40-3.9 Early Use of Concrete Pavement

To request early use of concrete pavement:

A. Furnish molds and machines for the modulus of rupture testing
B. Sample the concrete

C. Fabricate beam specimens

D. Test the beams for the modulus of rupture under California Test 523

The pavement must have a modulus of rupture of at least 350 psi. Protect the pavement under Section 40-3.8.

40-3.10 Correcting Noncompliant Pavement Work

40-3.10.1 General

Correct noncompliant pavement as follows:

A. Replace the pavement

B. Repair spalls, ravels, and working cracks

C. Correct the smoothness and coefficient of friction

D. Treat partial-depth cracks

E. Replace damaged joint seals under Section 41-5

In addition to removing pavement for other noncompliance, remove and replace JPCP slabs that have either of the following:

A. One or more full-depth cracks

B. Combined raveled areas more than 5 percent of the total slab area or a single raveled area more than 4 square feet

Replace JPCP for 3 feet on both sides of a joint with a rejected dowel bar.

40-3.10.2 Spall and Ravel Repair

Repair spalled or raveled areas that are:

A. Deeper than 0.05 foot

B. Wider than 0.10 foot

C. Longer than 0.30 foot

40-3.10.3 Crack Repair

If the joints are sealed, repair working cracks by routing and sealing. Use a router mounted on wheels with a vertical shaft and a routing spindle that casters as it moves along the crack. Form a reservoir ¾ inch deep by ⅜ inch wide in the crack. The equipment must not cause raveling or spalling.

Treat the contraction joint adjacent to the working crack by either of the following methods:

A. Applying epoxy resin under ASTM C881/C881M, Type IV, Grade 2
B. Pressure injecting epoxy resin under ASTM C881/C881M, Type IV, Grade 1

40-3.11 Smoothness and Friction Correction

Correct pavement that is noncompliant for:

A. Coefficient of friction by grooving or grinding under Section 42

Do not start corrective work until:

A. Pavement has cured 10 days
B. Pavement has at least a 550 psi modulus of rupture
C. Corrective method is authorized

Correct the entire width. Start and end grinding at lines perpendicular to the roadway centerline. The corrected area must have a uniform texture and appearance.

If corrections are made within areas where testing with an inertial profiler is required, retest the entire lane length with an inertial profiler.

If corrections are made within areas where testing with a 12-foot straightedge is required, retest the corrected area with a straightedge.

40-3.12 40-3.16 through 40-3.21 Reserved

40-4 PAYMENT

The Contract price paid per square foot for this item, " Portland Cement Concrete Pavement (Bus Pads)," shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in constructing the bus pads, including, but not limited to, transporting, placing, and/or disposing of concrete, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Payment for grinding existing pavement is not included in the payment for concrete pavement.

END OF SECTION

SECTION 47
SPECIAL CONDITIONS

47-1 PROJECT LOCATION

The work under this contract will be performed at the locations as shown on the Project Plans. Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

47-2 INSPECTION OF WORK SITES

Bidders are required to inspect the sites of the work in order to satisfy themselves by personal examination or by such means, as they may prefer, of the location of the proposed work and of the actual conditions of the site of work. If, during the course of his examination, a bidder finds facts or conditions, which appear questionable or inconsistent, he may apply to the County for additional information and explanation before submitting his bid. However, no such supplemental information requested or furnished shall vary the terms of the specifications or the Contractor's sole responsibility to satisfy himself/herself as to the conditions of the work to be performed.

The submission and signing of the "Acknowledgement of Site Visit" Form of the Proposal by the bidder shall constitute acknowledgment that he/she has relied and is relying on his/her own examination of (a) the sites of the work, (b) the access to the sites, and (c) all other data, matters, and things requisite to the fulfillment of the work and on his/her own knowledge of existing services and utilities on and in the vicinity of the site of the work to be constructed under the contract, and not on any representation or warranty of the County. No claim for additional compensation will be allowed which is based upon a lack of knowledge of the above item.

47-3 SUBSURFACE CONDITIONS DATA

The County has not conducted any investigation of subsurface soil conditions. Lack of this information is not intended to be and shall not be construed to be a waiver of the provisions of Section 47-2, "Inspection of Work Sites" and will not relieve the bidder or Contractor from

any risk, or from properly examining the sites and making such additional investigations as he/she may elect, or from properly fulfilling all the terms of the Contract Documents.

47-4 PRE-CONSTRUCTION CONFERENCE

After award of the Contract and prior to the issuance of the Notice to Proceed, the various parties with an interest in the project including the contracting partner, subcontractors, and public officials shall meet to discuss and coordinate the required construction activities and determine when construction can proceed. The conference will take place at a time and location designated by the County.

47-5 EXISTING ALIGNMENT OF SEWERS

The alignments of the existing sewers noted on the drawings are based on topographic surveys of the manhole inverts. Limited potholing was performed over the existing sewers. The Contractor is to exercise extreme care in excavation such that existing utilities are not disrupted and existing utilities to remain are not damaged.

Contractor shall pothole as required to ensure successful installation and prevent disruption and damage to existing utilities.

47-6 SURVEYS

Project survey and staking services shall be provided by the Contractor.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for doing all work involved on "Surveys," shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

47-7 CONTRACTOR COORDINATION

The Contractor shall also coordinate his/her work in the project area with other contractors, public agencies, railroad (Union Pacific Railroad, Samtrans, Caltrain) public utility agencies (i.e. SFPUC), and utility companies (i.e. Cal Water) so as to minimize delays in the completion of the contract.

47-8 EXISTING UTILITIES

The Contractor shall locate all existing sewer laterals for service lateral reconnection. The locations of all existing utilities, whether above ground or underground, are not indicated on the Plans, except for the approximate locations of some existing water and gas facilities or unless noted on the Project Plans otherwise.

The Contractor shall notify the Underground Services Alert Agency and notify the underground utility companies of his/her intention to work in the vicinity of their facilities and shall enlist their help to pinpoint the exact location, both in plan and elevation, of their utility. The Contractor, at no increase in cost to the County, shall perform any Special construction techniques required in order to avoid existing utilities.

Existing aboveground utilities, including but not limited to power transmission and distribution, telegraph, telephone and traffic control systems shall be maintained by the Contractor with the least possible interference with the use of such facilities at no increase in cost to the County.

The right is reserved by Owners of utilities and franchises to enter upon any street, road, right-of-way or easement for the purpose of maintaining their property/facilities and for making necessary repairs or changes as result of the work.

47-9 CONSTRUCTION UTILITIES

The Contractor shall provide all water required for construction purposes. He shall also provide power as required for the work.

Full compensation for providing water, power and other construction utilities for the whole project shall be considered as included in the various contract unit prices, and no separate payment will be made therefore.

47-10 SHOP DRAWING AND SAMPLE SUBMITTALS

A. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules and manufacturer's instructions as specifically required in the specifications and all other information as may reasonably be required to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the specifications and drawings. If the information shows any deviation from the contract requirements, the Contractor shall, by a statement in writing accompanying the information, advise the Engineer of the deviation and state the reason therefore. It shall be the Contractor's responsibility to ensure there is no conflict with other submittals and to notify the Engineer in any case where his submittal may concern work by another contractor or the County.

B. Samples are physical examples furnished by the Contractor to illustrate the quality of materials, equipment or workmanship, and to establish standards by which the work will be judged.

47-11 REVIEW OF CONTRACTOR'S SUBMITTALS

A. The Contractor must review all shop drawings and samples prior to submittal to the Engineer. The Engineer will review and approve shop drawings and samples within 10 working days, but only for conformance with the design concept of the work and with the information given in the Contract Documents. The Engineer's approval of a separate item shall not indicate approval of an assembly in which the item functions. Complete and accurate shop drawings must be submitted for review time to begin. Incomplete or illegible submittals, as determined by the Engineer will be returned without comment.

B. The Contractor shall make any corrections required by the Engineer and shall resubmit the required number of corrected copy of shop drawings or new samples until approved. The Contractor shall bring to the Engineer's attention, through written correspondence revisions other than the corrections requested by the Engineer on previous submissions. For the trench shoring system, the Contractor shall submit to the Engineer the design and calculations for the system proposed. Said design and calculations shall be performed and stamped by a Civil or Structural Engineer, registered in the State of California.

C. The Contractor shall review, stamp with his approval and submit within 10 working days, and in orderly sequence, so as to cause no delay in the work or in the work of any other contractor, all shop drawings and samples required by the Contract Documents or subsequently by the Engineer as covered by Field Conditions or Change Orders. Shop drawings and samples shall be properly identified as specified, or as the Engineer may require. At the time of submission, the Contractor shall inform the Engineer in writing of any deviation in the shop drawings or samples from the requirements of the Contract Documents.

D. By approving and submitting shop drawings and samples, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so, and that he has checked and coordinated each shop drawing and sample with the requirements of the work and of the Contract Documents.

47-12 EFFECT OF ACCEPTANCE OF CONTRACTOR'S SUBMITTALS

A. The Engineer's approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written approval to the specific deviation, nor shall the Engineer's approval relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.

B. No portion of the work requiring a shop drawing or sample submission shall commence until the Engineer has approved the submission in writing. All such portions of the work shall be in accordance with approved shop drawings and samples.

47-13 NUMBER OF COPIES OF CONTRACTOR'S SUBMITTALS

The Contractor shall submit one copy of review drawings or information regarding materials and equipment. The Engineer, after taking appropriate action, will return a PDF of the submittals to the Contractor. Said returned PDF submittals will be stamped to indicate status of submittal.

47-14 PUBLIC CONVENIENCE

If, during short periods of time, the sewage flow is to be interrupted for connection purposes or other delicate operations, the Contractor must contact and notify the residents of the property of the schedule of interruptions of sewage flow. Short periods of time are defined to not exceed 4 hours. Interruption longer than this will not be allowed without advance written approval of the Engineer. The Contractor shall provide written notification to such parties of interruption to sewage flow not less than 2 working days prior to disruption and no more than 5 working days prior to disruption.

The Contractor shall not open more trenches in advance of pipe laying than is necessary to expedite the work. No trench shall be open at the end of the working day.

Throughout the performance of the work, or in connection with this contract, the Contractor shall construct and adequately maintain suitable and safe crossings over trenches; driveway access and such detours as are necessary to care for vehicle and public pedestrian traffic. In no case, shall access to any driveway be impacted more than 8 hours.

47-15 STORAGE OF MATERIAL

The Contractor is advised that areas within project right-of-way may be used for parking equipment and storing materials. The Contractor may park equipment or store materials only at locations where he has obtained permission from the adjacent property owner or from or County of San Mateo (including areas within the road right-of-way). The Contractor shall not store materials at any site more than 5 working days, before they are to be used. All unused materials shall be removed within 5 working days after they are no longer needed. All stored materials shall be kept at least 15 feet from fire hydrants; 5 feet from mailboxes and 20 feet from storm drain inlets.

47-16 CONSTRUCTION NOISE CONTROL

The Contractor shall take all necessary precautions to minimize construction noise. All plant and equipment shall be fitted with suitable noise reduction devices such as mufflers, inlet and exhaust silencers, and engine covers, which shall be maintained in good working order.

The Engineer shall decide on the adequacy of provision and maintenance of noise reduction equipment. When so instructed in writing by the Engineer, the Contractor shall immediately withdraw any item of plant or equipment from service and carry out all necessary additions, replacements or repairs to the noise reduction equipment to the satisfaction of the Engineer.

For more detail, refer to the Initial Study/Mitigated Negative Declaration, available on County's project website (https://publicworks.smcgov.org/projects/middlefield-road-improvement-project).

47-17 SEWAGE BYPASSING DISCHARGES DURING CONSTRUCTION

Bypassing of untreated or partially treated wastewater to surface waters or drainage courses will not be permitted during construction. Bypassing of untreated wastewater to surface waters and drainage courses will result in assessment of any and all

costs incurred by the County for the remedial actions. The Contractor shall comply with all State and Federal regulations. Refer to Section 103-3.8, "Sewage Bypassing" of these Special Provisions for bypass system specifications.

The Contractor shall begin clean-up efforts immediately if untreated or partially treated wastewater enters a natural water or drainage course. In addition, the Contractor will be required to notify the Engineer and, subsequently, the California Regional Water Quality Control Board at (510) 622-2300 and be prepared, at that time, to fully describe the nature of the spill and the clean-up efforts that are being undertaken to mitigate the spill.

Notification and response procedures shall be consistent with the California State Water Resources Control Board's Statewide General Waste Discharge Requirements for Sanitary Sewer Systems amended on July 30, 2013.

47-18 RESTORATION OF STRUCTURES AND SURFACES

A. General

Whenever any of the work is accomplished on or through property other than the road right-of-way, the Contractor shall be required to take photographs of and video the private property (from point of entry onto private property to point of exit of private property, including the property address) where the work is to be performed prior to the starting of the work and after the work has been completed and furnish the County, before its final acceptance of the work, with a written release from the property owner or proper authority acting for the property owner of the property affected, stating that the restoration of structures and surfaces has been satisfactorily accomplished. The photographs and video shall be provided to the County.

All removal and restoration costs shall be borne by the Contractor. Material removed and not to be incorporated in the contract work shall become the property of the Contractor and shall be disposed of outside of the public right-of-way in accordance with Section 7-17 of these Special Provisions at no additional cost to the County and/or affected property owner.

B. Cultivated Areas, Fences and Other Surface Improvements

All cultivated areas, either landscaping, natural vegetation areas, shrubs, irrigation lines, concrete sidewalk, gutters, asphalt concrete pavement, concrete or decorative pavers, or other surface improvements which are damaged by actions of the Contractor, shall be restored to same or better condition as their original condition to the satisfaction of the Engineer. It is expected that the Contractor will and can determine the existence of such improvements by a site visit and video prior to the commencement of work. Accordingly, there shall be no additional payments whatsoever for the required restoration of any such improvements.

C. Existing Stakes and Marks

All sections, section subdivision, plats, U.S.E.D., U.S.C. & G.S., U.S.G.S., and any other official monuments or benchmarks shall be carefully preserved or replaced. Before a monument is disturbed, its location and elevation shall be referenced to at least four short tics (set iron pipes) and two copies of the field notes showing the ties shall be presented to the Engineer. A Surveyor registered in the State of California shall reset the monuments after construction is complete. In cases where construction interferes with monument replacement and new concrete monuments are required, two copies of the field notes showing the new locations, ties and elevations shall be furnished to the Engineer. Replaced or reset monuments shall be of acceptable type and quality and shall be located so as to clear existing utilities or any other interference. They shall be placed in a manner consistent with good and recognized engineering and surveying practices and in accordance with the County's standard drawings, and the State of California regulations. Replacement or resetting of the monuments shall be at no extra cost to the County. Compensation for this task shall be included in the unit cost per linear foot for respective bid items for sanitary sewer pipe replacement, and no additional compensation will be allowed therefore.

47-19 PROTECTION OF EXISTING INSTALLATIONS

The Contractor is advised that he/she will be required to correct or replace, without delay, any and all damage to existing structures, utilities and equipment resulting from his/her operation.

The Contractor is advised that existing utilities may be very close to the proposed sanitary sewer and that he/she is responsible for field verification of utility locations. Any required construction techniques performed by the Contractor to support such utilities shall be at no extra cost to the County. Compensation for this task shall be included in the unit cost per linear feet for respective bid items for sanitary sewer pipe replacement, and no additional compensation will be allowed therefore.

47-20 PROJECT RECORD DRAWINGS

Contractor shall maintain up to date record drawings during the course of work and prior to final acceptance of the project. Contractor shall submit a complete set of redlined "as-built" record drawings. All reference dimensions, corrections to existing data shown on the plans and revisions to the constructed improvements, shall be shown on the record drawings. The "as-built." record drawings shall be legible.

Contractor is responsible for maintaining an accurate set of "as-built" drawings during the course of construction. "As-built" drawings shall be reviewed as part of each progress payment. Payments will not be approved if such drawings are not marked with up to date record information as of the date of the progress payment submission.

47-21 CLEANING UP

The Contractor shall not allow the site of the work to become littered with trash and waste material but shall maintain the same in a neat and orderly condition throughout the construction period. On or before the acceptance of the work, the Contractor shall carefully clean out all pits, chambers or conduits, shall tear down and remove all temporary structures built by him and shall remove rubbish of all kinds from any of the grounds which he occupied and leave them in an acceptable condition to the satisfaction of the Engineer.

The Contractor shall remove all construction debris within private property easements by the end of each working day.

Excess dirt or soil material and waste materials, including rubbish of any kind shall become the property of the Contractor and shall be disposed of outside of the public right-of-way in accordance with Section 7-15 of these Special Provisions. The Contractor shall pay for all disposal costs without any increase in the Contractor's bid price.

END OF SECTION

SECTION 51
CONCRETE STRUCTURES

51-1 GENERAL

51-1.1 General

Concrete Structures shall conform to the provisions of Section 51, "Concrete Structures," Section 73, "Concrete Curbs and Sidewalks," and Section 90, "Portland Cement Concrete," of the Standard Specifications, these Special Provisions, and the directions of the Engineer.

51-2 CLASS 2 CONCRETE (MINOR STRUCTURES)

Class 2 Concrete (Minor Structures) shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these Special Provisions.

Concrete for minor structures shall conform to Section 90-1, "General," and Section 90-10, "Minor Concrete," of the Standard Specifications.

Concrete structures to be paid for as Class 2 Concrete (Minor Structures) shall be as designated on the Plans.

The Contractor's attention is directed to Section 9-1.015, "Final Pay Items," of the Standard Specifications.

Portland cement concrete for minor structures shall be produced from commercial quality aggregate and cement shall contain not less than 590 pounds of cement per cubic yard (350 kg/m^3).

Full compensation for providing bar reinforcing steel, and drainage inlet frames and covers, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, shall be considered as included in the Contract unit price paid per cubic yard for this item, "Class 2 Concrete (Minor Structures)," and no separate payment will be made therefore.

The Contractor shall take care when working in and around facilities to remain. The cost of repairing, to the satisfaction of the Engineer, any damage to said facilities to remain and resulting from the Contractor's operations, as determined by the Engineer, shall be performed by the Contractor, all at his expense, and no additional compensation will be allowed therefore.

Drainage inlet frames and covers shall be paid for as provided in Section 75, "Miscellaneous Iron and Steel," of the Standard Specifications and these Special Provisions.

The Contractor shall take care when working in and around facilities to remain. The cost of repairing, to the satisfaction of the Engineer, any damage to said facilities to remain and resulting from the Contractor's operations, as determined by the Engineer, shall be performed by the Contractor, all at his expense, and no additional compensation will be allowed therefore.

The Contract unit price paid per CY for the items, Sections 37-2, "Remove and Relocate Existing Drainage Inlet" and "Install New Drainage Inlet," 103-3, "Remove and Replace Existing Sanitary Sewer Manholes," and 115, "Bioretention," as shown on the Plans" shall be in accordance with Section 51-1.23, "Payment," of the Standard Specifications, except it shall also include furnishing and setting metal frames, grates and covers, and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for doing all work involved in constructing minor structures from Class 2 concrete, complete in place, including, but not limited to, excavation and backfill, dewatering where required, for furnishing and placing all bar reinforcing and miscellaneous metal (including frames, grates and covers), connecting new or existing pipes to new structures (including cutting existing pipe ends flush with inside structure face), work required to avoid and protect all existing utility lines, providing and installing object markers, and other work as may be required by the Engineer to complete the installation, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

51-3 CLASS 3 CONCRETE

Reference is made to Section 15-10, "Remove Concrete Curbs, Gutters, Sidewalks, Driveway Openings, Sidewalk Access Ramps, Valley Gutters and Medians," of these Special Provisions for the provisions governing removal of concrete to be replaced under this Section 51-3.

Class 3 concrete shall conform to the provisions of Section 51, "Concrete Structures," Section 73, "Concrete Curbs and Sidewalks," Section 90, "Portland Cement Concrete," and Section 115-2, "Bioretention Concrete Walls Reinforcing," of the Standard Specifications, these Special Provisions, the Plans, and the directions of the Engineer.

Portland cement concrete Class 3 concrete shall be produced from commercial quality aggregate and cement content per cubic yard of concrete shall not be less than 505 pounds (300 kg/m^3) of cement.

Concrete curbs, gutters, sidewalks and bioretention basin walls, driveway openings, sidewalk access ramps, valley gutters, and medians shall be constructed or reconstructed at the locations shown on the Plans and as designated by the Engineer. The Contractor is advised that the portions of any Portland cement concrete facilities that are removed to conform to the new grades shall be replaced "in kind," except where indicated on Plans.

Concrete curbs and gutters shall be poured monolithically with the sidewalks, driveway openings and sidewalk access ramps, unless other methods are authorized by the Engineer. Where the curb portion is depressed to accommodate driveway openings and sidewalk access ramps, no adjustment in quantity will be made.

Existing improvements, such as fences, sprinklers and landscaping, that need to be relocated or removed, as determined by the Engineer for construction purposes, shall be accomplished only after the property owners have been notified and given an opportunity to perform this task themselves. If the property owners do not perform this task, then the Engineer may direct the Contractor to perform this operation. Existing improvements

removed shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions by the Contractor, unless arranged with the property owners to deposit the existing improvements on their property at a location designated by the property owner.

Special care shall be taken during construction to accurately match the existing and/or required alignment and grades for all concrete work and to ensure positive drainage, as specified in these Special Provisions and as directed by the Engineer.

The progression and sequence of the various phases of the concrete work shall be approved by the Engineer. Work within a particular location or area shall not commence without approval of the Engineer.

The Contractor shall notify the Engineer **48 hours** prior to beginning concrete work and shall provide **24 hours** advance notification whenever his work is interrupted. The Contractor's attention is directed to Section 12, "Maintaining Traffic," of these Special Provisions for property owner notification.

Curb, gutter and sidewalk shall be saw cut at the first scoring line at or beyond the planned point of removal. Saw cutting operations shall conform to the following special provisions:

A. Saw cutting shall be performed with a power-driven saw and the saw cut shall extend completely through the asphalt concrete and Portland cement concrete. The use of pavement breakers or other devices for cutting pavement will not be permitted unless specifically authorized, in writing, by the Engineer.

B. Cracked or broken pavement caused by, or new or existing improvements damaged by, the Contractor's operations shall be removed to a line established by the Engineer, and shall be replaced with new asphalt concrete or Portland cement concrete, all at the Contractor's

expense and as directed by the Engineer, and no additional compensation will be allowed therefore.

C. **The Contractor's attention is directed to Section 11-3, "Water Pollution Control," of these Special Provisions regarding slurry resulting from saw cutting operations, which must be shoveled or vacuumed and completely removed from the site.** Any slurry shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The concrete for curbs, gutters, sidewalk, sidewalk access ramps, valley gutters, bioretention basin walls, and medians shall be cured by the curing compound method conforming to Section 90-7.01B, "Curing Compound Method," of the Standard Specifications. The curing compound shall be a non-pigmented curing compound with fugitive dye conforming to the requirements in ASTM Designation: C 309, Type 1-D, Class A, except that loss of water in the water retention test shall not exceed 0.15 kilogram per meter squared in 24 hours. The curing compound shall be applied at the approximate rate of 1 gallon per 150 square feet of area.

Concrete to be removed shall be removed in accordance with the provisions in Section 15-3, "Removing Concrete," of the Standard Specifications. Any removed concrete shall become the property of the Contractor and shall be disposed of outside of the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Damage to existing concrete improvements not designated on the Plans or by the Engineer for removal, and as a result of the Contractor's operations, shall be repaired by the Contractor, all at the expense of the Contractor and to the satisfaction of the Engineer, and no additional compensation will be allowed for therefore.

Areas where asphalt concrete and base are removed beyond the limits of the existing concrete for the installation of concrete formwork shall be backfilled with a minimum 0.5-foot full depth asphalt concrete (Type B, 3/4" maximum, medium grading). The cost of asphalt

concrete for this work shall be included in the Contract unit price paid for this item, "Class 3 Concrete," and no additional compensation will be allowed therefore.

The Contractor shall provide a neat, clean, and uniform joint at all curb, gutter, and sidewalk conforms and, when possible, joints shall be located at existing score lines. The Contractor is advised that the method used to provide joints at conforms shall be subject to the approval of the Engineer.

Holes shall be drilled into existing concrete for placement of slip dowels to tie new concrete work to existing concrete. Holes shall be 9 inches deep and slip dowels shall be 18 inches long, as shown on the Plans and as directed by the Engineer.

The Contractor is advised that all concrete work for installing new curbs, gutters, sidewalks, sidewalk access ramps, valley gutters and medians, as well as any existing curb, gutter and sidewalk requiring reconstruction, shall be completed prior to commencement of roadwork.

The Contractor's attention is directed to where water meter boxes are to be adjusted. Payment for adjusting water meter boxes to grade shall be considered as included in the Contract unit price per each for "Adjust Water Meter Boxes to Grade (Cal Water)," and no additional compensation will be allowed therefore. Reference is made to Section 15-6, "Adjust Water Meter Boxes to Grade (Cal Water)" of these Special Provisions.

Aggregate base required, shall conform to the provisions of Section 26, "Aggregate Bases," of the Standard Specifications and these Special Provisions.

All saw cutting required, shall conform to the provisions of Section 39-7, "Saw cut Asphalt Concrete or Portland Cement Concrete," of these Special Provisions. Payment for saw cutting of asphalt concrete and Portland cement concrete required shall be considered as included in the Contract unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

Measurement of Class 3 concrete shall conform to the provisions of Section 73-1.07, "Measurement," of the Standard Specifications. Where the curb portion is depressed to accommodate sidewalk access ramps or driveway openings, no adjustment in quantity will be made.

The Contract unit price paid per cubic yard for this item, "Class 3 Concrete," shall include full compensation for providing all labor, materials (including expansion joint material, asphalt concrete (Type B, 1/2" maximum, medium grading) for backfill, dowels, bar reinforcement, and wire meshing), tools, equipment, and incidentals necessary for doing all work involved in constructing new concrete curbs, gutters, sidewalks, valley gutters and medians, including any existing curb, gutter and sidewalk requiring reconstruction, but not limited to saw cutting of existing concrete curb, gutter and sidewalk, roadway excavation, concrete removal, and disposal of material outside the highway right-of-way, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in quantities for this item, "Class 3 Concrete," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

Class 3 Concrete that is used for Sidewalk Access Ramps, as well as all other work that is necessary to comply with Section 51-4, "Sidewalk Access Ramps," of these Special Provisions, shall not be included in the Contract quantity for Class 3 Concrete, and shall be considered as included in the Contract unit price paid per each for the item "Sidewalk Access Ramps," and no additional compensation shall be allowed therefore.

Class 3 Concrete that is used for Textured Concrete and Colored Concrete Surfaces, as well as all other work that is necessary to comply with Section 51-5, "Textured Concrete and Colored Concrete Surfaces," of these Special Provisions, shall not be included in the Contract quantity for Class 3 Concrete, and shall be considered as included in the Contract unit price paid

per square foot for Textured Concrete and Colored Concrete Surfaces, and no additional compensation shall be allowed therefore.

51-4 SIDEWALK ACCESS RAMPS

Sidewalk Access Ramps shall conform to Section 51-3, "Class 3 Concrete," and this Section 51-4, "Sidewalk Access Ramps," of these Special Provisions. **Reference is further made to the sidewalk access ramp details on Sheet MD-2 of the Plans.**

The Contractor is advised that there are approximately **thirty (30)** Case A, **one (1)** Case B (with Retaining Curb), **two (2)** Case C (with retaining curb), **six (6)** Case C (without retaining curb) and **two (2)** Case F (Redwood Junction) sidewalk access ramps to be installed, as shown on the Plans and as directed by the Engineer.

The Contractor is reminded that new sidewalk access ramps shall be poured monolithically with the concrete curbs, gutters and sidewalks, as directed by the Engineer or unless otherwise authorized by the Engineer.

Should any new curb and gutter installed at sidewalk access ramps that are shown by water tests to pond water, and the reasons for the ponding are determined to be the fault of the Contractor, as determined by the Engineer, shall be removed and reinstalled before road work commences, as directed by the Engineer and all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

The surface of the sidewalk ramp shall be given a heavy broom finish that will provide a distinctive contrasting finish with adjacent sidewalk. Whereas, any portions of all other existing concrete improvements removed, as marked in the field, shall be replaced "in kind," and shall have a finish and scoring that matches the existing concrete, except where indicated on Plans or as otherwise directed by the Engineer.

Detectable warning surface shall be raised truncated domes conforming to Standard Plan A88A, as shown on the Plans, these Special Provisions, and the directions of the Engineer.

The Contract unit price paid per each for the items, "Sidewalk Access Ramps (Case A)," "Sidewalk Access Ramp (Case B with Retaining Curb)," "Sidewalk Access Ramps (Case C with Retaining Curb), "Sidewalk Access Ramps (Case C without Retaining Curb)" and Sidewalk Access Ramps (Case F), shall include, but not be limited to, full compensation for furnishing all labor, materials (including Detectable Warning Surface), as specified herein, tools, equipment and incidentals necessary for doing all work involved to construct sidewalk access ramps, complete in place, as shown on the Plans and as directed by the Engineer, including, but not limited to, all excavation and backfill, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

51-5 TEXTURED CONCRETE AND COLORED CONCRETE SURFACES

The Contractor is advised that this Section 51-5, "Textured Concrete and Colored Concrete Surfacing," conforms to Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 51-5.

51-5.1 General

The Contractor's attention is directed to the special bulb-outs located on the northerly and southerly corners of bulb-outs of Middlefield Road and 2nd Avenue. The Contractor is advised that site furnishings for these special bulb-outs shall conform to Section 114-3, "Landscape Elements (Including Site Furnishings, Special Bulb-Out Seating and Special Bulb-Out Paving," of these Special Provisions.

51-5.1.1 Submittals

Submit the manufacturer's data for the color hardener and curing and finishing compounds for each color of a concrete surface colored by the dry-shake method.

51-5.1.2 Quality Assurance

A. General

Reserved

B. Quality Control

Construct test panels for textured or colored concrete.

C. Department Acceptance

The County accepts textured or colored concrete surfaces based on a visual comparison with the test panel.

51-5.2 Materials

Aggregate for textured or colored concrete surfaces must comply with the gradation requirements for fine aggregate.

Aggregate used in grout for textured and colored concrete surfaces must comply with the gradation requirements shown in the following table:

Aggregate Gradation for Grout	
Sieve Size	**Percentage Passing**
No. 4	100
No. 8	90 to 100
No. 16	60 to 100
No. 30	35 to 70
No. 50	15 to 35
No. 100	2 to 15

Color pigments for the dry-shake method must comply with ASTM C979.

51-5.3 Construction

Protect the surrounding exposed surfaces during the placement, finishing, and curing of colored concrete.

Screed the concrete to the grade and cross section shown, and strike off and compact the concrete until a layer of mortar is brought to the surface. Wood float the concrete to produce a uniform surface.

For the dry-shake method, apply the color hardener in two applications while the concrete surface is plastic. Use at least 60 pounds of hardener per 100 sq. ft. of concrete surface. Wood float the surface after each application of hardener. Trowel the surface only after final floating.

Texture the concrete while it is in the plastic stage. For a texture that requires a concrete stamp, use the stamp under the manufacturer's instructions.

Do not texture or grout the grooved area and detectable warning surface on a curb ramp.

Cure the concrete surfaces using the curing compound method with curing compound No. 6.

Place any grout after the (1) initial curing of the textured concrete and (2) removal of curing seal and other deleterious substances. The method of removal must not stain or discolor areas of textured concrete to remain exposed after grouting. Spread and consolidate the grout over the textured concrete under the manufacturer's instructions. Remove excess grout with a squeegee and damp burlap rags or other authorized method. Apply curing seal.

51-5.4 Payment

The Contract unit price paid per square foot for this item will be paid for under Item 114-4, "Special Bulb-Out Paving," shall include full compensation for providing all labor, materials (including expansion joint material), tools, equipment, and incidentals necessary for doing all work involved in constructing new textured concrete and colored concrete (including Class 2 aggregate base), as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

51-6 CURB PAINTING

The Contractor is advised that portions of curb to be painted are for red curb painting at no parking zones, as shown on the Plans and as directed by the Engineer, which shall be painted in accordance with these Special Provisions, and the directions of the Engineer.

Paint for curbs shall be specifically designed for painting concrete curbs. The Contractor shall provide material submittals for curb paint.

The locations, color, length and legend for curb painting shall be as shown on the Plans and as directed by the Engineer.

If needed, the County can provide stencils for the curb legends if the Contractor does not possess. Curb stencils can be obtained from the County's Road Department located at Grant Yard, 752 Chestnut Street, Redwood City, CA 94063. Contractor shall notify the Engineer a minimum of **48 hours** prior to requiring curb legend stencils.

Contractor shall return County-owned curb legend stencils in the same condition as provided:

A. Should stencils be damaged during the course of this Contract, as determined by the Engineer, Contractor shall replace the damaged stencil in-kind, all at Contractor's sole expense, and no additional compensation will be allowed therefore.

B. Any paint stains on the stencils occurring the course of this Contract, as determined by the Engineer, shall be cleaned to the satisfaction of the Engineer, all at Contractor's sole expense, and no additional compensation will be allowed therefore.

The Contractor will be responsible for any curb paint stains on existing and new roadway improvements occurring during the course of this Contract. Such stains will be cleaned by sandblasting, or any other method satisfactory to the Engineer. The cost of repairing this damage shall be considered as included in the Contract unit bid price paid for "Class 3 Concrete," and no additional compensation will be allowed therefore.

The Contract unit price paid per linear foot for the item, "Red Curb Painting at No Parking Zones," shall include, but not be limited to, full compensation for furnishing all labor, materials, as specified herein, tools (except stencils), equipment and incidentals necessary for doing all work involved to paint curbs, as shown on the Plans, as specified in these Special Provisions and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 56
ROADSIDE SIGNS

Roadside signs shall be installed in conformance with the provisions in Section 56-2, "Roadside Signs," of the Standard Specifications, these Special Provisions, the Standard Plans and the Project Plans, the California Manual on Uniform Traffic Control Devices (latest edition), and the directions of the Engineer.

New Sign Panel Sizes, Sheeting and Color

The Contractor's attention is directed to the Materials List for New Roadside Signs and Sign Panels shown on Sheets ST-1 through ST-6 of the Plans.

When installing new roadside signs, or removing and replacing existing roadside signs, each multi-post or single post sign with one or more sign panels mounted on the post shall be considered a single unit. Reference is made to items 56-1, "Install New Roadside Signs," and 56-3, "Remove and Replace Roadside Signs," of these Special Provisions.

Sign Panels

Use ASTM prismatic type IX retroreflective sheeting for all sign types specified "fluorescent yellow" in color. Use ASTM prismatic type III retroreflective sheeting for all other sign types. Sign retroreflective sheeting shall conform to ASTM D 4956. When an adhesive is used, use ASTM D 4956, backing class 1, 2, 3, or 4.

Aluminum panels conforming to ASTM B 209, alloy 6061-T6 or 5052-H38 shall be used for new Roadside signs. Fabricate all temporary panels and those permanent panels that are 30 by 30 inches or smaller from 0.080-inch-thick aluminum sheets. Fabricate larger permanent panels from 0.125-inch-thick aluminum sheets.

The blanks shall be free from laminations, blisters, open seams, pits, holes, or other defects that may affect their appearance or use. The thickness shall be uniform and the blank commercially flat. Cut panels to size and shape and drill or punch all holes. Perform shearing, cutting, and punching before preparing the blanks for application of retroreflective material.

Clean, degrease, and chromate the face of metal panels using methods recommended by the retroreflective sheeting manufacturer. Apply the retroreflective sheeting material to the panels. Package sign panels in protective material and transport them in a vertical position.

On all sign panels, apply an anti-graffiti film over the retroreflective sheeting, per the manufacturer instructions.

Mount sign panels with the legend horizontal. Where multiple panels adjoin, limit the gap between adjacent panels to 1/16 inch.

Mounting Hardware shall be anti-theft, unless otherwise directed by the Engineer. Anti-Theft Mounting Hardware shall be Hawkins Traffic Type M2G-C2B-TP, or approved equal; and Contractor shall provide to the County, and at no additional cost to the County, anti-theft tightening keys specifically manufactured for use on all newly installed anti-theft mounting hardware.

Do not field drill holes in any part of the panel. Paint all bolt heads, screw heads, and washers that are exposed to the sign face. Match the color of the paint to the color of the background or message area at the point where the fitting is exposed.

Letters, Numerals, Arrows, Symbols, and Borders

Form letters, numerals, and other units shall provide a continuous stroke width with smooth edges. Sign panel surface shall be flat and free of warps, blisters, wrinkles, burrs, and splinters, and shall conform to one of the following:

Type L 1 (Screen Process):

Letters, numerals, arrows, symbols, and borders on the retroreflective sheeting or opaque background of the sign shall be by direct or reverse screen process. Apply messages and borders shall be of a color darker than the background to the paint or the retroreflective sheeting by direct process. Produce messages and borders of a color lighter than sign background by the reverse screen process.

Use opaque or transparent colors, inks, and paints in the screen process of the type and quality recommended by the retroreflective sheeting manufacturer.

Perform the screening in a manner that results in a uniform color and tone, with sharply defined edges of legends and borders, and without blemishes on the sign background that will affect intended use.

Air dry or bake the signs after screening according to manufacturer's recommendations to provide a smooth hard finish Any signs with blisters or other blemishes will be rejected.

Type L 3 (Direct Applied Characters):

Cut letters, numerals, symbols, borders, and other features of the sign message from the type and color of the retroreflective sheeting specified and apply to the sign background's retroreflective sheeting according to the retroreflective sheeting manufacturer's instructions. For the retroreflective sheeting minimum coefficient of retroreflection (RA), conform to ASTM D 4956.

Commercial Material Certification

The Contractor shall provide commercial certification for all new sign panels furnished under items 56-1, "Install New Roadside Signs," and 56-2, "Replace Existing Roadside Sign Panels." A commercial certification is a manufacturer's or Contractor's representation that the material complies with all contract requirements. The representation may be labels, catalog data, stamped specification standards, or supplier's certifications indicating the material is produced to a commercial standard or specification,

Material accepted by certification may be sampled and tested at any time. If found to not be in conformance with the contract, the material will be rejected whether in place or not. Any replacement for rejected materials shall be at the Contractor's sole expense, and no additional compensation will be allowed therefore.

Acceptance for sign legends will be evaluated based on visual inspection of the work for compliance with the contract and prevailing industry standards.

The Contractor is advised that street signs shall be considered to be a single panel, and that when street signs are installed new, or existing street signs are removed and replaced, each single post street sign with one or more sign panels, such as a "Stop" Sign mounted on a Street Sign post, for example, shall be considered a single unit.

56-1 INSTALL NEW ROADSIDE SIGNS

New roadside signs shall be mounted onto 2-inch-inside-diameter galvanized steel pipes and installed in locations that are visible to motorists at all times, as shown on Sheets ST-1 through ST-6 of the Plans and as determined by the Engineer.

Any excess material from post footing excavation shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions of Section 7-15, "Disposal of Material outside the Highway Right of Way," of these Special Provisions.

Any damage to the new facilities resulting from the installation of new roadside signs shall be repaired by the Contractor at the Contractor's expense, and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Each multi-post or single post sign with one or more sign panels mounted on the post shall be considered a single unit.

The Contract unit price paid per each for this item, "Install New Roadside Signs," shall include full compensation for furnishing all labor, materials (including galvanized metal mounting parts and foundation concrete), tools, equipment and incidentals necessary for doing all work involved in installing new roadside signs, including, but not limited to, post footing excavation, disposal of excess material, bracing posts, and placing concrete, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment in the Contract bid price will be made for any increase or decrease in the quantities of this item, "Install New Roadside Signs," required. The provisions in

Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

56-2 REMOVE AND RESET EXISTING ROADSIDE SIGNS

Existing roadside signs, as shown on the Plans and as directed by the Engineer, shall be removed, set at temporary locations, if necessary and as directed by the Engineer, and reset at permanent locations, as directed by the Engineer, all in conformance with Sections 56-2, "Roadside Signs", 15-2.04, "Salvage," and 15-2.05, "Reconstruction," of the Standard Specifications, the Plans and these Special Provisions, and the directions of the Engineer.

The Contractor is advised that "Roadside Sign" shall be defined herein for this Section 56-3, "Remove and Reset Existing Roadside Signs," as the entire sign assembly of the post, sign panel and mounting hardware, unless otherwise specified on the Plans, in these Special Provisions, or as directed by the Engineer. The Contractor is advised that all signs assemblies in their entirety are considered to be in serviceable condition.

Existing roadside signs to be removed and reset, as shown on the Plans and as directed by the Engineer, shall be removed at the time of sidewalk demolition. Removed roadside signs shall be set at permanent locations at time of removal whenever possible; otherwise removed roadside signs shall be set and maintained at temporary locations, as directed by the Engineer, at the time of removal, until they are reset at permanent locations, as directed by the Engineer.

New locations shall be as determined in the field by the Engineer.

The Contractor is advised that removal of the existing roadside signs shall be accomplished by removing the entire roadside sign assemblies, including the post. Cutting of the existing post will not be allowed. The existing posts are considered to be in serviceable condition and shall either be reused or salvaged in conformance with these Special Provisions.

Existing roadway, street name, and regulatory traffic signs shall be maintained in a location that is visible to motorists at all times. However, any signs that interfere with construction shall be relocated, as necessary, to accommodate the work.

The Contractor's attention is directed to the fact that any roadside signs, or any portion of roadside sign assemblies thereof to be removed and not reset shall be salvaged and delivered to **Grant Yard (in care of Jeff Grech), 752 Chestnut Street, Redwood City,** as directed by the Engineer. The Contractor shall notify the Engineer **two (2) working days** in advance of requiring access to the disposal site to confirm the actual location.

The Contractor's attention is further directed to the fact that any signs or part of sign assembly damaged by the Contractor's operations, as determined by the Engineer, shall be replaced at the Contractor's sole expense, and no additional compensation will be allowed therefore.

The Contractor's attention is directed to Section 16, "Clearing and Grubbing," of the Standard Specifications for any roadside markers to be removed and not reset.

Reference is made to the "Standard Roadside Sign Detail," on the Plans for the minimum height requirements. The cost for providing these posts shall be considered as included in the Contract unit price paid for this item, "Remove and Reset Existing Roadside Signs," and no separate payment will be made therefore.

The Contract unit price paid per each for this item, "Remove and Reset Existing Roadside Signs," shall include, but not be limited to, full compensation for furnishing all labor, material, tools, equipment and incidentals necessary for doing all work involved to remove and reset roadside signs, including, but not limited to, removing and salvaging, if necessary, existing roadside signs, and resetting of roadside signs, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities of this item, "Remove and Reset Existing Roadside Signs," required. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

END OF SECTION

SECTION 64
PLASTIC DRAINAGE PIPE

The Contractor is advised that this Section 64, "Plastic Drainage Pipe," conforms to Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 64.

64-1 GENERAL

64-1.1 General

64-1.1.1 Summary

Plastic pipe shall conform to Section 64, "Plastic Pipe," of the Standard Specification and these Special Provisions. Section 5-1.116, "Differing Site Conditions," of the Standard Specifications shall not apply to this item.

64-2 PLASTIC PIPE

64-2.1 General

64-2.1.1 Summary

Section 64-2 includes specifications for fabricating and installing plastic pipe.

Installing plastic pipe includes excavation, backfill, connection of new pipe to new or existing facilities, reinforcement, concrete collars or tees, and other connecting devices.

64-2.1.2 Submittals

For Class 40 PVC pipe, submit the manufacturer's copy of plant audits and test results from the National Transportation Product Evaluation Program for the current cycle of testing for each pipe diameter furnished.

64-2.2 Materials

64-2.2.1 General

Plastic pipe must be Schedule 40 PVC pipe with smooth interior.

The residue from the ignition of PVC compounds must not exceed 30 percent as determined under ASTM D2466.

Pipes and fittings must be homogenous throughout and uniform in color, opacity, density, and other properties. The inside and outside surfaces must be semimatte or glossy in appearance and free of chalky, sticky, or tacky material. The pipe walls must be free of cracks, holes, blisters, voids, foreign inclusions, or other defects affecting the pipe wall integrity or visible to the naked eye. Do not use pipes or fittings with abrasions or scratches deeper than 10 percent of the wall thickness. The joint surfaces where the gaskets bear must be smooth and free of imperfections, ridges, fractures, or cracks that could adversely affect the joint seal.

Store pipes in unit packages and protect the bell end of the pipes from damage. Support unit packages with racks or dunnage to prevent damage and bending. If unit packages are stacked, do not allow the weight of the upper units to cause deformation to the pipes in the lower units. Do not store pipes adjacent to heat sources. Do not allow pipes to overhang vehicles or storage areas unsupported by more than 3 feet.

Cover pipes to provide temporary sun block protection. Provide adequate air circulation around the covered pipes to reduce excessive heat accumulation. Protect gaskets from exposure to weather, heat, ozone, oil, grease, and sunlight for any time period exceeding 48 hours. Do not store gaskets near electrical or exhaust heat sources.

The County rejects pipes with cracked or split gaskets.

Protect pipes and fittings from damage when handling and installing.

64-2.2.2 Backfill

Structure backfill material for plastic pipe must comply with Section 19-3 of the Standard Specifications except the gradation of structure backfill must comply with the following table:

Gradation of Structure Backfill for Plastic Pipe	
Sieve Size	**Percentage Passing**
1½-inch	100
No. 4	25 to 70
No. 50	5 to 20
No. 200	0 to 5

Controlled low-strength material and slurry cement backfill must comply with Section 19-3 of the Standard Specifications.

64-2.2.3 PVC Pipe

PVC pipe must have smooth interior and be manufactured as a single extrusion. The pipe dimensions, wall thickness, socket sizes, and fitting tolerances must comply with ASTM D1785 and ASTM 2672.

PVC pipe and fittings must be manufactured from PVC virgin compounds, except clean, reworked, recycled PVC materials generated from the manufacturer's pipe or fitting fabrication may be reused.

PVC pipe must comply with ASTM D1784 for cell classification 12454. Fillers that lower the tensile strength of the compound or change the minimum cell classification are not allowed. PVC compounds must contain at least 0.5 percent by weight rutile titanium dioxide or the quantity recommended by the pipe manufacturer.

The manufacturer's code must include the day, month, year, shift, and plant of manufacture.

Do not expose pipes to direct sunlight for more than 30 days.

64-2.2.4 Joints

Plastic pipe joints must comply with Section 61-2.01D(2)(b) for standard or positive joints.

Joints for pipes shown as watertight must be watertight under pressure and all conditions of expansion, contraction, and settlement, and must comply with Section 61-2.01D(2)(a) for watertightness.

For PVC pipe with smooth interior:

A. Elastomeric gaskets must comply with ASTM F477 for low-head applications. Use extruded or molded gaskets cured in a way so that any cross section will be dense, homogeneous, and free of pores, blisters, pitting or other imperfections. Double gaskets must be single-piece gaskets that fit into the first two full corrugation valleys on the spigot end. Ship gaskets in containers that will prevent damage from UV exposure and handling.

B. Wyes, tees, reducers, elbows, couplings, laterals, and other fittings must be molded or fabricated under ASTM D1784 for cell classification 12454.

C. Lubricant must comply with the pipe manufacturer's instructions. The lubricant must not have a detrimental effect on gaskets or pipes.

D. Joints must comply with Section 61-2.01D(2)(b) for integral joints except the joint overlap requirements are as shown. Pipe joints must be bell and spigot type with gaskets ready for field assembly. Install joints so that the elastomeric gasket will be compressed radially between the pipe bell and spigot to form a tight seal when assembled.

64-2.3 Construction

64-2.3.1 General

For PVC pipe, whenever the atmospheric temperature is forecast to be 40°F or less, demonstrate to the Engineer that the bar and block method or any other mechanical assistance method for assembling the pipes will not damage the pipes before proceeding with pipe assembly.

64-2.3.2 Earthwork

Excavation, backfill, and shaped bedding must comply with Section 19-3 of the Standard Specifications except:

A. Where saturated clay, peat, or other unsuitable material is encountered immediately adjacent to the pipe trench, remove the material to a distance at least equal to the pipe diameter on each side of the pipe if compacted backfill is to be placed or a distance at least equal to ¼ the pipe diameter, but not less than 6 inches, on each side of the pipe if slurry cement or controlled low-strength material is to be placed.

Lay plastic pipe in a trench excavated to the established lines and grades. Grade and prepare the bottom of the trench as shown throughout the entire length of the pipe.

Removing unsuitable material and replacing it with suitable material is change order work.

64-2.3.3 Pipe Placement

Provide the necessary facilities for lowering and properly placing pipe sections in the trench.

Lay plastic pipe to line and grade with sections closely jointed.

Do not let the pipe trench flood before backfilling.

Construct concrete collars or tee connections with minor concrete whenever concrete collars or tee connections are required to connect new plastic pipe to existing or new pipe. Reinforcement for concrete collars and tees must comply with Section 52.

For PVC pipe with smooth interior:

A. Install gaskets on pipe spigots after the pipe is placed into the trench and ready for joint connection. Place the gasket on the spigot end under the pipe manufacturer's installation instructions. The leading edge of the gasket must point toward the spigot end whenever a double gasket is used. Both the spigot and bell ends must be free of debris before

connection. Apply the pipe manufacturer's recommended lubricant to the inside of the bell and over the gasket. Insert the spigot end of the pipe into the bell end until the factory provided insertion line on the spigot end lines up with the bell edge.

B. Whenever the spigot end of a pipe is shortened, cut the end square and bevel it to the same angle as provided on the factory-finished spigot end so that burrs are not visible. Re-mark the shortened pipe with a new insertion line on the spigot using a factory-marked spigot insertion line as a guide.

C. Cover the ends of installed PVC pipe that were not backfilled after installation at the end of each day.

D. Pipes must not exhibit deflection in excess of 5 percent of the original inside diameter at any location after being backfilled to at least 5 feet above the top of the pipe or to the completed grade, whichever is less.

64-2.4 Payment

Full compensation for Plastic Drainage Pipe shall be considered as included in the unit prices paid for "PVC Underdrains," "Irrigation System," and "Bioretention Collection and Discharge Piping Structures," and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 68
SUBSURFACE DRAINS

The Contractor is advised that this Section 68, "Subsurface Drains," conforms to Caltrans 2018 Standard Specifications. Caltrans 2006 Standard Specifications shall not apply to this Section 68.

68-1 GENERAL

68-1.1 General

68-1.1.1 Summary

Section 68-1 includes general specifications for constructing subsurface drains. Subsurface drains (under drain) shall conform to the provisions of Section 68, "Subsurface Drains," of the Standard Specifications, the Plans and these Special Provisions.

Full compensation for conforming to this item, "Subsurface Drains," of these Special Provisions shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

68-2 FILTER FABRIC

Filter fabric shall conform to the provisions of Sections 68-1.03B, 68-2.02G and 96-1.02B, "Filter Fabric," of the Standard Specifications and these Special Provisions. Filter fabric shall conform to the requirements set forth for underdrains in Section 88-1.03, of the Standard Specifications.

Filter fabric shall be placed where shown on the Plans and at locations designated by the Engineer, in accordance with the requirements of these Special Provisions.

Filter fabric shall be manufactured from one or more of the following materials: polyester, nylon or polypropylene. Filter fabric shall be non-woven, shall not act as a wicking agent and shall be permeable. Filter fabric shall be accompanied by a Certificate of Compliance

conforming to the provisions in Section 6-1.07, "Certificate of Compliance," of the Standard Specifications.

Filter fabric shall be furnished in an appropriate protective cover that protects it from ultraviolet radiation, and from abrasion due to shipping and handling.

The under drain to receive the filter fabric shall receive the filter fabric immediately prior to placing, shall conform to the compaction and elevation tolerance specified for the material involved, and shall be free of loose or extraneous material and sharp objects that may damage the filter fabric during installation.

Filter fabric shall be handled and placed in accordance with the manufacturer's recommendations. Filter fabric shall be stretched, aligned and placed in a wrinkle-free manner; and adjacent borders of the filter fabric shall be overlapped twelve inches (12").

Within twenty-four (24) hours after the filter fabric has been placed, it shall be covered with the planned thickness of permeable material, as shown on the Plans. During spreading and compaction of the permeable material for the underdrain, a minimum of six inches (6") of permeable material shall be maintained between the filter fabric and the Contractor's equipment at all times. Equipment or vehicles shall not be operated or driven directly over the filter fabric.

Should the filter fabric be damaged during placing, the torn or punctured section of filter fabric shall be repaired by placing a piece of filter fabric over the damaged area, with said piece of filter fabric being large enough to meet the overlap requirement. Such damage to the filter fabric resulting from the Contractor's vehicles, equipment or operations shall be repaired by the Contractor solely at his/her expense, and no additional compensation will be allowed therefore.

Filter fabric shall be measured by the square yard of area covered, not including any additional filter fabric required for overlaps. The cost for excavating the roadway necessary for

installing filter fabric shall be included in the prices paid for the various Contract items of work, and no separate payments will be allowed therefore.

Full compensation for the item "Filter Fabric" shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

68-3 PVC UNDERDRAINS

68-3.1 General

Section 68-3 includes specifications for constructing PVC Underdrains within Bioretention features. (Reference is made to Section 115-3 for collection and discharge piping and structures between bioretention features.)

68-3.1.1 Summary

Section 68-4 includes specifications for constructing bioretention feature underdrains. Excavation and backfill must comply with Section 19-3 of the Standard Specifications.

68-3.2 Materials

68-3.2.1 Perforated Plastic Pipe

Perforated plastic pipe must be smooth-wall PVC plastic pipe, corrugated PVC plastic pipe with a smooth interior surface, or corrugated polyethylene plastic tubing.

Smooth-wall PVC plastic pipe must comply with AASHTO M 278.

PVC plastic pipe must be connected with belled ends, or with sleeve-type or stop-type couplings under AASHTO M 278.

68-3.2.2 Permeable Material

A. General

Permeable material for use in backfilling trenches under, around, and over underdrains must consist of hard, durable, clean sand, gravel, or crushed stone and must be free from organic material, clay balls, or other deleterious substances.

Permeable material must have a durability index of not less than 40.

B. 68-2.02F(3) Class 2 Permeable Material

The percentage composition by weight of Class 2 permeable material in place must comply with the gradation requirements shown in the following table:

Class 2 Permeable Material Gradation Requirements	
Sieve Size	**Percentage Passing**
1-inch	100
¾-inch	90 to 100
⅜-inch	40 to 100
No. 4	25 to 40
No. 8	18 to 33
No. 30	5 to 15
No. 50	0 to 7
No. 200	0 to 3

Class 2 permeable material must have a sand equivalent value of not less than 75.

68-3.2.3 Filter Fabric

Filter fabric for use with underdrains must comply with Section 68-2, "Filter Fabric" of these Special Provisions.

68-3.3 Payment

The contract unit price paid per linear foot for the item "PVC Underdrains" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in furnishing and placing plastic pipe and all appurtenances, wyes and fittings, reducers, cleanouts, perforations, excavations, and backfill, complete in place, including but not limited to establishing alignments and layout work complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

68-4 CONSTRUCTION

Excavate trenches for underdrains, place filter fabric, install pipe, and backfill trenches with permeable material as shown. Where underdrains are installed in trenches outside the subgrade area, backfill the top 6 inches of the trench with structure backfill complying with Section 19-3.

Lay perforated pipe with the perforations down.

Solvent cementing of joints on perforated plastic pipe is not required.

Underdrain outlets and riser covers must seat uniformly and not be subject to rocking.

A. Place permeable material in horizontal layers. Thoroughly consolidate permeable material along with and by the same methods specified for structure backfill in Section 19-3. Ponding and jetting of permeable material or structure backfill adjacent to permeable material is not allowed.

B. You may substitute permeable material for structure backfill material where the required width of backfill material adjacent to the neat lines of the permeable material as shown is approximately 1 foot or less.

68-5 SIDEWALK UNDERDRAINS

68-5.1 General

Section 68-6 includes specifications for constructing sidewalk pipe drains.

Sidewalk underdrains include:

A. Outlet pipes, vent pipes, cleanouts, and Y-fittings at cleanout pipes
B. Intermediate outlet connections between the couplings at each end of the curved section of the Y-fitting

68-5.2 Materials

68-5.2.1 General

Reserved

68-5.2.2 Pipe and Pipe Fittings

Pipe installed in sidewalk to be 3" DIP and at least 2" from the top of sidewalk surface.

Pipe must be straight end or bell end. Bell end sockets must comply with ASTM D2672 except for marking.

68-5.2.3 Ductile Iron Pipe (DIP)

Ductile iron pipe (DIP) shall be class 50 and shall conform to these Special Provisions, the plans and the directions of the Engineer.

Ductile iron pipe shall be cement lined and shall conform to the requirements of ANSI Standard A21.51 and A21.4. Cast iron special fittings shall be Class 250, and shall meet the requirements of ANSI Standards A21.10.

Joints for ductile iron pipe shall be either mechanical joints conforming to ANSI Standards A21.11 or rubber gasket joints equal to the "Tyton" joint.

Transition joints shall be "Calder" flexible couplings, or approved equal, and shall be as shown on the Plans. Buried couplings shall be extra heavy, with stainless steel bolts and nuts, and shall be painted with two coats of bitumastic paint after installation.

Trench backfill and bedding shall be as shown on the Trench Detail in the Plans. Whenever the bottom of the trench is rocky, soft, yielding or in the opinion of the Engineer is otherwise unsuitable as a foundation for the pipe, the unsuitable material shall be removed to a depth such that replacement with crushed rock will provide a stable and satisfactory foundation.

Trenches shall be kept free from water while the pipe is installed, concrete is setting and until backfill has progressed to a sufficient height to anchor the work against possible flotation or

leakage. When water is encountered in pipe trenches, the Contractor shall furnish, install and operate such pumps or other devices that may be necessary for removing the water.

Where shown on the Plans, new ductile iron pipe shall be connected to existing manholes. Any remaining openings between pipe and structure shall be completely plugged and made watertight with a six (6) inch thick six-sack mortar mix plug. The inside of the manhole barrel shall be neatly finished. Manhole bottom shall be channelized as necessary to provide smooth transitions with good hydraulic properties. Any line to be connected to existing manhole, unless otherwise shown on the Plans, shall be installed by forming a new channel with the top invert of the newly installed pipe to the same elevation as the top invert of the existing main sewer.

In addition, the Contractor is advised to exercise caution in making his connections to existing manholes. The Contractor shall be responsible for damage to said structures caused by his operations, and shall repair or replace damaged structures at his own expense, according to the directions, and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

The Contractor is advised to exercise caution in making his connections to existing lines. The Contractor shall be responsible for any damage to said pipe caused by his operations and shall replace damaged pipe with new Class 50 DIP at his own expense, according to the directions and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Measurement of ductile iron pipe will be made along the centerline of the pipe after the pipe has been placed, including the length of flexible coupling.

All excavated material shall become the property of the Contractor and shall be disposed of outside the public right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

68-5.3 Construction

Sidewalk underdrain shall be connected to downspout connection coming off roofs of adjacent buildings and drain to the gutter pan. Refer to the plans for accurate location of the sidewalk underdrains.

68-5.4 Payment

The Contract unit price paid per linear foot for this item, "Sidewalk Underdrains (Ductile Iron)," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all work involved in furnishing and installing ductile iron pipe, complete in place, including, but not limited to, making connections to existing manholes and existing lines, structure excavation, structure backfill, removal and disposal of existing lines that are shown on the Plans as to be replaced, and furnishing of flexible couplings, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 75
MISCELLANEOUS IRON AND STEEL

Miscellaneous iron and steel shall conform to the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications, these Special Provisions, the Plans, and the directions of the Engineer.

Paragraph 8 of Section 75-1.02, "Miscellaneous Iron and Steel," of the Standard Specifications is amended to read:

> "Drainage inlet frames and grates shall be galvanized in accordance with the provisions of Section 75-1.05, "Galvanizing," of the Standard Specifications."

For existing frames, grates or manhole covers deemed unsuitable, the Contractor shall provide new frames, grates or covers for replacement, as directed by the Engineer. Any unsuitable frames, grates and covers shall become the property of the Contractor and shall be disposed of outside of the public right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Types of frames, grates and manhole covers to be included in new facilities, and paid for as miscellaneous iron and steel, shall be the same for each respective item of drainage, joint trench, and sanitary sewer work, as shown on the Plans.

Measurement and payment for this item, "Miscellaneous Iron and Steel," shall be by pound, in accordance with the provisions of Sections 75-1.06, "Measurement," and 75-1.07, "Payment," of the Standard Specifications.

The Contractor's attention is directed to Section 9-1.015, "Final Pay Items," of the Standard Specifications with regard to this item. The Contractor is advised that *that it is assumed that approximately 25% of sanitary sewer manhole rims and covers, and 10% of storm drain inlet grates and manhole rims and covers may require replacement, or* approximately two thousand, eight hundred and fifty (2,850) pounds of miscellaneous iron and steel are required for this Project. *The Contractor is further advised that these figures*

are for estimation purposes only, being given as a basis for the comparison of bids, and the County of San Mateo does not, either expressly or by implication, agree that the actual quantities, if any, of frames, grates or manhole covers (and corresponding total weight) required will correspond herewith.

Any existing frames, grates or manhole covers requiring replacement due to damage caused by the Contractor's operations, as determined by the Engineer, shall be replaced at the Contractor's sole expense.

The Contract unit price paid per pound for this item, "Miscellaneous Iron and Steel," shall be for material cost for frames, grates and manhole covers only. Full compensation for providing all labor, tools and equipment, and for doing all work to install new frames, grates and manhole covers shall be considered as included in the Contract unit price paid for the various Contract items of work, and no additional compensation will be allowed therefore.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantity of miscellaneous iron and steel required. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of Miscellaneous Iron and Steel.

END OF SECTION

SECTION 81
SURVEY MONUMENT

Survey monuments shall conform to Section 81, "Monuments," of the Standard Specifications, these Special Provisions, the "Monument, Frame and Cover Detail" on the Plans, and the directions of the Engineer.

Survey monuments, frames and covers shall be installed where shown on the Plans, or at locations designated by the Engineer. The brass monument disc, as shown on the Detail drawing, will be furnished by the Engineer and shall be installed by the Contractor. **The Contractor shall notify the Engineer 2 working days prior to monument installation in order that the survey reference points can be set.**

The Contractor is advised that there are approximately **fourteen** monuments to be removed and replaced.

The survey monument, including frame and cover, shall be installed, complete in place, to the new pavement grade after the completion of all paving operations.

After the monument frame and cover have been set to finish grade, additional asphalt concrete (Type B, 3/8-inch maximum grading) shall be placed around the monument frame to protect the frame from traffic.

Care shall be taken so as not to disturb or cover existing surveying points during installation of the monument or while placing asphalt concrete around the monument frames.

Any surplus excavated material shall become the property of the Contractor and shall be disposed of in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

The Contract unit price paid per each for this item, "Survey Monuments," shall include full compensation for furnishing all labor, material (except brass monument disc), tools, equipment, and incidentals necessary for doing all work involved in installing survey monuments, and frames and covers, complete in place, including, but not limited to, asphalt

concrete required to protect the monuments, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contractor is advised that the County Surveyor will punch the brass monument disc upon completion of this project. Should the County Surveyor determine that the brass monument disc was not installed in a location in conformance with the County Surveyor's reference points, the Contractor shall remove and reinstall the survey monument structure to the satisfaction of the County Surveyor, all at the Contractor's expense, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 84
TRAFFIC STRIPES AND PAVEMENT MARKINGS

84-1 GENERAL

Traffic Stripes and Pavement Markings shall conform to, and be installed in accordance with, the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications, these Special Provisions, the Standard Plans and the Project Plans, and the directions of the Engineer.

The types, dimensions and approximate locations of the existing traffic stripes and pavement markings shall be as shown on the Plans and as directed by the Engineer.

The Contractor is advised that, prior to removal of asphalt concrete paving, it will be his responsibility to identify and tie-out all existing traffic stripes and pavement markings to be replaced within the Project limits, and to replace such traffic stripes and pavement markings to the existing locations, unless otherwise directed by the Engineer. The Engineer shall inspect and approve the location and tie-outs for all such traffic stripes and pavement markings.

The Contractor is reminded of the importance of public safety and the need to complete all traffic stripes and pavement markings in a timely manner. Therefore, unless otherwise approved in writing by the Engineer, Contractor shall: (1) commence placement of cat-tracks no later than seven (7) working days after completion of paving operations; and (2) commence placement of permanent traffic stripes and pavement markings within two (2) working days after approval of cat-tracks.

The Engineer shall have five (5) working days to review and accept or reject cat-tracks. The Contractor shall not commence installation of permanent traffic stripes and pavement markings prior to approval of cat-tracks by the Engineer.

Should the Contractor proceed with the installation of permanent traffic stripes and pavement markings prior to approval of cat-tracks, Contractor shall remove all incorrectly

installed permanent traffic stripes and pavement markings, as determined by the Engineer, and reinstall as directed and approved by the Engineer. All such work shall be at the Contractor's sole expense, and no additional compensation will be allowed therefore.

Should Contractor fail to adhere to the above schedule for traffic stripes and pavements markings, Contractor may incur task-specific liquidated damages in the amount of $500 per calendar day for every day hence until traffic striping and pavement markings have been completed, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer.

The Contractor shall be responsible for ensuring that the final traffic stripes and pavement markings match the layout as existing and proposed traffic stripes and pavement markings, unless otherwise shown on the Plans or directed by the Engineer. Traffic stripes and pavement markings not conforming to existing or approved layout shall be removed and re-applied, all at the Contractor's expense, and no additional compensation will be allowed therefore.

The Contractor shall indicate, on the road, the traffic stripes and pavement marking layouts, including the Standard Plan detail number (with the beginning and end of each detail marked) and shall receive approval of layout (alignment, location, and detail) from the Engineer, in writing, prior to final placement. Methods used by the Contractor for alignment and layout shall not damage the pavement. Any damage to the pavement caused by the Contractor's operations, as determined by the Engineer, shall be repaired by the Contractor, all at Contractor's sole expense, and no additional compensation will be allowed therefore.

84-1.1.1 Marking Schedule

A. Mark the following items with colors indicated below:

1. Pedestrian Crosswalks and Aisles Between Parking Spaces, with 3-inch-wide diagonal stripes at 12 inches on center: White.

2. Pedestrian Crosswalks and Lane Striping at School: Yellow.

3. Lane Striping Where Separating Traffic in Opposite Directions, continuous double line: Yellow.

4. Lane Striping Where Separating Traffic in Same Direction, single broken line: White.

5. Handicap Symbols: Blue and White.

6. Parking Stall Striping, continuous single line: White.

7. Truck Stall Striping at Loading Dock Apron, continuous double line: Yellow.

8. Warning Striping at Transition Slope between Truck Aprons, with 3-inch-wide diagonal stripes at 12 inches on center: Yellow.

9. Directional Arrows, Bike Lanes and Legends: White.

10. Removal of existing markings: Black

11. Off-Site Traffic Painting:

    a. Street center line striping, curb-side parking spaces, and crosswalks, as directed by the County of San Mateo Representative.

84-2 THERMOPLASTIC PAVEMENT MARKING

84-2.1 General

A. This item includes white, yellow and green thermoplastic pavement markings for crosswalks, stop lines, lane lines, and other types of traffic controls. Thermoplastic traffic stripes and pavement markings shall be applied hot in conformance with manufacturer's recommended instructions and Section 84-2.04, "Application," of the Standard Specifications. Thermoplastic material for traffic stripes shall be applied at a thickness of 0.070 inch; and thermoplastic material for pavement markings shall be applied at a thickness of 0.100 to 0.150 inch. The Contractor shall apply glass beads to the surface of

the molten thermoplastic in accordance with Section 84-2.02, "Materials," of the Standard Specifications. State Specifications for glass beads may be obtained from the Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, CA 95819, (916) 227-7000.

B. Pavement markings at public roadways, bike lanes and legends, Bus Zone and other areas as necessary, including lines, arrows, and handicapped parking stencils.

C. Pavement markings as required by the County of San Mateo Representative, including center line striping, and parking space striping, and crosswalk striping

84-2.2 Related Specification

A. Asphalt concrete pavement

B. Concrete paving

84-2.3 References

A. ASTM E 28 – Standard Test Methods for Softening Point of Resins Derived from Naval Stores by Ring-and-Ball Apparatus.

B. ASTM G 152 – Standard Practice for Operating Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

C. ASTM G 153 – Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

84-2.4 Submittals

A. Product data: submit manufacturer's literature indicating product specifications and instructions for handling, installation and curing. Include performance test data sheets for each product.

B. Submit material's supplier certification of compliance with specifications. Thermoplastic traffic stripes and pavement markings material shall be accompanied by a Certificate of Compliance in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. Said certificates shall certify that the thermoplastic material complies with the specifications and that materials manufactured to the same formulation and process has previously passed State testing.

C. Chemical analysis: Submit infrared analysis of Type B resins for each manufacturer used.

84-2.5 Additional Submittals

A. General Requirements: Thermoplastic pavement marking material Type B for use on either asphaltic or Portland cement concrete surfaces. Clearly mark each container to indicate color, weight, type of material, and lot or batch number (consider lot or batch as each individual mix or blend that produces finished product ready for use). Package material in either suitable corrugated containers or thermal degradable plastic bags to avoid sticking during shipment or storage.

B. Thermoplastic markings shall not be slippery when wet, nor exhibit tacky, exposed surface. Cold ductility of material shall permit normal road surface expansion and contraction without chipping or cracking. Markings shall retain their original color, dimensions, and placement under normal traffic conditions at road surface temperatures of 158°F and below.

C. Prime and filler pigments shall pass U.S. Standard sieve No. 230 (0.0024-inch opening) when washed free of resins by solvent washing and meet following specific requirements for each pigment.

1. Prime pigments: white pigment shall be rutile titanium dioxide.

2. Filler pigment: filler pigment shall be calcium carbonate, 95 percent purity.

D. Binder: Type B – Alkyd: Use binder consisting of mixture of resins, at least one of which is solid at room temperature, and high boiling point plasticizers. At least one-third of binder compositions shall be a maleic-modified glyceryl ester 012 Rosin and shall be no less than 8 percent by weight of entire material formulation.

E. Glass Traffic Beads: the total silica used in formulation shall be in form of glass traffic beads meeting the following requirements:

1. Manufacture. Use glass traffic beads having the following characteristics:

   a. Manufactured from glass;
   b. Spherical in shape;
   c. Free of sharp angular particles;
   d. Free of particles showing milkiness, surface scoring, or surface scratching;
   e. Water white in color.

2. Contaminants. Use glass traffic beads having the following characteristics:

   a. Containing less than ¼ of 1 percent moisture by weight;
   b. Free of trash, dirt, etc.;
   c. Showing no evidence of objectionable static electricity when flowing through regular traffic-bead dispenser.

3. Gradation:

4. Sieve Analysis. Glass traffic beads shall meet following gradation requirements:

   a. Openings U.S. Standard Sieves Percent Passing

      No. 20 95 to 100
      No. 30 80 to 95
      No. 50 15 to 35
      No. 100 0 to 4

b. Irregular Particles: Glass traffic beads, retained on screen used to determine gradation requirements, shall not contain more than 30 percent (by weight) irregular particles.

5. Wetting. Use glass traffic beads capable of being readily wet with water.

6. Stability. Use glass traffic beads showing no tendency toward decomposition, surface etching, change in retro reflective characteristics, or change in color after:

a. One-hour exposure to concentrated hydrochloric acid at 25°C (77°F);

b. Twenty-four-hour exposure to weak alkali

c. One hundred hours of Weather-O-Meter exposure, in accordance with ASTM G 152 and ASTM G 153.

84-2.6 Finished Product Requirements

A. Physical Characteristics. Finished thermoplastic pavement markings material shall be free flowing granular material, unless otherwise shown on Drawings. Material shall remain in free flowing state in storage at temperatures of 100°F or less. Materials shall be readily sprayed through nozzles commonly used on thermoplastic spray equipment at temperatures between 205 and 218°C (401 to 425°F).

B. Toxicity. At temperatures up to and including 230°C (446°F), materials shall not give off fumes which are toxic and otherwise injurious to persons, animals, or property.

C. Material shall not break down or deteriorate when held at 205°C (401°F) for 4 hours.

D. Temperature versus viscosity characteristics of material in plastic state shall remain constant throughout up to four reheating at 205°C (401°F) and from batch to batch.

E. Material shall not be adversely altered by contact with sodium chloride, calcium chloride, or other similar chemicals on, or used on, roadway surface; by contact with oil content of pavement materials, or by contact from oil dropping from traffic.

F. Softening Point. After heating thermoplastic materials for two hours at 204°C (400°F) Type B Alkyd material shall have softening point greater than 90°C (194°F) when tested in accordance with ASTM E 28-58T – Ball and Ring Method.

G. Abrasion. Thermoplastic pavement marking materials shall have loss between 4.0 and 12.0 grams when tested for abrasion in accordance with TxDOT Tex-851-B. Test according to steps 1 through 8 of procedure utilizing following test parameters:

H. Test distance: 5 inches Blast pressure: 40 psi

I. Sample angle: 10 degrees and 122-gram blast media Blast Media: 1,200 grams

J. Uniformity. Manufacture material so that, when sampled in accordance with TxDOT Manual of Testing Procedures, 100-gram sample will be representative of batch or lot of material.

K. When applied ⅛ inch thick, setting time shall not exceed characteristic straight-line curve, lower limit of which is four minutes at 59°F road surface temperatures, and upper limit of which is 10 minutes at 90°F road surface temperature. Both temperatures are to be measured at maximum relative humidity of 90 percent.

84-2.7 Formulae

A. Type B – Alkyd Thermoplastic Marking:

	Pounds
Binder	18 to 23
Titanium Dioxide	12 to 15
Calcium Carbonate	20 to 42
Glass Traffic Beads	30 to 45
Total	**100**

84-2.8 Execution

A. General

1. Spray apply pavement marking or extrude hot to pavement surface unless application method is specified on Drawings.

2. Provide continuous mixing and agitation of material. Provide clean, square, marking ends. Do not use pans, aprons, or similar appliances which dye overruns.

3. Provide thermometer capable of measuring temperature of pavement marking material.

4. Use automatic bead dispenser attached to pavement marking equipment in manner that beads are dispensed uniformly and almost instantly upon marking as marking is being applied to road surface. Rate of application shall be sufficient to achieve retro-directive reflective characteristics specified. Provide automatic cut-off control for bead dispenser, synchronized with cut-off of pavement marking equipment.

5. Place markings in accordance with approved traffic control plan so that minimal interruption to traffic flow is achieved. Protect newly installed pavement markings from damage by traffic.

6. Apply pavement markings onto clean, dry pavement having road surface temperature above 60°F for Portland cement concrete surface and above 50°F for asphaltic surface. When pavement marking application is by spray and operations cease for five or more minutes, flush spray head by spraying pavement marking material into pan or similar container until material is proper temperature for application.

7. Use markings that are completely reflectorized internally and externally.

8. Use crew experienced in work of installing pavement markings and supply all equipment and materials necessary for placement of pavement markings.

9. Apply material within temperature limits recommended by manufacturer.

10. Prior to placement of thermoplastic material, properly prepare pavement with primer.

B. Layout

1. Place pavement markings in proper alignment with guidelines established on roadway. Do not deviate from alignment established greater than 2 inches. Do not deviate in alignment of marking being placed greater than 1 inch per 200 feet of marking and do not deviate abruption.

2. Place additional markings required to achieve alignment specified throughout both straight and horizontally curved sections of roadway. Additional markings placed on roadway for alignment purposes shall be temporary in nature and shall not establish permanent marking on roadway. Materials used for alignment markings and equipment used to place markings shall be approved by Engineer.

C. Surface Preparation

1. Clean pavement by sandblasting and prepare in accordance with recommendations of thermoplastic material manufacturer and to satisfaction of Engineer, prior to placement of markings. Surface scarification can be used with prior approval of Engineer.

2. Use cleaning methods approved by Engineer that completely remove contaminants, loose materials, and conditions deleterious to proper adhesion. Do not clean Portland cement concrete surfaces by grinding.

3. Prepare Portland cement concrete surfaces further after cleaning by completely sealing with epoxy or methyl methacrylate sealer, as recommended by

thermoplastic material manufacturer. Placed sealer sufficiently in advance of thermoplastic to allow release of all solvents.

4. Prime asphaltic surfaces with sealer, as recommended by thermoplastic material manufacturer based on surface conditions. Include adhesive or adhesion promoter when asphaltic surfaces exhibit polished aggregate.

D. Installation

E. Install in widths of 4, 6, 8, or 12 inches, or shaped otherwise as shown on Drawings. Tolerances in width shall not exceed ⅛ inch. Tolerance shall not exceed ¼ inch in case of undulation in pavement.

1. Material shall not prohibit adhesion of other thermoplastic markings if, at some future time, new markings are placed over existing materials.

2. Maintain uniform thickness of each pavement marking. Minimum thickness of markings, as measured above plane formed by pavement surface, shall not be less than ⅛ inch (125 mils), unless shown otherwise on Drawings. Maximum thickness shall be 3/16 inch. Supply device, approved by Engineer, to measure thickness of applied extruded markings.

F. Testing

1. Maintain uniform cross section, density, quality, and thickness for markings. Markings shall be uniform throughout their thickness. Use applied markings that are 95 percent free of holes and voids, and free of blisters for minimum of 60 days after application.

84-2.8.1 Marking Schedule

A. Apply thermoplastic marking and striping for the following items with colors indicated below:

1. Pedestrian Crosswalks and Aisles Between Parking Spaces, with 3-inch-wide diagonal stripes at 12 inches on center: White.

2. Pedestrian Crosswalks and Lane Striping at School: Yellow.

3. Lane Striping Where Separating Traffic in Opposite Directions, continuous double line: Yellow.

4. Lane Striping Where Separating Traffic in Same Direction, single broken line: White.

5. Handicap Symbols: Blue and White.

6. Parking Stall Striping, continuous single line: White.

7. Truck Stall Striping at Loading Dock Apron, continuous double line: Yellow.

8. Warning Striping at Transition Slope between Truck Aprons, with 3-inch-wide diagonal stripes at 12 inches on center: Yellow.

9. Directional Arrows, Bike Lanes and Legends: White.

10. Removal of existing markings: Black

11. Off-Site Traffic Painting:

    a. Street center line striping, curb-side parking spaces, and crosswalks, as directed by the County of San Mateo Representative.

84-2.9 Payment

The contract unit prices per lineal foot for "Thermoplastic Traffic Striping (by color)" and per square foot for "Thermoplastic Pavement Markings (Crosswalks and Legends)" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing thermoplastic pavement striping and markings, complete

in place, including but not limited to establishing alignments and layout work (including paint for cat tracks and dribble lines), remove existing striping and markings as needed, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 85
PAVEMENT MARKERS

Pavement markers shall conform to the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these Special Provisions, the Standard Plans and the Project Plans, and the directions of the Engineer. All pavement markers removed shall be replaced in kind, unless otherwise directed, in writing, by the Engineer.

Non-reflective pavement markers, as shown on the Plans and as specified in these Special Provisions, shall be **plastic** pavement markers and shall conform to the provisions of Sections 85-1.04, "Non-Reflective Pavement Markers," and 85-1.04A, "Non-Reflective Pavement Markers (Ceramic)," of the Standard Specifications, and shall be placed in accordance with the Standard Plans, the Project Plans and the directions of the Engineer.

Retro-reflective pavement markers, as shown on the Plans and as specified in these Special Provisions, shall conform to the provisions of Section 85-1.05, "Retroreflective Pavement Markers," of the Standard Specifications, and shall be placed in accordance with the Standard Plans, the Project Plans and the directions of the Engineer.

Paragraph 6, Section 85-1.06, "Placement," of the Standard Specifications is amended to read:

> "Pavement markers shall not be placed on new asphalt concrete surfacing until authorized, in writing, by the Engineer."

Pavement markers shall be placed on the lines and to the limits established by the Contractor and approved by the Engineer. Establishment of such lines shall consist of points spaced a maximum of two-hundred 200 feet on tangents and 50 feet on curves with placement of additional points as necessary. All other work necessary to establish satisfactory lines for markers, including correction of minor irregularities in the line and marker locations, shall be performed by the Contractor.

Blue, reflective hydrant markers shall be replaced where removed by the Contractor, as shown on the Plans and as approved by the Engineer. All blue reflective fire hydrant markers removed shall be replaced with new two-way blue reflective markers.

In general, blue reflective markers should be placed 6 inches from the centerline stripe, or 6 inches from the approximate center of the pavement where there is no centerline stripe, on the side nearest the fire hydrant. All additional work necessary to establish satisfactory locations for blue fire hydrant markers shall be performed by the Contractor. Reference is made to Figure 3B-102 (CA), "Examples of Fire Hydrant Location Pavement Markers," of the California Manual on Uniform Traffic Control Devices (latest edition).

Rapid Set Type Epoxy Adhesive or hot melt bituminous adhesive shall be used to cement markers to the asphalt concrete surfaces. Paragraphs 1 and 2, Section 85-1.06, "Placement," of the Standard Specifications are amended to delete references to and/or the option to use any other type of adhesive other than Rapid Set Type or hot melt bituminous adhesive.

Bituminous adhesive material shall conform to the following:

Specification	**ASTM Designation**	**Requirement**
Flash Point, COC, °F	D 92	550 Min.
Softening Point, °F	D 36	200 Min.
Brookfield Thermosel Viscosity (centipoises) No. 27 Spindle, 20 RPM, 400°F	D 4402	3,000-6,000
Penetration, dmm, 100g 5 seconds, 77°F	D 5	10-20
Filler Content, percent by weight (insoluble on 1,1,1 trichloromethane)	D 2371	65-75

Filler material used in bituminous adhesive shall be Type PC, Grade III calcium carbonate conforming to the requirements of ASTM Designation D 1199, and shall conform to the following fineness:

Sieve Size	Percent Passing
No. 100	100
No. 200	95
No. 325	75

Bituminous adhesive shall be heated indirectly in an applicator with continuous agitation or recirculation. Bituminous adhesive shall not be heated above the maximum safe heating temperature recommended by the manufacturer and shall not be applied at temperatures greater than 425°, nor less than 375°.

Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement.

Placement of pavement markers using hot melt bituminous adhesive shall conform to the requirements of the third, fourth, ninth, and tenth paragraphs in Section 85-1.06, "Placement," of the Standard Specifications, except as follows:

A. Markers shall not be placed when the pavement or air temperature is 50°F or less.

B. Blast cleaning of new, clean asphalt concrete surfaces will not be required.

The Contractor shall take all necessary precautions to protect newly installed pavement markers from disturbance or damage until the Engineer determines the adhesive has set sufficiently to bear traffic. Newly installed pavement markers that are disturbed or damaged shall be reset by the Contractor, entirely at the Contractor's expense, and no additional compensation will be allowed therefore.

Traffic control during pavement marker placement operations shall conform to the provisions of Section 12, "Maintaining Traffic," of these Special Provisions, and compensation

shall be considered as included in the Contract lump sum price paid for "Maintaining Traffic," and no additional compensation will be allowed therefore.

Payment for the removal of all existing pavement markers within the area of work shall be considered as included in the Contract unit price paid for this item, and no separate payment will be allowed therefore.

The Contract unit price paid per each for the various types of pavement markers installed under the items, "Pavement Markers, Type D (Two-way, Yellow, Retroreflective)", "Pavement Markers, Type G (One-way, Clear, Retroreflective)," and "Pavement Markers (Blue Reflective, Fire Hydrant Marker)", shall include full compensation for furnishing all labor, materials (including adhesive), tools, equipment and incidentals, and for doing all work involved in furnishing and placing pavement markers, complete in place, including, but not limited to, removal and disposal of existing pavement markers and thermoplastic traffic striping, and installing pavement markers, including establishing alignments and layout work (including paint for cat tracks and dribble lines), complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment of the Contract bid price will be made for any increase or decrease in quantities for the various types of pavement markers required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to these items of work.

END OF SECTION

SECTION 86
SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

86-1 DESCRIPTION

The work described in this section shall be done in accordance with Section 86 of the 2018 edition of the State Standard Specifications, the 2018 edition of the State Standard Plans, the County Standard Plans and Specifications, Construction Plans, and these Special provisions except unless otherwise specified.

Traffic signal work and lighting work shall conform to Division X, "Electrical Work" (Sections 86, "General" and 87, "Electrical Systems," of the Standard Specifications and these Special Provisions. Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

In case of conflict between any of the contract documents, the document, which takes precedence over and shall be used in lieu of such conflicting portions, shall be as specified in Section 5-1.02, "Contract Components," of the 2018 edition of the State of California Standard Specifications.

If a discrepancy exists:

A. The governing ranking of Contract parts in descending is:

1. Special provisions
2. Project Plans
3. Revised standard specifications
4. Standard specifications
5. Revised standard plans
6. Standard plans
7. Supplemental project information

86-2 INSTALL NEW TRAFFIC SIGNAL

Traffic signal work shall consist of the installation of a new traffic signal system be performed in the area between Pacific Avenue and Hurlingame Avenue, including Redwood Junction Driveway and Northside Avenue, and modification of existing traffic signal system at Fifth Avenue and Middlefield Road, as shown on the Plans.

The contract price paid per each for "Install New Traffic Signal" and "Modify Existing Traffic Signal (at 5th Avenue)" shall include full compensation for furnishing all labor, materials including hardware, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing, modifying, or removing the signals, lighting and electrical systems, combinations or units thereof, including but not limited to foundations, poles, mast arms, conduit, cable, pull boxes, signal heads, signal indications, actelis, pedestrian signal system, connecting to inductive loop detectors, emergency pre-emption system, cabinet, controller, service, battery back-up system, luminaires, PTZ camera, Ethernet, video detection camera, trenching, boring, restoring curb, sidewalk, landscaping, pavement, pavement markings and stripes, and appurtenances damaged or destroyed during construction, and salvaging existing materials as shown and specified on the project plans, as specified in these Special Provisions and as directed by the Engineer, and no additional compensation will be allowed therefore.

86-2.1 Cost Accounting Records

Cost accounting records shall conform to the provisions of Section 5-1.27D, "Cost Accounting Records," of the Standard Specifications and these Special Provisions.

The Engineer shall be furnished a cost break-down for each Contract lump sum item of work described in this Section.

86-2.2 Foundations

Sleeve nuts shall be used on Type 1-B standard. Foundations for Type 1-B standard shall conform to the detail on Figure ES-7B, "Anchor Bolts with Sleeve Nuts," of the Standard Plans, except that the bottom of the base plate shall be flush with the finish grade.

86-2.3 Standards, Steel Pedestals and Posts

Type 1 standards shall be assembled and set with the handhold on the downstream side of the pole in relation to traffic, or as shown on the Plans.

86-2.4 Conduit

Conduit to be installed underground shall be Type 1 or Type 3, unless otherwise specified. Detector termination conduits shall be Type 3 or Type 4.

The conduit in a foundation, and between a foundation and the nearest pull box, shall be Type 1. Conduit sizes, as shown on the Plans and as specified in the Standard Specifications and these Special Provisions, are referenced to metallic type conduit. When rigid non-metallic conduit is required or allowed, the nominal equivalent industry size shall be used as shown in the following table:

Size Designation for Metallic Type Conduit	Equivalent Size for Rigid Non-metallic Conduit
21	20
27	25
41	40
53	50
63	65
78	75
103	100

When Type 3 conduit is placed in a trench (not in pavement or under Portland cement concrete sidewalk), after the bedding material is placed and the conduit is installed, the trench shall be backfilled with commercial quality concrete containing not less than 376 pounds per cubic yard (250 kg per cubic meter) of Portland cement, to not less than 4 inches (100 mm) above the conduit before additional backfill material is placed.

Conduit runs to be located behind curbs, as shown on the Plans, may be installed in the street within 3 feet (0.9 meter), and parallel with the face of the curb, by the "Trenching in Pavement Method" in conformance with the provisions of paragraph 3 of Section 87-1.03B(6), "Conduit Installation by the Trenching-In-Pavement Method," of the Standard Specifications. Pull boxes shall be located behind the curb, or at locations shown on the Plans, or as designated by the Engineer.

After conductors have been installed, the ends of conduits terminating in pull boxes, service equipment enclosures, and controller cabinets shall be sealed with a sealing compound, as approved by the Engineer. At those locations where conduit is required to be installed under pavement and existing underground facilities require special precautions in conformance with the provision in "Obstructions" of these Special Provisions, conduit shall be placed by the "Trenching in Pavement Method" in conformance with the provisions of paragraph 3 of Section 87-1.03B(6), "Conduit Installation by the Trenching-In-Pavement Method," of the Standard Specifications.

At other locations where conduit is required to be installed under pavement, and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the "Trenching in Pavement Method" in conformance with the provisions of paragraph 3 of Section 87-1.03B(6), "Conduit Installation by the Trenching-In-Pavement Method," of the Standard Specifications. At the option of the Contractor, the final 2 feet (0.6 meter) of conduit entering a pull box in a reinforced concrete structure may be Type 4.

86-2.4.1 Pull Boxes

Grout shall not be placed in the bottom of pull boxes.

86-2.4.2 Conductors and Wiring

Splices shall be insulated by "Method B," in conformance with the provisions of Section 87-1.03H(2), "Splice Insulation Methods," of the Standard Specifications.

The minimum insulation thickness, at any point, for Type USE, RHH or RHW wire shall be 0.04 inch (1.0 mm) for conductor sizes No. 14 to No. 10 inclusive, and 0.05 inch (1.3 mm) for

No. 8 to No. 2 inclusive. The minimum insulation thickness, at any point, for Type THW and TW wires shall be 0.03 inch (0.69 mm) for conductor sizes No. 14 to No. 10 inclusive, and 0.05 inch (1.37 mm) for No. 6 to No. 2 inclusive.

86-2.4.3 Pedestrian Signals

Lamps for Type A pedestrian signals shall be furnished by the Contractor and shall be provided as described in Section 86-1.02S(3)(c), "LED Countdown Pedestrian Signal Face Modules," of the Standard Specifications.

86-2.5 Detectors

Sensor units shall be Detector Systems Digital Loop Model 910, or equivalent. Loop wire shall be Type 1 or Type 2.

Loop detector lead-in cable shall be Type B.

Detector handholes shall be Type A.

Where detector lead-in cables are connected to terminal strips in the controller cabinet, the pressure terminal connectors shall be soldered to the detector lead-in cables.

Slot shall be filled with hot-melt rubberized asphalt sealant.

Reference is made to Section 87-1.03V, "Detectors," of the Standard Specifications. Sensor units, control units and amplifiers shall meet the requirements of the 'Transportation Electrical Equipment Specifications' issued by the State of California, Department of Transportation, and to the addenda thereto at the time of Project advertising."

Where one detector consists of a sequence on four loops in a single lane, the front loop closest to the limit line or crosswalk shall be located 1 foot (0.3 meter) from the line. All four loops in each lane shall be connected in series.

86-2.6 Pedestrian Push Buttons

Pedestrian push button housing shall be mounted with the actuator at 3.3 feet (1.0 meter) above the adjacent finished grade.

Pedestrian push button frames shall be Type C, with appropriate signs. Pedestrian push button frames and switch housing shall be painted gloss black and electrically powder coated.

The actuator shall be cone-shaped with the cone extending 0.43 inch (11 mm) to 0.5 inch (13 mm) beyond the bezel of the switch housing and shall be 2 inches (50 mm) in diameter.

86-2A. MODIFY EXISTING TRAFFIC SIGNAL

The existing traffic signal at 5th Avenue may need modifications, as shown below. The contractor shall be paid for the modification based as outlined in the bid pay items.

The traffic signal pole at the NE corner of the intersection shall be removed and combined with the new streetlight post at this location. The combined pole shall look similar to the combined light and traffic signal post located on the NW return of the same intersection. The details of the post is provided on sheets TS-1 thru TS-55. Other modifications will include replacement of the traffic signal detector loops located south of the intersection, in the northbound direction, to match the new lane layout. A separate loop for the bike lane shall be added as part of the modification, south of the intersection, in the northbound direction.

The traffic signal in the NW corner that is mounted on the light pole shall remain in place. Any adjustments to the sidewalk grade at this location shall not have block the access hatch at the base of the pole, nor cover the bolts at the base of the pole.

86-3 TRAFFIC LOOP DETECTORS

Loop detector and asphalt concrete sealant for inductive detector loop installation shall conform to Section 87-1.03V(1), "Detectors," of the Standard Specifications, the Standard Plans, the Plans, these Special Provisions, and the directions of the Engineer.

Work to install traffic loop detectors consists, in general, of the installation of new loops and connection of new traffic detector loops, if necessary, to the existing traffic signal controller box, as shown on the Plans and as directed by the Engineer.

Reference is made to Standard Plans ES-5A "Electrical Systems (Loop Detectors) and ES-5B, "Electrical Systems (Detectors)," on pages 504 and 505 of the Standard Plans.

Reference is made to Section 86-1.02, "Materials," of the Standard Specifications. Any excavation or backfill required to install traffic loop detectors shall be considered as included in the Contract unit price paid per each for this item, "Traffic Loop Detectors."

The Contractor shall request the Engineer to notify County Traffic Services, at (650) 363-1414 or (650) 363-4103, at least 72 hours prior to performing any loop detector work. County Traffic Services will contact the County's Signal Maintenance Contractor to reset the controller once the loops have been installed.

Loop detector work shall not be performed without the Engineer present.

Loop detector work shall be limited to those hours designated by the Engineer, and existing signalization system shall be reestablished at day's end.

Temporary signalization systems, consisting of flashing red traffic signals, shall be established during hours of loop detector work, unless otherwise directed by the Engineer.

86-3.1 Traffic Loop Detector Slot

The Contractor's attention is directed to the Slot Details of Standard Plan ES-5A for slot depth, minimum slot width, and minimum sealant depth.

Residue and slurry resulting from slot cutting operations shall not be permitted to flow across shoulders or travel lanes and shall be removed from pavement surfaces. The Contractor's attention is further directed to Section 11-1, "Water Pollution Control," of these Special Provisions.

86-3.2 Traffic Loop Detector Sealant

After conductors are installed in the slots cut in the pavement for detectors, the slot shall be filled with sealant in conformance with the requirements for hot-melt rubberized asphalt sealant in Section 87-1.03W(4), "Hot-Melt Rubberized Asphalt Sealant," of the Standard Specifications. Use of elastomeric or asphaltic emulsion sealant will not be allowed.

Hot-melt rubberized asphalt sealant shall be accompanied by a Certificate of Compliance in accordance with the Provisions of Section 6-2.03C, "Certificates of Compliance," of the Standard Specifications. Submittal of this Certificate of Compliance shall not relieve the Contractor from guaranteeing all materials and workmanship for a period of 1 year from date of acceptance of the project by the Director of Public Works, and repairing promptly upon notice by the Engineer, all at Contractor sole expense, any defects due to faulty materials, method of installation or workmanship within that period. Attention is directed to the provisions of paragraph II of the Agreement (AG) portion of the Contract Documents.

86-3.3 Testing

It shall be the Contractor's responsibility to test and ensure proper operation of traffic loop detectors. Should the newly installed traffic loop detector(s) not function properly upon testing, as determined by the Engineer, the Contractor shall reinstall said loop detector(s), as directed by the Engineer. Costs for testing and, if necessary, reinstalling loop detectors shall be considered as included in the Contract unit price paid for this item, "Traffic Loop Detectors," and no additional compensation will be allowed therefore.

86-3.4 Payment

The Contract unit price paid per each for this items, "Traffic Loop Detectors (Type D)," and "Traffic Loop Detectors (Type E)," shall include full compensation for furnishing all labor, tools, materials, equipment and incidentals necessary for doing all work involved in installing traffic loop detectors, including, but not limited to, performing slot cuts and furnishing sealant, and testing, as shown on the Plans, as specified in the Standard Specifications and these Special

Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

86-4 COST BREAKDOWN

The Contractor shall furnish to the Engineer a cost break-down in accordance with the provision in Section 5-1.27D, "Cost Accounting Records" of the Standard Specifications and the detailed list of components in these special provisions below.

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The sum of the amounts for the units of work listed in the cost break-down for electrical work shall be equal to the contract lump sum price bid for the work. The approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculation adjustment in compensation for the term or items of electrical work due to changes ordered by the Project Engineer.

The cost break-down for the contract lump sum items shall, as a minimum, include the following items:

- Foundations – each type
- Standards and poles – list by each type
- Conduit – list by each size and installation method. The agreed upon price shall include trench and pavement restoration, replacement of any existing traffic loops and restoration of any curb, gutter and/or sidewalk damaged due to conduit installation.
- Pull boxes – each type
- Conductors and cable – each size and type
- Vehicle signal heads and hardware – each type
- LED signal indications –each type

- Pedestrian signal heads and housings – each type
- Accessible Pedestrian Signal System (APS)
- Luminaires and photoelectric unit
- Emergency Vehicle Preemption equipment – each component
- Cabinet and controller installation (including foundation)
- Service cabinet equipment and enclosures (including foundation)
- Battery Back Up (BBU) system including batteries
- Actelis modem or approved equal
- Loop detectors
- Luminaires and lighting fixtures
- Pan Tilt Zoom (PTZ) camera including cables and all fixtures
- Video Detection Camera including cables and all fixtures

86-5 EQUIPMENT LIST AND DRAWINGS

All product submittals shall be provided to the County, 15 calendar days prior to equipment and material orders.

The Contractor shall submit to the County, for approval, all applicable submittals including, but not limited to, name of manufacturer, manufacturer's catalog cut sheets, schematic wiring diagrams, material descriptions, and any other material relevant to the components included in these Special Provisions. These submittals shall be approved by the Engineer, prior to any equipment deliveries to the County. Any equipment that is delivered to the County and rejected by the County shall be removed and replaced at the Contractor's expense.

The Project Manager shall supply two sets of laminated 17- by 11-inch copies of the as built signal plans to County staff after completion of the project.

86-6 MAINTAINING EXISTING ELECTRICAL SYSTEMS

Maintaining existing electrical systems shall conform to the provisions of Section 87-21.03B, "Maintaining Existing Electrical Systems," of the State Specifications. Existing traffic signal systems shall be kept in effective operation for the benefit of the traveling public during the progress of the work, except when shut down is permitted. The traffic signal shutdowns shall be limited to the hours of 9:00 a.m. to 3:30 p.m. and shall be permitted only during the switch over from existing to new controller operation, unless prior approval is obtained from the Engineer.

Temporary standards with signal equipment may be required during modification of existing signal systems. The Contractor shall provide temporary equipment if the Engineer deem necessary. The cost of the temporary system shall be included in the lump sum price paid for signal modifications and no additional compensation shall be allowed.

The Contractor shall notify the Engineer 72 hours prior to any operational shutdown of existing signal system.

Any existing equipment or devices damaged during an ongoing construction projects (examples: installation of a new traffic signal, modification of an existing traffic signal, ADA accessibility projects, street repaving projects, etc.), the contractor shall replace damaged equipment or devices with new ones at no cost to the County. This equipment shall include but not limited to signal cabinet, controller, PPB's, Accessible Pedestrian Signal (APS), loops, wiring, SIC, BBS, APS, signs, etc.

If an ongoing project require temporary changes in striping to facilitate the work, the contractor shall be responsible for implementing the temporary striping including restoration to original striping at no cost to the County.

The contractor shall be responsible for cleaning up and restoring the rock sump on any pull boxes (existing or new) that has been adjusted or replaced as part of the project. The contractor shall take extra care to ensure that no debris enter any conduit during construction.

Full compensation for performing the work in these specifications shall be included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

86-7 SCHEDULING OF WORK

The initial installation and turn-on of new equipment shall be made on a Tuesday, Wednesday, or Thursday, if not a holiday. The turn-on shall be the first order of work for that day and all facets of the traffic signal installation shall be functional.

Present at the time of the turn-on shall be a representative from the Electrical Contractor, Controller/cabinet Manufacturer (when applicable), Actelis Manufacturer (when applicable), Video Detection Camera (when applicable), Pan Tilt Zoom Camera (when applicable), Public Works – Maintenance Services Staff. The contractor shall assume the responsibility of contacting and coordinating all the stake holders as mentioned above.

In the event that the Contractor is unable to respond to a problem that develops during the functional test, or for any reason is unable to correct the problem in a timely fashion, as determined by County staff, the County staff may have its own maintenance personnel work on the problem. Any such work performed by the County shall not invalidate the guarantee provided for in these Specifications and shall be at the Contractor's expense.

All vehicular and pedestrian signal indications including APS systems shall remain covered with burlap or approved equal during installation of new traffic signals. Those covers shall only be taken off on the day of turn on. If the turn on is not successful, all indications described above shall be covered again with burlap or approved equal and remain covered till the successful turn on of the new traffic signal.

All existing stop signs on minor and major streets (if applicable) shall be removed only on the day after successful turn on of the new signal.

86-8 FOUNDATIONS

Foundations shall be per Section 87-1.03E(3), "Concrete Pads, Foundations, and Pedestals" of the State Specifications except as modified herein. Schedule 40 PVC or Schedule 80 PVC (as shown on the plans) with bell bushings shall be used in all cabinet and pole foundations (See Detail Cabinet and Foundation). A ⅝ inch, 10-foot ground rod shall be installed in the controller cabinet foundation including service cabinet foundation.

The cabinet foundation shall have a 36- by 20- by 6-inch recessed area for all conductors. Edges/corners of the foundation shall use chamfer strip.

Forms exposed portions of the foundation to present a neat appearance and shall be true to line and grade. The top of the foundation posts and standards shall be finished to curb or sidewalk grade except special foundations or as directed by the Engineer. Forms shall be rigid and securely braced in place. Conduit ends and anchor bolts shall be placed in proper position and to proper height. Anchor bolts shall be installed a maximum of 1:40 from vertical and shall be held in place by rigid top and bottom templates. The bottom template shall be made of steel and shall be at least ½ inch thick. The bottom template shall provide proper spacing and alignment of anchor bolts near the embedded bottom end and shall be installed before placing footing concrete.

The mortar shall be no thicker than thickness of the highest leveling nut/nuts leveling plus or minus ½ inch. The highest leveling nut shall be set to grade.

The controller cabinet pad and service enclosure shall have a concrete walk access to it from the existing sidewalk.

86-9 STANDARDS, STEEL PEDESTALS AND POSTS

Foundations shall be per Section 87-1.03E(3), "Concrete Pads, Foundations, and Pedestals" of the State Specifications except as modified herein. The identification number shall be stamped on the top of the base plate with minimum ½-inch characters in lieu of the riveted stamped identification number on the shaft above the handhole as described on the State Standard Plan ES-7M.

Traffic signal poles shall be set back from face of curb no less than 30 inches to face of standard or pole, and the base plate installed parallel to the flow (direction) of traffic unless otherwise specified by the Engineer or shown on the Plans. All poles shall be leveled using a level. All signal poles and signal standards shall be galvanized.

All holes drilled for wire entry (i.e. pedestrian and vehicle terminal compartments, and APS/pedestrian push button) shall be filed to remove all sharp edges.

Any incorrectly drilled or otherwise damaged poles must be repaired by a certified welder to the manufacture's specifications at the expense of the contractor.

Signal mast arms shall not have a negative angle. If so, the contractor shall contact the manufacturer and correct the negative angle issue.

Signal standard shall be Type 1-A or as shown on the project plans.

86-10 CONDUIT

Conduit shall be per Section 86-1.02B, "Conduit and Accessories" of the State Specifications except as modified herein. Conduit shall be installed by directional drilling or jacking and boring methods unless otherwise noted. The work shall include trench backfill and restoration per details on the plans. Furthermore, regardless of which method is chosen, the Contractor shall pothole as needed to locate existing utilities. The Contractor shall assume all risk associated with chosen method of installation and shall fully locate and verify utilities prior

to conduit installation. No additional compensation shall be allowed due to delays or changes in installation method.

Conduit runs shall have no more than 180° of bends, unless authorized by the Engineer, and shall enter the pull box vertically at 90°. When trenching is allowed for conduit installation, the top of the installed conduit shall be a minimum of 24 inches below finished grade in the street section. Where the asphalt concrete (AC) portion of the roadway cross section is greater than 24 inches in depth, the finished height of the conduit shall be 2 inches below the AC section. The trench shall be back filled with 2 inches of commercial grade sand with the remainder being 2 percent red oxide concrete, 5 sack concrete.

Conduit installed in non-paved areas shall be covered with conductive plastic underground warning tape 6 inches above the conduit.

Schedule 40 Polyvinyl Chloride (PVC) and Schedule 80 High Density Polyethylene (HDPE) shall be used throughout the project as shown on the plans.

All conduits shall be 3 inches minimum or otherwise as shown on the plans or specified in these standard specifications. The contractor at his sole expense may use larger conduit subject to approval by the Engineer. Where larger conduit is used, it shall be for the entire length of the run. No reducing couplings shall be permitted underground.

The ends of conduits in pull boxes shall have Bell Bushings and be a minimum of 2 inches above the surface of the rock, and between 8 and 10 inches below the top of the pull box.

Loop stub outs shall be two-inch PVC with bell bushings on each end

For all new signal and modified traffic signal (where new cabinet and controller will be installed) project, 3 to 4 inches conduit shall be installed between the controller cabinet base to the adjacent home run pull boxes. Out of three conduits, one conduit shall be exclusively dedicated to run signal interconnect cable only through a separate interconnect pull box. Splicing shall not be allowed in any of the home run pull boxes. The contractor shall install additional

2-inch conduits to run service conductors from controller cabinet to the service cabinet; and from home run pull box to the service cabinet.

86-11 PULL BOXES

86-11.1 Materials

Pull boxes shall be per Section 86-1.02C, "Pull Boxes" of the State Specifications except as modified herein. All pull boxes shall be of the Quazite "PG" style construction, or approved equal, and shall be gray in color except otherwise specified. Pull box lids shall have a non-skid surface. At locations other than adjacent to the controller cabinet, and at advance loop locations, number 6 (17- by 30-inch) pull boxes shall be used throughout the project unless otherwise specified on the plans. All home run pull boxes adjacent to the cabinet shall be quazite flared wall style (17- by 30-inch) or approved equal with no hold down bolts. No splicing shall be allowed in these pull boxes. Pull boxes near advance loops shall be number 5 (13- by 24-inch) Quazite "PG" style or approved equal. No bolt down lids shall be used.

Pull boxes shall be set square to face of the curb and shall be leveled with the existing grade.

86-11.2 Cover Marking

Marking shall be clearly defined, uniform in depth, and parallel to either the long or short sides of the cover. All pull boxes containing street lighting, interconnect, or service exclusively, shall be supplied with pull box lids that accurately reflect their contents. All pull box lids shall be tier 8 and shall have the words "Traffic Signal," "Street Lighting," "Interconnect," or "Service" on the lid, and shall not be of the bolt-down type. Lids shall be protected or reversed during the course of construction. All lids damaged or scuffed from construction shall be immediately rejected and shall be replaced by the Contractor at no expense cost to the County.

86-11.3 Installation and Use

Installation and use of pull boxes shall be per Section 87-1.03C, "Installation of Pull Boxes" of the State Specifications except as modified herein. Pull boxes in non-paved or asphalt areas shall be constructed with a minimum 4-inch-deep by 12-inch-wide concrete apron. The concrete apron shall be wrapped around with one #4 rebar.

On all runs, the spacing of pull boxes shall not exceed 200 feet measured along the conduit or as shown on the plans. If required, the contractor shall install additional pull boxes to facilitate the work. On those runs exclusively for "interconnect," the spacing of pulling points or pull boxes shall not exceed 300 feet, unless otherwise directed by the Engineer. No drain hole or grout shall be placed in the sump area.

A minimum of 6 inches of ¾-inch drain rock shall be placed under each pull box. All pull boxes shall be inspected and approved prior to pulling any conductors.

All pull boxes shall have a rodent prevention screen made up of ¼-inch galvanized wire mesh to be installed over the leveling drain rock sump. The wire mesh shall extend minimum 6 inches on all sides around the pull box.

86-12 CONDUCTORS AND CABLES

86-12.1 Signal Interconnect Cable

Signal interconnect cables shall be per Section 86-1.02F(3)(d)(v), "Signal Interconnect Cables" of the State Specifications except as modified herein. Signal Interconnect Cable (SIC) shall consist of 25 pair AWG #22 air pack AWG solid twisted pairs and comply with Rural Electrification Administration (REA) Specification PE-22 at five twists per foot, or as determined by the Engineer. A quality assurance certification shall be provided.

There shall be a minimum of 6 feet of slack at each cabinet controller and at each pull box marked SIC to allow for servicing.

The Contractor shall notify the Engineer 48 hours in advance prior to cutting the existing SIC. The Contractor shall not cut the existing SIC until the controller cabinet has been installed. New and existing SIC shall be connected to the new or existing controller cabinet as soon as possible. No more than 48 hours shall pass with the SIC being severed.

Air compressor shall be used to clean existing SIC conduit by blowing air through the conduit before pulling new SIC.

86-13 WIRING

86-13.1 Installation

Conductor and cable installations shall be per Section 87-1.03F, "Conductor and Cable Installations" of the State Specifications except as modified herein. Conductors shall be permanently identified as to function. Identification shall be placed on each conductor, or each group of conductors comprising a signal phase in each pull box and near the end of terminated conductors.

Identification labels shall be embossed and shall be direct labeling method. Labels shall be fastened to the conductors in such manner that they will not move along the conductors. Labeling shall be performed by mechanical methods. Labeling are required for loops, signal conductors, SIC and any other conductors within cabinet and pull box.

Only poly-based lubricants shall be used. Conductors shall not be pulled into conduits until the pull boxes have been set to grade and ¾-inch aggregate installed.

Conductors shall not be pulled into conduits unless a representative from County's Traffic Signal Section is present to observe the operation. The end of all unused conductors and cables shall be sealed.

All conductors and cables shall be pulled through the conduits with the same wire pull. Slipping of conductors shall not be allowed. Only mule tape shall be used to pull conductors. Each conduit shall be left with a mule tape.

Separate pull boxes shall be installed to accommodate splicing of loop wires including termination or as shown on the plans.

AWG #10, AWG #12 and AWG #14 conductors shall be solid with 45 mils thickness. AWG #8 conductor shall have 7-strand with 45 mils thickness and AWG #2 conductor shall be stranded with 60 mils thickness.

The signal conductors shall be organized in a bundle to allow for easy identification for wires and cables.

All conductors require bundling inside the cabinet shall be bundled and terminated neatly. Nylon wire tie wraps spacing shall be at 18 inches O/C.

Slack for each conductor shall be as shown in the following table:

CONDUCTOR SLACK REQUIREMENTS

Location	Slack (feet)
Signal Standard	1
Lighting Standard	1
Signal and lighting Standard	1
Pull Box	6
Splice	3

86-13.2 Splicing

Splicing shall be per Section 87-1.03H, "Conductor and Cable Splices" of the State Specifications except as modified herein. Conductors shall not be spliced in the home run pull box/boxes adjacent to the controller but shall be continued to terminals in the cabinet.

All conductors, including neutrals, shall be spliced by methods shown on State Standard Plan ES-13A. Splices shall be soldered using 60-40 rosin core solder only. Splices shall be insulated by Method "B" as described on State Standard Plan ES-13A.

Separate neutrals shall be used from terminal block to pull boxes for all vehicle, pedestrian and push button assemblies. Separate neutrals shall be used for all mast arm signal heads. No jumpers shall be allowed. All splices and terminals shall be soldered.

86-14 BONDING OR GROUNDING

Bonding or grounding shall be per Section 86-1.02F(2)(c)(ii), "Bonding Jumpers and Equipment Grounding Conductors" of the State Specifications except as modified herein. The grounding jumper at each pole shall run continuous to the adjacent pull box attached to the bond wire using Copper C-Tap, or equivalent, compression connector and shall be soldered with 60-40 rosin core solder. All grounding wire shall be No. 8 bare stranded copper wire.

86-15 COMBINED SERVICE AND BATTERY BACK UP SYSTEM

Battery backup system cabinets shall be per Section 87-1.03D, "Battery Backup System Cabinets" of the State Specifications except as modified herein. The Service cabinet and Battery Back Up System (BBS) cabinet shall be a combined unit and shall be TESCO MODEL 27-22 BBS METERING or County approved equal (see attached TESCO MODEL 27-22 BBS METERING drawing in Appendix "A"). The combined unit shall be furnished and installed by the contractor.

The exterior the combined cabinet shall be powder coated (minimum two coats) Bel Tel Green.

The interior of the combined cabinet shall be powder coated gloss appliance white.

The Contractor shall coordinate with Pacific Gas and Electric Company for any necessary service Installation. Any fees and costs required by the utility company shall be borne by the Contractor.

The service enclosure shall comply with the following specifications. In the case of discrepancies within the specifications and plans, contractor shall get written approval for the correct method from the County Engineer.

- Service enclosure shall be 20 inches wide by 50 inches high by 10¼ inches deep.
- Service enclosure shall meet EUSERC requirements.
- Service enclosure shall be fabricated from ⅛-inch aluminum.
- Interior of service enclosure shall be fabricated from 14-gauge cold rolled steel.
- Service enclosure shall have continuous welded seams.
- Service enclosure shall have full length deadfront with stainless steel hinge.
- Service enclosure shall be in accordance with UL 508A standards for industrial control panels and labeled for service entrance equipment.
- Service enclosure shall have pull section with removable step.
- Service enclosure shall have fully framed side hinged outer door with swaged close tolerance sides for flush fit with top drip lip and closed cell neoprene flange compressed gaskets.
- Service enclosure shall have hinged dead front with ¼ turn latch and knurled knobs.
- Dead front door shall be hinged on the same side as exterior door and open a minimum of 100 degrees.
- Removable back pan shall be mounted on four welded ¼-inch studs.
- All circuit breakers shall be mounted in a vertical position, handle up for "On" handle down for "Off."
- Circuit breakers shall be of cable-in cable-out type.
- Service enclosure shall consist of absolutely no "Bolt-On" or "Plug-In" circuit breakers.

- Service enclosure shall be completely prewired in the factory.
- Wiring will be to NEMA IIB standards showing external connections and external equipment.
- All bussing shall be UL approved copper THHN cable bussing, fully rated.
- The function of all circuit breakers, switches and other components as required shall be identified by laminated engraved plastic nameplates with minimum ¼-inch letters fastened with minimum of two #4-40 stainless steel machine screws.
- Wiring schematics will be Computer Aided Drafting and include all external equipment and connections per NEMA IIB.
- As Built factory drawings shall be laminated and affixed to the inside of the outer door.
- Manufacturers will be required to furnish independent laboratory certification of metal preparation and finish and to confirm that the overall product meets these specifications. If this agency wishes to witness this testing, all costs to be paid by contractor.
- Traffic signals shall be metered. Safety lighting shall be unmetered.
- Intersection safety lighting conductors shall be in a separate conduit from the home run pull box to the service cabinet.
- The foundation of the service cabinet shall comply with the requirements of Standard Plan ES-2D.
- The entire service cabinet assembly shall be warranted to be free from defects from workmanship and material for 2 years from the date of shipment by the manufacturer. Any parts found to be defective within the warranty period shall be replaced free of charge by the contractor.

- Service enclosure shall be Tesco Class EN-27-000LB-AP/EN-090-AP or County approved equal.

The BBS shall comply with the following specifications:

86-15.1 Enclosure Specifications

The enclosure shall be of aluminum construction weatherproof and shall house BBS and batteries. Enclosure shall be TIG welded construction with welding materials specifically designed for the material to be welded. Enclosure shall have fully framed side hinged outer doors with swaged close tolerance sides for flush fit with drip lip and closed cell neoprene flange compressed gaskets. Front door shall incorporate a full-length piano hinge, Type II keyed lock, pad-lockable draw latch (center area on door-latch side), and a pad lockable welded-in place vandal-proof tab, rated at 2,000 pounds. There shall be no exposed nut, bolts, screws, rivets or other fasteners on the exterior of the enclosure. Maximum cabinet dimensions 46 inches high by 20 inches wide by 10.25 inches deep. Weight 300 pounds with batteries. BBS shall be mounted in an interior tilt out housing with 800-pound rated stops. Battery connectors shall be Anderson Connectors with silver plated contacts. Batteries shall be installed in fixed position framed shelves for seismic safety and be readily accessible for maintenance. Batteries shall be mounted allowing airflow front and back. Enclosure can include two transfer bypass switches, one for BBS bypass the second for auxiliary generator (optional). All switches must be panel mounted on interior dead front panel board. UV resistant plastic laminated nameplates shall identify all controls and major components. A plastic covered wiring diagram will be attached to the inside of the front door. All components shall be factory wired and conform to required NEMA, NEC, and UL standards. A chassis ground point shall be provided. Panel shall be UL 508 Industrial Control Panel rated. Shall be a County approved model prior to bid. Must meet the following specifications:

86-15.2 BBS Panel Minimum Features:

- Typical run time is 6 to 12 hours full operation, based on the actual load.

- BBS bypass and BBS isolation switch.
- Deadfront safety panel board with all switches and plugs pre-wired with phenolic nameplates.
- All nameplates shall be phenolic engraved type.
- All wire terminating lugs shall be full wrap around type.
- All batteries shall be captive spaced from external captive sides in earthquake proof shelving.
- Cabinet ventilation shall be by (quantity two) 4-inch by ¼-inch louvers top and bottom with encapsulated bug screens, cleanable filters and a 100 cfm fan to completely exchange air 25 time minimum per minute.
- All DC terminals and connections shall incorporate safety covers such that the safety covers are in place for every normal maintenance mode.
- Event Counters and Total Run Time Counter.

86-15.3 BBS Unit Minimum Specifications

BBS unit shall provide a true sine-wave output with minimum 2,000-Volt-Amp continuous capacity. BBS must provide for utility service isolation when in operation. The minimum rating for wattage output will be 1,200 watts. The BBS shall be capable of running an intersection with LED lights (for Run Time consult manufacturer). The unit shall operate off-line, with transfer time of 2 to 4 ms or less, with battery condition indicator, with automatic test provisions, and with hot- swappable batteries (all batteries in system). BBS will automatically recharge batteries from full discharge to 90 percent capacity within 8 hours. BBS will provide on-line operation for a minimum input of 90 to 150 VAC, provide full load output of 120 VAC – 10 percent/+4 percent at 60 Hz +/- 0.05 percent over a temperature range of -37°C (-34.6°F) (optional adder) to +74°C (165.2°F) and conform to and be based on a UL Approved Design.

For safety and maintenance, the inverter shall not exceed 40 pounds. The BBS unit will be delivered with maintenance manuals.

86-15.4 BBS Unit Minimum Features

- 2 KVA 1,200 Watts, with quick make/break connectors and plugs. (Systems requiring hard wiring termination to/from the inverter are unacceptable).
- Surge energy – Per IEEE 62.41 (formerly IEEE 587)
- Common mode clamping 0 ns < 5 ns typical UL 1449
- Conditioned power – Computer quality
- Transient lighting protection – Per IEEE 62.41 (formerly IEEE 587)
- Transfer to battery time – 2-4 ms
- Retransfer to utility – 2-4 ms
- Each battery shall be 24 volts at 18 AH with heavy duty Anderson plugs connections to the BBS for greater system reliability and ease of maintenance. Series wiring is unacceptable.
- Fan cooling shall be fused for locked rotor current.
- Cooling air shall be ducted to cool the front and back of each battery with air space on all four sides and top of battery.
- Inverter covers shall be 60 percent open on both sides to diminish the environmental effects of extreme temperatures.
- Includes USB and RS232, DB9 Computer Interface Ports.
- Low voltage safety design at 24 V DC. (Higher voltage DC systems are unacceptable).

86-15.5 BBS Communications Module

- All inverter connections shall be made without the use of tools. This includes: A/C-Input, A/C- Output, Normally-Open, and Normally-Closed programmable contacts.

• Smart Slot Relay I/O Module; Input #1	Turn the BBS on.
• Input #2	Turn the BBS off.
• Input #3	Start the BBS self-test.
• Input #4	Shut down the BBS (when on battery).
• Output #1	The BBS is on-battery (during a power failure, self-test or run time calibration).
• Output #2	BBS has a low battery – Programmable.
• Output #3	The protected load is not receiving power from the BBS.
• Output #4	Replace the BBS batteries.
• Output #5	The BBS is overloaded.
• Output #6	Any BBS fault or self-test failure.

86-15.6 Batteries

Batteries shall be per Section 86-1.02Z, "Batteries" of the State Specifications except as modified herein. Batteries shall be maintenance-free, type AGM/VRLA (Absorbed Glass Mat/Valve Regulated Lead Acid). Batteries shall be independently pre-wired and individually fused. Batteries shall be furnished with heavy-duty 50-amp rated silver-plated Anderson Connectors. 100-Amp internal fuse by Battery supplier. Batteries shall be lightweight for personnel safety and protection plus ease of installation and maintenance. Batteries with a weight

of over 26 pounds are not acceptable. A minimum of six batteries shall be furnished by the contractor.

86-15.7 Enclosure Temperature Compensation

Operating temperature shall be a minimum -37°C (-34.6°F) to +74°C (165.2°F).

86-15.8 Power System Analyzer And Conflict Resolution Module

The inverter incorporates an integrated power system analyzer and conflict resolution system. The analyzer will evaluate and make limited adjustments to the incoming utility power and will automatically transfer load to the battery back-up power if utility power is lost. When utility power becomes available, the BBS will analyze the power to verify stability and return to normal operation. The system provides automatic BBS failure detection and automatically isolates the failed BBS and locks the unit on to utility power. Once the failure has been corrected, the system will return to normal operation.

86-15.9 Triple Bypass System For Offline BBS

- Power Analyzer with Conflict Monitor Isolation and Transfer Module.
- PCM – Power Conflict Monitor. The PCM is a totally redundant failsafe system. It monitors load bus power available continuously. If load bus power fails for 5 ms the PCM will transfer and isolate the BBS and guarantee that commercial power will be locked on.
- Timer – Redundant 5 ms delay and hard transfer to utility power.
- The outboard Transfer Switch shall not interrupt the normal controller function. Transfer time shall be 2 ms.
- Onboard I/O module will execute lockout of battery backup system upon detection of any inverter BBS fault. If BBS resets itself, it will automatically be available for backup.

- ON Inverter to timed relay for Full Time control of Output, 0 to 10 hours.

86-15.10 Battery Charger

Shall charge from shut off discharge to 90 percent fully charged in less than 8 hours. The battery charger shall utilize Advanced Battery Management to extend battery life.

86-15.11 Advanced Battery Management

Protection at the cellular level means longer battery life – Improved reliability results from a precision battery charging system, and automatic true-load battery tests. Redundant overcharge protection contributes to longer battery life. Under Voltage Boost and Overvoltage Buck regulates under and over voltages without switching to battery.

Battery Replacement Warning prevents downtime – The Inverter is capable of performing a self- test every two weeks. This ensures that you will be alerted to degrading batteries before they wear out. Through software, or the push of a button, self-tests may be performed at any time. Faster Recharge Time – The inverter battery charging systems are microprocessor controlled to precisely charge batteries in less time than legacy BBS systems. This makes the system available more quickly for subsequent power disturbance.

86-15.12 Hot-Swappable Battery Replacement

The 60 second, user friendly, hot-swappable battery replacement system – Saves the time and expense of returning the BBS to the factory for battery service and allows safe and easy replacement of batteries while your system is up and running. Replacement battery packs ship in a reusable box for convenient return of exhausted batteries to a recycling center.

86-15.13 Additional Requirements

- Manual transfer switch with BBS bypass and generator plug
- Automatic transfer switch (ATS) and generator plug
- 30-amp or 50-amp external reverse service generator plug

- Keyed lock (Core or #2 Corbin)
- 3-pt latch
- Web SMNP/Ethernet (IP addressable communication)
- On Battery external indicating light
- Combination metering, distribution, BBS combination cabinets available

86-15.14 Warranty

Manufacturers shall provide a 2-year factory-replacement parts warranty on the BBS. Batteries shall be warranted for full replacement for 2 years. The warranty shall be included in the total bid price of the BBS.

86-16 TESTING

Prior to field installation of the traffic signal cabinet and controller, the Contractor shall deliver (F.O.B.) the Model 2070L controller, fully wired Type "P" TS2-Type 1 cabinet including all auxiliary control equipment required for the controller and cabinet assembly to be operational as specified in these Special Provisions) to the County of San Mateo for the designated 21-day operational testing period.

The Contractor shall be responsible for transport of the equipment to County and from the County facilities to the project site. Deliveries shall be made on Monday through Thursday between 8:00 a.m. and 3:00 p.m. and staff can be reached at (650)363-4147 (John Silva, Roads Construction and Operations Department) to arrange delivery of controller and cabinet.

All shipping cartons and cabinets shall be externally labeled with the name of the final installation location.

The manufacturer of the controller and cabinet system shall certify to the Engineer that the controller hardware and software has been thoroughly bench and operationally tested and that as a controller system, all components are operating in conformance with these Special Provisions.

County staff will test the controller and cabinet equipment for continuous satisfactory operation (without failure) for 21 consecutive calendar days. Delivery of controller equipment for testing shall occur a minimum of 30 calendar days prior to being picked up by the contractor for installation. If equipment is rejected, the contractor shall allow additional 30 days for retesting.

When the controller cabinet has been satisfactorily shop tested, a representative from Public Works (PW) Maintenance Department will notify the Contractor that the cabinet is available for pick up. The Contractor shall provide equipment and personnel, as necessary, to safely load the controller cabinet.

County staff will develop signal timing data sheet and will program the controller including installation of controller at project location.

The contractor shall bear the full cost all shipping, handling, and related transportation costs associated with testing and retesting (if applicable).

86-17 DOCUMENTATION

Two manuals shall be supplied for all equipment and components of the system. Documentation shall be supplied explaining the operation of all system features. Additionally, the contractor shall provide one laminated copy (17- by 11-inch) of signal plan to County staff.

86-18 PAINTING

The exterior of the controller cabinet, combined service and BBS cabinet shall be powder coated (minimum two coats) Bel Tel Green.

The interior of the controller Cabinet, combined service and BBS cabinet shall be powder coated gloss appliance white.

The factory powder coat finish for the controller cabinet, combined service and BBS cabinet shall be applied as described below:

A. Acid etch degreasing bath
B. Clean water rinse
C. Iron Phosphate adhesion bath
D. Clean water rinse
E. Non-chromate acidulated seal batch
F. Thermal Set Process
G. Convey parts through drying over for then minutes at 300 to 400° Fahrenheit
H. Apply polyester or epoxy based dry powder coating at 75 to 90 KV
I. Convey parts through drying oven for thermal setting for 20 minutes at 400° Fahrenheit

All existing cabinets require repainting shall first be sanded and then primed. Any corroded spots shall be neutralized with a corrosion inhibitor prior to priming. The cabinet then shall be painted with two coats of paint as specified by the County staff.

86-19 (86-1.02Q(3)) CONTROLLER ASSEMBLIES

86-19.1 General

Work under this section shall include the installation of 2070LX traffic signal controllers as indicated on the project plans (TS Sheet(s)).

86-19.2 Technical and Functional Requirements

Model 2070LX Controller shall be used for this project.

The Contractor shall supply the McCain Model 2070LX Controller with the following modules from the County's existing purchase contract #1793.

- 2070-1B CPU with 10-Mb Ethernet
- 2070-2B Field I\O Card
- 2070-8 NEMA Adaptor

- 2070-3B High Resolution Display Panel Assembly (8 Line x 40 Char) backlit panel with dual keypad.
- 2070-4B Power Supply, 3-Ampere Output
- 2070-6B Modem Card
- 2070-2A Card
- McCain's Latest OMNI Intersection Control Software
- Linux Operating System
- McCain Input File Test Card
- Any and all auxiliary equipment necessary to operate both intersections and railroad preempt as shown on the plans.
- The entire controller assembly shall be warranted to be free from defects from workmanship and material for one from the date of shipment by the manufacturer. Any parts found to be defective within the warranty period shall be replaced free of charge by the contractor.

86-19.3 Traffic Signal Controller Software

The Contractor shall bench test with the specified controller cabinet and install the latest version of McCain's OMNI program in McCain Model 2070LX controllers to be compatible and completely functional with County's ATMS.NOW central traffic signal controller communication software prior to delivering controller to the County for testing. The most current version of McCain OMNI, at the time of project advertising, shall be fully configured in the Model 2070LX controller.

The Contractor shall provide licenses, which include the basic support and integration for use of this software, if necessary.

86-19.4 Telemetry

The external telemetry to and from the controller shall be via the communications module on the controller. An adapter cable shall be constructed and provided as necessary to interface the controller's communications module to the cabinet's telemetry interface.

86-20 (86-1.02Q(3)) CONTROLLER CABINET

86-20.1 General

Work under this section shall include the installation of Type "P" TS-2 Type 1 traffic signal cabinets as shown on the plans.

86-20.2 Technical and Functional Requirements

86-20.2.1 Cabinet Assembly

The contractor shall furnish a bench tested Cabinet assembly McCain 352i cabinet delivered with all required peripherals capable of operating a sixteen – vehicle phase, eight – pedestrian phase and 4 overlap phase intersection, and railroad preemption sequencing as shown on the plans, and shall include the following:

- The cabinet shall be capable to house a McCain model 2070LX controller assembly, operating latest Omni local intersection software.
- Detailed shop drawings of the cabinets showing dimensions, equipment placement layout, auxiliary panel placement and dimensions, and labeling shall be submitted upon request for review and approval prior to manufacture.
- The cabinet shall be designed for 16 channel operation.
- Load switches 1-8 shall be for vehicle phases 1-8.
- Load switches 9-12 shall be for overlap phases A, B, C, and D.
- Load switches 13-16 shall be for pedestrian phases 2, 4, 6, and 8.

- All load switch sockets shall be configured in a manner as described above without rewiring the back side of the load-bay.
- BIU load switch drivers 1-16 shall be wired to appropriate load switch sockets via a terminal block located on the front side of the load-bay as to allow checking voltage inputs to the load switch sockets without dropping the load- bay
- The cabinet shall have 0.125-inch-thick (minimum) Aluminum enclosure with minimum exterior dimensions: 55 inches high by 44.5 inches wide by 26 inches deep.
- The cabinet shall have powder coating finish free from scratches and weld flash. The welds shall be neatly formed, smooth and continuous.
- The top of the cabinet shall incorporate a 5- to 10-degree crown or slope from front to rear to prevent rain from accumulation.
- A rain resistant air flow exhaust channel shall be present along the entire width of the cabinet body, located above the door. The cabinet exhaust channel shall include a screen, and lack any slots or cavities, which would allow flying insects to build nests.
- Prior to delivery, the surface of the cabinet shall be cleaned to remove oil film, weld black, mill ink marks and leave the surface clean, bright, smooth, and non- sticky to the touch.
- The cabinet shall be designed for mounting on a concrete foundation using contractor furnished anchor bolts. The height of the foundation shall be 18 inches from finished grade for a standard "P" cabinet and 12 inches for a stretch "P" cabinet and or as shown on the plans.
- The cabinet foundation shall have a 36-inch by 20-inch by 6-inch recessed area for conductors. All edges/corners of the foundation shall use ¾-inch chamfer strip.

- The cabinet door shall be equipped with a 3 – point latching mechanism to firmly secure the door at the top, bottom and center of the cabinet with stainless steel handle, and Corbin #2 lock or approved equivalent. Two keys shall be supplied.

- The cabinet door shall be hinged on the right side of the cabinet as viewed facing the cabinet door opening. The door hinge shall be a one-piece continuous stainless piano hinge, with a stainless-steel pin, running the entire length of the door.

- The cabinet shall include an auxiliary switch panel mounted to the interior side of the police compartment on the cabinet door. The panel shall be secured to the police compartment by two screws and shall be hinged at the bottom to allow access to the soldered side of the switches with the use of only a Philips screwdriver. Both sides of the panel shall be silk-screened. Silk-screening on the back side of the switch panel shall be upside down so that when the panel is opened for maintenance, the silk-screening will be right side up. All of the switches shall be protected by a hinged see-through Plexiglas cover. At a minimum, the following switches shall be included: Controller ON/OFF Switch, Signals ON/OFF Switch, Stop Time Switch, Manual Advance Switch, 8 - Vehicular Phases Test Switches, 4 – Pedestrian Phases Test Switches, 4 – Preemption Test Switches and Auto/Off/Flash Switch with protective covers or shields.

- A hinge police compartment door shall be provided on the outside face of the cabinet door to permit access to a switch panel. There shall be no exposed electrical terminals accessible from the police compartment. The size of the police compartment and door shall be as needed to accommodate the required switches, plugs, and/or jacks and to provide storage of the coiled, handheld manual push button switch cable.

- The police compartment door shall be provided with a treasury type police lock or exact equivalent. Two keys shall be supplied.

- The police compartment door shall close against a weatherproof and dust-tight, closed-cell neoprene gasket seal. The gaskets shall be attached to the cabinet door with a permanent adhesive bond.

- The police door must contain a metal rear cover on the inside of the cabinet to protect the switches and connections.
- The police panel shall include 2¼-inch RCA phone plug clearly labeled as #1 and #2. #1 shall be "Stop Time" and wired to the stop timer for all pre- programmed standard ring structures #2 shall be a manual advance. The cabinet shall also include a stop timer switch fully insulated ergonomic push button with 6-foot coil extension.
- The cabinet shall be equipped with two individually temperature-controlled fans. The lighting fixture installed in cabinet shall use the Type B door actuated "On- Off" switch and shall use two LED lights bars: one shall be installed between the two fans and the other shall be installed underneath the document drawer; and shall not hinder the operation of the drawer.
- The cabinet shall contain a pleated paper filter, to filter the incoming air. The filter shall be non-corrosive, vermin and insect proof, removable, and replaceable shall be secured to the louvered air entrance on the cabinet assembly door.
- The cabinet shall be provided with a thermostat to control the operation of the ventilation fan. The removable cabinet light, thermostat and fan panel is to be located on the top of the cabinet plenum. The thermostat shall be adjustable between 27°C (80.6°F) to 66°C (150.8°F).
- The cabinet shall be equipped with two adjustable equipment shelves
- The top shelf shall be dedicated for detector racks.
- The bottom shelf shall be dedicated for the controller assembly, power supply unit and Malfunction Management Unit (MMU).
- The cabinet shall be equipped with one power panel, with 50A line filter, 20A equipment circuit breaker, and 50A signal circuit breaker.

- The cabinet shall be equipped with one duplex non-GFI power receptacle mounted on top left inside corner of the cabinet, and one duplex GFI power receptacle mounted on lower right side of the power supply panel immediately below the circuit breakers.
- The cabinet shall be equipped with pull-out document drawer.
- The cabinet shall be equipped with one 16 – Position load bay, with terminal block silkscreen on both sides of all panels.
- The cabinet shall be equipped with two racks. Each rack with eight slots – two channel detectors (for a total of 32 channel detectors), one-inch single slot detector card, and two optical detector units. Each detector channel shall include an associated 3-position toggle switch for "Normal/Momentary/ON" operation installed on the detector lead-in cable (DLC) input panel.
- The cabinet shall be equipped with a single 32-channel detector panel with integrated test switches for each channel.
- The cabinet shall be equipped with two NEMA TS2 power supply, rated a 5A output.
- The cabinet shall be equipped with one EDI 16-channel Malfunction Management Unit (MMU). The MMU shall be an Eberle Design, Inc., Model MMU2-16LE (ip) with Ethernet and RS 232 or approved equal. The MMU shall be capable for monitoring up to 16 traffic signal indications (channels) for conflict, improper sequencing, incorrect timing, and improper voltage levels. The MMU shall be fully compliant with NEMA Standard TS2-2003. The MMU shall also be capable of operating in older TS1 type cabinets and be compatible with 12-channel Conflict Monitor Units conforming to NEMA Standard TS1-1989.
- Traffic signal controller shall have the ability to activate a response to the advance preempt, simultaneous preempt, advance pedestrian preempt, gate down input, and provide an output regarding the traffic signal health.

- The cabinet shall be equipped with six TS2 Bus Interface units (BIU), with RS-232 diagnostic ports and socket mounted IC's for ease of repair.
- The cabinet shall be equipped with 16 Model 200 load switches, dual indicating (I/O).
- The cabinet shall be equipped with one Model 204 flasher, dual circuit.
- The cabinet shall be equipped with six Model 430 flash transfer relays.
- The cabinet shall be equipped with 16 EDI Oracle 2E (dual channel) loop detector amplifiers or approved equal, 1-inch single slot per detector.
- The cabinet shall be equipped with eight load bay jumpers.
- The cabinet shall be equipped with one McCain 2070-8 interface adaptor, with front-mounted RS-232 data ports, SDLC interface to the Model 2070LX and TS2 power supply connection to the CU.
- The cabinet shall be equipped with a single RS-232 data communications serial cable from Controller Unit (CU) 2070-7A, two Opticom phase discriminator cards and the MMU event log data devices to allow data transfer into the Model 2070LX CU.
- The cabinet shall be equipped with Type full size 66B4-25 telephone termination block (25 pair).
- All CU, BIUs and MMU cables shall be sufficient length to allow the movement of the CU and the MMU.
- The traffic signal controller assembly shall be equipped with relays in the cabinet to monitor and activate a response within the traffic signal controller for the advance preempt, simultaneous preempt, advance pedestrian preempt, gate down input, and traffic signal health output.

- All wiring shall be neat in appearance. All cabinet wring shall be continuous from its point of origin to its termination point. Butt type connections/splices shall not be accepted.
- All connecting cables and wire runs shall be secured by mechanical clamps or nylon wire tie wraps. Stick on type clamps shall not be accepted.
- The Cabinet/Controller Unit (CU) and Opticom phase discriminator cards (minimum two) shall be Contractor furnished.
- The cabinet shall have a test panel mounted on inside of the door with momentary buttons.
- The test panel shall be equipped with LED lighting bars.
- The stop time toggle switch shall have three-way positions, auto, off and on. On shall be the momentary position.
- The cabinet shall have a feature so that MMU or CU can be replaced without the signal reverting to flash operation only when the door is open.
- The Cabinet foundation shall include all required anchor bolts and PVC conduit(s), as shown on plans, from cabinet to home run pull boxes.
- The cabinet shall be assembled and tested by the manufacturer or by the authorized representative to ensure proper component integration and operation.
- The exterior of the cabinet shall be powder coated (minimum two coats) Bel Tel Green
- The interior of the cabinet shall be powder coated gloss appliance white.
- The cabinet supplier or their authorized representative shall be available within 48 hours' notice to assist in locating and correcting any operational problems with the cabinets during County's test operation and providing turn-on technical support assistance.

- The entire cabinet assembly shall be warranted to be free from defects from workmanship and material for one from the date of shipment by the manufacturer.

- Any parts found to be defective within the warranty period shall be replaced free of charge by the contractor.

86-21 VEHICLE SIGNAL FACES/HEADS AND FITTINGS

Until ready for use, signal faces shall be securely covered so that no signal indications are visible. A flash hole no larger than 1 inch in diameter may be placed in front of each lens. Traffic signal heads shall be of polycarbonate construction with matte black. Pedestrian signal housing shall be of aluminum construction with matte black. Mounting hardware shall be as per State Standard Plan (ES-4A), unless otherwise indicated on the Project Plans.

Terminal compartments, Mast Arm Side (MAS) mount, curved washers, and slip fitters shall be bronze. Traffic signal frameworks, heads, framework, pedestrian housings, clamshell, and pedestrian button housing shall be factory powder coated matte black per these special provisions and all shall be furnished and installed by the contractor.

"Knock Out" type seals are not acceptable for sealing unused pipe thread connections to terminal compartments, or top/bottom of signal heads. Connections shall be sealed with threaded fittings with a rubber gasket, or by the use of an "ornamental cap" designed for such purpose.

The Contractor shall exercise care at the time the signal heads are installed to ensure that the gaskets provided for the mounting of the heads are installed on the outside of the housing to provide a watertight seal. Gaskets shall not be placed on the inside of the housing.

All back plates shall be louvered with 5-inch border and shall be aluminum, unless otherwise indicated on the Project Plans. All back plates shall be powder coated fat black or matte black.

Signal visors shall be aluminum (12 inches in diameter by 12 inches in depth), shall be tunnel type and shall be powder coated fat black or matte black.

Signal heads and framework, as a unit, shall be installed by the Contractor at the job site. Extreme care shall be taken by the Contractor's workers during the installation of the signals, frame works, and heads. Any scarred marks or cosmetic damage to the equipment caused from tools or installation processes shall be cause for rejection and shall be replaced at the expense of the Contractor.

86-21.1 Light Emitting Diode Signal Module Specifications

86-21.1.1 Purpose

LED countdown pedestrian signal face modules shall be per Section 86-1.02S(3)(c), "LED Countdown Pedestrian Signal Face Modules" of the State Specifications except as modified herein. The purpose of this specification is to provide the minimum performance requirements for 12-inch circular (ball and arrow), "walking person," "upraised hand" icons and 16- by 18-inch countdown pedestrian signal modules. This specification refers to definitions and practices described in "Vehicle Traffic Control Signal Heads (VTCSH): Light Emitting Diode (LED) Circular Signal Supplement," "Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" and "Pedestrian Traffic Control Signal Indicators" (PTCSI): Light Emitting Diode (LED) Signal Modules, as published by The Institute of Transportation Engineers. They may be purchased online from www.ite.org. The contractor shall furnish and install all LED modules as shown on the plans.

86-21.1.2 General

- Referenced vehicle type LED modules shall fit in all standard, incandescent vehicle traffic signal housings.
- Circular ball LED signal modules shall contain no more than 18 LEDs.
- The modules may be used for the replacement of the reflector, socket, gasket, and lens assembly of existing warranty expired LED vehicle signal indication or may be used for new installations.

- Each module shall consist of smooth lens with the same appearance and color as incandescent lenses.
- Each module shall consist of LED circuit board inclusive of all the LEDs and required circuit components.
- Each module shall have a rigid housing for protection in shipping, handling and installation.
- Each module shall have a one-piece neoprene gasket.
- The power supply shall be integral to the LED module and shall be one piece.
- 36-inch 16-18 AWG wire shall have leads with quick connect insulated terminals and also be provided with quick connect to fork terminal adapters.
- Lens type for green, yellow and red vehicular indications (ball and arrow) shall be tinted.

LED modules covered by this specification include the following types and all modules shall be "Dialight Hi-Flux LED" type or approved equal.

- 12-inch Circular Red
- 12-inch Circular Yellow
- 12-inch Circular Green
- 12-inch Circular Red Arrow
- 12-inch Circular Yellow Arrow
- 12-inch Circular Green Arrow
- 16-inch by 18-inch Countdown Pedestrian Modules

Contractor shall provide exact catalog number for each module provided.

86-21.1.3 Identification and Labeling

Each individual LED signal module shall be identified for Warranty purposes and clearly marked with:

- Manufacturer's name
- Date of manufacture
- Nominal operating voltage
- Unit serial number
- Operating voltage
- Power consumption in Watts. No indication may exceed 20 watts
- Manufactured in Conformance with the ITE LED Circular Signal Supplement, June 27, 2005
- Manufactured in Conformance with the ITE LED Vehicle Arrow Traffic Signal Supplement, July 1, 2007
- Manufactured in Conformance with the ITE LED Pedestrian Traffic Signal Modules, August 4, 2010

86-21.1.4 Certification and Testing Standards

- All 12-inch circular LED Signal Indications shall fully and completely comply with all sections of ITE VTCSH LED Circular Supplement specifications dated June 27, 2005.
- All 12-inch Arrow LED Signal Indications shall fully and completely comply with all sections of ITE VTCSH LED Vehicle NTOW Traffic Signal Supplement dated July 1, 2007.

- All 16-inch by 18-inch Countdown Pedestrian Signal Modules shall fully and completely comply with all sections of ITE PTSCI LED Pedestrian Traffic Signal Module Specifications dated August 4, 2010. Modules shall be fully compliant with CAMUTCD 2003 Section 4E.07 and be fully preemption compatible. The modules shall include a 6-inch visor. The modules shall countdown the flashing "Don't Walk" prior to clearance interval and shall fit into existing 16-inch traffic signal housing built to PTSCI standards without modification to the housing. They shall require no special wiring or electronic modules to operate.

- All indications shall be tested to be in full compliance to all sections of the ITE VTCSH and PTSCI standards without exceptions and reports for each module shall be provided by the third party tester. Test report must list the LED manufacturer's model number and the model number must match the bid model number.

86-21.1.5 Optical Visibility

All LED Arrow modules shall be OMNI-DIRECTIONAL. That is, an LED traffic signal module that provides the same luminous intensity signal to the driver regardless of the orientation of the arrow icon or placement of the circular indication.

86-21.1.6 Warranty

- All LED traffic signal modules supplied shall be warranted for 5 years against manufacturing defects.

- Failures due to acts of God, abuse, and accidents are excluded from warranty coverage.

- Vendors expressly warrant that all modules furnished shall be new and shall be free from defects in material or workmanship.

- Vendor shall replace or correct defects if any modules not conforming to the foregoing warranty promptly, without expense to the County, when notified of such non-conformity by the County.

- In the event of failure of Vendor to correct defects in or replace non-conforming modules promptly, County, after reasonable notice to the Vendor, may take such corrections or replace such modules and charge Vendor for the cost incurred by the County in doing so.
- For each defective module returned, one new module shall be returned to the County. Vendor shall pay shipping for both ways for modules found to be defective and under warranty.
- Warranty shall commence from date of receipt of the modules by the County.

86-22 PROGRAMMED VISIBILITY VEHICLE SIGNAL FACES

Programmed visibility signal face and its installation shall comply with Section 86-1.02R(4)(a)(ii), and the following requirements:

- Power to signal heads shall be automatically removed when rear door is opened.
- Have a nominal 12-inch-diameter circular or arrow indication.
- Comply with ITE publication ST-017B for color and arrow configuration.
- Shall have a cap visor.
- Shall be mountable with ordinary tools and capable of servicing without tools.
- Shall have an adjustable connection that provides incremental tilting from 0 to 10 degrees above or below the horizontal while maintaining a common vertical axis through couplers and mountings.
- Visibility of each programmed visibility signal face shall be capable of adjustment or programming, within the face. When programmed, each signal face's indication must be visible only in those areas or lenses to be controlled except that during dusk and darkness a faint glow to each side is allowed.

- A signal technician qualified to program the programmed visibility signal heads shall be present when signal heads installed, adjusted and are placed in operation.

- Programmed visibility signal heads shall be programmed as recommended by the manufacturer and provide the visibility as shown on the plans.

86-23 VEHICLE DETECTORS

Vehicle detectors shall be per Section 87-1.03V, "Detectors" of the State Specifications except as modified herein. Vehicle detectors shall comply with the following requirements:

- A minimum of one sensor unit shall be provided for each traffic phase shown on the plans. In addition, separate sensor unit lead-in cable shall be provided for each advance loop, exclusive right-turn lane, and call loop set.

- Loop wire shall be Type 2 with THWN insulation (IMSA 51-5 or equivalent). Lead-in cable shall be Type C, 16 AWG stranded (IMSA 50-2 or equivalent).

- All front-line loops shall be Type "D" loop detector and the remaining loops shall be "Type E loop detector Configuration," per Caltrans Standard Plan ES-5B. All front line loops shall be placed 1 foot behind stop bar/limit line. Additional loops behind the stop bar loop shall be spaced at 16 feet center to center, unless otherwise specified on the plans or specifications.

- All advance loops shall be Type "E."

- Bike loop shall be placed 1 foot behind stop bar/limit line. Bike loop shall be modified Type "D" (6 feet by 3 feet) as shown in Appendix "A."

- All loops shall be installed underneath the pavement with pavement rehabilitation projects unless otherwise specified on the plans or specifications.

- All circular loops shall be saw-cut. The sides of the slot shall be vertical with a maximum width of ⅝ inch.

- All loop saw cuts shall be filled with Crafco or approved equivalent hot applied modified asphalt sealant for pavement cracks and joints. Excess loop filler shall not exceed 1.5 inches on each side of saw cut.

- All loop sealant when installed in the final lift of the asphalt, the sealant shall be placed in a neat bead like a manner, not to exceed 1/16 of an inch above the new asphalt. Special care shall be taken not to spill over the edge of the loop saw cut.

- Curb terminations shall be per Type A Curb Termination Detail, ES-5D of the State Standard Plans.

- Splicing of loop wires/DLCs shall not be allowed in pull boxes that contain traffic signal conductors. Separate pull boxes shall be installed for loop wires/DLCs.

- Insulation resistance of the loops shall be measured prior to sealing. Final resistance to ground shall be greater than 500 Megohms.

86-24 PEDESTRIAN PUSH BUTTON ASSEMBLIES

Pedestrian push button assemblies shall be per Section 86-1.02U, "Push Button Assemblies" of the State Specifications except as modified herein. Pedestrian push button assemblies shall comply with the following requirements:

- Push button shall be "Polara Bulldog III" or approved equal.

- Shall meet or exceed all ADA and CAMUTCD-2014 accessibility guidelines.

- Shall have 2-inch (minimum) activator button.

- Shall be furnished and installed by the contractor with all required fixtures and accessories to operate in momentary or latching mode.

- Operating temperature range: -34°C to +74°C (-30°F to +165°F)

- Operating force of less than 2.5 pounds and a minimum release force of 3 pounds.
- Telescoping, tamper-proof design.
- Stainless steel plunger and components.
- Dustproof, water resistant switch tested to 10 million cycles.
- Shall require no additional wiring to each button (only two wires).
- Powder coated black finish on switch housing unless otherwise specified by the Engineer.

5x7 Pedestrian Push Button Frame Assembly: The following requirements shall apply:

- House pedestrian push button cap and switch and most brands of pedestrian push buttons.
- House a standard 5-inch by 7-inch pedestrian push button sign (see attached in Appendix "A") or as shown on the plans.
- Manufactured of die cast aluminum.
- Provide with Philips head mounting screws.
- Powder coated black
- Fits traffic signal poles and pedestrian push button posts with diameter of 2½ inch or greater.

86-25 2-WIRE-ACCESSIBLE PEDESTRIAN SIGNAL (APS SYSTEM)

Pedestrian signals and pedestrian detectors (pushbuttons) shall conform to the accessible pedestrian signal (APS) requirements of these Technical Specifications and shall be installed as shown on the plans. All APS and push buttons shall be furnished and installed by the Contractor. For all new signal project, signal modification project, curb ramp enhancement project, and any

project involving replacement of existing pedestrian push button shall use APS system only. All APS and push buttons shall be Polara brand or approved equal.

86-25.1 System Description

The Audible-Tactile Pedestrian Signal System shall consist of all electronic control equipment, mounting hardware, push buttons and signs, which are designed to provide both a push button with a raised vibrating tactile arrow on the button, along with a variety of audible sounds for different pedestrian signal functions.

Substantiating documentation for meeting ISO, NEMA, IEC, and FCC requirements must be supplied from an outside Testing Services Laboratory.

86-25.1.1 General Description

A. The System shall consist of a Central Control Unit (CCU) and Pedestrian Push Button Stations (PBS), as described below, and an iOS device with the iOS client application or Windows PC with BLE dongle and Windows client application, for programming the system settings.

B. The System shall be manufactured by an ISO 9001:2008 (minimum) registered company.

C. The System shall meet the requirements of Made in America and/or The Buy American Act.

86-25.1.2 Design Compliance

A. The System shall meet the functionality requirements of CAMUTCD (latest edition).

B. The System shall meet NEMA TS 2 Section 2.1 Temperature and Humidity requirements, or TS4 equivalent.

C. The System shall meet NEMA TS 2 Section 2.1 Transient Voltage Protection requirements, or TS4 equivalent.

D. The System shall meet NEMA TS 2 Section 2.1 Mechanical Shock and Vibration requirements, or TS4 equivalent.

E. The System shall meet IEC 61000-4-4, IEC 61000-4-5 Transient Suppression requirements.

F. The System shall meet FCC Title 47, Part 15, Class A Electronic Noise requirements.

G. The Push Button Station (PBS) Enclosure shall meet NEMA 250 – Type 4X requirements.

H. The Central Control Unit (CCU) Enclosure shall meet NEMA 250 – Type 1 requirements.

86-25.1.3 Functional Requirements

A. The System shall support at least 16 PBSs per intersection (on at least one channel) controlled by a single base unit located in the traffic control cabinet.

B. The System shall be able to be set to vibrate a tactile arrow button during the WALK interval following a button push and/or every time the walk comes up.

C. The System shall have the field-selectable function known as "LOCATE TONE." This means that during the FLASHING DON'T WALK and the DON'T WALK intervals, the system shall provide a locating tone that emanates from the Pedestrian Push Button Station. The system shall provide at least three different sounds to choose from.

D. The System shall have the field selectable function known as "Extended Push Activation." This is defined as the audible WALK message shall only be activated and audible during the WALK interval if the button is depressed for a field selectable minimum period of time (from 0.5 to 6 seconds). Also, for the following walk and clearance intervals, the volumes have a separately settable minimum and maximum volume level.

E. The System shall have the field selectable function known as "Informational Message." This means that a custom message giving the location of the street to cross and the intersection (or other information) will be vocalized only when the button is depressed for a minimum field selectable time.

F. The System shall provide a "Wait" message that plays once the button is activated until the Walk cycle goes into effect. This message must have the field selectable option of OFF or repeating every 4, 6, 8, or 10 seconds.

G. The System shall have standard "Travel Direction" options that may be selected at the time of installation.

H. The System shall have at least 10 field selectable WALK sound options including a cuckoo, a chirp, an MUTCD rapid tick or custom voice message.

I. The System shall provide at least seven Ped-clearance sound choices including audible countdown (field selectable). The audible countdown shall represent the time remaining during the pedestrian Clearance interval. Timing is automatically adjusted to the CLEARANCE INTERVAL timing, provided by the traffic controller.

J. The System shall provide two language capabilities, selectable by user (as a field selectable feature).

K. The System shall provide an Emergency preemption message in conjunction with a preemption system (selectable feature).

L. The system LOCATE TONE, WALK, and DON'T WALK audible features shall have independent assignable minimum and maximum volume limits. CLEARANCE volume level shall be controlled by WALK volume setting.

M. All sounds for all PBSs shall be synchronized.

N. The system shall have a non-visible, ambient sensing microphone located in the pedestrian station in an environmentally protected housing.

O. The LOCATE TONE volume shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30 dB below to +20 dB above ambient in 2.5 dB increments.

P. All other sounds volumes shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30 dB below to +20 dB above ambient in 5 dB increments.

Q. The system shall utilize high quality digital audio technology, with a minimum 16-bit sample at a 48 kHz sample rate.

R. The PBS firmware and voice messages shall be updatable via Bluetooth. There shall be no requirement for the IC chips or module hardware to be removed or exchanged in order to complete a firmware or audio update.

S. The System shall have the option to mute sounds on all crosswalks except activated crosswalk (selectable feature).

T. The System shall have a real time clock capable of keeping time when there is no system power, for at least 2 years from the date of manufacture.

U. The System shall have the ability to have four separate program configurations with all features available, and any single configuration can be selected through an external input.

V. The System shall provide a user settable calendar function, allowing four separate configuration profiles to be configured to become active at different times of the day on a daily, weekly, or holiday basis.

W. The entire System shall be configurable from any PBS over Bluetooth.

X. The entire System shall be configurable from the CCU over Wi-Fi or Ethernet.

Y. All field access to selectable options using a Bluetooth, Wi-Fi or Ethernet devices shall be protected using password security.

86-25.1.4 Central Control Unit (CCU)

A. The CCU-S shall be installed inside the Traffic Cabinet and powered by the AC supply mains (115 VAC).

B. The CCU will provide data for the push buttons.

C. The CCU shall be either a shelf mount (CCU-S) or rack mount (CCU-C) assembly

D. The CCU-C shall be installed inside the 300 series Traffic Cabinet's Input File, replacing two PED isolator boards and receiving power from the rack (24 VDC).

E. The CCU-S shall provide internal power to operate up to 16 PBSs.

F. A 24-volt power brick shall power up to 16 PBSs in a CCU-C configuration.

G. The CCU shall control at least 16 PBSs.

H. The CCU shall be logically configurable to assign any PBS to one of 16 traffic phases.

I. The CCU-S shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from either the traffic cabinet load switches or an SDLC input.

J. The CCU-C shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from a Transport Electrical Equipment Specification (TEES) C4S connector.

K. The CCU shall be able to self-test all PBSs and put a corresponding phase into recall should a PBS assigned to a phase fail the self-test.

L. The CCU-S shall provide optically isolated general purpose inputs.

M. The CCU-S shall be used with a 4-cable interface harness assembly.

N. The CCU shall have internal storage to log several hundred events with a date-time stamp for each event.

O. The CCU shall have an internal real-time clock capable of being set in the field and propagating the time to each connected PBS.

P. The CCU firmware shall be updatable via either Wi-Fi or Ethernet. There shall be not requirement for the IC chips or module hardware to be removed or exchanged in order to complete the firmware update.

Q. The CCU shall monitor PED interval conflicts and signal affected PBSs to an off state when a conflict occurs.

R. The CCU-S shall meet NEMA 250 – Type 1 enclosures requirements.

S. The CCU shall have a backlit LCD screen and button interface to allow placing test calls and display status.

86-25.1.5 Pedestrian Push Button Station (PBS)

A. The PBS shall be mounted to a pole by banding or bolting.

B. The PBS will allow the pedestrian to place calls to the traffic controller and provides vibro-tactile feedback during the Walk cycle.

C. This equipment shall be typically mounted on a pole, near the start of the crossing.

D. The PBS shall be a single fixture that contains a 2-inch activation area, in which resides an ADA compliant vibro-tactile push button with a raised directional tactile arrow, and a sign mounted above the button.

E. The PBS Speaker shall be 8 Ohms, 6 Watt, and weather-proof.

F. The button shall be cast aluminum, nickel-plated and powder coated black around the arrow, to provide high contrast to arrow color. The PBS arrow shall allow for change in orientation to one of four directions.

G. The PBS Arrow Button Actuation shall use Hall Effect Sensor technology rated to greater than 20 million operations.

H. The PBS Arrow Button Push Force shall have three adjustable pressure settings between approximately 1 and 3 pounds to activate a button push.

I. The PBS Arrow Button shall pulse and vibrate at approximately 20 Hz with displacement factor based on pounds of force used to actuate.

J. The PBS shall have a rear facing speaker projecting sound from front and back, providing 360° omnidirectional sound performance.

K. The PBS shall include internal Conflict Monitoring that monitors WALK, and DON'T WALK input signals for conflict conditions; disables system operation and logs errors if conflict occurs.

L. The PBS firmware and voice messages shall be updatable via Bluetooth. There shall be no requirement for the hardware to be changed out to update.

M. The system shall operate with the vendor's client application to record and upload cumulative ped count and call data.

N. The PBS shall meet or exceed NEMA 250 Type 4X enclosure requirements.

O. The PBS Construction shall be:

1. FRAME: Cast Aluminum, Powder Coated Black.

2. HOUSING: Reinforced, UL-listed Thermoplastic.

3. MESSAGE SIGN: Aluminum, Powder Coated, Ink Markings, or Reflective Vinyl Sheeting

4. PUSH BUTTON: Aluminum, Powder Coated.

P. Electronic circuits (printed circuit board assemblies) shall be in a water-tight housing/ enclosure or encapsulated with a thermoplastic polyamide having a UL94-V0 flammability rating and allowing light and RF transmissions (i.e. over-molded), for environmental protection. The housing/closure or encapsulation shall be capable of providing NEMA 250 4X protection to all covered components.

Q. The PBS Message Marking at the time of order may specify the Message Sign Markings to be the International Walking Person or the Informational Explanations for the three distinct pedestrian displays (WALK, DON'T WALK, and PED CLEAR) that a pedestrian would see on an active pedestrian signal.

R. Push button station frame shall be capable of holding a 5-inch by 7¾-inch or larger pedestrian sign (see attached in Appendix "A" for detail) or as shown on the project plans.

S. The clearance between center of the installed push button and finished grade shall be 40 inches or as shown on the project plans.

86-25.1.6 Field Programming via Client Application (Apple iOS v8.0 or higher devices or a PC with Windows 7, 8, or 10)

A. The iOS and PC applications shall be upgradable.

B. The iOS and PC applications shall notify the user when a newer version of the client application is available.

C. The iOS and PC applications shall notify the user when newer PBS and CCU firmware is available.

D. The iOS and PC applications shall provide the mechanism to download the latest PBS and CCU firmware.

E. The iOS and PC applications shall be capable of setting all volumes and features of the APS system specific to the PBSs.

F. The iOS and PC applications shall be capable of setting/updating configuration options for a single PBS or all PBSs on the intersection for most functions from a single PBS or CCU. (Global updating).

G. The iOS and PC applications shall be capable of storing, modifying, loading, and emailing PBS configuration settings.

86-25.1.7 Warranty

Each piece of APS equipment shall have a full 3 years warranty from the date of delivery to the County. This includes all associated fixtures. The Contractor shall be responsible for replacement or repair of any defective part of the APS for the entire period of the warranty.

86-26 SOLAR POWERED BEACON AND SIGN SYSTEMS

86-26.1 General

This work includes furnishing and installing solar powered pedestrian flashing sign, beacon, and associated traffic signs at locations shown on the plans and in accordance with this section.

The complete crosswalk flashing system as shown on the plans, manufactured by TAPCO and distributed by Statewide Traffic Safety & Signs, Inc., is provided as a reference. Approved equal products installed according to the manufacturer's specifications are acceptable.

The Controller with Blinker Beacon (BB) crosswalk lighting system shall be fully compliant with all the latest FHWA and CA MUTCD guidelines and consist of redundant and secure System Server, and controller, including BB heads.

Work shall be done in accordance with Section 86 "General", Section 87 "Electrical Systems," and Section 87-7 "Flashing Beacon Systems," of the State Standard Specifications, applicable State Standard Plans, applicable County of San Mateo Standard Plans and these technical requirements. This work includes, but is not limited to, furnishing and installing a new

BB system, complete in place and in operating condition at the time of acceptance of the contract.

86-26.1.1 Scope of Work

Install BB system at the crosswalk as shown on the plans. Some BB's shall be mounted on existing streetlight poles, if shown on the plans, and the remaining shall be installed on 14' high Caltrans Type 1-B poles, or on new streetlight poles, as shown on the plans.

86-26.2 Type 1-B Pole

86-26.2.1 Foundation

Foundations for the pole standard shall conform to the provisions in Section 87-1.03E(3), "Concrete Pads, Foundations, and Pedestals", and Section 49-3 "Cast-In-Place Concrete Piling" of the State Standard Specifications, County Standard Plans, and these Technical Requirements.

All foundation anchor bolts, reinforcing steel, grounding wire, conduit, and associated hardware shall be provided by the contractor.

All foundation anchor bolts, nuts (2 per bolt), and washers (2 per bolt) shall be galvanized in conformance with the provisions in Section 75-1.02B, "Galvanizing" of the State Standard Specifications. Anchor bolts, nuts and washers from removed or abandoned foundations shall not be re-used.

Exposed foundation anchor bolts shall be properly protected with either barricades or traffic cones until pole standards are erected.

86-26.2.2 Pole Standard

Poles shall conform to Section 86-1.02J, "Standards, Poles, Pedestals, and Posts," of the State Standard Specifications, State Standard Plans, County Standard Details, and these Technical Requirements.

Pole standard identified by Caltrans designation shall conform to the Caltrans Standard Plans and Specifications. Poles, fitted top caps, and other ferrous metal shall be galvanized in

conformance with the provisions in Section 75-1.02B, "Galvanizing" of the State Standard Specifications.

86-26.3 Flashing System Sign Standards

All signs shall conform to the latest CAMUTCD. All blanks will be 0.080- or 0.1000-gauge aluminum. The sign sheeting shall be a 3M VIP Diamond Grade or similar Prismatic sheeting, unless required with a lower grade of reflectivity.

86-26.4 Cross Walk Flashing System

86-26.4.1 Description of Components

The Manufacturer shall provide components for solar-powered Assemblies of Blinker Beacons (BB's). Components shall include:

Solar panels, LED BB heads, Bulldog Push Button, Control Cabinet, Solar Controller, flashing W11-15 signs, BlinkerBeam® Radio/Controller and Batteries.

86-26.4.2 Primary Function

The primary function of the TAPCO Blinker Beacon (BB) system, or an approved equal product, is to provide a highly visible, enhanced warning to road users of an active pedestrian crossing. Each BB head shall house LED light arrays: two rapidly and alternately Blinker Beacon amber head model. A single crosswalk assembly shall have four LED amber BB heads, mounted back-to-back on a pole, or as shown on the plans, enhancing the required pedestrian crossing signage, for the purpose of warning road users from both traffic directions of the active pedestrian crossing. Also, on the pole will be a LED blinker sign, a pedestrian activation push button and a solar enhanced, and battery powered BB control cabinet. A crosswalk will have a BB crosswalk assembly on each side of the road for pedestrian activation from either approach. This also maximizes the visibility of the BB warning system to road users. The BB pedestrian warning system shall be synchronized with BlinkerBeam® wireless 900 mHz radios. Active vehicle indications shall be visible in a direct line of sight at distances over 1,000 feet during the day, and over 1 mile at night.

86-26.4.3 General Requirements

The Blinker Beacon and Blinker Sign manufacturer shall have a minimum of ten years of relevant intelligent traffic product manufacturing experience, as well as a minimum of three years of LED enhanced sign manufacturing experience.

86-26.4.4 Specific Functional and Electrical Hardware Requirements:

86-26.4.4.1 System

Each crossing system shall consist of a two-pole BB system, as shown on the plans.

The system shall consist of single- or double-sided BB's on the outside lane with ADA-compliant pedestrian pushbutton activation, as shown on the plans.

Upon activation by an ADA-compliant Polara Bulldog model pushbutton, the BB system controller shall wirelessly activate all integral Blinker Beacons, using frequency hopping spread spectrum radios to minimize the effects of RF interference.

When activated, all indications associated with a given crosswalk shall simultaneously commence operation within 120 msec. and shall cease operation at a predetermined time (programmable timeout) after any pedestrian actuation.

The BB system shall operate on solar-assisted battery power.

Solar charging of the batteries shall be managed with a solar charge controller.

Individual components shall be independently replaceable, equipped with approved terminal strips or wire-end molded connectors.

86-26.4.4.2 Blinker Beacon Heads

The blinker beacon heads shall be in conformance with all applicable FHWA MUTCD standards and guidelines, and the manufacturer's specifications.

When activated, each of the two vehicle indications of the BB shall have 50 to 60 periods of flashing per minute and shall have alternating, but approximately equal, periods of rapid flashing light emissions and dark operation. During each of its 50 to 60 flashing periods per

minute, one of the amber indications shall emit two medium rapid pulses of light; then the other amber indication shall emit four short rapid pulses of light followed by a long pulse.

The light intensity of the vehicle indications shall meet the minimum specifications of Society of Automotive Engineers (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated November 2008. Manufacturer Certification of Compliance shall be provided upon request.

86-26.4.4.3 BB System Controller

- Shall be completely programmable, including flash pattern and duration shall seamlessly integrate with the 900 MHz FHSS wireless transceiver to form a network of connected devices;
- Shall include data-logging capabilities with selectable interval from one minute to one day;
- Shall include an RS232 serial interface for local programming;
- Shall be locally programmable from windows-based software.

86-26.4.4.4 900 MHz FHSS Wireless Transceiver

- Shall seamlessly integrate with the BB system controller to ensure sequential activation of other radio-equipped devices in the system
- Shall include an integrated LCD and two user-interface buttons for setup and troubleshooting, including readouts of flash duration (timeout), battery conditions, and LED testing functionality
- Shall include two LED indicators for status and troubleshooting
- Shall be capable of operating as a Parent (Gateway) or Child (Node or Repeater)
- Shall be capable of providing site-survey data for verification of signal strength between network devices

- Shall include network-wide modification of sign controller settings and output durations, using programmability from any networked transceiver without the use of additional equipment or software
- Shall synchronize the system components to activate the indications within 120 msec of one other and remain synchronized throughout the duration of the flash (timeout) cycle.
- Shall operate on the license-free ISM band
- Shall comply with part 15 of FCC rules
- Shall operate from 3.3 VDC to 15 VDC
- Shall be, in the unlikely event of failure, replaceable independently of other components.

86-26.4.4.5 Solar Charge Controller

- Shall automatically provide Low Voltage Disconnect (LVD) to protect batteries when needed
- Shall automatically provide Load-Reconnection once battery levels have been restored to an acceptable value
- Shall protect against and automatically recover from: short circuit, overload, reverse polarity, high temperature, lightning and transient surge, as well as voltage spikes
- Shall be independently replaceable of other control panel components
- Shall operate from -40° to +140° F (-40° to +60°C)

86-26.4.4.6 Battery Power

- Have a nominal output voltage of 12 VDC and a capacity of 105 Ah at a C/100 discharge rate
- Be valve regulated, gelled electrolyte

- Be sealed and spill proof
- Have terminals that accept screw or bolts for secure wiring connections.
- The Battery shall be replaceable independently of other components.
- Shall be fused for short circuit protection

86-26.4.4.7 Solar Panel

- The solar panel must be IEC61215, TUV, and UL 1703 certified. The solar panel shall operate at 12 VDC nominal with a maximum output rating of 85 W. The panel shall include an IP65 rated junction box with terminals sized for 8 to 16 AWG wire.
- The solar panel minimum specification:
- Maximum power voltage 17.8 V
- Maximum power current 4.78 A
- Short circuit current 5.35 A
- Open circuit voltage 22.2 V
- Operate from -40° to +194° F (-40° to +90°C)

86-26.4.4.8 Push Button

- Must be Polara Bulldog model
- Shall operate as a normally open (n/o) circuit
- Must be ADA Compliant
- Must be provided with all necessary wiring
- Shall operate from -30° to +165° F (-34° to +74° C)

86-26.4.5 Materials

The Manufacturer shall provide solar-powered BB systems, as shown on the plans. Each system to be installed on pole shall include the following items: Four blinker beacon amber heads with LED indications and banding brackets, BB Control Cabinet (internal components: 105 Ah Battery, flashing W11-15, BlinkerBeam® Radio/Controller, Solar Controller, Fusing, Wiring and Terminal Block) with Mounting Brackets, Solar Panel, and Bulldog Push Button.

86-26.4.5.1 BB Lighting

The BB light housing shall be constructed of durable, corrosion-resistant powder-coated, aluminum with stainless steel fasteners. Enclosed components shall be modular in design whereby any component can be easily replaced using common hand tools, without having to remove the housing from the pole. All mounting hardware required for mounting the BB light housing either singly or back to back shall be provided and be universal to multiple poles. Each of the vehicle BB light indication shall be approximately 12" in diameter, amber LED's.

86-26.4.5.2 BB System Control Cabinet

The control cabinet shall be NEMA 3R Type, 21.1" tall, 17.5" wide, 11.5" deep, constructed of minimum 0.125" thick aluminum. To promote airflow for internal components, the cabinet shall be vented with screening included on all vents and drains to prevent insects and other foreign matter from entering. For security, the cabinet must include at least two tamper resistant stainless steel hinges and a replaceable #2 traffic lock with keys. To facilitate maintenance or repairs, the cabinet shall include a removable control panel to which all control circuit components either mount or connect.

For easy installation on a wide range of pole sizes and types, the cabinet shall utilize six 5/16"-18 stainless steel mounting studs that mate to a range of bracket options. To ensure a secure mount to the supporting post, two banding style brackets that fit poles with a 2-3/8" or larger diameter shall be included as standard equipment.

To prevent corrosion, all materials used in the construction or mounting of the control cabinet shall be either aluminum or stainless steel. Anti-vandal mounting hardware shall be available as an option.

A UV resistant label shall be applied to the exterior of the cabinet and include system specific information including model number, serial number, date of manufacture, as well as any applicable regulatory compliance information.

86-26.4.5.3 Solar Panel

The solar panel shall be constructed of an anodized aluminum frame, high-transmission 1/8" tempered glass, with silicon cells encapsulated in double-layer EVA, and with a white polymer backing. The Solar Panel shall be affixed to an aluminum plate and bracket, adjustable at an angle of 45° to 60° to facilitate adjustment for maximum solar collection to optimize battery charging.

The Solar Panel Assembly (panel, plate and bracket) shall be mounted on a 360° rotatable pole cap mount to facilitate adjustment for maximum solar collection and optimal battery strength.

86-26.4.5.4 Bulldog Push Button

- Shall be ADA compliant;
- Shall be a Polara Bulldog model;
- Shall be provided with all necessary mounting hardware, wiring and associated ADA signage.

86-26.4.5.5 Batteries

The batteries shall be a 12 VDC and a capacity of 105 Ah at a C/100 discharge rate.

Each battery shall be replaceable independently of other components.

86-26.4.5.6 Painting

All components of the solar-powered beacon and sign system shall be painted except for BB light visors, signs, and solar panels, and push button assembly. Painting shall be powder coated polyester coat green color No. RAL6005. The County will provide a chip sample of the paint color to match.

In turn, the Contractor shall submit a metal chip sample (2" x 2" minimum size) to the Engineer for approval.

86-26.4.6 Warranty

The Manufacturer shall offer a three-year unconditional warranty against all defects in material and workmanship.

86-26.4.7 Contact Information

Tiffany Starbird 707-580-3565

WWW.STATEWIDESAFETY.COM

86-26.4.8 Submittal

Submit submittals for all components of the crosswalk system, including concrete foundation, anchor bolts, etc. for the Engineer's approval

86-26.4.9 Payment

The Contract unit price paid per lump sum installed under the item, "Solar Powered Beacon and Sign Systems," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in furnishing and installing beacons and sign systems, complete in place, including, but not limited to, pole foundations, active communication between signs, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

86-27 LIGHTING

Lighting shall be per section 86-1.02K, "Luminaires" of the State Specifications except as modified herein.

86-27.1.1 Light Emitting Diode (LED) Streetlight Luminaires at Traffic Signals

These specifications applied to supply and install complete functional new LED luminaire lighting fixtures (cobra head style) with cut-off optics mounted on traffic signal poles and shall be installed to provide lighting on streets only.

86-27.1.2 LED Equipment at Traffic Signals (Street Lighting Only)

- The new LED luminaire lighting fixtures shall be completely new (no refurbish) including flat lens and all required accessories to be fully functional.
- Shall consist of a heat sink with no fans, pumps, or liquids and shall be resistant to debris buildup that does not degrade heat dissipation performance.
- Shall provide option for filed installable house side light control.
- Driver shall be mounted internally, shall be replaceable and shall be accessible without tools.
- All screws shall be stainless steel. Captive screws or use of latches are needed on any compartments that require maintenance after installation.
- No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty)
- Spectrum shall have no Ultra Violet (UV).
- Turn on time shall be <0.1 second.
- Total Harmonic Distortion (THD) shall be less than 10 percent.
- The lamps shall be rated to last 100,000 hours.
- The Kelvin color temperature for full spectrum lighting shall be between the ranges of 3,200 and 5,600 K.

- The color rendering index shall be minimum 70.
- The lumens per watt shall be minimum 90 or as approved by the Engineer.
- The power supply shall operate between 40 degrees F and 165 degrees F.
- The voltage shall be 100 V/277 VAC.
- The lamp wattage shall be 88 W or as shown on the plans.
- Power factor shall be minimum 0.90.
- Power supply shall have a Class A sound rating per ANSI Standard C63.4. Assembly or compartment shall be rated a minimum of IP54.
- Output operating frequency shall be greater than or equal to 120 Hz (to avoid visible flicker) and input operating frequency of 60 Hz.
- Transient protection shall be per IEEE C.62.41 2 2002, Class A operation. The line transient shall consist of seven strikes of a 100 KHZ ring wave, minimum 10 kV level, for both common mode and differential mode.
- The power draw of the luminaire (including PE or remote-control devices) shall not exceed 2.50 watts when in the off state.
- Power supplies shall meet FCC 47 CFR Part 15/18 (consumer Emission Limits).
- Power supply shall have a Class A sound rating per ANSI Standard C63.4.
- LED module(s)/array(s) shall deliver at least 70 percent of initial lumens. When installed for a minimum of 50,000 hours. Assembly shall be rated a minimum of IP66.
- Lighting distribution shall be Type II or Type III in accordance with IESNA Lighting Distributions or as approved by the Engineer.

- Each luminaire shall have a Bar Code identifying its catalog number, wattage and current settings of 700 mA, 525 mA, or 350 mA. Bar Code is required to be attached on the inside of housing door and must be easily visible once door is opened.

- Photocell shall be specifically designed for use with LED luminaires. 120 to 277 V, fail on energy saver turn-on, ANSI category C surge protection.

- All safety lightings shall be fused in the pull box using a Copper Bussman fuse holder with rubber boots and 10 amp fuses.

- Warranty

- Each piece of induction lighting equipment shall have a full 10-year warranty. This includes all associated fixtures. The Contractor shall be responsible for replacement or repair of any defective part of the induction lighting fixture for the entire period of the warranty.

86-27.1.3 Installation

- All streetlight poles, mast arms, pole foundations, conduits, pull lines, wiring, induction luminaries, and pull boxes shall be subject to inspection by the County.

- All streetlight poles, mast arms, pole foundations, conduits, pull lines, wiring, induction luminaries, and pull boxes shall be furnished and installed by the contractor.

- The contractor shall install streetlights and underground service to the PG&E service point and terminate conduit and wiring in pull boxes as shown on the project plans.

- All streetlight fixtures shall have a Type IV photoelectric control (minimum rated life of 12 years) mounted on top of each luminaire, the top of each pole or as specified by the Engineer.

- A certificate of compliance shall be required for all material prior to delivery at the project site.

- All streetlight poles shall be galvanized.
- All street lighting/safety lighting wiring shall Type THW AWG #8 copper wire.
- All streetlight standards shall have a No. 3.5 pull box adjacent to the foundation facing away from the traffic unless otherwise shown in the plans.
- Anchor bolts shall be set as close as possible to the finish grade, while still maintaining a level pole.
- The contractor shall be responsible for receiving (from PG&E) and attaching reflective identification to each installed pole

86-27.2 Light Emitting Diode (LED) Luminaires

These specifications applied to supply and install complete functional new LED luminaire lighting fixtures (tear drop style and post style) with cut-off optics. LED luminaires shall be PHILIPS LUMEC brand or approved equal.

86-27.2.1 LED Equipment (Street and Safety Lighting)

- Luminaire shall not weigh more than 58 pounds or as approved by the Engineer.
- Shall consist of a heat sink with no fans, pumps, or liquids and shall be resistant to debris buildup that does not degrade heat dissipation performance.
- Shall provide option for filed installable house side light control.
- Shall be primarily constructed of metal (aluminum). Finish shall be rust in color (RAL 3011), powder coated, and rust resistant. Contractor to submit a minimum of three (3) color samples (including RAL 3011) for County to review and select preferred color prior to Contractor ordering light fixtures.
- Driver shall be mounted internally, shall be replaceable and shall be accessible without tools.

- All screws shall be stainless steel. Captive screws or use of latches are needed on any compartments that require maintenance after installation.
- No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty)
- Spectrum shall have no Ultra Violet (UV).
- Turn on time shall be <0.1 second.
- Total Harmonic Distortion (THD) shall be less than 10 percent.
- The lamps shall be rated to last 100,000 hours.
- The Kelvin color temperature for full spectrum lighting shall be between the ranges of 3,200 and 5,600 K.
- The color rendering index shall be minimum 70.
- The lumens per watt shall be minimum 90 or as approved by the Engineer.
- The power supply shall operate between -40°F and 165°F.
- The voltage shall be 100 V/277 VAC.
- The lamp wattage shall be 55 or 90 W or as shown on the plans.
- Power factor shall be minimum 0.90.
- Power supply shall have a Class A sound rating per ANSI Standard C63.4. Assembly or compartment shall be rated a minimum of IP54.
- Output operating frequency shall be greater than or equal to 120 Hz (to avoid visible flicker) and input operating frequency of 60 Hz.

- Transient protection shall be per IEEE C.62.41-2-2002, Class A operation. The line transient shall consist of seven strikes of a 100 KHZ ring wave, minimum 10 kV level, for both common mode and differential mode.
- The power draw of the luminaire (including PE or remote-control devices) shall not exceed 2.50 watts when in the off state.
- Power supplies shall meet FCC 47 CFR Part 15/18 (consumer Emission Limits).
- Power supply shall have a Class A sound rating per ANSI Standard C63.4.
- LED module(s)/array(s) shall deliver at least 70 percent of initial lumens. When installed for a minimum of 50,000 hours. Assembly shall be rated a minimum of IP66.
- Lighting distribution shall be Type II or Type III in accordance with IESNA Lighting Distributions or as approved by the Engineer.
- Each luminaire shall have a Bar Code identifying its catalog number, wattage and current settings of 700 mA, 525 mA, or 350 mA. Bar Code is required to be attached on the inside of housing door and must be easily visible once door is opened.
- Photocell shall be specifically designed for use with LED luminaires. 120-to-277 V, fail on energy saver turn-on, ANSI category C surge protection.
- All safety lightings shall be fused in the pull box using a Copper Bussman fuse holder with rubber boots and 10-amp fuses.

86-27.2.2 Warranty

- Each piece of LED safety lighting equipment shall have a full 10-year warranty. This includes all associated fixtures. The Contractor shall be responsible for replacement or repair of any defective part of the LED safety lighting fixture for the entire period of the warranty.

86-27.2.3 Photo Electric Controls

Photoelectric control shall be Type IV weatherproof single voltage photoelectric relay with instant on/off twist lock receptacle integral with the luminaire head rated at 120 volts, 2.6 fc turn on level, and 2,160 joules surge protection with a 12 -year service life. Photo cell receptacle for LED luminaires shall have a 7-pin per ANSI C136.41. Warranty for photo electric control shall be minimum 10 years.

86-27.2.4 Payment

The Contract unit price paid per each installed under the items, "Streetlights – Street," "Streetlights – Pedestrian," and "Streetlight Pull Box," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in furnishing and installing street lights and pedestrian lights, complete in place, including, but not limited to, pole foundations, underground electrical connections, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

86-27.2.5 Emergency Pre-Emption Equipment

The Contractor shall furnish and install required optical detectors, rack(s), four multimode phase selectors and cables, etc., (complete and operable) as shown on the plans and according to the manufacturer's recommendations.

All optical detectors shall be mounted on the MAS signal heads. Mounting shall comply with the requirements as specified in 2018 Standard Plan ES-4E. The Engineer will mark the optical detector location for the Contractor. The Contractor shall notify the Engineer at least 48 hours prior to installing the optical detector.

Mounting of the optical detector on a ¾-inch-diameter conduit stub shall conform to the following:

- Type 1 Standards – If necessary, retrofit signal framework and hardware.

Optical detectors shall be 3M, Type 721 or approved equal, and shall be compatible with the County of San Mateo Fire Prevention District's requirements.

Cable shall be Opticom Model 138 detector cable including Opticom span wire clamp or approved equal, and shall be installed with six feet of slack in controller cabinet and pull boxes. The cable shall not be spliced.

Optical cables shall be labeled in the controller cabinet and in the pull boxes adjacent to the signal standards with appropriate phase designations.

Multimode phase selector shall be "Opticom "Model 764" or approved equal.

The County or the Fire District will test the optical system. Tests will be performed at a distance between 300 feet to 1,800 feet between the emitter and the detector being tested.

86-28 TRAFFIC INTERCONNECT NETWORK ELEMENT SPECIFICATIONS

86-28.1 System Architecture – Overview

The traffic interconnect network element (network element) is required to operate on existing copper pair facilities that are part of the traffic interconnect communications network. The network element will support G.SHDSL.bis line encoding and decoding with signal processing capabilities to extend the rate and reach of the transmitted signals in the presence of external interference. Line rates per pair must be able to operate at a rate of up to 15+ Mb/s symmetrical with the ability to bond multiple pairs for a total bandwidth of 60+ Mb/s. The bonding protocol of the Network element must comply with the EFM/G.bond standards.

The network element will have the capability to bond copper pairs operating in an east and west direction supporting linear add drop networking. The network element must have the ability to continue operating over a single copper pair even if all other pairs have been damaged. In addition the system must be able to return to normal working status and highest available bandwidth once the damaged copper pairs are restored without intervention from a field technician.

All operating parameters described above must be contained in a one RU high housing and capable of supporting two network elements with all of the functionality included in this document in one Rack unit.

The Network Element must have the capability of being either AC or DC powered for flexibility in installation applications.

86-28.2 Enhanced Signal Processing and System Resiliency

Signal processing will include at a minimum coordinated line management to enable maximum rate and reach performance of each copper pair working together in a bond copper pair configuration. In the event of an individual copper pair failure the system will remain in operation with a minimal impact on the existing working pairs.

86-28.3 Integrated Ethernet Switching Capabilities

Each network element will include an integrated managed Ethernet switch capable of providing multiple 10/100 ports to communicate with various devices within a traffic controller cabinet and one port for local management. The integrated Ethernet Switch will also offer the following Local Area Network capabilities:

Dynamic Bridging	**IEEE 802.1, 8K MAC address**
• VLAN Tagging	IEEE 802.1Q
• Double Tagging	Q-in-Q, VMAN
• MSTP, RSTP, STP	IEEE 802.1d
• OAM/CFM	IEEE 802.3ah, 802.1ag
Quality of Service	
• Classes of Service	4
• Scheduler	WFQ, SP
• Classification	L2 802.1p/Q priorities L3 ToS/DiffSev

86-28.4 Integrated Optics

Each network element will have the option to support an additional optical interface operating up to a 100 Mbps or 100/1,000 Mbps line rate. The optical port upgrade option will be available via a SFP optical plug in module and be capable of working in conjunction with both high speed links (East and West). In addition, should the network be upgraded to fiber backhaul, the system must be able to support the fiber connection while continuing to provide existing Ethernet services over existing hardware, thus allowing for a fiber upgrade without replacing the existing hardware.

86-28.5 Network Management

In order to support ease of operation and the lowest possible on-going operating expense the network elements will need to be support by both a craft Graphical user Interface and an Element Management System that can be located at the Traffic Operations center or any other appropriate location.

86-28.6 Management Protocols

• SNMP	SNMP v1 and v2c
• Command Line Interface	TL1
• Remote Access	Telnet
• Secure Access (option)	SSH v2
• Time Synchronization	SNTP v3
• Web Access	HTTP
• File transfer	FTP, TFTP Front Panel Indicators (LEDs)
• Power	
• Status	
• Alarm	
• MLP per modem/pair	
• ACT (Activity) per Ethernet port	

- LNK (Link) per Ethernet/HSL port

86-28.6.1 Safety

- UL 60950, CSA C22.2 60950
- ETSI EN 60950, IEC 60950

86-28.6.2 EMC

- FCC Part 15 Class B
- ICES-003 Class B
- ETSI EN 300 386 Class B
- ETSI ETS 300 132-2

86-28.6.3 NEBS

- Level III (GR-1089-CORE, GR-63-CORE)

86-28.6.4 NEMA

- Rated -34°C to +74 C

The traffic interconnect network elements shall be contractor furnished and shall be installed at locations as shown on as shown on the project plans. The model shall be Actelis brand ML130, ML624, ML638, and ML688 or approved equal per project plans.

86-28.7 Signs

86-28.7.1 General

Existing signs on traffic signal poles or mast arms shall be removed or covered when they become obsolete or convey a message that misguides or misdirects traffic as directed by the Engineer.

86-28.7.2 Traffic Signs on Signal Mast Arms

Traffic signs on signal mast arms shall be furnished and installed by the contractor. Installation shall be per Section 56, "Overhead Sign Structures, Standards, and Poles" of the Standard Specifications. Signs shall be 0.125 inch thick and have a minimum size of 36-inch by 36-inch and a

maximum size of 48 inches by 48 inches or as shown on the project plans. All sign sizes are subject to approval by the Engineer. Sheeting shall be of Diamond Grade – DG3 with VIP legend.

86-28.7.3 Street Name Signs (SNS) on Signal Poles

SNS shall only be installed on the shaft of the mast arm signal pole. SNS shall be furnished and installed by the contractor. As shown on the plans. Materials and installation shall be per Option 1 of the County of San Mateo details.

86-28.7.4 Payment

Traffic signs and reflectorized street name signs installed on traffic signal poles shall be included in the cost for each traffic signal and no additional compensation shall be allowed therefore.

86-28.8 Quality Assurance

The Contractor will be given one "punch list" for the contract to be completed within 30 calendar days. This will include a "compliance recheck" of the punch list. If the compliance recheck is performed, and it is found that the Contractor has not completed the punch list, the contractor shall receive an additional 15 calendar days to complete the list. The cost of subsequent compliance rechecks will be deducted from any monies due, or which may become due the Contractor.

86-28.9 Technical Assistance and Back-Up Services

The manufacturer's representative shall provide the County with a California telephone number for the ordering of replacement parts that are required and for providing technical advice to County personnel.

The manufacturer shall have on hand at this number a complete file of the County's equipment, including all serial numbers pertinent to this project.

The manufacturer shall have available at the telephone number a person with competence in parts, nomenclature and functional characteristics of the County's signal controller equipment. This person shall be able to provide descriptions, part numbers, prices and availability of the

County's requirements. A fully qualified electronics technician with the capacity to expertly advise on all matters relating to the County's equipment shall be available immediately, or by return telephone call within 24 hours (normal work days only, holidays and weekends accepted).

There shall be no charge to the County for any advice or information provided in this matter.

86-28.10 Workmanship

All facilities shall be installed in a professional and workmanlike manner. Any portion of the signal system, which is not installed in a professional manner, shall be removed and reinstalled correctly to the satisfaction of the Engineer.

END OF SECTION

SECTION 100
CONSTRUCTION STAKING

Section 5-1.07, "Lines and Grades," of the Standard Specifications shall not apply to this section.

The Contractor shall be responsible for all land surveying and shall provide construction stakes or marks necessary to establish the limits, lines, alignments, and grades required for proper construction staking layout and completion of the work as shown on the drawings, as specified in these Special Provisions, and as directed by the Engineer. All construction staking shall be provided under the direction of either a professional land surveyor licensed by the State of California or an Engineer qualified to perform land surveying.

The survey datum used for the project shall be in accordance or tied-in with the County datum, as referenced on the Plans.

The Contractor shall provide and establish the construction staking of principal structures and set grades and benchmarks as required. It will be the Contractor's responsibility to layout the work from the lines and grades, and to transfer elevations from the benchmarks set. All staking, locating, and layout work required for construction purposes shall be performed by the Contractor. Where new construction connects to existing facilities, the Contractor shall check and establish the exact location of existing facilities prior to construction of new facilities.

When using construction stakes to establish alignment, the Contractor shall use a minimum of three (3) stakes to check horizontal alignments, and a minimum of two stakes to check vertical alignments.

Should an occasion arise where the validity of a stake is questionable, either as to its location, or the elevation marked thereon, the Contractor shall check the stake or stakes in question. The Contractor shall be responsible for correcting any alignment or elevation errors that resulted from incorrect staking.

The Contractor shall maintain a complete and accurate log of all control and survey work as it progresses. On completion of site improvements, the contractor's surveyor shall prepare a

certified survey drawing showing all dimensions, locations, angles, and elevations of construction.

For the County to produce As-Built Drawings for this project, the Contractor shall submit a PDF of the Plans with appropriate as-built information mark-ups, which Plans shall be signed by the Contractor's surveyor certifying that elevations and locations of improvements are in accordance with the contract Documents. Should the Engineer determine that additional information is required to produce accurate As-Built Drawings, the Contractor shall provide such information within **ten (10) calendar days** after receiving the written request for said additional information. The cost for providing this additional information shall be at the Contractor's expense, and no additional compensation will be allowed therefore.

The Contractor shall set or establish the necessary construction layout stakes and markings a minimum of **two (2) working days** in advance of the work and shall notify the Engineer when such markings have been set.

The Contractor shall protect all monumentation and survey points in the undisturbed location and condition. Damage, as a result of the Contractor's operations, to the existing monuments, survey markers, or reference points that are not part of this Contract, shall be repaired and replaced at the Contractor's expense.

The Contract lump sum price paid for this item, "Construction Staking," shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, and for doing all work involved in construction staking, surveying, and layout, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, including providing PDF as-built drawing and documentation upon completion of the project, and no additional compensation will be allowed therefore.

The County reserves the right to eliminate this item, "Construction Staking," from the project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any costs. The Contractor shall not

be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

END OF SECTION

SECTION 101
TEMPORARY FENCE

Temporary fences shall conform to the specifications for permanent fences of similar character provided in Section 80, "Fences," of the Standard Specifications, these Special Provisions, the Plans, and to the directions of the Engineer.

A temporary fence shall be provided and installed by the Contractor to secure the area to the satisfaction of the Engineer.

Other than new materials may be used, providing such materials are good, sound, and are suitable for the purpose intended. Materials may be commercial quality providing the dimensions and sizes of said materials are equal to, or greater than, the dimensions and sizes shown on the Plans or specified by the specifications.

Galvanizing and painting of steel items will not be required. Concrete footings for metal posts will not be required. Temporary fences that are damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at his expense, and no additional compensation will be allowed therefore.

If, in the opinion of the Engineer, the Contractor appears negligent in preventing encroachment into the "secured area," the Engineer will direct the Contractor's attention to the situation and require that necessary corrective action be taken. If the Contractor fails to correct the situation to the satisfaction of the Engineer, the Engineer may have the work done and deduct the cost of such work from monies due to the Contractor.

The location and extent of the temporary fencing shall be as indicated on the Plans and as directed by the Engineer.

When no longer required for the work, as determined by the Engineer, temporary fences shall be removed by the Contractor. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this Section.

The Contract lump sum price paid for this item, "Temporary Fence," shall include, but not be limited to, full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all work involved in the installation, maintenance and removal of temporary fencing, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 102
TRIMMING AND PROTECTION OF EXISTING TREES

The work area is defined as an area which is for roadway reconstruction. The Contractor shall protect all existing trees and landscaping outside of this area. This work shall be considered included as part of Section 114, "Landscaping," payment items, and no additional compensation will be allowed therefore.

All excavations within 10 feet of existing trees shall be performed by hand digging. All tree roots 2 inches or larger that are encountered can only be cut under the direction of a licensed arborist.

Along Middlefield Road, there are several existing trees that may require trimming in order to perform the work.

The Contractor shall employ the services of a contractor specializing in tree trimming who is supervised by a licensed arborist. Coordination and permission from the affected property owner is required prior to trimming. The property owner affected may perform trimming of existing trees with their own contractor (gardener). The following trees have been identified on the Plans as potentially needing trimming/root cutting within the work area:

Tree	Station	Offset	
1	21+83.31	46.62	RT
2	26+00.81	44.34	LT
3	26+42.12	44.34	LT
4	26+57.14	44.34	LT
5	27+07.84	46.73	LT
6	27+32.57	46.73	LT
7	27+49.06	46.73	LT
8	27+75.84	44.34	LT
9	31+83.87	44.04	RT
10	35+03.24	44.40	LT
11	37+73.51	44.40	LT
12	37+94.45	44.40	LT
13	38+06.55	44.40	LT

END OF SECTION

SECTION 103
JOINT TRENCH, HOLIDAY LIGHTS, WIFI, AND SANITARY SEWER FACILITIES

The work performed in connection with the joint trench, holiday lights, Wifi, and sanitary sewer facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications, Sections 15, "Existing Highway Facilities," 105-3, "Trench Safety," and Appendix B of these Special Provisions, the Plans, and the direction of the Engineer. "Attention is directed to Section 5-2, "Order of Work," of these Special Provisions."

It is anticipated that utilities not shown on the Plans may exist within the right of way and may interfere with construction progress. In the event such utilities are discovered, the Engineer shall be notified. Attention is directed to Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.

The Contractor shall be responsible for locating existing utilities before proceeding with joint trench and sanitary sewer work to avoid unnecessary damage to other utilities to remain. Reference is made to Section 15, "Existing Highway Facilities," of these Special Provisions.

Sanitary sewer facilities not designated on the Plans or by the Engineer for removal shall remain in place. Damage to these facilities, as a result of the Contractor's operations, shall be repaired by the Contractor, all at the expense of the Contractor, to the satisfaction of the Engineer and no additional compensation will be allowed therefore.

The Contractor's attention is directed to the fact that, prior to construction of sidewalks, curbs and gutters, valley gutters, medians, and roadway pavement section, work shall be completed for items 103-1, "Joint Trench," 103-3-3, "Remove and Replace Existing Sanitary Sewer Manholes," and 103-3-7, "Sanitary Sewer Lateral Connection," of these Special Provisions.

The Contractor's attention is further directed to additional requirements specific to either the joint trench or sanitary sewer facilities found under Sections 103-1, Joint Trench, and 103-3, Sanitary Sewer Facilities," respectively.

The Contractor shall be responsible for providing, by any means necessary, reference points for existing utilities that are to be adjusted in newly paved roadways and prior to construction of new concrete sidewalk. All tie-out points shall be removed upon completion of the work. If paint markings are used to locate utilities on pavement surfaces intended to remain in place after project completion, the Contractor shall remove these markings by power washing or other method, as approved by the Engineer. The Contractor shall be required to clean any markings placed in association with this item of work. The cost for removing said markings shall be fully borne by the Contractor, and no additional compensation will be allowed therefore.

The Contractor shall contact USA North811 (USA) a minimum of 48 hours in advance of any excavation or trenching work. USA may be contacted either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811.

103-1 JOINT TRENCH, HOLIDAY LIGHTS, AND WIFI

The work performed in connection with the joint trench shall conform to the provisions in Sections 103, "Joint Trench, Wifi, and Sanitary Sewer Facilities," and this section 103-1 of these Special Provisions.

The Contractor's attention is directed to the following requirements for this Section 103-1, "Joint Trench, Holiday Lights, and Wifi":

A. Installation of Joint Trench conduits associated with Electrical (Primary and Secondary PG&E), Gas (PG&E), Telephone (AT&T), CATV (Comcast, Wave Broadband and Verizon), Fiber Optic (CLEC), Wifi (County), Irrigation (County) and Street, Signal and Holiday Lights (County) to be coordinated with existing utilities to ensure existing services are maintained and uninterrupted during construction.

B. Existing overhead electrical service to remain active until PG&E retained contractor completes pulling conductor, landing and activating individual services on individual meters. Once overhead electrical service is disconnected, PG&E to "top" PG&E owned poles by removing the existing overhead conductors and remove upper portion of the poles.

C. Similarly, overhead Telephone, Fiber and CATV to remain active until individual purveyors pull underground Joint Trench cable and make connections to individual customers.

D. Once all overhead utilities are removed from service and removed from the poles, pole owners (PG&E and AT&T) will remove the remaining portions of the poles and the Contractor to complete repair of the sidewalk (which is estimated to be up to 18 months after installation of Joint Trench conduits and structures are complete).

E. Setting of utility within the roadway and sidewalk areas to be coordinated with individual business affected by the work and temporary access routes constructed to allow for both pedestrian and vehicle traffic to reach each individual business. Top elevations of individual utility structures to conform to paving and grading plans such that longitudinal and cross-slopes conform to the grading design. Temporary paving or other measures (asphaltic concrete paving) to be implemented in vicinity of the structures until permanent concrete sidewalks are completed.

The undergrounding of utilities requires coordination between private utility purveyors (PG&E, AT&T, Comcast, etc.). It is the responsibility of the Contractor to coordinate as necessary to minimize disruptions to the community and avoid rework.

103-1.1 Equipment List

Equipment information will be included in the material list associated to the electric and gas designs to be approved by PG&E.

103-1.2 Joint Trench Drawing List – Drawings Dated 10-16-2020

- JT-1 TITLE SHEET
- JT-2 NOTES AND DETAILS
- JT-3 JOINT TRENCH COMPOSITE
- JT-4 JOINT TRENCH COMPOSITE
- JT-5 JOINT TRENCH COMPOSITE
- JT-6 JOINT TRENCH COMPOSITE

- JT-7 JOINT TRENCH COMPOSITE
- JT-8 JOINT TRENCH COMPOSITE
- JT-9 TRENCH SECTIONS
- JT-10 TRENCH SECTIONS
- JT-11 TRENCH SECTIONS
- RR-1 RAILROAD JT XING

103-1.3 Holiday Lights and Wifi Systems

Conduits: Contractor to install conduits for Holiday Lights power and Wifi fiber from the joint trench to laterals connecting to all tree wells and two Wifi vaults and eight streetlights, respectively. The two Wifi vaults are located in the sidewalk in front of the health clinic and sheriff's station (3121 Middlefield Road). The eight streetlight poles with fiber connections are located on the west side of Middlefield Road. Conduits and pull boxes are shown on Drawings TS-6 through TS-14.

Power: Contractor to pull conductor for Holiday Lights to all tree wells and install all-weather receptacles and pull Wifi conductor primarily in the sidewalk and connected to select streetlight poles. The connection locations are shown on the plan sheets.

Street Light Mounting Locations: Contractor install conduit to eight streetlight poles on the west side of Middlefield Road for connection to both Wifi fiber and power. Contractor to install Wifi power conduits and pull boxes to seven streetlight poles on the east side of Middlefield Road. Locations of these poles are detailed on the plan sheets.

Summary of approximate conduits, pull boxes and receptacles:

- (N) 3" FO – 330 LF
- (N) 3" Holiday Light and Wifi Power – 4,900 LF
- (N) Pull box – 32 EA
- (N) Wifi vault – 2 EA *(See detail 1/TS-13)*
- (N) Wifi Access Point to Street Light Poles – 8 EA *(See detail 1/TS-14)*
- (N) Holiday Light Power Receptacles at Trees – 63 EA

103-1.4 Payment

The Contract lump sum prices paid for "Holiday Lights" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing conduits, pull boxes, receptacles, conductor, as specified in these Special Provisions and as directed by the County.

The Contract lump sum prices paid for "Wifi Systems" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in installing conduits, vaults, access points to street light poles, as specified in these Special Provisions and as directed by the County.

103-1.5 General

A. The Joint Trench includes the excavation for conduit and structures for the relocation of electric, telecommunication, fiber, and cable broad band facilities; this includes multi-occupant and single occupant trenches.

B. The preferred trench location is in a Public Utility Easement (P.U.E.).

C. All depths and resulting cover requirements are measured from final grade.

D. Cover, clearances, and separation shall be as great as practicable under the circumstances, but under no circumstances shall be less than the minimum cover, clearance, and separation requirements set forth in General Order 128 and 49 CFR 192.321, 49 CFR 192.325, and 49 CFR 192.327. All facilities shall be anchored in place prior to compaction, or other means shall be taken to ensure no motion of the facilities. Dimensional requirements for shading, leveling, and backfilling shall be determined subsequent to compaction.

E. Trench dimensions shown are typical. Trench sizes and configurations may vary depending upon occupancy and/or field conditions. Trench size and configuration must at all times be constructed in a manner that ensures proper clearances and cover requirements are met. Any "change" to the trench width and configurations as shown in this exhibit must be designed to ensure this requirement.

F. It is preferred to have non-PG&E owned streetlights at a level other than the gas or electric level. Non-PG&E owned streetlights may be at the electric level of the trench as long as minimum clearances are provided and comply with all special notes for a joint trench with a second electric utility.

G. Non-Utility facilities are not allowed in any Joint Utility trench, e.g., irrigation control lines, building fire alarm systems, private telephone systems, outdoor electrical cable, etc.

H. When communication ducts are installed, a minimum of 12 inches radial separation shall be maintained from gas facilities. Exception: With mutual agreement, when 4-inch-diameter or smaller gas pipe is installed, the separation may be reduced to not less than 6 inches.

I. Provide separation from trench wall and other facilities sufficient to ensure proper compaction.

J. Maintain proper separation between PG&E facilities and "wet" utility lines as described in PG&E JT Standard for separation between wet and dry utilities. The minimum allowable horizontal separation between PG&E facilities and "wet" facilities is 3 feet, with a minimum 1 foot of undisturbed earth or the installation of a suitable barrier between the facilities.

If a 3-foot horizontal separation cannot be attained between "wet" utilities and PG&E dry facilities, a variance shall be submitted in writing to the Engineer for submittal to the (Name), PG&E Service Planning Support Program Manager for approval. (Name can be reached at (phone) and (email, of available). Separations of 1 foot or less are not permissible and will not be allowed. PG&E may agree to waive the minimum 3-foot separation requirement at the request of an applicant if warranted and the need is justified. The request for a waiver must be:

- Made in writing and submitted to the PG&E Associate Design Engineer during the planning and design phase of the project,
- Clearly describe the conditions necessitating the waiver
- Include a proposed design

- Include a design for a barrier between the "wet" utilities and PG&E dry facilities in the event 1 foot of undisturbed earth cannot be maintained.

Note: Drain lines connected to downspouts on buildings are considered a "wet" utility for the purposes of this standard.

K. Separations shall be maintained at aboveground termination points.

L. Procedures for approving native backfill for shading of PG&E gas facilities:

- Random soil samples shall be taken from a minimum of three locations per 1,000 feet of trench. 100 percent of the sample must pass through a ½-inch sieve and 75 percent must pass through a #4 screen. Additional samples must be taken if existing soil conditions change and are to be taken at the discretion of the PG&E representative on site.
- The soils must not contain any rocks that have sharp edges or that may otherwise be abrasive.
- The soils must not contain clods larger than ½ inch if to be used as shading, bedding, or leveling materials.
- Compaction requirements must meet any applicable PG&E and County requirements.
- At no time shall the over saturation of native soils be used to achieve these requirements.
- The sieves and screens shall be:
    - ½-inch Sieve: 8-inch-diameter by 2 inches deep, stainless steel mesh screen.
    - #4 Screen: 8-inch-diameter by 2 inches deep, stainless steel mesh screen.

M. Procedures for approving native backfill for shading at PG&E electric facilities:

Random soil samples shall be taken from a minimum of three locations per 1,000 feet of trench. Additional samples must be taken if existing soil conditions change and are to be taken at the discretion of the PG&E representative on site.

Shading material containing large rock, paving material, cinders, sharply angular substances, or corrosive material shall not be placed in the trench where such material may damage the conduits and/or prevent proper compaction over or around the conduits.

Native soils containing clods not to exceed 6 inches in diameter may be included in the shading material provided the clods are readily breakable by hand.

Note: Soils consisting primarily of adobe, hard compact (dense) clay, and bay muds shall not be used as shading material.

At no time shall the over saturation of native soils be used to achieve these requirements.

Refer to Engineering Document 062288, Item 13 on Page 2 (Greenbook UG-1: Underground Conduits).

N. Competent native soils are preferred to be used for shading, bedding, and backfilling throughout the trench.

Where native soils exceed ½ inch minus and/or where gas is to be placed at the bottom of a trench in areas that exceed ½ inch minus soil conditions, or where the bottom of a trench is considered to consist of hard pan, PG&E approved ½ inch minus import material shall be used for shading and/or bedding of gas facilities.

PG&E approved import material is per CGT Engineering Guideline 4123 (PG&E Greenbook import backfill materials reference).

If a leveling course is required for gas facilities, the use of native soils is preferred, but if ½ inch minus conditions are not attainable with the native soils, then the use of PG&E approved import materials is required. Bedding under gas facilities will be a minimum of 2 inches of compacted ½ inch minus native soils or PG&E approved import material.

For electric facilities, refer to Note 12 (PG&E Greenbook Joint Trench Configurations and Occupancy Guide). This applies to leveling courses as well as shading.

The minimum PG&E approved bedding material may be increased at the discretion of PG&E when warranted by existing field conditions (e.g., rocky soils, hard pan, etc.).

The use of any imported material for backfilling purposes shall be limited to those situations when native soils do not allow for required compaction.

O. The applicant is responsible for the removal of excess spoil and associated costs.

P. Separation between gas facilities and electric facilities may be reduced to 6 inches when crossing with PG&E inspector approval.

Q. Service saddles are the preferred service fittings for use throughout the joint trench project. All projects will be designed and estimated using service saddles. However, service tees may be used if all clearances, separation, and coverage requirements are maintained.

103-1.6 Submittals

A. Contractor shall provide a schedule for Joint Trench and structure excavation, pipe installation, testing, and backfill, including types of cover plates; temporary shoring and barriers proposed to insure pedestrian and vehicular convenience and safety.

B. Before beginning any excavation 5 feet or more in depth, submit to the Engineer a detailed plan showing the design of shoring, bracing, sloping and/or other provisions to protect workers from the hazard of caving ground during excavation.

C. Comply with standards established by the State of California Construction Orders and Title 24 of the California Code of Regulations for excavation plans. If detailed plan varies from such shoring system standards outlined in applicable codes, it shall be prepared by a Registered Civil or Structural Engineer whose name and registration number shall be indicated on the drawings.

D. If a dispute arises whether the plan must be prepared by a Registered Civil or Structural Engineer, the Engineer determination on this matter shall be final and conclusive on Contractor.

E. Cost of required engineering services shall be borne by the Contractor and shall be deemed to have been included in the amount bid for the work.

103-1.7 Construction Notes

A. All trenching, backfilling and installation by contractor must comply with PG&E UO Standard S5453 (latest edition).

B. All work must comply with PG&E, Telephone, C.A.T.V., standards and practices. All work must be inspected and approved by respective inspectors. Random soil samples shall be taken from a minimum of three locations per 1,000 feet of trench. 100 percent of the sample must pass through a ½-inch sieve and 75 percent must pass through a #4 screen. Additional samples must be taken if existing soil conditions change and is to be at the discretion of the PG&E representative on site.

The soils must not contain any rocks that have sharp edges or that may otherwise be abrasive. The soils must not contain clods larger than ½ inch if to be used as shading, bedding or leveling materials. Compaction requirements must meet any applicable PG&E Federal, State, County or local requirements. Any native soils or import materials used must not hinder those efforts.

C. Backfill shall be approved by the utility companies and the County. Compaction will be tested and passed by the soils engineer.

D. If soil is not rock free, add 4 inches depth of trench for sand bedding.

E. Verify splice box excavation sizes with supplier(s).

F. The Contractor shall coordinate the utility companies' installation.

G. Contractor shall make themselves familiar with the project improvement plans and conduct his work accordingly.

H. It is the trenching contractor's responsibility to protect in place all existing facilities. No extra payment will be considered for crossing other systems.

I. Vizion Utility Partners, LLC assumes no responsibility for the project conditions. These drawings were prepared using data supplied by PG&E, Telephone, C.A.T.V., improvement plans and the County's various "As Built" information. It shall be the contractor's responsibility to physically review the project prior to submitting his bid.

J. Contractor will comply with all laws, ordinances and regulations. Contractor shall be familiar with O.S.H.A., industrial safety orders and shall conduct his work accordingly. When working near energized or "hot" equipment, the utility owner shall be notified to supply the appropriate manpower. Public safety and traffic control measures are the contractor's responsibility.

K. The Contractor shall protect construction staking. The Contractor shall coordinate staking with the project's Civil Engineer.

L. Contractor shall notify Underground Service Alert (USA) two (2) working days prior to start of work. Call 811.

M. Contractor shall notify inspectors of any potential conflicts prior to start of work.

N. This plan is to be used for sole purpose of digging the Joint Trench. See PG&E, AT&T, Comcast, Verizon, and County Wi-Fi plans for exact size and number of conduits installed in the Joint Trench. It is the contractor's responsibility to ensure the correct number, size and types of conduits are installed per the engineered plans by each Utility Company.

O. Note: plans issued at the pre-construction meeting may be subject to revisions if final plans from each utility company were not available at the start of construction.

P. Water, sewer, drains, sanitary waste, fuels (including diesel and gasoline), oil, propane and other volatile heavier than air gases, sprinkler, irrigation, steam and other "wet"

facilities shall maintain a minimum of three feet from the nearest outer surface of PG&E facilities with no less than 1 foot of earth (soil barrier) between the adjacent sides of the individual trenches.

103-1.8 PG&E Reference

A. All work shall comply with PG&E's General Terms and Conditions for gas and electric extension and service construction by applicant. PG&E Form 79-716 (Revised 10/2011)

103-1.9 Joint Trench Coordination

A. Contractor, as part of his/her work, shall act as construction manager during joint trench construction, e.g., coordinate PG&E inspection, AT&T, substructure installations, bell holes, and tie-ins. Contractor shall obtain necessary permits. Contractor is responsible for project safety and coordination with public works inspection, if applicable.

103-1.10 Trenching and Tie-In

A. Contractor will coordinate their installations. Contractor to excavate any necessary bell holes and coordinate tie-ins.

103-1.11 PG&E Electrical System

A. Contractor to furnish and install all material, labor and equipment necessary for complete system based upon plans drawn by PG&E and Vizion Utility Partners, LLC. PG&E job instructions and material summary to aid in obtaining quantities and code numbers. Vizion Utility Partners, LLC does not guarantee quantities. Contractor to make streetlight connections, tag all cable runs and test entire system prior to PG&E energization. PG&E to do "Hot" tie-ins. PG&E will remove overhead system as necessary.

103-1.12 PG&E As-Builts

A. Contractor to furnish and install all material, vaults, conduit and labor necessary for complete system based upon plans drawn by PG&E and Vizion Utility Partners, LLC. PG&E job instructions and material summary to aid in obtaining quantities and code

numbers. Vizion Utility Partners, LLC does not guarantee quantities. Contractor to make streetlight connections, tag all cable runs and test entire system prior to PG&E energization. PG&E to do "Hot" tie-ins, pull electrical cable, furnish and install equipment (Switch Interrupter Switch, 3 Way Switch, Transformer, Junction, et.). PG&E will remove overhead system as necessary.

103-1.13 PG&E System Warranty

A. Electric System: Contractor shall be responsible for the repair or replacement, at their expense, of any part of their work that develops defects, due to faulty material or workmanship, within a period of one year from the date of final acceptance by PG&E.

B. Trench: Contractor shall guarantee that all trench material and trench workmanship shall be satisfactory for a period of two years from the date of final acceptance by PG&E.

103-1.14 Maintaining Existing and Temporary Electrical Systems

A. Refer to PG&E Greenbook Electric and Gas Service Requirements.

103-1.15 Conduit

A. Include temporary or permanent caps, sealing in transformers and boxes as required.

B. Conduit sizes to be as noted on the PG&E electric construction drawing, telecom or Competitive Local Exchange Carrier construction drawings.

C. Provide long conduit sweeps where indicated. PG&E recommended sweep radius (10 feet of radius per inch of conduit diameter). Example: 4-inch conduit = 40-foot radius.

D. Do not exceed 300 degrees of bends in any conduit run (including feed location). Note: secondary and service runs of 200 feet or less may have up to 315 degrees of bends (reference PG&E document 038193, rev. 7, dated 6-28-13).

E. Manufactured bends or application of heat shall not be used to obtain long conduit sweeps.

F. All conduits shall be proven and a polyester pulling tape installed.

G. Manufactured bends are not to be cut, shortened, or altered in any way.

H. Identify ends of buried conduit with an electronic marker and a vertical conduit scrap installed from rigid cap to ground level.

I. Conduits entering primary PG&E boxes shall be at a right angle to the window or wall.

J. Stub all conduits at riser poles in quadrants as shown. At identified pole locations, the trenching agent is to excavate to trench depth and install a 30-inch-diameter cardboard tube. The riser conduit bend is to be placed outside and adjacent to the tube at the pole quadrant indicated. Backfill around and inside tube with clean native fill.

K. LS2 streetlight conduit going to PG&E boxes or pedestals not designated as P.O.S. (including transformers) will not be accepted or connected.

L. Only one LS2 streetlight (P.O.S.) connection conduit per box or pedestal.

103-1.16 Pull Boxes

A. AT&T and Competitive Local Exchange Carrier (C.L.E.C.)

1. Refer to AT&T and C.L.E.C. standards for Old Castle (or approved equal) vault requirements and design documents for vault sizes.

B. PG&E

1. Refer to PG&E Greenbook Manual for vault sizes. Refer to PG&E construction documents for vault locations and size call-outs.

103-1.17 Payment

The contract prices paid for joint trenches shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in joint

trench. All the work involved in joint trench including, but not limited to, trench excavation and backfill of various width and depths, conduits of the various diameters, cables, transformer pads and vaults of various sizes and types, PG&E boxes, manholes, utility pull boxes, capacitor pads, all equipment pads, all risers of every type specified on the drawings, meter pedestals, meter pedestal pads, all telecom required equipment and applicable ground rods as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefore.

103-2 PG&E-APPROVED ELECTRIC AND GAS MATERIAL MANUFACTURERS

The work performed in connection with the joint trench shall conform to the provisions in Sections 103, "Joint Trench and Sanitary Sewer Facilities," and this section 103-2 of these Special Provisions.

103-2.1 PG&E-Approved Electric Distribution Material Manufacturer

A. Section includes:

1. Greenbook Section 066211 Rev. #21: 07-01-16 PG&E-Approved Electric Distribution Material Manufacturers. This document provides a list of PG&E-approved manufactures of major materials for use in PG&E's Electric Distribution.

B. PG&E-Approved Electric Distribution Material Manufacturers

Table 1 PG&E-Approved Electric Distribution Materials Manufacturers

Material	Responsible Engineer	Approved Manufacturer
Arresters	Sam Chang	Joslyn, Ohio Brass, Tyco
Barrier Posts	M.L. Thibault	Allwire
Brackets, Overhead	Eduardo Sanchez	Aluma-Form, Chance, Joslyn, Kortick, MacLean
Cable, Primary	Lisseth Villareal	Okonite, Prysmian
Cable, Secondary	Lisseth Villareal	General Cable (Alcan), Southwire
Capacitor Controls	Eduardo Sanchez	HD Electric, S&C (Energyline)
Capacitor, Overhead	Eduardo Sanchez	ABB, Cooper
Capacitor, Pad-Mounted	Eduardo Sanchez	Scott Engineering
Conductor, Overhead	Lisseth Villareal	General Cable (Alcan), Southwire
Conduit, HDPE for Boring	Lisseth Villareal	Dura-Line (AD Technologies)
Conduit, Smooth Core Flex	Lisseth Villareal	Dura-Line (AD Technologies)
Conduit, PVC for Boring	Lisseth Villareal	Prime Conduits (Carlon Bore-Gard), Certainteed CertaCom
Conduit, PVC, ASTM F512 DB120, Schedule 40 and 80, UL 90°C, DB120	Lisseth Villareal	Ridgeline Pipe Heritage, Prime (conduit), JM Eagle
Conduit,PVC, DB120 and Schedule 40, Cellular Core	Lisseth Villareal	Rocky Mountain
Conduit, Steel	Lisseth Villareal	Allied, Western Tube
Conduit Fittings, Steel	Lisseth Villareal	Picoma, Shamrock
Connectors, Overhead, Automatic Splice	Richard Kauzer	Blackburn, Fargo, MacLean
Connectors, Overhead, Compression	Richard Kauzer	Alcoa, Blackburn, Burndy, Homac, Hubbell, Nicopress
Connectors, Overhead, Dead-Ends	Eduardo Sanchez	EMC, Hubbell
Connectors, Overhead, Tap Clamp	Richard Kauzer	Hubbell, Maclean
Connectors, Overhead, Wedge Tap	Richard Kauzer	TE Connectivity (AMP)
Connectors, Underground, Compression	Lisseth Villareal	Blackburn, Burndy, Homac, Hubbell, Kearney, Penn Union
Connectors, Underground, Pin Terminal	Lisseth Villareal	Homac
Connectors, Underground, Secondary Multi-Tap Bars	Lisseth Villareal	Blackburn, Homac
Connectors, Underground, Slip-Fit Transformer Secondary Bars	Lisseth Villareal	Homac, Utilco

Table 1 PG&E-Approved Electric Distribution Materials Manufacturers (continued)

Material	Responsible Engineer	Approved Manufacturer
Connectors, Underground, Spade Terminals	Lisseth Villareal	Burndy, Dossert, Homac
Connectors, Underground, Split-Bolt	Lisseth Villareal	Blackburn, Burndy, Penn Union
Cutouts	Sam Chang	MacLean, Cooper, Hubbell
Disconnect	Sam Chang	Cooper, S&C
Elbows, 200 Amp	Lisseth Villareal	Cooper, Elastimold
Elbows, 600 Amp, Epoxy CP, and RTP	Lisseth Villareal	Elastimold, Richards, Cooper
EPDM CP and RTP	Lisseth Villareal	Elastimold
Enclosure, Frames and Covers	Lisseth Villareal	Madruga Iron Works, Jensen Precast, Oldcastle Precast (Utility Vault)
Enclosure, Primary – Box, Concrete	Lisseth Villareal	Jensen Precast, Oldcastle Precast (Utility Vault), Mid-State Concrete
Enclosure, Primary – Sectional Box, Concrete	Lisseth Villareal	Oldcastle Precast (Utility Vault)
Enclosure, Primary – Sectional Box, Non-Concrete	Lisseth Villareal	Hubbell (Strongwell/Quazite)
Enclosure, Secondary – Box, Concrete	Lisseth Villareal	Jensen Precast, Oldcastle Precast (Utility Vault)
Enclosure, Secondary – Box, Polymer-Concrete	Lisseth Villareal	Hubbell (Strongwell/Quazite), Armorcast, New Basis
Enclosure, Secondary – Pedestal	Lisseth Villareal	Armorcast, New Basis
Fault Indicator – Overhead	Sam Chang	Horstman/Power Delivery Products, SEL (Schwertzer)
Fault Indicator – Underground	Sam Chang	Horstman/Power Delivery Products
Fuses	Sam Chang	Chance, Combined-Tech, Cooper, Hi-Tech, Kearny, S&C
Ground Rods	M.L. Thibault	Calpico, Eritech, Galvan, Nehring
Insulators, Dead-End, Silicon	Eduardo Sanchez	K-Line, MacLean, Salisbury, Advanced Rubber
Insulators, Line	Eduardo Sanchez	Lapp, NGK, Porcelain Products, Victor, Hendrix, Preformed
Insulators, Standoff	Sam Chang	S&C
Interrupter – Pad-Mounted	Ryan Kowdley	Madruga, Thomas & Betts
Interrupter – Subsurface, 200 Amp	Ryan Kowdley	Trayer, Thomas & Betts
Interrupter – Subsurface, 600 Amp	Ryan Kowdley	Trayer
Interrupter – Vault-Mounted	Ryan Kowdley	Thomas & Betts, G&W
Junctions, Primary – Pad-Mounted	Lisseth Villareal	Madruga, Maysteel, Patton & Cooke, Scott
Junctions, Primary – Subsurface	Lisseth Villareal	Elastimold, Inertia
Pad, Capacitor	Eduardo Sanchez	Jensen Precast, Teichart Brooks, Oldcastle Precast (Utility Vault)
Pad, Junction, Primary – Pad-Mounted	Lisseth Villareal	Hubbell
Pad, Switch, Box	Ryan Kowdley	New Basis, Hubbell/ Quazite
Pad, Switch, Concrete	Ryan Kowdley	Jensen Precast, Mid-State Concrete, StructureCast, Teichart Brooks, Oldcastle Precast (Utility Vault)
Pad, Transformer, Box	M.L. Thibault	Armorcast, CDR, New Basis, Strongwell/Quazite

Table 1 PG&E-Approved Electric Distribution Materials Manufacturers (continued)

Material	Responsible Engineer	Approved Manufacturer
Pad, Transformer, Concrete	M.L. Thibault	Jensen Precast, Mid-State Concrete, Structure Cast, Teichart Brooks, Oldcastle Precast (Utility Vault)
Photocontrol, Streetlight [1]	Richard Kauzer	ALR, DTL, Fisher Pierce, Sun-Tech
Poles, Wood, Distribution (taller than 35 feet)	Richard Kauzer	McFarland Cascade
Poles, Wood, Service	Richard Kauzer	Koppers, McFarland Cascade, Nevada Wood Preserving, Pacific Wood Preserving of Oregon, Stella-Jones, Thunderbolt Wood Treating
Pulling Lubricant	Lisseth Villareal	Dura-Line (Arnco), Polywater
Pulling Tape	Lisseth Villareal	Dura-Line (Arnco), Herculine, Nepco, Wellington
Recloser	Sam Chang	Cooper
Recloser Controller	Sam Chang	Cooper
Regulator, Voltage	Eduardo Sanchez	Cooper, Howard Industries
Retaining Wall	Lisseth Villareal	Jensen Precast, Oldcastle Precast (Utility Vault)
Sectionalizer	Sam Chang	Cooper
Splices, UG Insulated, Primary	Lisseth Villareal	Elastimold, 3M, TE Connectivity (Raychem)
Splices, UG Insulated, Secondary	Lisseth Villareal	3M
Switches, Controllers, Overhead, SCADA	Marlon Viduya	S&C
Switches, Controllers, Subsurface, SCADA	Marlon Viduya	S&C, Trayer
Switches, Fused – Pad-Mounted	Ryan Kowdley	S&C
Switches, Fused – Subsurface	Ryan Kowdley	ABB, Trayer
Switches, Overhead, Manual	Sam Chang	Cooper, Inertia, S&C
Switches, Pad-Mounted	Ryan Kowdley	S&C, Thomas & Betts
Switches, Subsurface 200 Amp, Manual	Ryan Kowdley	ABB, Trayer, ISSI
Switches, Subsurface 600 Amp, Manual	Ryan Kowdley	Trayer
Termination, Silicone Cold Shrink	Lisseth Villareal	3M, TE Connectivity (Raychem)
Transformer, Potential, Dry-Type, Outdoor Overhead	M.L. Thibault	ABB,GE
Transformer, Potential, Dry-Type, Submersible	M.L. Thibault	ABB
Transformer, Potential, Liquid-Filled, Outdoor Overhead	M.L. Thibault	ABB, Mid Central
Transformers, Single-Phase Overhead	M.L. Thibault	Howard Industries, Power Partners, Cooper
Transformers, Single-Phase Pad-Mounted	M.L. Thibault	ABB, Cooper, Howard Industries
Transformers, Single-Phase Subsurface	M.L. Thibault	ABB, Howard Industries, Power Partners
Transformers, Single-Phase Subway	M.L. Thibault	ABB, Howard Industries
Transformers, Three-Phase Network, Dry-Type	M.L. Thibault	ABB
Transformers, Three-Phase Network, Liquid Filled	M.L. Thibault	ABB, GE
Transformers, Three-Phase Overhead	M.L. Thibault	Howard Industries, Power Partners
Transformers, Three-Phase Pad-Mounted	M.L. Thibault	ABB, Cooper, Howard Industries,
Transformers, Three-Phase Subsurface	M.L. Thibault	ABB, Howard Industries

[1] Fully electronic, utility grade, meeting ANSI C136.10 requirements, turn on at 1.0 ± 0.2 foot candle (fc), turn off at 1.5 ± 0.3 fc.

103-2.2 PG&E-Approved Gas Materials Manufacturers]

A. Section includes:

1. PG&E Greenbook Section N-01 Rev. #03: 01-07-15 Gas Design Standard PG&E-Approved Gas Material Manufacturers. This Gas Design Standard (GDS) provides a list of PG&E approved manufacturers.

2. All supporting documentation can be found in the PG&E Greenbook. http://www.pge.com/includes/docs/pdfs/mybusiness/customerservice/otherrequests/newconstruction/greenbook/greenbook_manual.pdf#Section2

B. PG&E-Approved Manufacturers

Table 1 PG&E Approved Manufacturers

Material	Approved Manufacturer (Plant)	Document Reference
Gaskets Full Face and Flat Ring	Garlock PSI Linebacker	B-45, B-45.1
Insulating Joints	Kerotest-Zunt GPT-PSI (Houston, TX)	O-25
Meter Manifolds (1-1/4" and 2" Sizes)	Agile-R.W. Lyall	J-52.1
Meter Swivels and Swivel Nuts	Advanced Engineering Corp	J-50
Meter Valves	A. Y. McDonald Jomar Mueller	F-80
Plastic (PE) Cast Iron to Polyethylene Transition Fittings	Dresser	B-91.5
Plastic (PE) Electrofusion Fittings & Tapping Tees	Innogaz IPEX-Friatec	B-90.3
Plastic (PE) Excess Flow Valves	Perfection	A-93.3
Plastic (PE) Fittings Mechanical Transition	Chicago Fittings Continental Mueller	B-91
Plastic (PE) Mechanical Fittings	Continental "Constab" Perfection "Permasert"	B-91.1, EMS 4761
Plastic (PE) Pipe & Tubing	JM Eagle (Tulsa, OK) KWH (Huntsville, ON) KWH (Saskatoon, SK) Performance Pipe (Fairfield, IA) Performance Pipe (Knoxville, TN) Performance Pipe (Pryor, OK) Performance Pipe (Reno, NV) Performance Pipe (Williamstown, KY) PolyPipe/Dura-line (Gainesville, TX)	A-93, EMS 2502, EMS 2503

Table 1 PG&E Approved Manufacturers (continued)

Material	Approved Manufacturers, Plant	Document Reference
Plastic (PE) Saddle Fittings	Central Plastics Continental Elster-Perfection Performance Pipe US Poly	B-90.1, EMS 4758, EMS 4761
Plastic (PE) Socket and Butt Fusion Fittings	Central Plastics Performance Pipe RW Lyall US Poly	B-90, EMS 4758
Plastic (PE) System Accessories	Continental Performance	B-90.2
Plastic (PE) Valves	Andronaco Poly-Valve Perfection	F-90
Risers Pre-Fabricated Gas Service and Riser Kits	Elster-Perfection (Geneva, OH) RW Lyall (Corona, CA)	A-91, EMS 6421, EMS 7030
Steel Ball Valves	Grove/Cameron (Ville Platte, LA & Weifang, China) MSA (Ostrava, Czech Republic) PBV-USA (Stafford, TX) Quarter Turn Delta/Valvitalia, (Milan, Italy) Tested at either Ponca City, OK or Deer Park, TX	F-20, F-21, F-21.1, F-21.2
Steel Bolting Material	Lamons Lonestar	B-46
Steel Extension Stopper Fittings	Mueller	C-16.1, C-16.5
Steel Fittings Threaded, including Pipe Nipples	Advance Agile-Lyall Bonney Forge Ward Westbrook Manufacturing	B-10, B-10.1, B-11, B-11.1, B-12, B-12.1, B-12.2, B-12.3, B-12.4, B-13, B-13.1, B-13.2, B-13.3, B-13.4, B-14, B-14.1, B-14.2, B-15, B-15.1
Steel Flanges Weldneck and Slip-on	Boltex Galperti	B-43
Steel HFW (ERW) Pipe	American ACIPCO (Birmingham, AL) California Steel Industries (CSI) (Fontana, CA) Lakeside Steel (Stelpipe), (Welland, Ontario) Stupp Corp. (Baton Rouge, LA) Tex-Tube (Houston, TX) U.S. Steel (McKeesport, PA) Wheatland Tube (Warren, OH)	A-15
Steel High Yield and Standard Grade Fittings	Custom Alloy (Highbridge, NJ) Dynamic Products Inc. (Houston, TX) Hackney (Ladish, Russellville, AR & Enid, OK) Tube Forgings of America (Portland, OR)	B-20, B-20.2
Steel One Piece Line Stopper Fittings	Mueller, TDW	C-16.3, C-16.4, C-64.1
Steel Save-A-Valves	Mueller	C-14

Table 1 PG&E Approved Manufacturers (continued)

[illegible]	[illegible]	[illegible]
Steel SAWH Pipe	Berg Steel Pipe Corp. (Mobile, AL)	A-15
Steel SAWL Pipe	Berg Steel Pipe Corp. (Panama City, FL) Dura-Bond (Bethlehem Steel) (Steelton, PA) Nippon Steel (Kimitsu Works, Japan)	A-15
Steel Seamless Pipe	IPSCO (Koppel Steel) (Ambridge, PA) Lakeside Steel (Welland, Ontario) Tenaris (Dalmine) (Bergamo, Italy) Tenaris (Siderca) (Campana, Argentina) Tenaris (Tamsa) (Veracruz, Mexico) U.S. Steel (Fairfield, AL) U.S. Steel (Lorain, OH) Vallourec Star, LP (Youngstown, OH) Voest-Alpine (Kindberg, Austria)	A-15
Steel Service Tees	Continental Mueller	C-10, C-10.1, C-11, C-13, B-91
Steel Sleeves & Re-Inforcing Pads	Dynamic Products (Houston, TX) Ryco Steel (Benicia, CA)	A-50, A-52
Steel Two Piece Line Stopper Fittings	Mueller	C-15.2, C-15.3, C-15.4
Steel Two Piece Line Stopper Fittings with Bottom Connection	Mueller	C-16.2
Steel Two Piece Line Stopper Fittings with Bottom or Side Connection	TDW	C-63
Steel Two Piece Stopple Style Line Stopper Fitting	Blackhawk TDW	NA
Steel Unions Insulated Threaded	Central Plastics George Fisher	O-23

Target Audience

Engineering, construction inspection, and incoming supplier inspection personnel

Definitions

NA

Acronyms and Abbreviations

PE Polyethylene

Compliance Requirement/Regulatory Commitment

Subpart B–Materials ..... 49 CFR 192

103-3 SANITARY SEWER FACILITIES

The work performed in connection with the joint trench shall conform to the provisions in Sections 103, "Joint Trench and Sanitary Sewer Facilities," and this section 103-3 of these Special Provisions.

The Contractor's attention is directed to the following requirements for this Section 103-3, "Sanitary Sewer Facilities":

A. Flows within the sanitary sewer system shall be maintained at all times during this Project. The Contractor's attention is directed to Section 103-3-.8, "Sewage Bypassing During Construction," of these Special Provisions.

B. The Contractor's attention is directed to the inherent risk of backup and overflow incidents associated with sanitary sewer and storm drain systems, and the importance of maintaining access to the facilities of said systems in order to provide emergency maintenance service in the event of such an incident.

C. The Engineer, or designated representative, must be present during all operations to perform work on sanitary sewer facilities. The Contractor shall request for the Engineer to contact and coordinate with the Fair Oaks Sewer Maintenance District (District) shall be notified not less than 5 working days prior adjusting sanitary sewer manholes to grade to ensure conformance with the District's requirements. *No inspections shall occur on Fridays, weekends or holidays unless special arrangements are made with the District.*

D. Additional requirements for sanitary sewer lateral work:

1. **The Contractor shall notify the Engineer and the affected property owner/resident not less than 5 working days prior to start of any work that a disruption in service will occur. Notification shall include the date and estimated time of disruption. Sanitary sewer service shall be re-established by the end of the workday.**

2. **The content, format and method of delivery of such notices shall be approved by the Engineer prior to distribution. The Contractor is advised that these notices shall not be placed in mailboxes, as it is a violation of federal postal regulations.**

3. **Failure to distribute notices shall be sufficient cause for the Engineer to suspend the work until such notices are distributed.**

103-3.1 Closed-Circuit Television (CCTV) Inspection of Sanitary Sewer Lines

Upon completion of all sanitary sewer work, the Contractor shall perform a closed-circuit television (CCTV) inspection of the sanitary sewer mains in conformance with the following provisions and the directions of the Engineer:

A. CCTV inspection shall be from manhole-to-manhole, and sanitary sewer service shall be maintained at all times during this operation.

B. Prior to CCTV inspection, the Contractor shall remove all debris and foreign objects inside the sanitary sewer lines and manholes, and then flush and clean all parts of the system, and remove all accumulated construction debris, gravel, silt and other foreign material from the sanitary sewer system at or near the closest downstream manhole.

C. The Contractor shall furnish all materials, tools, equipment and labor required to perform CCTV inspection; and CCTV inspection equipment shall be approved by the Engineer.

D. Video equipment shall include a television camera in color format specifically designed and constructed for operation in connection with sewer inspection and for operation in sewers under 100 percent humidity conditions. The camera shall have a minimum capability of 250 lines of resolution and should be of the "articulating head" type to allow laterals and defects to be viewed directly. Lighting and camera quality shall produce a clear, in-focus picture of the entire periphery of the pipe for a minimum distance of 6 feet. The camera shall be moved through the line, preferably in the direction of the sewage flow, at a moderate rate, stopping at joints, lateral connections and when necessary to permit proper documentation of the sewer's condition. In no case shall the television camera be operated at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line.

E. The CCTV inspection shall be continuous color digital recording in MPEG 4 format for each pipe segment inspected. The inspection video shall be either configured for viewing using the

latest version of windows media player, or the appropriate viewing software must be submitted on each DVD. DVD shall be submitted to the District with a type log of the inspection for review and acceptance. All DVDs or videotapes shall become the property of the County. If, in the opinion of the Engineer, the submitted DVDs are of poor quality such the Engineer is unable to evaluate the condition of the sewer lines, the Engineer may reject the DVDs or videotapes and require the CCTV inspection to be repeated and new DVDs submitted to the Engineer for review and acceptance.

F. Submitted DVDs, when replayed on a monitor, shall be clear and in-focus, and shall include a continuous on-screen display containing, at a minimum, the date of video inspection and identification of the sanitary sewer line and segment (street location, upstream and downstream manhole numbers) of the line being viewed, and footage. The number designations for existing sanitary sewer manholes (SSMH#) shall be as shown on the Plans.

G. If, upon the Engineer's review of the CCTV inspection, any debris or foreign matter is still present in the sanitary sewer system, the Contractor shall re-flush and clean, and re-CCTV inspect those sections and portions of the sanitary sewer lines and manholes, as required and as directed by the Engineer. This process shall be repeated until CCTV inspection indicates that the sanitary sewer lines have been satisfactorily cleaned.

H. Any damage to the existing sanitary sewer main caused by the Contractor's operations shall be repaired by the Contractor, to the satisfaction of the Engineer, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

I. Any damage to either public or private facilities (due to, for example, a sanitary sewer mainline backup) as a result of the Contractor's CCTV inspection operations, as described above, shall be repaired or corrected by the Contractor to the satisfaction of the Engineer, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

Upon completion of CCTV inspection operations, the Contractor shall submit the DVDs or videotapes, as described above, to the Engineer. Approximately **5 to 10 days** from date of submittal of the DVDs, as described above, to the Engineer.

All submitted DVDs or videotapes will become the property of the County.

The Contract unit price paid per lump sum for this item, "Closed-Circuit Television (CCTV) Inspection of Sanitary Sewer Lines," shall include, but not be limited to, full compensation for furnishing all labor, tools, materials and incidentals necessary for doing all work involved to perform a closed circuit television (CCTV) inspection of sanitary sewer lines, including, but not limited to, cleaning of sewer pipes prior to CCTV inspection and submittal of DVDs or videotapes, as specified in these Special Provisions and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contractor is advised that sags or rises in the sanitary sewer main will not be permitted; and that regardless of method of pipe replacement (open-trench) in conformance with Section 106, "Sanitary Sewer Rehabilitation – Open Trench Method," of these Special Provisions), should the Engineer determine upon review of the post-installation DVD that there are sags or rises that inhibit gravity flow in the newly installed sanitary sewer main, that segment of sanitary sewer main with a sag or rise shall be repaired, in accordance with the Plans, these Specifications and as directed by the Engineer, all at Contractor's sole expense, until gravity flow is established to the satisfaction of the Engineer.

103-3.2 Adjust Sanitary Sewer Manholes to Grade

The Contractor's attention is directed to Section 15-3, "Adjust Manholes to Grade," for the provisions to conform to for this item of work.

103-3.3 Remove and Replace Existing Sanitary Sewer Manholes

Contractor should be aware that there are an estimated 30 sanitary sewer manholes that need to be replaced.

1. Existing frame and cover:

    a. The existing manhole frame and cover is considered to be in serviceable condition and shall be salvaged and reused; however, the Contractor is advised to inspect existing manhole frame and cover prior to removal, and to call to the attention of the Engineer any defects that may preclude their reuse. Damage, as a result of the Contractor's operations, to the frame and cover shall be sufficient cause for the Engineer to require a new frame and/or cover, to be provided and installed at the Contractor's expense, and no additional compensation will be allowed therefore.

    b. In the event that, upon further inspection as stated above, the Engineer does determine the existing frame and/or cover to be unsuitable for re-use for reasons not due to the Contractor's operations, a new metal frame and/or cover shall be supplied and paid for as provided in Section 75, "Miscellaneous Iron and Steel," of these Special Provisions.

2. Remove all broken concrete and/or bricks, and mortar and rebar.

3. All removed material shall become the property of the Contractor and shall be dispose of offsite in accordance with the provisions in Section 7-15, "Disposal of Material Outside the Highway Right of Way," and "Construction Waste Management," of these Special Provisions.

Under this item of work, new sanitary sewer manholes shall be placed at the new locations to the lines and elevations shown on the Plans and as directed by the Engineer and shall be installed in conformance with the details on the Plans. All work shall comply with the standards and specifications used by the Fair Oaks Sewer Maintenance District.

Removal and replacing of existing sanitary sewer manholes shall be accomplished by removing the existing frame and cover, removing the existing concrete encasement, removing grade rings, removing the existing cone section and removing the existing base. A new sanitary

sewer manhole shall then be constructed at the same location by pouring in place a new manhole base, and installing a pre-fabricated manhole barrel where necessary, cone section, and grade rings as necessary, pouring a new concrete encasement with reinforcing steel (concrete collar), and resetting the existing frame and cover. The Contractor's attention is directed to the paragraphs below concerning "Sanitary Sewer Manhole Construction." The Contractor is advised that prefabricated manhole bases are not allowed.

Foundations for new manholes shall be poured against a base that is firm and dry.

Any sanitary sewer laterals that connect directly into the existing sanitary sewer manholes shall be reconnected at the time of new sanitary sewer manhole replacement. These sanitary sewer lateral connections shall be considered as included in this item of work, "Remove and Replace Existing Sanitary Sewer Manhole," and no additional compensation will be allowed therefore.

Sanitary sewer manhole removal shall be performed without damage to any portion of the sanitary sewer system that is to remain in place. Damage to these facilities as a result of the Contractor's operations, as determined by the Engineer, shall be repaired by the Contractor and to the satisfaction of the Engineer, all at the expense of the Contractor, and no additional compensation will be allowed therefore.

If, in the Engineer's judgment, the existing frame or cover is unsuitable, the existing frame or cover shall be replaced with a new frame and cover. Unsuitable frames and covers shall become the property of the Contractor and shall be disposed of as provided above. The cost of replacing unsuitable frames and covers that, in the Engineer's judgment, were damaged by the Contractor's operations shall be at the Contractor's expense, and no additional compensation will be allowed therefore. The cost of replacing unsuitable frames and covers that, in the Engineer's judgment, are unsuitable and not due to the Contractor's operations shall be paid for on a Force Account basis, as provided for in Section 9-1.03, "Force Account Payment," of the Standard Specifications.

Debris shall be prevented from entering the sanitary sewer system and said protection system shall be inspected and approved of by the Engineer prior to proceeding with the removal and replacement of manholes. If debris does enter the system due to work done by the Contractor, the Contractor shall remove such debris, all at his/her own expense and as directed by the Engineer, and no additional compensation will be allowed therefore.

Surplus excavated material and pipe debris remaining after the construction of new SSMHs shall become the property of the Contractor and be disposed of in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

SSMH frames and covers shall not be adjusted to final grade until the adjacent surfacing has been completed.

Trench safety and protection involved in the construction of SSMH shall be paid for as provided in Section 105-3, "Trench Safety," of these Special Provisions.

103-3.3.1 Remove and Relocate Sanitary Sewer Manhole

The Contractor is advised that there are approximately **two (2)** sanitary sewer manholes to be removed and relocated. Quantities for sanitary sewer manholes to be removed and relocated will be determined as units from actual count.

For manholes designated for relocation, perform manhole removal in accordance with this section.

Relocated manhole as shown on the Plans and construct new manhole per requirements of Section 103-3-3.2 Sanitary Sewer Manhole Construction at the new location as indicated on the plans or as directed by the Engineer. Backfill for removed manholes shall meet the same requirement as those requirements for trench backfill, as shown on the Plans and as directed by the Engineer.

103-3.3.2 Sanitary Sewer Manhole Construction

Sanitary sewer manholes shall conform to the provisions of the Standard Specifications and these Special Provisions, the Plans, and the directions of the Engineer. All manholes shall be Class 2 concrete and shall conform in size, shape and details to those shown on the Plans. Pipe openings shall be built into the manholes as shown. The outer ends of all openings shall be sealed with a precast concrete plug made watertight with mastic compound or elastomeric gasket.

Pre-cast concrete manhole sections shall conform in all respects to the specifications indicated on the Plans and submittal information shall be presented to the Engineer for approval prior to construction.

Foundations for new manholes shall Class 2 Concrete and shall be poured against a base, which is firm and dry.

Pipe connections to existing or new manholes shall be made in such a manner that the finished work will conform to the applicable requirements specified and indicated for new manholes, including all necessary concrete work, cutting and shaping of the manhole base. Concrete mortar shaping within any manhole shall be as specified in the Standard Specifications.

Backfill for manholes shall meet the same requirement as those requirements for trench backfill, as shown on the Plans and as directed by the Engineer.

Manhole covers shall be labeled in accordance with applicable standards and County requirements and shall be submitted to the Engineer for approval.

103-3.3.3 Payment

The Contract unit price paid per each for this item, "Remove and Replace Existing Sanitary Sewer Manholes," and "Remove and Relocate Sanitary Sewer Manhole" shall include, but not be limited to, full compensation for furnishing all labor, tools, materials, equipment and incidentals necessary for doing all work involved to remove and replace existing sanitary sewer manholes, complete in place, as shown on the Plans and as directed by the Engineer, including,

but not limited to, removal of existing manhole, disposal of material outside the project area, excavation and backfill, trench safety, excavation dewatering, sewage bypassing, construction and installation of new sanitary sewer manhole, repair or replacement of facilities damaged by the Contractor, and removing debris which enters into the sanitary sewer system as a result of Contractor's operations, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities of this item, "Remove and Replace Existing Sanitary Sewer Manholes," required. The provisions of Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item of work.

103-3.4 Sanitary Sewer Manhole Testing

After completion of installation, each newly installed manhole shall be tested for leakage. The Contractor shall furnish all labor, tools and equipment necessary to perform manhole tests and conduct any work incidental thereto. The Contractor, at his own expense, shall correct any excess leakage and repair any damage to any manhole and its appurtenances resulting from or caused by these tests.

For sanitary sewer manhole testing, the Contractor may, at Contractor's own discretion, use either the water or vacuum testing method.

103-3.4.1 Water Testing

Each manhole shall be tested by inserting inflatable plugs in all sewer inlets and outlets of the manhole, and filling the manhole with water to a point 6 inches below the base of the manhole frame.

The manhole shall be filled at least 1 hour in advance of the official test period to allow time for absorption. The loss of water may be determined by measuring additions of water

required to maintain the specified water level, but the level shall not be allowed to fall more than 25 percent of the manhole depth.

Each manhole shall be tested for a minimum of 15 minutes, and the allowable leakage determined by the following formula:

$$Em = 0.0002 \times L \times \text{square root } H$$

Where:

Em = amount of allowable leakage in gallons per minute

L = depth of manhole from top to bottom (feet)

H = head of water in feet, as measured from either the sewer line invert or the prevailing ground water against outside of the manhole barrel, to a point 6 inches below the base of the manhole frame, with the lesser height governing.

Where the actual leakage in a manhole exceeds the allowable, the Contractor shall discover the cause, remedy it and retest the manhole before the manhole is accepted. If the leakage is less than allowable and leaks are observed, such leaks shall be repaired.

As an alternative to the above procedure, the Contractor may fill the manhole with water prior to backfill and repair all visible leaks provided there is no ground water above base. Any visible leaks into or out of a manhole shall be repaired.

103-3.4.2 Vacuum Testing Method

Vacuum testing shall be performed after completion of the manhole barrels, but prior to backfilling, sealing of liner seams and installing grade rings.

Vacuum testing shall be done in conformance with the following procedures and requirements:

A. All openings in the manhole shall be sealed with plugs and a rubber ring "donut" type plug inserted inside the opening of the cone.

B. A small vacuum pump shall be attached to a hose connected to the plug and 4 psi, (8 inches Hg) of vacuum applied.

C. The vacuum is permitted to stabilize at 3.5 psi (7 inches Hg) for 1 minute prior to commencement of testing.

D. The manhole must maintain a vacuum such that no greater than 0.50 psi (1 inch Hg) of vacuum is lost during the specified test period. The specified test period is as follows:

Manhole Depth (in Feet)	Test Period (in Minutes)
0-5	4.5
5-10	5.5

E. Where manholes fail the test, the Contractor shall discover the cause, remedy it and retest the manhole before the manhole is accepted.

F. A vacuum regulator shall be provided on the vacuum pump such that no greater than 10 psi (20 inches Hg) can be applied to the manhole during the test. All manholes that do not meet the leakage test, or are unsatisfactory from visual inspection, shall be repaired to the satisfaction of the Engineer.

103-3.4.3 Payment

Full compensation for, "Sanitary Sewer Manhole Testing," shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

103-3.5 Sanitary Sewer Testing

All sanitary sewer mains that have been replaced, regardless of replacement method or pipe material used, shall be tested in accordance with these Special Provisions, the "Testing Requirements" shown on the Plans, and the directions of the Engineer.

All required cleaning and testing shall be done in the presence of the Engineer.

Prior to testing, all sanitary sewer mains shall be cleaned by means of a high-speed jet rodder, and reconnection of sanitary sewer laterals completed.

Testing shall be performed prior to placement of asphalt concrete pavement, with Air Testing and Deflection Testing performed prior to Video Inspection. Furthermore, for pipe replacement performed using the Open-Trench Method, all testing shall be performed after trench has been backfilled and compacted, except as provided for in item A-1 below, "Optional Initial Air Test for Open-Trench."

103-3.5.1 Air Pressure Test

The Contractor shall furnish all materials, tools, equipment and labor required to perform the air test. Air test equipment shall be approved by the Engineer.

A written record of the air test shall be submitted to the Engineer by the Contractor.

103-3.5.2 Optional Initial Air Test for Open-Trench Method

The Contractor is advised that, for the Open-Trench Method of pipe replacement, the Contractor may conduct an initial air test of the sanitary sewer main after compaction of the backfill, but prior to installation of the house connection sewers for existing "live" house connections. Such tests will be considered for the Contractor's convenience and, as such, need not be performed in the presence of the Engineer. Furthermore, such tests will be considered as included in the Contract bid price paid for the item "Sanitary Sewer Testing," and no additional compensation will be allowed therefore.

103-3.5.3 Initial Air Tests

Each section of sanitary sewer main shall be tested between successive sanitary sewer manholes by plugging and bracing all openings in the sanitary sewer main line and the upper ends of the sanitary sewer laterals.

The entire length of the sanitary sewer lateral need not be connected for air tests; at least one length of lateral pipe must be connected to the sanitary sewer main, with the final lateral connections being made, complete in place, after successful completion of the final air test.

If any leaks are found, the air pressure test shall be released, the leaks eliminated, and the test procedure started over again.

103-3.5.4 Final Air Test

The final leakage test of the sanitary sewer main shall be conducted in the presence of the Engineer in the following manner:

A. When all necessary test equipment is in place, a compressed air supply shall be attached to the air fitting on the test equipment and the air pressure within the line increased to 4 pounds per square inch (4 psi).

B. After the air supply is turned off or disconnected, there shall be a 2-minute waiting period to allow stabilization of the air within the sanitary sewer line before the actual test period begins. In no case shall the air pressure within the sanitary sewer line be less than 3.5 psi at the beginning of the test period.

C. Duration of Air Test: 15 minutes

Maximum Allowable Air Pressure Loss: One Pound per Square Inch (1.0 psi)

103-3.5.5 Deflection Testing of Polyvinyl Chloride (PVC) Mains

Deflection testing of PVC sanitary sewer mains shall be performed after the placement of all trench backfill. Pipe deflection shall be tested by pulling by hand a go/no-go mandrel through the installed sections of sanitary sewer main.

The mandrel used shall have a minimum length equal to its diameter. The mandrel shall be constructed with a minimum of nine ribs fabricated parallel to its longitudinal axis. Both the design of the mandrel and the fabricated mandrel itself shall be inspected and approved by the Engineer well in advance of the deflection test.

The mandrel diameter shall be 95 percent of the pipe's average inside diameter, as defined by ASTM specifications D3034 (12 inches and 15 inches) and F679 (21 inches), and as detailed in the following table:

Nominal Pipe Sizes (Inches)	Average Inside Diameter (Inches)	Minimum Mandrel Diameter (Inches)
12	11.480	10.906
15	14.053	13.350
21	20.800	19.760

Note: Average inside diameter = Average outside diameter – 2 x 1.06 x t where "t" = minimum wall thickness as defined by ASTM specification D3034.

Sanitary Sewer Testing shall be measured along the horizontal between the interior faces of sanitary sewer manholes, including wyes installed along the sanitary sewer main, as specified in Section 106-2, "Pipe Replacement (Open-Trench Method)," of these Special Provisions.

Any repair work, re-testing and/or reinspection required shall be at the Contractor's sole expense, and no additional compensation will be allowed therefore.

103-3.5.6 Payment

Full compensation for Sanitary Sewer Testing shall be considered as included in the unit prices paid for the various Contract items of work, and no additional compensation will be allowed therefore.

103-3.6 Sanitary Sewer Lateral Connection (Open Trench)

Sanitary sewer lateral connections shall conform to these Special Provisions, the Plans, and the directions of the Engineer, and shall be defined as including the following:

A. The lateral wye connection to the main.

B. Five linear feet or less in length of sanitary sewer lateral. Any deviation from this 5-foot length, as measured along the centerline from the sanitary sewer main pipe, to match field conditions, shall be approved by the Engineer, in writing, and will be measured and paid for under item 103-7, "Sanitary Sewer Lateral Repair."

The Contractor is advised that the quantities indicated above are approximate only, and the exact quantities and locations of sanitary sewer lateral connections may change depending upon what is revealed from the closed circuit television inspection performed under item 103-3.1, "Closed Circuit Television (CCTV) Inspection of Sanitary Sewer Lines," of these Special Provisions. As such, quantities for sanitary sewer lateral connections will be determined as units from actual count.

Under this item of work, the Contractor shall repair sanitary sewer lateral connections by furnishing and installing new sanitary sewer lateral wyes to replace the existing wye. All work shall comply with the standards and specifications used by the District. Couplings shall be bandseal type sewer repair couplings with outside stainless-steel shear ring.

The Contractor is required to notify the Engineer not less than 2 working days prior that an impending replacement is to be made, and the affected property owner shall be informed by the Contractor, by door hangar or flyers, that a disruption of service will occur.

Sanitary sewer service shall be restored to all properties on the same day that it is disrupted.

During the course of this work, if it is determined by the Engineer that there are additional lengths of sanitary sewer pipe requiring repair, then the additional lengths of damaged sanitary sewer pipe shall be repaired and compensated for as follows:

A. If it determined by the Engineer that the damaged was caused by the Contractor's operations, the Contractor shall repair the additional lengths of damaged sanitary sewer pipe to the satisfaction of the Engineer, all at the Contractor's expense, and no additional compensation will be allowed therefore.

B. If it is determined that the sanitary sewer lateral is damaged beyond the defined 5 linear feet for sanitary sewer lateral connections, and said damage was not due to the Contractor's operations, the Contractor shall, after obtaining written approval from the Engineer, repair the damaged sanitary sewer lateral in conformance with the provisions of item 103-3.7, "Sanitary Sewer Lateral Repair," of these Special Provisions.

C. Any damage to all other sanitary sewer facilities resulting from the Contractor's operations shall be repaired by the Contractor, all at the Contractor's expense and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

All materials removed by the Contractor during the course of this work shall become the property of the Contractor and shall be disposed of outside the Highway Right of Way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Replaced sanitary sewer lateral connections shall be of the same material and diameter as existing.

Before the sanitary sewer lateral connection is replaced, the interiors of the preceding pipes shall be carefully cleaned of all dirt and debris.

After the new length of pipe has been properly laid, the space between the pipe and the sides of the trench shall be filled with structure backfill, in conformance with the Plans, and carefully tamped with small tampers so as not to disturb the pipe, but no backfilling shall be done until the work is inspected and approved.

The remainder of the trench shall be backfilled in multiple lifts. In conformance with Section 19-3.06, "Structure Backfill," of the Standard Specifications, each lift shall not exceed

0.67 foot before compaction, and shall be compacted to 95 percent relative compaction. Testing method shall be at the discretion of the Engineer. No tamping shall be undertaken except under the direct supervision of the Engineer.

Full compensation for this item, "Sanitary Sewer Lateral Connection" will be through "Reconnect Sanitary Sewer Lateral (Open Trench Method)" shall include full compensation for providing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in repairing sanitary sewer lateral connections, including, but not limited to, locating the sanitary sewer lateral connection, excavation and backfill, trench safety, excavation dewatering, sewage bypassing, saw-cutting, connecting to the existing sanitary sewer main, angled or wye fitting, new lateral pipe and couplings, removal and disposal of sanitary sewer lateral and excavated material, and incidental work necessary to restore service, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment of the Contractor bid price will be made for any increase or decrease in the quantity of this item, "Sanitary Sewer Lateral Connection," required. The provision of the Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item.

103-3.7 Sanitary Sewer Lateral Repair

Sanitary sewer lateral repair shall conform to these Special Provisions, the Plans, and the directions of the Engineer.

Under this item of work, except as provided for under item 10-3.7, "Sanitary Sewer Lateral Repair," the Contractor shall furnish and install new materials for repairing any breakage of the existing sanitary sewer laterals which was not the result of the Contractor's operations, as determined by the Engineer. Couplings shall be bandseal type sewer repair couplings with outside stainless-steel shear ring.

The Contractor shall notify the Engineer not less than **2 working days** prior that an impending repair is to be made, and the affected property owner shall be informed by the Contractor, by door hangars or flyers, that a disruption of service will occur.

Damage to existing sanitary sewer laterals as a result of the Contractor's operations, as determined by the Engineer, shall be repaired by the Contractor, all at the Contractor's sole expense and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore. All work shall comply with the standards and specifications used by the District.

Sanitary sewer service shall be restored to all properties on the same day that it is disrupted.

The broken portion of the existing sanitary sewer lateral shall be cleanly saw-cut at both ends, and removed, before repairing with the new sanitary sewer lateral. The portions of sanitary sewer laterals that are removed by the Contractor shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Repaired sanitary sewer laterals shall be of the same material and diameter as existing.

Before each new length of pipe is placed, the interior of the preceding pipe shall be carefully cleaned of all dirt and debris.

After the new length of pipe has been properly laid, the space between the pipe and the sides of the trench shall be filled with structure backfill, in conformance with the details on the Plans, and carefully tamped with small tampers so as not to disturb the pipe, but no backfilling shall be done until the work is inspected and approved.

The remainder of the trench shall be backfilled in multiple lifts. In conformance with Section 19-3.06, "Structure Backfill," of the Standard Specifications, each lift shall not exceed 0.67 foot before compaction, and shall be compacted to 95 percent relative compaction. Testing method shall be at the discretion of the Engineer. No tamping shall be undertaken except under the direct supervision of the Engineer.

Any surplus excavated material or debris resulting from this operation shall become the property of the Contractor and shall be disposed of outside of the highway right of way in accordance with Section 7-15, "Disposal of Material Outside of the Highway Right of Way," of these Special Provisions.

Fencing, landscaping, and any other improvements that must be removed or relocated to facilitate sanitary sewer lateral replacement, shall be evaluated on a case-by-case basis, and shall be paid as extra work in accordance with provisions of Section 4-1.03D, "Extra Work," of the Standard Specifications.

Measurement per linear foot for this item, "Sanitary Sewer Lateral Repair," shall be made along the centerline between the centers of the two joints for making the repair connections.

The Contract unit price paid per linear foot for this item, "Sanitary Sewer Lateral Repair," shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for performing all work involved in repairing sanitary sewer laterals, including, but not limited to, excavation and backfill, trench safety, sewage bypassing, excavation dewatering, saw-cutting, new pipe couplings, removal and disposal of existing sanitary sewer lateral and excavated material, and incidental work to restore service, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contractor is advised that the approximately sixty (60) linear feet of sanitary sewer lateral repairs are provided for estimating purposes only and the County makes no guarantee as to the actual quantity required.

No adjustment of the Contractor bid price will be made for any increase or decrease in the quantity of this item, "Sanitary Sewer Lateral Repair," required. The provision of the Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to this item.

The County reserves the right to eliminate this item, "Sanitary Sewer Lateral Repair," from the Project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any cost. The Contractor shall not be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

103-3.8 Sewage Bypassing During Construction

The Contractor shall be responsible for maintaining all flows within the sanitary sewer system at all times during this project.

The Contractor shall bypass the flows around the sections of pipe to be replaced and the manholes being removed and replaced. The bypass shall be made by plugging an existing upstream manhole (if necessary) and pumping the sewage into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The Contractor shall also provide a spare pump on site to handle the flow. The bypass systems proposed to be used by the Contractor shall be subject to the approval of the Engineer. Approval of the bypass system by the Engineer shall in no way be construed as relieving the Contractor of any responsibility under this contract as related to protection of the interests of the County and the general public.

In the event of accidental spill or overflow, the Contractor shall immediately stop the spillage or overflow, perform cleanup operations, and disinfect the affected area, as determined by the Engineer, to the satisfaction of the Engineer.

The Contractor shall be equipped with the necessary tools and materials, that meet the requirements of all regulating agencies, to contain, clean up and dispose of any sewage contamination that may occur during bypass operations, including providing at least one back-up pump in case of failure of the primary pump. The back-up pump(s) shall be on-site at all times, and the Contractor shall demonstrate to the Engineer that the back-up pump(s) are in working order prior to the start of any sewage bypass operations.

At the end of each working day, the bypass plug shall be removed, and normal sanitary sewer service restored.

Under no circumstances will the dumping of raw sewage be allowed on private property, into storm drains or at any location other than an approved sanitary sewer main.

Bypassing of untreated or partially treated wastewater to surface waters or drainage courses will not be permitted during construction. Bypassing of untreated wastewater to surface waters and drainage courses will result in assessment of any and all actual damages incurred by the County. The Contractor shall comply with all State and Federal regulations.

The Contractor's attention is directed to the following requirements in the event that untreated or partially treated wastewater enters a natural water or drainage course:

A. Contractor will begin cleanup efforts immediately.

B. Contractor will notify the Engineer and, subsequently, the California Regional Water Quality Control Board at (510) 622-2300 and be prepared, at that time, to fully describe the nature of the spill and the cleanup efforts that are being undertaken to mitigate the spill.

C. Notification and response procedures shall be consistent with the California State Water Resources Control Board's Statewide General Waste Discharge Requirements for Sanitary Sewer Systems adopted on May 2, 2006 and subsequent amendments issued on February 20, 2008, which are included in Appendix B of these Specifications.

Full compensation for conforming to the requirements of this item, "Sewage Bypassing During Construction," shall be considered as included in the unit prices paid for the various Contract items of work in Section 103, "Joint Trench and Sanitary Sewer Facilities," of these Special Provisions, and no additional compensation will be allowed therefore.

103-4 EXCAVATION DEWATERING

The Contractor shall take whatever measures necessary, as determined by the Engineer, and shall furnish, install and operate pumps or other devices as may be necessary to remove groundwater seepage, storm water or sewage that may be found or accumulate in the manhole excavations during the progress of the work. Once seepage or ground water conditions in excavated areas are encountered, no further excavation will be allowed until suitable dewatering procedures are in operation.

The Contractor shall keep all manhole or trench excavations free from water at all times during construction until the Engineer gives permission to cease pumping. The Contractor shall also keep all excavations free from the accumulation of water and sewage at all times, as may be required by the Engineer for inspection or other purposes. Disposal of any water shall be in strict conformance with all laws and regulations.

Full compensation for conforming to the requirements of this item, "Excavation Dewatering," shall be considered as included in the unit prices paid for the various Contract items of work in Section 103, "Joint Trench and Sanitary Sewer Facilities," of these Special Provisions, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 104
SPECIAL CONDITIONS (JOINT TRENCH AND SANITARY SEWER)

The Contractor shall comply with the provisions of this Section 104, "Special Conditions," of these Special Provisions, and the directions of the Engineer.

Full compensation for conforming to the provisions of this Section 104, "Special Conditions (Joint Trench and Sanitary Sewer)," and all sub-sections herein, shall be considered as included in unit prices paid for the various Contract items of work involved, and no additional compensation will be allowed therefore.

104-1 SUBSURFACE CONDITIONS DATA

No information is available. **The availability or use of information described in this section will not relieve the bidder or Contractor from any risk, or from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.**

104-2 EXISTING ALIGNMENT OF SEWERS

The alignments of the existing sewers noted on the Plans are represented by joining the surveyed manholes. Limited potholing was done over the existing sewers, and as such the alignment of the sewers may vary. The Contractor is to exercise extreme care in excavation such that existing utilities are not disrupted. The degree of deflection from the existing manhole per the manufacturer's tolerance is not considered to be misalignment.

104-3 EXISTING UTILITIES

In general, the locations of existing utilities, whether above ground or underground, are indicated on the Plans. This information has been obtained from utility maps provided by the various agencies involved. The County does not guarantee the accuracy or completeness of this information, and it is to be understood that other aboveground or underground facilities not shown on the drawings may be encountered during the course of the work.

The Contractor shall contact the USA North811 (USA) either on-line at usanorth811.org or by phone by dialing (800) 227-2600 or 811, and notify the underground utility companies of his/her intention to work in the vicinity of their facilities and shall enlist their help to pinpoint the exact location, both in plan and elevation, of their utilities. The Contractor, at no increase in cost to the County, shall perform any special construction techniques required in order to avoid existing utilities.

Existing aboveground utilities, including but not limited to power transmission and distribution, telegraph, telephone and traffic control systems, whether shown on the drawings or not, shall be maintained by the Contractor with the least possible interference with the use of such facilities at no increase in cost to the County.

The right is reserved by owners of utilities and franchises to enter upon any street, road, right-of-way or easement for the purpose of maintaining their property and for making necessary repairs or changes caused by the work.

104-4 UTILITY MARKING

MARKING TAPE

A. Capable of being inductively detected electronically.

B. Construction: Metallic foil laminated between two layers of impervious plastic film not less than 3 inches wide. Total thickness of tape shall not be less than 0.005 inch (5 mil) plus or minus 10 percent manufacturing tolerances.

   1. Film: Inert plastic. Each film layer shall be not less than 0.0005 inch thick (0.5 mil).

   2. Foil: Not less than 0.00035 inch thick (0.035 mil).

   3. Adhesive: Compatible with foil and film.

C. Imprint: 3/4 inch or larger bold black letters.

D. Legend: Identify buried utility line tape with imprint such as "Caution: Sewer Line Below." Repeat identification at approximately 24-inch intervals.

E. Background Color: APWA color code and as specified below:

Color	Utility
Safety Red	Electric
High Visibility Safety Yellow	Gas, Oil, Steam, Dangerous Materials
Safety Alert Orange	Telephone, Communications, Cable Television
Safety Precaution Blue	Water System, Irrigation
Safety Green	Sanitary Sewer, Storm Sewer
Safety Brown	Force Mains, Reclaimed Water, and Effluent Lines

F. Manufacturer: Lineguard, Inc., Wheaton, Illinois; Reef Industries, Inc., Houston, Texas; Thor Enterprises, Inc., Sun Prairie, Wisconsin; or approved equivalent.

END OF SECTION

SECTION 105
TRENCH SAFETY, TRENCHING, AND TRENCH BACKFILL

Earthwork shall conform to the provisions of Section 19, "Earthwork," of the Standard Specifications, this Section 105 of these Special Provisions, the Plans, and the directions of the Engineer.

Pursuant to State law regulations, all open excavations greater than 5 feet in depth shall be constructed with bracing, sheeting, shoring or other equivalent method designed for the protection of life and limb. The Contractor must at all times comply with the requirements of the construction safety orders of the Division of Industrial Safety, uniform Building Code, Cal-OSHA, and other governing codes and restrictions.

The above-stipulated requirements shall be considered the minimum to be provided. It shall be the Contractor's responsibility to provide the additional strength required to support the sides of the excavation against loads which may exceed those employed to derive the criteria set forth in the Industrial Safety orders. The Contractor shall be solely responsible for any and all liabilities which may arise from his failure to provide adequate shoring, bracing or sheeting as necessary to support the excavation under any and all of the conditions of loading which may exist or which may arise during construction of the project.

The Contractor shall assign a project safety supervisor who shall, by training and experience, be fully qualified to supervise the installation, maintenance and removal of sheeting, shoring and bracing. The project safety supervisor shall have full authority over the work in all job safety matters and shall be present at all times when work is in progress in excavations and trenches greater than 5 feet in depth.

105-1 SAW CUT TRENCH

Saw cutting for trenches and insertion and pulling pits shall conform to Section 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete," of these Special Provisions.

105-2 TRENCH SAFETY, TRENCHING, AND TRENCH BACKFILL

Trench Safety, Trenching, and Trench Backfill shall conform to this Section 105-2 and Sections 105-3, "Trench Safety," 105-4, "Trenching and Trench Backfill," 105-5, "Trench Dewatering," 105-6, "Shoring, Sheeting, and Bracing," 105-7, "Compaction," and 105-8, "Pipeline and Joint Trench Backfill," of these Special Provisions and the directions of the Engineer.

The Contractor is advised that no testing on native soil has been performed, and the County makes no guarantee as to the suitability of native material for use as trench backfill. Therefore

Inclusive of compensation for the items 105-3, "Trench Safety," 1054, "Trenching and Trench Backfill,", 1055, "Trench Dewatering," 1056, "Shoring, Sheeting, and Bracing," 1057, "Compaction," and 1058, "Pipeline and Joint Trench Backfill," the Contract lump sum price paid for this item 105-2, "Trench Safety, Trenching and Trench Backfill," shall include full compensation for furnishing all labor, materials (including shoring, sheeting and bracing), tools, equipment and incidentals necessary for doing all the work involved performing trench safety, including, but not limited to, preparing a detailed Trench Excavation Safety Plan, trench dewatering, and providing, constructing, installing and maintaining shoring and bracing, as shown on the Trench Excavation Safety Plan, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

Progress payments will be based upon the ratio of the installed sanitary sewer pipe to the total of sanitary sewer pipe to be installed.

105-3 TRENCH SAFETY

Attention is directed to Section 5-1.02A, "Trench Excavation Safety Plans," and Section 7-1.01E, "Trench Safety," of the Standard Specifications and these Special Provisions.

The Contractor shall prepare and submit to the Engineer for approval a detailed Trench Excavation Safety Plan showing the design of shoring, bracing, sloping, or other provisions to be

made for worker protection from the hazard of caving ground during excavation. If such plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.

The Contract lump sum price paid for "Trench Safety," shall include full compensation for furnishing all labor, materials (including shoring, sheeting and bracing), tools, equipment and incidentals necessary for doing all work involved in performing trench safety, including, but not limited to, preparing a detailed Trench Excavation Safety Plan, and providing, constructing, installing and maintaining shoring and bracing, as shown on the Trench Excavation Safety Plan, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

105-4 TRENCHING AND TRENCH BACKFILL

The Contractor is advised that no testing on native soil has been performed, and the County makes no guarantee as to the suitability of native material for use as trench backfill. Therefore:

A. All existing trench excavation material determined to be unsuitable for trench backfill by the Engineer shall become the property of the Contractor and shall be disposed of outside the highway right-of-way in accordance with the provisions of Section 7-15, "Disposal of Material Outside the Highway Right-of-Way," of these Special Provisions and in conformance with local agency requirements; and

B. All existing structure excavation material determined to be suitable for trench backfill material by the Engineer may be used in conformance with the Plans and these Special Provisions, and the directions of the Engineer.

C. Manhole Safety:

The Contractor shall comply with all applicable occupational safety and health (OSHA) standards, rules, regulations and orders established by Federal and State Agencies.

The atmospheric condition in manholes shall be tested for possible oxygen deficiency and the presence of poisonous, toxic or explosive gases before entering. Sufficient ventilation shall be provided to ensure the safety of workers working in the manhole. The Contractor is required to provide all safety equipment for manhole entry and appropriate attire is required for those who are working in the manhole.

The minimum crew shall be three workers, or two workers and a safety winch: the worker who will go into the hole, the lifeline attendant, and an assistant (or safety winch) on the surface.

Specific attention is directed to OSHA safety rules, regulations and precautions to be taken by the Contractor before entering sanitary sewer manholes, and other sanitation structures with respect to physical and chemical hazards that may be present.

105-5 TRENCH DEWATERING

The Contractor shall take measures as may be required and shall furnish, install, and operate such pumps or other devices as may be necessary to remove groundwater seepage, stormwater or sewage that may be found or accumulate in the excavations during the progress of the work. Once seepage or groundwater conditions in the trench are encountered, no further trenching will be allowed until suitable dewatering procedures are in operation. The Contractor shall keep all excavations free from water at all times during the construction of the work and until the County gives permission to cease pumping. The Contractor shall keep completed work free from accumulation of water and sewage and shall free it entirely at such times as may be required by the County for inspection or other purposes. The Contractor's attention is directed to Section 11-3, "Water Pollution Control," of these Special Provisions.

Every effort shall be made to keep the trench dry at all times. As a minimum requirement, water shall not be allowed to accumulate in the trenches unless sufficient backfill has been placed to prevent pipe floatation.

105-6 SHORING, SHEETING, AND BRACING

The Contractor's attention is directed to Section 105-1, "Trench Safety," of these Special Provisions.

Where sheet piling, shoring, sheeting, bracing or other supports are necessary, they shall be furnished, placed, maintained and, except as shown or specified otherwise, removed by the Contractor.

The design, planning, installation and removal, if required, of all sheeting, shoring, sheet piling, lagging and bracing shall be accomplished in such a manner as to maintain the required excavation or trench section and to maintain the undisturbed state of the soils below and adjacent to the excavation.

The use of horizontal strutting below a pipe barrel or the use of the pipe as support for trench bracing will not be permitted.

When the construction sequence of structures, pipe laying, etc. requires the transfer of bracing, shoring or other means of support to complete portions of any structure, pipe laying, etc., the Contractor shall secure written acceptance from the Engineer prior to the installation of such bracing.

California Labor Code Section 6705 and all applicable Construction Safety Orders and shoring system standards with respect to excavation and construction shall be strictly observed at all times.

105-7 COMPACTION

Where the term "compaction" is used herein, it is defined as a relative compaction and refers to the in-place dry density of the fill expressed by the Test Method of ASTM D698 and of modified proctor ASTM D2049 of AASHTO T180. All compacted materials may be tested by the County. The County pays for first test only. All subsequent tests of failed sections shall be paid for by the Contractor until the desired compaction is reached, and no additional

compensation will be allowed therefore. The Contractor shall notify the County when compacted materials are ready to be tested, 1 working day prior to testing.

The Contractor shall adjust the water content of the fill material to an amount that will enable the specified degree of compaction to be attained in each lift. Each lift shall be thoroughly mixed before compaction to ensure a uniform distribution of water content. Jetting will not be allowed.

105-8 PIPELINE AND JOINT TRENCH BACKFILL

105-8.1 Bedding

Unless otherwise indicated, all pipes shall have a minimum of 4 inches of bedding material below the barrel of the pipe. Bedding shall be placed and compacted as Specified for initial trench backfill and shall be Shaped around the barrel of the pipe. Bedding material shall be as designated on the Plans. The size of gradation shall fall within the limits designated on the Plans.

Where, in the opinion of the Engineer, stabilization of the undisturbed foundation below the bedding, or over-excavation beyond the depth shown is required because of soft, spongy or unstable condition, additional bedding ordered by the Engineer shall be placed in the trench bottom. The quantity and placement of such material will be paid for as extra work, except if the over-excavation is noted at specified locations in the Contract documents.

Any extra bedding required due to over-excavation not approved by the Engineer and requiring extra bedding, shall be placed as directed by the Engineer, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

105-8.2 Initial Backfill

After the pipe has been properly laid and inspected, bedding material shall be placed from pipe horizontal centerline to a level not less than 12 inches over the pipe unless otherwise shown. The backfill material shall be hand-placed in horizontal layers not exceeding 8 inches in

loose depth and compacted by power-operated tampers, rollers or vibratory equipment to a dry density equal to 95 percent of maximum.

Each layer shall be compacted to the specified density prior to placing subsequent layers. Compaction by flooding or jetting methods will not be permitted. No further backfilling will be permitted until the initial backfill has been accepted by the County.

105-8.3 Subsequent Trench Backfill

Backfill shall be structure backfill material, as designated on the Plans and specified in these Special Provisions, placed in horizontal layers not exceeding 8 inches in loose depth. Fill material shall have a moisture content such that the required degree of compaction may be obtained. Each layer shall be compacted by power-operated tampers, rollers, or other suitable equipment to a dry density equal to the surrounding material but not less than 95 percent relative compaction. Each layer shall be compacted to the specified density prior to placing subsequent layers.

END OF SECTION

SECTION 106
SANITARY SEWER REHABILITATION – OPEN TRENCH METHOD

Except as provided for under Sections 103-3.3, "Remove and Replace Existing Sanitary Sewer Manholes," 103-3.5, "Sanitary Sewer Testing," 106-3, "Reconnect Sanitary Sewer Laterals (Open-Trench Method), and 108, "Utility Line Crossings," the work performed under this Section 106, "Sanitary Sewer Rehabilitation – Open-Trench Method," shall consist of furnishing all labor, materials, tools, equipment and incidentals necessary for doing all work required to replace designated sanitary sewer lines by the open-trench method, including, but not limited to removal of existing sanitary sewer pipe and installation of new polyvinyl chloride (PVC) pipe, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

Reference is made to Sections 15-2, "Saw Cut Asphalt Concrete and Portland Cement Concrete," 19, "Earthwork," 103-5, "Sanitary Sewer Testing," 103-8, "Sewage Bypassing During Construction," and 105-2, "Trench Safety, Trenching and Trench Backfill," of these Special Provisions.

Plastic pipe shall conform to Section 64, "Plastic Pipe," of the Standard Specification and these Special Provisions. Section 5-1.116, "Differing Site Conditions," of the Standard Specifications shall not apply to this item.

106-1 POLYVINYL CHLORIDE (PVC) PIPE

Polyvinyl chloride (PVC) pipe shall conform to ASTM Specification D3034, SDR 26, and to these Special Provisions, the Plans, and the directions of the Engineer.

Joints shall be a bell and spigot assembly with elastomeric sealing gaskets. Sealing gaskets shall meet the requirements of ASTM Specification D1869. Solvent joints will not be allowed.

Pipe joints shall be made using manufactured PVC couplings. Band-type compression couplings will not be allowed.

Trench backfill and bedding shall be as shown on the Trench Detail on Sheet SS-9 of the Plans. Whenever the bottom of the trench is rocky, soft, yielding, or in the opinion of the Engineer is otherwise unsuitable as a foundation for the pipe, the unsuitable material shall be removed to a depth such that replacement with crushed rock will provide a stable and satisfactory foundation.

Trenches shall be kept free from water while the pipe is installed, concrete is setting and until backfill has progressed to a sufficient height to anchor the work against possible flotation or leakage. When water is encountered in pipe trenches, the Contractor shall furnish, install and operate such pumps or other devices that may be necessary for removing the water.

Where shown on the Plans, new PVC pipe entering or leaving sanitary sewer manholes shall have a water stop gasket attached to it. The water stop gasket shall conform to the pipe manufacturer's specifications. The water stop gasket shall be seated firmly around the pipe exterior and be cast into the concrete structure. The inside of the manhole barrel shall be neatly finished. Manhole bottom shall be re-channelized as necessary to provide smooth transitions with good hydraulic properties. Any line to be connected to existing manhole, unless otherwise shown on the Plans, shall be installed by forming a new channel with the top invert of the newly installed pipe to the same elevation as the top invert of the existing main sewer.

In addition, the Contractor is advised to exercise caution in making his connections to existing manholes. The Contractor shall be responsible for damage to said structures caused by his operations, and shall repair or replace damaged structures at his own expense, according to the directions, and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Where shown on the Plans, new PVC pipe shall be connected to existing sanitary sewer lines. It is the responsibility of the Contractor to determine the exact location and depth of existing sanitary sewers prior to the laying of any sanitary sewer pipe. The Contractor shall also determine the elevation of the plumbing outlet of the structure to be connected and decide

whether the required grade can be maintained between the outlet and the main sanitary sewer prior to construction of any portion the side sanitary sewer.

The Contractor is advised to exercise caution in making his connections to existing sanitary sewer lines. The Contractor shall be responsible for any damage to said sanitary sewer pipe caused by his operations, and shall replace damaged pipe with new 8-inch PVC pipe at his own expense, according to the directions and to the satisfaction of the Engineer, and no additional compensation will be allowed therefore.

Measurement of polyvinyl chloride pipe will be made along the centerline of the pipe after the pipe has been placed.

Payment for PVC pipe shall include full compensation for the removal and disposal of existing vitrified clay pipe (VCP) that is shown on the Plans to be removed, and no separate payment will be made therefore.

All excavated material, including removed VCP, shall become the property of the Contractor and shall be disposed of outside the public right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Full compensation for this item, "Polyvinyl Chloride (PVC) Pipe," shall be considered as included in the price paid per linear foot for "Pipe Replacement (Open-Trench Method)", and no additional compensation will be allowed therefore.

106-2 PIPE REPLACEMENT (OPEN-TRENCH METHOD)

Installation shall be in accordance with these Special Provisions and the pipe manufacturer's installation guide. All applicable safety regulations shall be followed. The inside diameter of an installed section of PVC pipe shall not be allowed to deflect more than 5 percent.

The Contractor's attention is directed to Section 106-4, "Connection to Sanitary Sewer Manhole," of these Special Provisions for provisions governing all PVC pipes entering or leaving a sanitary sewer manhole.

Existing sanitary sewer pipe to be replaced shall be removed. Existing sanitary sewer pipe removed, as well as any other rubbish of any kind, shall be become the property of the Contractor and shall be disposed of properly outside the highway right of way in accordance with Section 7-15, "Disposal of Material Outside the Highway Right of Way," of these Special Provisions.

Before PVC sewer pipe is placed in position in the trench, the bottom and sides of the trench shall be carefully prepared, the required bedding placed, and bracing and sheeting installed where required. The trench shall be excavated to the dimensions shown on the drawings. Each pipe shall be accurately placed to the line and grade called for on the Plans.

All pipe and fittings shall be inspected by the Engineer before being placed in the trench.

Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill. Variations of the installed pipe from the vertical alignments shown on the Plans shall not exceed 0.25 inch at any given point. In no case will level or reverse slopes be allowed.

Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to grade with approved compacted materials.

Pipe trenches shall be kept free from water during pipe laying, joining or before sufficient backfill has been placed to prevent flotation of the pipe. The Contractor may use sump pumps or any other approved devices to remove water from the trench bottom. The Contractor shall provide ample means and devices to promptly remove and dispose of all water from any source entering the trench.

The Contractor shall comply with all the National Pollutant Discharge Elimination System (NPDES) regulations.

No connection shall be made where joint surfaces and joint materials have been soiled by earth until such surfaces are thoroughly cleaned.

As the work progresses, the interior of all pipes shall be kept clean. After each line of pipe has been laid, it shall be carefully inspected and all earth, trash, rags, and other foreign matter removed from the interior.

Backfilling of trenches shall be started immediately after the pipe is placed in the trench. Backfill material placed under the haunches shall be shovel sliced and/or compacted.

At end of each day the Contractor shall plate the end of the installed pipe.

106-2.1 Pipeline Backfill:

106-2.1.1 Bedding

Unless otherwise indicated, all pipes shall have a minimum of 4 inches of bedding material below the barrel of the pipe. Bedding shall be placed and compacted as specified for initial trench backfill and shall be shaped around the barrel of the pipe. Bedding material shall be as designated on the Plans. The size of gradation shall fall within the limits designated on the Plans.

Where, in the opinion of the Engineer, stabilization of the undisturbed foundation below the bedding, or over-excavation beyond the depth shown is required because of soft, spongy or unstable condition, additional bedding ordered by the Engineer shall be placed in the trench bottom. The quantity and placement of such material will be paid for as extra work in accordance with 105-8.1, "Bedding," of these Special Provisions, except if the over-excavation is noted at specified locations in the Contract documents.

106-2.1.2 Initial Trench Backfill

After the pipe has been properly laid and inspected, bedding material shall be placed from pipe horizontal centerline to a level not less than 12 inches over the pipe, unless otherwise shown. The backfill material shall be hand-placed in horizontal layers not exceeding 8 inches in

loose depth and compacted by power-operated tampers, rollers or vibratory equipment to a dry density equal to 95 percent of maximum.

Reference is made to Section 105-7, "Compaction," for compaction requirements.

Each layer shall be compacted to the specified density prior to placing subsequent layers. Compaction by flooding or jetting methods will not be permitted. No further backfilling will be permitted until the initial backfill has been accepted by the County.

106-2.1.3 Subsequent Trench Backfill

Backfill shall be structural backfill material, as designated on the Plans and specified, placed in horizontal layers not exceeding 12 inches in loose depth. Fill material shall have a moisture content such that the required degree of compaction may be obtained. Each layer shall be compacted by power-operated tampers, rollers, or other suitable equipment to a dry density equal to the surrounding material but not less than 95 percent relative compaction. Each layer shall be compacted to the specified density prior to placing subsequent layers.

The finishing of the roadway (aggregate base and asphalt concrete) shall match the existing finishing and be constructed to the requirements of the County of San Mateo. Install New PVC Sanitary Sewer Main

Said new PVC sanitary sewer main shall be installed in conformance with and be considered as included in the Contract item of work for, this Section 106-2, "Pipe Replacement (Open-Trench Method)," of these Special Provisions.

106-2.1.4 Connection to Sanitary Sewer Manholes

Connection of PVC sewer pipe to existing sanitary sewer manholes shall be made by cutting an opening in the wall of the existing structure, inserting a length of PVC pipe into the opening and trimming flush with the interior the manhole wall, filling around the pipe with non-shrink grout, and troweling the inside and outside surfaces of the joint to a neat finish. Said opening shall not be greater than 2 inches larger than the outside diameter of the pipe. Care shall be exercised in cutting these openings to prevent cracking or breaking of said sanitary sewer

manhole. Pipe openings broken in a ragged and unworkmanlike manner, as determined by the Engineer, shall be rejected and either repaired or replaced, as directed by the Engineer, all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

All PVC pipe entering or leaving a manhole shall have a rubber sealing gasket, as supplied by the pipe manufacturer, firmly seated around the pipe exterior and perpendicular to the pipe axis. Said rubber sealing gasket shall be cast into the structure base or near the structure wall center as a water stop. Said water stop may also consist of a manhole coupling with rubber sealing rings cast into the structure base.

The bottom of the manhole shall be shaped to fit the invert of the sewer pipe. Reference is made to Section 103-3.3, "Remove and Replace Existing Sanitary Sewer Manholes," of these Special Provisions.

New sanitary sewer manhole connections to pre-cast concrete bases can be made with elastomeric gasket seals such as ALOK or Press Seal PSX connections, or an approved equal. For poured in-place manholes the Contractor shall use manhole adapters or water stops.

106-2.1.5 Television Inspection

Reference is made to Section 103-3.1, "Closed-Circuit Television (CCTV) Inspection of Sanitary Sewer Lines," of these Special Provision.

Sags or rises in the pipe will not be permitted. Any segment of pipe with sag or rise that inhibits gravity flow shall be repaired in accordance with the Plans, these Specifications and as directed by the Engineer.

106-2.1.6 Cleanup

After completing each section of the sewer line, the Contractor shall remove all debris, construction materials, and equipment from the site of the work, grade and smooth over the surface on both sides of the line and leave the entire right of way in a clean, neat and serviceable condition.

106-2.1.7 Measurement and Payment

Pipe Replacement (Open-Trench Method) shall be measured on the horizontal between the interior faces of sanitary sewer manholes, including wyes installed along the sanitary sewer main, regardless of the amount of pipe ordered.

The Contract unit price paid per linear foot for the items "Pipe Replacement (Open-Trench Method) – 8" PVC Pipeline" and "Pipe Replacement (Open-Trench Method) – 24" PVC Pipeline" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in furnishing and installing PVC sewer pipe, including, but not limited to, saw cutting asphalt concrete and/or concrete pavement, pipeline excavation including removal of existing pipe, and backfill including bedding material, backfill, and aggregate base, temporary pavement, disposal of surplus or unsuitable earth and pavement, removal and disposal of existing sewer pipe, bypassing or diversion of sewage flows, dewatering, connections to manholes and existing sanitary sewer lines, and surface and existing improvements restoration, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore. Payment shall include compensation for maintaining a minimal soil layer of three inches (12") between the sewer pipe and SFPUC Bay Division Pipes No. 1, No. 2 and No. 5. Compensation for additional thickness of aggregate base and pavement for STA 16+60 Southbound and STA 17+50 Northbound to STA 29+00 to provide pavement section in planing areas shall be considered as included under Section 26 "Aggregate Bases" and Section 39-1 "Asphalt Concrete", respectively, and no additional compensation will be allowed therefore.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantity of sanitary sewer main required to be replaced by open-trench. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of Pipe Replacement (Open-Trench Method).

Payment will include compensation for saw cutting asphalt concrete or Portland concrete pavement, pipeline excavation and backfill, including bedding material and structural backfill material, disposal of surplus or unsuitable earth and pavement, removal and disposal of existing sewer pipe, bypassing or diversion of sewage flows, dewatering, cleaning, pipe with joints and all required fittings, and connections to manholes, complete in place.

Trench Safety, Sanitary Sewer Testing (including television inspection) and Asphalt Concrete (Type B), will be paid as separate bid items.

106-3 RECONNECT SANITARY SEWER LATERALS (OPEN-TRENCH METHOD)

Existing sanitary sewer lateral reconnections shall be made to the new PVC sewer pipe using PVC lateral wyes, all installed in accordance with the manufacturer's written instructions, the Plans, and the directions of the Engineer. **No tee installations will be allowed.** For sanitary sewer mains larger than 8 inches in diameter, the Contractor has the option of making existing sanitary sewer lateral reconnections to the new PVC sewer pipe using the appropriately sized tapping product, such as "Tap-Tite," "Insert-A-Tee," or approved equal method of installation, as directed by the Engineer.

The Contractor shall be responsible for locating all in-service "live" sanitary sewer laterals.

The PVC lateral reconnections shall be watertight and shall have the same structural integrity as the new PVC sewer pipe.

The standard length of sanitary sewer lateral reconnections shall be 5 feet, including wyes or tapping product, angled fittings, transition coupling, new PVC lateral pipe, connections to the mainline pipe, and connections to the existing lateral pipe, and will be measured from the centerline of the sanitary sewer main. Any increase in this 5-foot length, to match field conditions, shall be approved by the Engineer. Such additional length of sanitary sewer lateral requiring replacement due to damage not caused by the Contractor's operations, as determined by the Engineer, shall be paid for in conformance with Section 103-3.7, "Sanitary Sewer Lateral

Repair," of these Special Provisions. Such additional length of sanitary sewer lateral requiring replacement due to damage caused by the Contractor's operations, as determined by the Engineer, shall be replaced all at the Contractor's sole expense, and no additional compensation will be allowed therefore.

The Contractor shall connect the new (reconnected) sanitary sewer lateral pipe to the existing sanitary sewer lateral pipe by using a transition coupling, or approved alternative pipe connector, of suitable size and with an outer stainless-steel shear ring. The existing sanitary sewer lateral shall be sawn to provide a neat and clean edge prior to installation of the transition coupling.

The Contract unit price paid per each for Reconnect Sanitary Sewer Laterals (Open-Trench Method) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for doing all work required to reconnect sanitary sewer laterals, complete in-place (including pavement restoration), as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantity of sanitary sewer laterals required to be reconnected. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of Reconnect Sanitary Sewer Laterals (Open-Trench Method).

All sanitary sewer lines identified on the Plans shall be replaced in accordance with these Special Provisions when open trench method is applicable. The sanitary sewer rehabilitation by open trench method shall consist of, but not necessarily be limited to, performing the following tasks:

A. Sewage flow bypassing during the pipe replacement.
B. Location, disconnection and reconnection of all existing laterals.
C. Excavation and backfill of trench.
D. Testing and CCTV.

The work shall consist of furnishing all labor, materials, equipment, and supervision to perform all work necessary to remove and replace when open trench method is applicable.

There are two sections of existing 8-inch VCP sewer pipe that crosses San Francisco Public Utilities Commission (SFPUC or San Francisco Water Department) water transmission mains within the SFPUC's right-of-way shall be replaced with new 8-inch PVC sewer pipes between existing manholes 6183 and 3857, 3851 and 5193 (between Berkshire and First Avenue) by open trench method only.

106-4 POLYVINYL CHLORIDE (PVC) SDR 26

PVC sewer pipes and fittings shall conform to the specifications for SDR 26 pipe of ASTM Designation D 3034 having elastomeric gasket joints with ends formed so that pipe will form a continuous line with a smooth interior surface when the pipes are laid together and joined.

The Contractor shall remove existing 8-inch VCP and install 8-inch PVC pipes by open-trench method for the section of pipes between existing manholes 6183, 3857, 3851, and 5193. Over the existing three 60-inch-diameter mains within SFPUC right-of-way, PVC pipes shall be placed directly above a layer of soil with minimum of 12 inches between the sewer pipe and the SFPUC Bay Division Pipes No. 1, No. 2 and No. 5, with no joints within 10-feet.

All PVC pipes entering or leaving a manhole shall have a rubber sealing gasket, as supplied by the pipe manufacturer, firmly seated perpendicular to the pipe axis, around the pipe exterior and cast into the structure base or near the structure wall center as a water stop. Said water stop may also consist of a manhole coupling with rubber sealing rings cast into the structure base.

106-4.1 Pipe Installation

Before sewer pipe is placed in position in the trench, the bottom and sides of the trench shall be carefully prepared, the required bedding placed, and bracing and sheeting installed where required. The trench shall be excavated to the dimensions shown on the drawings. Each pipe shall be accurately placed to the line and grade called for on the Plans.

Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill.

Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to grade with approved compacted materials.

Pipe trenches shall be kept free from water during pipe laying, joining or before sufficient backfill has been placed to prevent flotation of the pipe. The Contractor may use sump pumps, or any other approved devices to remove water from the trench bottom. The Contractor shall provide ample means and devices to promptly remove and dispose of all water from any source entering the trench.

The Contractor shall comply with all National Pollutant Discharge Elimination System (NPDES) regulations.

No connection shall be made where joint surfaces and joint materials have been soiled by earth or embedment in handling until such surfaces are thoroughly cleaned.

As the work progresses, the interior of all pipes shall be kept clean. After each line of pipe has been laid, it shall be carefully inspected and all earth, trash, rags, and other foreign matter removed from the interior.

Backfilling of trenches shall be started immediately after the pipe is placed in the trench.

Backfill material placed under the haunches shall be shovel sliced and/or compacted.

At end of each day the Contractor shall plate the end of the installed pipe.

END OF SECTION

SECTION 108
UTILITY LINE CROSSINGS

It is anticipated that proposed sanitary sewer and joint trench facilities may conflict with existing underground utility facilities. **Therefore, prior to commencing work, the Contractor shall contact USA North811 service alert (USA) 48 hours in advance to verify the exact location and depth of the existing utilities and service laterals. USA may be contacted either on-line at usanorth811.org or by phone by dialing 1-800-227-2600 or 811.** Attention is directed towards the possible existence of high-risk utility lines.

The Contractor is advised that there are exposed utility line crossings and <u>three (3)</u> Open-Cut crossings of the San Francisco (Hetch Hetchy) water transmission lines on Middlefield Road between Berkshire and First Avenue (east).

Compensation for utility line crossings shall be as follows:

(1) The Contractor shall be paid per each exposed Utility Line Crossing wherever the proposed sanitary sewer and joint trench facilities cross underneath existing **active** utility facilities **(estimated to be 132 locations).**

(2) The Contractor shall be paid per lump sum for the **San Francisco (Hetch Hetchy) Water Transmission Line Crossing** that are subject to additional requirements and shall be paid for as a separate bid item. Reference is made to Sheets SS-4 and SS-5 of the Plans and as provided for under Section 108-1, "San Francisco (Hetch Hetchy) Water Transmission Line Crossing," of this Special Provision.

(3) Such payment shall be considered as total compensation for any additional construction work or delays that the Contractor may encounter. Existing facilities shall be those in place prior to the date of bid submission. In locations where sanitary sewer laterals cross underneath existing utilities, this utility line crossing item shall not apply, and no additional compensation will be allowed therefore.

Where, in the opinion of the Engineer, several existing utility facilities located in one joint trench, as herein defined, the Contractor shall be paid for only one utility crossing rather than per each facility in the trench. Existing facilities, including pipes and wires, shall be considered as being in one joint trench whenever the exposed nearest point of one facility is within 2 feet of another facility in an open trench.

The Contract unit price paid per each for utility line crossings, as specified herein, shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work necessary to cross above each utility facility as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

No adjustment to the Contract bid price will be made for any increase or decrease in the quantities for the item, "Utility Line Crossing," required. The provision in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of Utility Line Crossings.

108-1 SAN FRANCISCO (HETCH HETCHY) WATER TRANSMISSION LINE CROSSING

The Contractor is advised that the San Francisco Public Utilities Commission (SFPUC) requires the replacement sanitary sewer pipe to be polyvinyl chloride (PVC) sanitary sewer pipe above three (3) Hetch Hetchy water transmission lines, hereinafter referred to as SFPUC mains.

Installation of the replacement sanitary sewer lines shall be performed using open-cut methods; therefore, additional potholing is not required for the SFPUC mains. Full compensation for potholing installing the new sanitary lines by open cut methods are considered as included in the Contract unit price lump sum for this Section 108-1, "San Francisco (Hetch Hetchy) Water Transmission Line Crossing," and no additional compensation will be allowed therefore.

The Contract unit price paid per lump sum for San Francisco (Hetch Hetchy) water transmission line crossings, as specified herein, shall include full compensation for furnishing all

labor, materials, tools, equipment and incidentals and for doing all the work necessary to cross above the three (3) San Francisco (Hetch Hetchy) water transmission lines as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 113
JACK AND BORE STEEL CASING UNDER RAILWAY, AND INSTALL STEEL CASING PIPE

Jacking and open trench operations shall conform to these Special Provisions and the requirements of the San Mateo County Transit District (SamTrans). SamTrans has adopted Peninsula Corridor Joint Powers Board (PCJPB) standards and procedures for use on this project. Sample requirements of SamTrans are included in Appendix G, including the PCJPB Site Specific Work Plan (SSWP) Application and the sample Right of Entry Permit Agreement including the Operating System Interface. If the sample SamTrans requirements contained in Appendix G are amended significantly in Contractor's final approved Right of Entry Permit Agreement and approved SSWP, the amended requirements shall apply and shall be reflected in a change order to be issued by County.

The Contractor is advised that pipe placed within steel casing shall be supported on redwood skids. Skids shall be sized and positioned so that the pipe is at the line and grade designated on the Plans and does not rest on bells and shall be positioned to prevent flotation. The skids shall extend the full length of the pipe, except for clearances required for assembly at bells and spigots. Skids shall be securely fastened to the pipe with stainless steel strapping, cables or clamps.

The Contractor shall execute a Right of Entry Permit Agreement with SamTrans and shall be fully bound by the terms and conditions of said agreement.

Contractor's attention is directed to Appendix G, (the sample Right of Entry Permit Agreement and Operating System Interface), for construction work interfacing with the SamTrans operating system, including track work, train control, and communications. A Site-Specific Work Plan (SSWP) application for work within the SamTrans right-of-way shall be filed by the Contractor with SamTrans at least six (6) weeks before start of work within SamTrans right of way. The Contractor shall provide to the County a copy of the SSWP application submittal and a copy of the approved SSWP prior to the start of construction. Requirements for an approved SSWP shall include detailed provisions for

accessing the work site and bypassing sewage flows across SamTrans right of way. No work within the SamTrans right-of-way shall be performed by the Contractor without an approved SSWP from SamTrans.

Railroad Rules and Regulations: The Contractor shall comply with the rules and regulations of SamTrans or the instructions of its representatives, as approved by the County's Engineer, in relation to the proper manner of protecting the track and property of SamTrans, its tenants, or licensees, at or in the vicinity of the work, during the period of construction. Contractor shall provide secure closures at temporary fence removals required for construction operations.

The Contractor shall also comply with the rules and regulations of Union Pacific Railroad (UPRR) and their consultant (RailPros), and follow the steps described here. These requirements are for two RailPros individuals (an observer and a flagman) to oversee the utility installation at the railroad crossing.

The construction observation requirements listed here need to be complete before the construction takes place on, under, or above UPRR property.

A. A completed RailPros Work Plan needs to be submitted to up.workplan@railpros.com. This work plan is provided here as an example (see following pages). The Contractor shall reach out to RailPros to obtain the most current format of this document prior to filling out the document.

B. The Contractor shall locate UPRR signal cables by following these steps:

   1. Email the UP Manager, Signal Maintenance, Maikel Younan, at miyounan@up.com.

   2. Give the depth of the casing, the MP, and the subdivision (given in Exhibit A of the UPRR Agreement).

   3. Ask him to reply to your email with any instructions.

WORK PLAN

Union Pacific Railroad Folder Number:

Date Submitted to RailPros Field Services:

Work Plan Directions:
This project has been identified by Union Pacific Railroad (UPRR) as requiring third party construction observation. RailPros will be providing the Construction Observation services for this project and is here to assist in moving this project to completion.

The Union Pacific Railroad Real Estate Agreement outlines the requirements and standards for this installation. This work plan describes the specific details of the project, in terms of the site layout, schedule, means and methods, and general requirements, to ensure compliance with the agreement. This work plan, once released, is the basis that the Construction Observer will assess the work. Any field changes from the work plan shall be submitted via email to utilities.office.staff@railpros.com for review and must meet or exceed UPRR and/or AREMA standards.

Work Plan Submittal Check List: **(Please check off all requirements in list, or strike through text if item is not required)**

1. ***Provide the Engineering Plan and Profile, including:***
   a. Mark locations of launch and receiving locations.
   b. Dimension the distances from the centerline of track and any existing utilities.
   c. Dimension depth of excavation.
   d. Railroad right of way and railroad tracks clearly outlined

2. ***Provide Shoring Plan (for excavation with UPRR ROW), including:***
   a. Calculations for shoring within zone a.
   b. Cut sheets for proprietary systems as applicable.
   c. Description of shoring to include but is not limited to:
   d. Exploration (pot holing)
   e. Demolition
   f. Excavation
   g. Fall protection/confined space entry
   h. Work process
   i. Backfill
   j. Close-out
   k. Contingencies which include weather events and hazmat
   l. Reference the following link to assure compliance.
      Https://www.up.com/cs/groups/public/@uprr/@customers/@industrialdevelopment/@operationsspecs/@specifications/documents/up_pdf_nativedocs/pdf_up_str_temp-shoring.pdf

3. ***Provide Track Monitoring Plan (if required):***
   a. See attached Track Monitoring Guideline (pdf)

4. ***HDD Installations Only:***
   a. Inadvertent Return Contingency Plan (Frac-Out Plan)
   b. HDD Plan Requirements

Contract Contact Name:
Phone Number:
Invoice Address (email address is standard):

Prime Contractor Contact Name:
Phone Number:
Note: The field contact will be asked to sign the daily report to verify hours.
Sub-Contractor (if performing the installation) Contact Name:
Phone Number:
Note: The field contact will be asked to sign the daily report to verify hours.

Project Information

Item	Response	Item	Response
Lat/Long (Decimal Form)		Number of Tracks	
Method of Installation (HDD, Jack and Bore, Etc.)		Casing Pipe Length	
Depth from top of pipe to base of rail		Casing Pipe Type	
Distance from face of receiving pit to Nearest Track CL		Casing Pipe Diameter	
Distance from face of jacking pit to Nearest Track CL		Casing Pipe Thickness	
Excavation depth of jacking pit from base of rail		Carrier Pipe Type	
Excavation depth of receiving pit from base of rail		Carrier Pipe Diameter	
Estimated Start Date		Carrier Pipe Thickness	
Estimated Project Duration (on, under, or above UPRR property)		Certified Payroll required	
Will there be hot work within UPRR ROW (welding, open flame, cutting, etc.)		Will there be abandonment work within UPRR ROW?	

Description of Work: Provide a description of the Means and Methods the contractor will use to accomplish the work. Excavation or potholing within 15 feet of track centerline is not acceptable, unless approved by Union Pacific Railroad Engineering.	
Equipment:	Machine Make & Model:
Description of Process: 1. 2. 3. 4. 5. 6. 7. 8. 9.	
Please review the following link to ensure compliance with all UPRR PPE Requirements. https://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf	

Track Monitoring: Track monitoring is required to demonstrate that tracks do not move more that the proscribed ¼" (see attached document). Survey by a qualified person is required. Send track monitoring data to utilities.office.staff@railpros.com.	
Survey Company:	
Name of Surveyor:	Instrument:
Will you be using adhesive targets for the track monitoring?	**Yes or No**
Description of Process: 1. 2. 3. 4. 5. 6. 7. 8. 9.	
Please review the following link to ensure compliance with all UPRR PPE Requirements. https://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf	

C. UPRR Telecommunications ("call before you dig")

1. Call 1(800) 336-9193 to generate an active ticket or to renew an existing ticket.

- 48 business hours to become active; active for 14 days
- Forward the CBUD Ticket to utilities.office.staff@railpros.com.

Important note: Each Contractor who will be drilling/digging on UPRR property must be named on a ticket.

Note: Be sure to reference your FOLDER NUMBERS (3108-10, 3108-36, and 3144-51) in any correspondence to RailPros.

Standards: Comply with the Caltrain Engineering Standards, Edition 2 as revised September 30, 2011, the Peninsula Corridor Joint Powers Board (PCJPB) Standard for Design and Maintenance of Structures as revised in 2003, and the PCJPB Engineering Standards for Excavation Support Systems as revised in 2003, as applicable.

If it appears that there is a conflict between the Caltrain and PCJPB Standards and other Contract Documents, the Contractor shall consult with the County Engineer for further direction.

In case of a conflict with the SamTrans Standards or if the SamTrans Standards are revised, the Contractor shall comply with changes required by SamTrans as approved by the County's Engineer.

Contractor and his sub-contractors shall be required and responsible for attendance of a Caltrain Construction Safety Training and be certified to perform construction activities within the SamTrans property. For training appointments telephone: Richmond Apande of SamTrans at (650) 508-6240.

Measurement for "Jack and Bore Steel Casing Under Railway and Install Steel Casing Pipe" shall be along jacked or open trenched steel pipe casing between the limits shown on the plans.

The Contract unit price paid per linear foot for Jack and Bore Steel Casing Under Railway, and Install Steel Casing Pipe shall be at the respective Contract unit prices paid per each diameter pipe and shall include, but not be limited to, full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary for doing all work involved in jacking and boring steel casing pipe, and installing steel pipe, complete in-place, including all labor, materials, tools, testing and equipment for installing steel casing pipe, pipeline excavation, removal and disposal of abandoned steel water pipe, backfill and compaction including bedding material, imported backfill and aggregate base, surface grading of the trench in non-paved areas, and disposal of surplus or unsuitable earth and pavement, dewatering, cleaning, casing seals, complete in place, as well as preparing submittals, excavation, including any required shoring of jacking and receiving pits, backfilling and compacting pits, dewatering, furnishing steel pipe casing, jacking of steel pipe casing, installation and removal of construction safety fences, surveying and monitoring of existing tracks, lubricating bore, soil cement, grouting, mortaring around the connection between the casing pipe and the manhole wall, casing seal, removal of excavated bore material and all equipment, and other items of work necessary for a complete jacking of steel pipe casing in accordance with the Plans, these Special Provisions, and the directions of the Engineer, and no additional compensation will be allowed therefore.

When dewatering is necessary, the contractor shall have crushed-rock and sump(s) in areas to clear groundwater and water used to clean the casings in all pits. Pits shall be lined with filter fabric when ground water is found and pumping is required.

No adjustment of the Contract bid price will be made for any increase or decrease in the quantity of steel pipe casing required to be jack and bored, and installed. The provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications shall not apply to the item of Jack and Bore Steel Casing Under Railway, and Install Steel Casing Pipe.

113-1 JACK AND BORE SUBMITTALS

Contractor and specialty sub-contractor shall have experience in boring and jacking of this type and shall submit the following to County for review and through the Engineer to SamTrans for review and approval before starting work for pipe casing jacking:

A. Work Plan – Submit completed working drawings for review by the County and review and approval by SamTrans, showing details of the proposed method of construction and the sequence of operations to be performed during construction. Show the method of pipe casing jacking; location and dimensions of working pits and method of excavation, shoring and bracing employed and dewatering techniques. Include the restrictions and limitations imposed by the Contract Documents. Provide the following information as a minimum:

1. Calculations and drawings indicating limits of access pits and any required ground supports.

2. Method of disposal of spoils.

3. A groundwater stabilization scheme covering the excavations for starter and receiver pits, including calculations and detailed drawings of methods for controlling groundwater and stabilizing soil.

4. Working drawings, including the following:

    a. Layout of pipe casing jacking and ancillary equipment at each pit location.

    b. Soil pressure produced during jacking operations.

    c. Details of pipe casing lubrication system, including proposed spacing of lubricating points, if applicable.

    d. Details of grade and alignment control system.

    e. Groundwater control provisions.

f. Details of product pipe casing or conduit installation, including method for grouting space between casing pipe and product pipe or conduit.

g. Alignment and control methods.

h. Plan for correcting misalignment.

i. Shoring plan, if shoring is proposed by contractor.

j. Work schedule

5. Calculations demonstrating that the pipe casing selected has been designed to support the maximum earth loads and superimposed live loads, static and dynamic, which may be imposed on the pipe casing. Determine the additional stresses imposed on the pipe casing during jacking operations, and upgrade the quality and strength of the pipe casing and pipe casing joints as necessary to withstand the additional stresses imposed by the jacking operation.

B. Certificates of compliance for pipe casing.

C. Submit a log of the jacking operations consisting, as a minimum, of the following:

1. The position of the pipe casing in relation to the design line and grade.

2. Operating pressure.

3. Results of surveys monitoring for track deflection.

Submit experience and references from similar successful jack and bore projects to confirm at least 5 years of active experience.

In addition to the above requirements, all work shall comply with the permit requirements, all appropriate Public Utility Commission Regulations and any other agency having jurisdiction.

113-2 WELDED STEEL PIPE CASING

Steel pipe casing used for jacked and open trench sanitary sewer shall be 10 -inch, 16 -inch, 18 -inch, 24 -inch, 30 -inch, or 36 -inch-diameter as noted on the plans and shall be fabricated from steel plate meeting the requirements of either ASTM A570 (36,000 psi yield) or ASTM A53 (35,000 psi yield) and shall conform to all applicable provisions of Section 66-3.10, "Jacking Pipes," and Section 70-1.02B, "Welded Steel Pipe," of the Standard Specifications and these Special Provisions. Minimum wall thicknesses shall be ½ -inch, unless otherwise shown on the plans. Any heavier thickness of pipe or other facilities required to withstand jacking pressure shall be determined and furnished by the Contractor at his expense.

113-2.1 Protective Coatings

Protective exterior coating shall conform to the requirements of Section 66-1.03, "Protective Coating, Linings and Paving," of the Standard Specifications and these Special Provisions. Protective exterior coating shall be bituminous.

113-3 JACKING PITS

Jacking pits shall be designed, shored and installed in accordance with the "Railroad Requirements for Use of Jacked Concrete Pipe and Boxes" as listed in the PCJPB Standards, Volume II and the California Department of Transportation Trenching and Shoring Manual. If excavation below ground line crosses the Zone of Influence, then SamTrans requires shoring which meets Cooper's E-80 loading requirements. Shoring must be designed by a licensed professional engineer and approved by SamTrans.

All design calculations, plans, and drawings shall be prepared by a registered engineer and shall be submitted to SamTrans for review and approval.

Adequate space shall be provided inside and around jacking pit for safe and efficient operations.

113-4 PIPE CASING INSTALLATION

The installation of welded steel pipe casing shall be according to the line and grade requirements shown on the plans. Limits of jack and bore installation are as shown on the plans. Additional welded steel pipe casing installation shall be by open trench methods in accordance with these Special Provisions and the Installation of Pipe Culverts, American Railway Engineering Association (AREA) Manual for Railway Engineering, Chapter 1, Part 4.12.

Unless otherwise specified, the methods and equipment used in jacking welded steel pipe shall be optional with the Contractor, provided that the proposed method is reviewed by the Engineer, approved by SamTrans and found to be in compliance with these Special Provisions. Such approval, however, shall in no way relieve the Contractor of the responsibility for making a satisfactory installation meeting the criteria set forth herein. All bores shall be accomplished by the dry bore method. Sluicing or jetting with water will not be permitted.

Only workers experienced in jacking operations shall be allowed to perform the work.

Guide timbers, structural steel members and rails, and concrete cradles shall be set and anchored accurately to maintain the jacking alignment. Variations from the vertical alignment shown on the plans shall not exceed 0.5 percent of the total distance from the jacking point to the end.

During jacking operations the Contractor shall check alignment at least every 8 feet and shall advise the Engineer of any deviation from the tolerances specified herein. In addition, the Contractor shall advise the Engineer of the corrective measures to be used to realign the remaining portions of jacked pipe to the correct elevation.

If personal entry is required, provide adequate ventilation. Design ventilating system to include the volume required to furnish fresh air and the volume to remove dust and vapor.

Provide adequate lighting for the type of activity being conducted. Separate and insulate power and lighting circuits. Ensure that lighting voltage does not exceed 120 volts AC, and protect circuits with a ground fault circuit interrupter.

113-5 JACKING PROCEDURE

The leading section of casing shall be equipped with a jacking head securely anchored to lead casing to prevent any wobble or variation in alignment during the jacking operation.

The driving ends of the casing shall be properly protected against damage. Bearing blocks between jacks and casing shall be of sufficient strength to transfer jacking loads uniformly and without failure. Any section of casing showing signs of failure shall be removed and replaced with a new section that is adequate to carry the loads imposed upon it.

Excavation shall not be made in excess of the outer dimensions of the casing being jacked unless approved by the Engineer. Every effort shall be made to avoid any loss of earth outside the jacking head. Excavated material shall be removed from the casing as excavation progresses and no accumulation of such material within the pipe will be permitted.

Contractor shall coordinate work within SamTrans right of way as necessary with the train schedules in effect at the time of construction. It is estimated that the train schedule at the two work sites within SamTrans right of way will consist of one train passing through the project sites every 24 hours during the nighttime. Contractor shall verify train schedules prior to developing his SSWP and signing the Right of Entry Permit Agreement. The jacking operation shall be planned such that once the operation has commenced, it shall be continued uninterrupted until the entire length of casing has been jacked between the limits shown on the plans and within the contract working hours unless otherwise approved in writing by the Engineer. Any work within SamTrans right of way that occurs outside of contract working hours will be subject to liquidated damages. This requirement may be modified if the Contractor submits to the Engineer for approval methods and details that shall prevent the "freezing" of the casing and ensure that the heading is stable at all times.

Contractor shall make provisions for lubricating bore with Bentonite or other lubricant that reduces friction between casing and bore hole. These provisions shall consist of pressure pumping lubricant through predrilled holes in casing, as approved by the Engineer.

The Contractor's jacking operation shall be done in a manner that will prevent any movement of the ground above the jacked casing that results in more than 0.5 inch of track deflection.

113-5.1 Settlement Monitoring

The Contractor shall establish the existing horizontal and vertical location of each SamTrans rail in the vicinity of the work. Locations shall be pre-marked on each rail at the center lines of casing crossing trackway and at not greater than 50 -foot intervals and surveyed for one month prior to the start construction under this Contract which is adjacent to the SamTrans operating envelope. This data will be used to evaluate settlement or other movement of SamTrans tracks during the course of the Work. Surveying shall meet the accuracy requirements for National Oceanic and Atmospheric Administration, Second Order, Class I, Surveys.

Throughout the period during which support walls excavation and construction, dewatering, casing ramming, casing jacking, or other work which may cause settlement or other movement of SamTrans tracks is being performed, the pre-marked locations shall be surveyed every 60 minutes. Surveying shall include pre-marked locations along the length of these construction activities and for a minimum of 100 feet beyond in both directions of these construction activities.

In addition, the Contractor shall immediately advise the County and SamTrans of any deflection occurring during jacking operations.

The Contractor shall have track deflections in excess of 0.5 inch corrected, by a qualified railroad contractor approved by SamTrans, and at the Contractor's expense.

Should appreciable loss of ground occur during the jacking operation, the voids shall be filled promptly to the extent practicable with soil cement consisting of a moistened mixture of one part cement to five parts granular material. Where the soil is not suitable for this purpose, the Contractor shall import suitable material at the Contractor's expense. The soil cement shall be thoroughly mixed and rammed into place after the loss of ground.

The joints of sections of casings to be jacked shall be welded with continuous circumferential weld. It shall be the Contractor's responsibility to provide stress transfer across the joints that is capable of resisting the jacking forces involved without damage to the casing.

Grouting shall commence immediately after jacking operations are complete. Grout shall be injected through the casing wall to fill all voids resulting from the jacking and boring operation. Grout pressure shall be controlled so that there is no movement of the soil at ground surface.

113-6 CASING SEALS

Both ends of casing shall be sealed using seals between the casing and the carrier pipes. Seals shall be of the expanding mechanical type or modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the carrier pipe and the casing. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide a watertight seal between the carrier pipes and the casing. The seals shall be installed according to the manufacturer's written instructions.

In addition to the above requirements, all work shall comply with the permit requirements of any other agency having jurisdiction.

Any worker that is working on or near active railroad tracks, including but not limited to jacking pipe, shall participate and successfully pass the On-Track Safety (OTS) training offered by Caltrain. For more information on any required training, please contact Richmond Apande, Sr. Engineer for Third Party Projects at San Mateo County Transit District, at (650) 508-6240 or apander@samtrans.com.

This Work shall consist of furnishing, boring, and jacking into place steel casing at the locations and between the limits shown on the Plans or specified in the Special Provisions, and in accordance with these Specifications.

Reference is made to Section 7-5, "Permits and Licenses." The Contractor shall obtain all the required permits, including those from the State Division of Occupational Safety and Health and pay all associated costs. A copy of the Union Pacific Consent Letter or agreement as well as necessary agreements from SamTrans, from the owner of the facility under which the pipe is being jacked or bored will be provided to the Contractor, who shall abide with all the requirements therein. If the Work or any portion thereof, is to occur in public rights of way, the Contractor shall also obtain the required encroachment permit from the jurisdictional agency and comply with the requirements thereof.

The Contractor shall comply with Section 7-14, "Trench Safety" and protection from potential toxic or explosive gas or hazardous waste, and protection of archeological, cultural, paleontological resources.

Steel casing shall be of the size and class shown on the Plans or specified in the Special Provisions, except that the class of pipe designated has been determined for vertical loads only. Additional facilities, reinforcement, or strength of pipe required to withstand jacking pressure shall be determined and furnished by the Contractor at its expense. Should the jacking permit or agreement from the owner of the facility under which the pipe is being jacked require a different class or type of pipe, the more restrictive requirements of either these Specifications or the permit or agreement shall apply.

Prior to submitting a bid proposal, the Contractor shall conduct tests as necessary to satisfy himself/herself as to the soil conditions to be encountered throughout the project, and the effects thereof on the excavation requirements of jacking and receiving pits and on jacking and boring operations. No additional payment will be made due to soil conditions differing from that anticipated by the Contractor.

The Contractor shall also comply with all American Railway Engineering and Maintenance-of-Way Association (AREMA) guidelines and specifications, including but not limited to those in Chapter 1, Part 5, Pipelines. If a conflict between Caltrans Standard

Specifications, these special provisions and other requirements (such as those from AREMA), the contractor shall notify the Engineer in writing and await for further instructions.

The Contractor shall perform a third-party utility investigation for the jack and bore areas, to ensure the jacking pits or the proposed route for the casings under railroad tracks do not impact any existing utilities. Contractor may have to contact UPRR and SamTrans to get details on the location of any railroad fibers within the vicinity of the tracks and on SamTrans property.

Once the undergrounding of utilities is complete, if required to remove any overhead poles or wires, the Contractor shall provide a watchman/flagger during the removal of overhead poles or wires.

113-7 PIPE MATERIALS

113-7.1 Steel Casing

Steel casing shall conform to the requirements of ASTM Designation A139 (straight seam pipe only) Grade "B" with a minimum yield strength of 35,000 psi. The casing pipes shall have the minimum nominal diameter and wall thickness as shown in Table 1-5-1 of AREMA Standard, Chapter 1, Part 5- Pipelines (and reproduced below). Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications. Field welds shall be airtight and continuous over the entire single-bevel groove type joints. Welds shall not increase the outside pipe diameter by more than ¾-inch.

Nominal Diameter (inches)	When coated or catholically protected Nominal Thickness (inches)	When not coated or catholically protected Nominal Thickness (inches)
12¾ and under	0.188	0.188
14	0.188	0.250
16	0.219	0.281
18	0.250	0.312
20 and 22	0.281	0.344
24	0.312	0.375

Nominal Diameter (inches)	When coated or catholically protected Nominal Thickness (inches)	When not coated or catholically protected Nominal Thickness (inches)
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 and 36	0.469	0.531
38	0.500	0.562
40	0.531	0.594

Unless otherwise shown on the Plans or specified in the Special Provisions, or unless otherwise required by a permit issued by a jurisdictional agency, Steel Casing to be installed in the Work shall conform to all applicable ASTM Designations, as amended or revised. Upon request, the Contractor shall furnish to the Engineer a Certificate of Compliance from the manufacturer of the pipe in accordance with the provisions in Section 6-1, "Certificates of Compliance." Pipe shall be constructed such that no bells protrude from the outside periphery of the pipe.

Sleeves for joints shall be manufactured of galvanized steel, stainless steel, or fiberglass, sufficient in strength to withstand all loads, and which will maintain a water-tight joint.

Conductor pipe, if used, shall be butt welded commercial grade steel sheets conforming to ASTM Designation: A-1011, or steel plates conforming to ASTM Designation: A-283. Conductor pipe shall be of sufficient thickness and strength to withstand vertical loads as well as pressure from jacking machinery.

Conductor pipe spacers for supporting the carrier pipe, and pipe banding, shall be stainless steel and specifically designed and fabricated for the specific project and application for which they are furnished.

113-8 EXCAVATION OF JACKING AND RECEIVING PITS

Excavation of jacking and receiving pits, the Contractor shall conform to the requirements of Section 19, "Earthwork." The Contractor shall also comply with the provisions of the Construction Safety Orders and the Tunnel Safety Orders of the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), and to any other applicable safety codes. The classification documents issued by the State will be included in the appendix of the Contract Special Provisions. An excavation Permit will be required from Cal/OSHA. Although not expected, for excavations greater than 20 feet in depth, in accordance with Article 6, Subchapter 4, Chapter 4 (Construction Safety Orders), Division 1, Title 8, of the California Code of Regulations, detailed excavation plans shall be prepared and signed by a Registered Civil or Structural Engineer showing all sloping, shoring, bracing, or other protective measures to be provided for worker protection. Such plans shall be submitted to the Engineer for review and approval prior to beginning any excavation.

The Contractor and any subcontractor involved with the jacking operations shall make themselves fully aware of the foregoing requirements and shall be prepared to attend a pre-job safety meeting with a Cal/OSHA representative. The contractor shall present its safety program at this meeting.

113-9 JACKING AND BORING

Steel Casing shall be jacked in conformity with the prescribed lines and grades obtained from stakes set by the Engineer. Excavation for the pipe shall be accomplished by boring or by hand digging. Jetting with water will not be permitted.

The excavated hole, whether bored or hand dug, shall not be more than 0.1 foot greater than the outside limits of the pipe, or where the Contractor elects to use a conductor pipe, no more than 0.1 foot greater than the outside limits of the conductor.

If the nature of the material is such that caving will likely continue to occur and which will result in a greater space as above specified, a metal shield or jacking head shall be installed

which extends a minimum of 18 inches ahead of the jacked pipe or conductor. The metal shield shall cover a minimum of the upper one-half of the periphery of the jacked pipe or conductor. Excavation shall not proceed beyond the shield.

Where ground conditions at the face of the jacking pit are such that sloughing or caving is likely to occur at the face of the excavation upon commencement of jacking operations, the face of the pit shall be made stable so that an excessive void is not carried with the face of the excavation for the length of the pipe. Prevention may include installing solid sheathing at the jacking portal.

Cavities or voids outside the limits specified above, regardless of cause, shall be filled with sand, soil, cement, or cement mortar, under pressure, as directed by the Engineer. The method by which pressure grouting is to be performed shall be approved by the Engineer. As a minimum, the pipe being jacked shall be furnished with pre-installed fittings suitable for attachment to grout pumping equipment. Grout connections shall be placed along the top of the pipe at intervals no greater than 5 feet.

The Contractor shall monitor the horizontal and vertical grades of the pipe during operations and make corrections as necessary. At the completion of operations, the jacked pipe shall not exceed the alignment and grade shown on the Plans by the following amounts:

- Horizontal Alignment: ±1 percent of the distance from the jacking point.
- Vertical Grade: 0.00 foot in the up direction; 0.50 foot in the down direction.

The Contractor shall pay to the District for liquidated damages the sum specified in the Special Provisions for each and every 0.1 foot of variation in excess of the maximum tolerances allowed. This sum shall not be considered a penalty by either party, but compensation to the District for future undeterminable operations or maintenance costs due to the misalignment.

The Contractor shall monitor soil and groundwater conditions encountered during excavation and boring operations, and provide any necessary seepage control to prevent damage

to the Work or risks to the safety of workers or others who must enter the excavation or boring operations area.

113-10 HYDROSTATIC TEST

Where shown on the Plans or specified in the Special Provisions, or where directed by the Engineer, the Contractor shall conduct a Hydrostatic Test at each location shown, specified, or directed, in accordance with Caltrans Standard Specifications, except that the test shall be performed after completion of final backfill but before final surface restoration of the jacking and receiving pits.

Should leakage from the jacked pipe exceed the allowable limit of leakage computed per AWWA C600, the Contractor shall undertake measures to seal the pipes, or take such other actions as are necessary, to eliminate the leakage or reduce it to an amount less than the allowable limit, all of which must be approved by the Engineer.

The Contractor shall comply with the requirements of Section 7-5, "Permits and Licenses." All costs for water and any required permits shall be included in the cost of providing the tests, and no additional payment will be made therefore. Where a Hydrostatic Test is required on the Plans or specified in the Special Provisions, the cost thereof shall be paid for as provided in the Special Provisions. If the Hydrostatic Test is required by the Plans or the Special Provisions and no method of payment is prescribed in either, the cost thereof shall be considered as included in the price bid for Jacking Pipe, and no additional payment will be made therefore.

Where a Hydrostatic Test is required by the Plans, Special Provisions or the Engineer, unless otherwise specified in the Special Provisions or specifically approved by the Engineer in writing, no partial or other payment will be made for Jacking Pipe until the Hydrostatic Test has been successfully completed and accepted by the Engineer.

113-11 FRAC-OUT CONTINGENCY PLAN

When specified in the Special Provisions, a Frac-Out Contingency Plan shall be prepared in accordance with the following provisions and submitted to the Engineer. For jack-and-bore

tunneling activities that use drilling lubricants, the Contractor shall prepare and implement a contingency plan that is intended to minimize the potential for a release of drilling lubricant (frac-out) associated with tunneling activities; provide for the timely detection of frac-outs; and, ensure an organized, timely, and "minimum-impact" response in the event of a frac-out and release of drilling lubricant. The contingency plan shall include, at a minimum, the following measures:

A. A full-time monitor shall attend all drilling to look for observable frac-out conditions or lowered pressure readings on drilling equipment.

B. If a frac-out is identified, all work shall stop, including the recycling of drilling lubricant. In the event of a frac-out into water, the pressure of water above the tunnel may keep excess mud from escaping through the fracture. The location and extent of the frac-out shall be determined, and the frac-out shall be monitored for 4 hours to determine whether the drilling lubricant congeals (bentonite will usually harden, effectively sealing the frac-out location).

C. If the drilling lubricant congeals, no other actions shall be taken that would potentially suspend sediments in the water column.

D. Surface releases of bentonite shall be allowed to harden and then shall be removed. The contingency plan shall identify additional measures to be taken to contain or remove the drilling lubricant if it does not congeal. When a Frac-Out Contingency Plan is required by the Special Provisions, the cost thereof shall be included in the price per lineal foot bid for Jacking Pipe, and no additional payment will be made therefore.

113-12 BACKFILL AND COMPACTION OF JACKING AND RECEIVING PITS, RESTORATION OF SURFACES

Jacking and receiving pits shall be backfilled in accordance with Section 105-2, "Trench Safety, Trenching and Trench Backfill" as applicable to the type of pipe to be joined to the

jacked pipe. Compaction and the surface restored in accordance with Section 39-3, "Pavement Repair."

113-13 MEASUREMENT AND PAYMENT

The length of Jacking Pipe to be paid for will be the horizontal length as shown on the Plans, unless modified by the Engineer due to unforeseen field conditions. The price paid per linear foot for the items "Jack and Bore Crossing #1 (Middlefield Road)," "Jack and Bore Crossing #2 (Redwood Junction)," and "Jack and Bore Crossing #3 (Sanitary Sewer)," shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in furnishing and installing the Jacking Pipe in place, including but not limited to, excavating, constructing and backfilling jacking and receiving pits, boring and tunneling, constructing metal shields (jacking heads), and grouting of voids or cavities, furnishing and installing conductor pipe, spacers and pipe bands if used, conducting hydrostatic tests, where such tests are to be included in the price of the pipe, and obtaining all necessary permits from the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA). Pipe placed within the jacking and receiving pits to connect the Jacked Pipe to the incoming and outgoing pipe shall be measured and paid for at the bid price for the type of pipe to be connected to.

END OF SECTION

SECTION 114
LANDSCAPE

114-1 IRRIGATION SYSTEM

114-1.1 General

114-1.1.1 Description

A. The work in this section consists of furnishing, layout and installing an irrigation system complete, including certification of irrigation system installation as required by the State of California Model Water Ordinance described herein.

B. Related work specified elsewhere includes:

1. Section 19, Earthwork
2. Section 114-2, Planting
3. Section 115, Bioretention

114-1.1.2 California Model Water Efficient Landscape Ordinance Requirements

A. Contractor shall be familiar with and follow the State of California Model Water Ordinance, California Code of Regulations, Title 23 Waters, Division 2, Department of Water Resources, Chapter 2.7. Also, the Contractor is responsible to follow all local water ordinances.

B. Pursuant to the requirements of the California Model Water Efficient Landscape Ordinance, the Contractor shall submit a Certification of Installation to the Local Jurisdiction/water purveyor as described in the construction documents and these specifications. Certification shall at a minimum include the following documents:

1. Part 1. Project Information Sheet
2. Part 2. Certification of Installation according to the landscape documentation package.
3. Part 3. Irrigation Scheduling and Controller Programming
4. Part 4. Schedule of Landscape and Irrigation
5. Part 5. Landscape Irrigation Audit Report

6. Part 6. Soil Management/Analysis Report with verifying implementation, see Planting Specification for analysis requirements.

114-1.1.3 Quality Assurance

A. Manufacturer's Specifications: Follow manufacturer's current printed specifications and drawings in all cases where the manufacturers of articles used in the Contract furnish directions covering points not specified or shown in the drawings.

B. Product Criteria: When two or more units of the same type or class of materials or equipment are required, these units shall be products of one manufacturer.

C. Plant Criteria: Plant material must meet or exceed applicable reference standards.

D. Ordinances and Regulations: All local, municipal and state laws, codes and regulations governing or relating to all portions of this work are hereby incorporated into and made a part of these Specifications. Anything contained in these Specifications shall not be construed to conflict with any of the above codes, regulations or requirements of the same. However, when these Specifications and Drawings call for or describe materials, workmanship or construction of a better quality, higher standard, or larger size than is required by the above codes and regulations, the provisions of these Specifications and Drawings shall take precedence. Furnish without extra charge additional materials and labor required to comply with above rules and regulations.

E. References, Codes and Standards

1. State of California Model Water Efficient Landscape Ordinance
2. California Environmental Quality Act (CEQA)
3. Water Use Classification of Landscape Species (WUCOLS).
4. American Society of Irrigation Consultants (ASIC) Design Guidelines.

5. California Landscape Standards, California Landscape Contractors Association, (CLCA) Sacramento, California.

6. CAL-OSHA, Title 8, Subchapter 4-Construction Safety Orders and Subchapter 7 – General Industry Safety Orders.

7. California Electric Code.

8. California Plumbing Code (UPC) published by the Association of Western Plumbing Officials.

9. NFPA 24, Section 10.4, Depth of Cover.

10. Underwriters Laboratories (UL): Electrical wiring, controls, motors and devices, UL listed and so labeled.

11. American Society of Testing Materials (ASTM).

F. Furnish without extra charge any additional material and labor when required by the compliance with all above mentioned codes and regulations, though the work be not mentioned in these specifications or shown on the drawings.

G. Reclaimed Water: Contractor to coordinate with owner and water purveyor to determine if reclaimed water is available or planned for prior to the commencement of installing the irrigation system to coordinate inspection of the work and to verify all codes and regulations regarding use of reclaimed water. If reclaimed water is to be utilized, contractor to provide all pipe, equipment, signage and other warnings for reclaimed as required by local agency regulations.

H. Experience: Landscape work shall be by a fulltime state licensed Landscape Contractor with a minimum of 10 years of professional experience, which has successfully completed work in similar quality and extent to that indicated for this project. The Landscape Contractor shall be an employee to the job as supervisor for the duration of

the Contract with a certified landscape technician and irrigation certification through CLCA or minimum of 4 years' experience in landscape irrigation installation.

I. Labor Force: Provide a landscape installation and maintenance force thoroughly familiar with, and trained in, the work to be accomplished to perform the task in a competent, efficient manner acceptable to the Owner's Representative.

J. Explanation of Drawings

1. Due to the scale of the Drawings, it is not possible to indicate all piping offsets, fittings, sleeves, etc., which may be required. Carefully investigate the conditions affected all of the work and plan accordingly and furnish all required fittings. Install system in such a manner to avoid conflicts with planting, utilities and architectural features.

2. Do not install the irrigation system as shown on the Drawings when it is obvious in the field that obstructions, grade differences or discrepancies in arc dimensions exist that might not have been considered in engineering. Bring such obstruction or differences to the attention of the Owner's Representative. Notify and coordinate irrigation Work with applicable contractors for location and installation of piping and sleeves through or under walls, pavement and structures. In the event this notification is not given, the Contractor shall assume full responsibility for any revision necessary.

K. Testing: An independent laboratory shall have the experience and capability to conduct the testing indicated and specializes in types of test to be performed.

L. Trench Interference with Tree Root Systems

1. Prior to trenching, layout main and lateral line locations within Drip Line of trees and review locations with Owner's Representative. Relocate any lines that may interfere with existing root systems to avoid or reduce damage to root systems as accepted by Owner's Representative.

2. Mechanical Trenching is not allowed within dripline of existing trees to be protected except as approved by Owner's Representative.

M. Coordinate plant locations with emitter locations.

1. Adjust plant locations in relation to the subsurface emitters as required to ensure that the plant roots receive the proper amount of water in order for it to thrive.

2. Coordinate planting and irrigation and provide hand watering of emitter irrigated and drip irrigated areas as required to maintain moist root zones until end of plant establishment period.

114-1.1.4 Protection of Existing Structures and Utilities

A. The Drawings show, if applicable, existing above and below grade structures and utilities that are known to the Owner. Locate known existing installations before proceeding with construction operations that may cause damage to such installations. Existing installations shall be kept in service where possible and damage to them shall be repaired with no adjustment of Contract Sum. Verify with Owner if As Built drawings are available.

B. If other structures or utilities are encountered, request Owner's Representative to provide direction on how to proceed with the Work. If a structure or utility is damaged, take appropriate action to ensure the safety of persons and property.

C. While excavating/demolishing for installation of trees, any storm drain pipe joint exposed shall be wrapped with a 40-mil HDPE sheeting, placed on the storm drain joint 2 feet longitudinally on either side of the joint down to the spring line of the pipe.

114-1.1.5 Submittals

A. Materials List

1. Submit required copies of the cut sheets and a complete list of materials proposed for installation, along with any proposed substitutions clearly identified and

obtain the Owner Representative's written approval thereof before proceeding. Use only accepted materials and items of equipment.

2. List all materials by manufacturer's name and model number.

3. Submit to Local Water Purveyor with copy to the Owner Certification of Installation as required by the State of California Model Water Ordinance.

B. Substitutions

1. If the Contractor desires to substitute a product, he shall list each item and note it as a "substitution" and provide the following information:

   a. Descriptive information describing its similarities to the specified product.

2. If the product is approved and, in the opinion of the Owner's Representative, the substituted product does not perform as well as the specified product, the Contractor shall replace it with the specified product at no additional cost to the Owner.

C. Operations and Maintenance Manuals

1. Prior to the final acceptance of the irrigation system, furnish three individually bound Operation and Maintenance Manuals to the Owner's Representative for use by the Owner. The manuals shall contain complete enlarged drawings, diagrams and spare parts lists of all equipment installed showing manufacturer's name and address. In addition, each Service Manual shall contain the following:

   a. Index sheet indicating the Contractor's name, address and phone number.

   b. Copy of the Landscape Irrigation Audit

   c. Copy of the 12-month irrigation schedule and estimate of annual water consumption

d. Copies of equipment warranties and certificates.

e. List of equipment with names, addresses and telephone numbers of all local manufacturer representatives.

f. Complete operating and maintenance instructions in sufficient detail to permit operating personnel to understand, operate and maintain all equipment.

g. Parts list of all equipment such as controllers, valves, solenoids and heads.

D. Record Drawings

1. Dimension the location of the following items from two permanent points of reference such as building corners, sidewalks, road intersections, etc.:

a. Connection to existing water lines/meter.

b. Connection to electrical power.

c. Gate valves.

d. Routing of sprinkler pressure lines (a dimension at least every 100 feet and as required to identify all changes in direction and location).

e. Remote control valves.

f. Routing of control valves.

g. Quick coupling valves.

h. All sleeve locations.

i. Routing of all control wiring.

j. Include all invert elevations below 12 inches.

2. Deliver a reproducible record drawing to the Owner's Representative within 7 working days before the date of final review. Delivery of the record drawings shall not relieve the Contractor of the responsibility of furnishing required information in the future.

E. Controller Plan

1. Provide one Irrigation Diagram plan in each controller housing. The plan shall show the area controlled by each valve in different colors and for orientation, any major permanent structure such as buildings and roads.

2. Charts to be waterproof and hermetically sealed between two pieces of transparent 10-mil-thick plastic and installed in each controller on the door as accepted by the Owner's Representative no later than the time of the coverage test of the irrigation system.

F. Maintenance Material – supply the following tools to the Owner:

1. Three sets of specialized tools required for removing, disassembling and adjusting each type of sprinkler, valve or other equipment supplied on this project.

2. Two keys for each type of equipment enclosure.

3. Two keys for each type of automatic controller.

4. Two keys for each type of valve (including square type key for valves larger than 2 inches)

5. Two quick-coupler keys and matching hose swivels for each type of quick-coupling valve installed.

6. All lock keys shall be keyed alike.

114-1.1.6 Product Delivery, Storage, and Handling

A. Furnish and deliver materials in manufacturer's packaging, bearing original legible labeling.

B. The Contractor is cautioned to exercise care in handling, loading, unloading, and storing PVC pipe and fittings. All PVC pipe shall be transported in a vehicle which allows the length of the pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented, cracked, or otherwise damaged shall be discarded and, if installed, shall be replaced with new piping.

114-1.1.7 Sequencing and Scheduling

A. Acceptance: Do not install main line trenching prior to acceptance by Owner's Representative of rough grades completed under another Section.

B. Coordination: Coordinate with the work of other sections to insure the following sequence of events:

1. Sleeves and Conduits: Installation of all sleeves and conduits to be located under paving and through walls prior to placement of those materials.

2. Bubbler Heads: Install after placement of tree, but prior to backfill with planter soil mix.

3. On-Structure Equipment: Install piping and risers after waterproofing is accepted.

4. Sprinkler Head in Pots: Install riser and seal the penetration of the pot prior to backfill of pot with drainage materials and planter soil mix.

5. Coordinate work schedule with Owner to avoid disruption of landscape maintenance of existing landscaping.

6. Install piping prior to soil preparation (planting soil amendment installation).

114-1.1.8 Warranty

A. In addition to manufacturer's guarantees and warranties, work shall be warranted for 1 year from date of final acceptance against defects in material, equipment and workmanship. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the Owner.

B. Include a copy of the warranty form in the Operation and Maintenance Manual.

114-1.1.9 Operation

A. Routine: Inspect and adjust all stream heads and control valves including adjusting head heights to accommodate plant growth and weather conditions.

B. Controller: Inspect regularly for power interruption and reset clock as required. Adjust station timing to accommodate changes in plant growth and weather conditions.

C. System Failure: Perform all repairs within one operating period. Replacements to match removed products and materials in all respects. Report promptly all damage not resulting from Contractor's operations. Repair all damage caused by Contractor at no expense to Owner.

D. Climate Change: Set and program automatic controllers in response to seasonal requirements and requirements of newly planted materials.

114-1.2 Products

114-1.2.1 Pipe

A. Pressure Main Line Pipe and Fittings: All PVC fittings shall bear the manufacturer's trademark name, material designation, size, applicable I.P.S. schedule and NSF seal of approval.

B. All main line pipe shall be solvent welded and shall be Schedule 40 unless shown otherwise on the Drawings.

1. PVC Pressure Rated Pipe: ASTM D2241 NSF approved Type I, Grade I, solvent welded PVC with an appropriate standard dimension ratio (S.D.R.).

2. PVC Scheduled Pipe: ASTM D1785 NSF approved, Type I,

3. Grade I, solvent welded PVC.

4. PVC Solvent-weld Fittings: ASTM D2466 Schedule 40, 1-2, II-I NSF approved.

5. Solvent Cement and Primer for PVC solvent-weld pipe and fittings: Type and installation methods prescribed by the manufacturer.

6. Connections between Main Lines and RCVs: Schedule 80 PVC (threaded both ends) nipples and fittings unless required otherwise by local jurisdiction.

7. Valves 2-inch and larger shall be flanged only.

8. Copper pipe shall be Type K or Red Brass where threaded joints are required and Type L otherwise.

C. All lateral line pipe shall be solvent welded and shall be Schedule 40 unless shown otherwise on the Drawings.

114-1.2.2 Conduits and Sleeves

A. Sleeving shall be Schedule 40 PVC pipe sleeves and a minimum of two times the aggregate diameter of all pipes contained within the sleeve. Provide vertical sweep for all electrical conduit on each side of hardscape and terminate ends at a 12-inch minimum depth and 12 inches from hardscape surface.

114-1.2.3 Backflow Prevention Device

A. As required by Code and as shown on Drawings. Verify with Owner if Anti-freeze Jacket is required and provide as required.

B. Riser assemblies from main line burial depth to backflow preventers shall be Schedule 40 brass pipe.

C. All metallic pipe and fittings installed below grade shall be painted with two coats of Koppers #50 Bitumastic, or approved equal. Pipes may be wrapped with an approved asphaltic tape in lieu of the liquid-applied coating.

114-1.2.4 Backflow Prevention Device Enclosure

A. "Smooth Touch" stainless steel enclosure without sharp edges, by Strong Box, available from V.I.T., Escondido, CA (800) 729-1314 or equal. Coordinate size of enclosure with plumbing for minimum clearance and size. Enclosure to include concrete footing with hasp and staple to receive padlock. Padlock N.I.C.

114-1.2.5 Controller

A. Pedestal-mounted irrigation controller, as shown on drawings, and with the following minimum requirements.

B. Shall be weather-based and be compatible with rain shut off sensor.

C. Shall be user-friendly. The controller must have a minimum 20-character readout display describing actions or options, or a full visible panel of buttons, dials, or switches that control all different functions separately.

D. Shall have the ability to start a programmed sequence of valves a minimum of five times a day per program.

E. Shall have ability to easily and quickly change watering schedules due to change in weather.

F. Provide portable hand-held remote device compatible with controller and capable of operating all control valves.

G. Provide rain shut off device as manufactured by Control System manufacturer capable of shutting off all control valves. Locate in a location exposed to rain and hardwire to controller.

114-1.2.6 Controller Ground

A. Provide each pedestal controller with its own ground rod. Separate the ground rods by a minimum of 8 feet. The ground rod shall be an eight-foot long by ⅝-inch-diameter U.L. approved copper clad rod or as recommended by controller manufacturer. Install no more than 6 inches of the ground rod above finish grade. Connect #8-gauge wire with a U.L. approved ground rod clamp to rod and back to ground screw at base of controller with appropriate connector. Make this wire as short as possible, avoiding any kinks or bending. Install within pedestal housing base unless otherwise noted.

B. Provide each irrigation controller with its own independent low voltage common ground wire.

114-1.2.7 Controller Enclosures

A. Type: Use one of the following (unless noted otherwise on the Drawings). Verify correct equipment to fit the specified equipment:

1. Stainless steel, NEMA Type 3 rated, with back panel, padlocking hasp and padlock Rain Bird, Le Meur, "Strong Box" or approved equal. See Detail for pedestal construction.

114-1.2.8 Master Control Valve

A. Master control valve shall be a 24 VAC, industrial type, solenoid control valve, Griswold 2000 series or equal. Valve shall be equipped with spring loaded packless diaphragm, cast iron body and bronze trim. The valve shall be of the normally open type and shall be equipped with four-prong (cross) flow control. Valve shall be slow closing without chatter settings or adjustment. Valve shall have a mechanical self-purging internal control system with tapered, serrated, scrubbing rod through diaphragm for positive, variable port opening and cleaning. No solenoid port screens. Valve solenoid shall be corrosion-proof, molded in epoxy to form one integral unit with no connection shunts and shall be 24 VAC, 3-watt maximum.

114-1.2.9 Flow Sensors

A. Compatible with controller and as recommended by controller manufacturer.

114-1.2.10 Isolation Valve

A. Valves 3 inches and smaller: 125-pound WSP bronze gate valve with screw-in bonnet, non-rising stem and solid wedge disc, NIBCO T-113 K, or approved equal. Valves shall be line size.

B. Valves larger than 2 inches: shall have square nut stem and O-ring connections for key operation.

114-1.2.11 Quick Coupler Valves

A. Quick coupler valves shall be as listed on the Drawings with 10-inch-diameter black box and black lid similar to isolation valve box described below.

114-1.2.12 Box for Isolation and QValve and Quick Coupler Valves

A. 10-inch-diameter black plastic, Ametek, Brooks, Christy, Rain Bird with bolt down black lid marked "irrigation," or accepted equal. Avoid locating valve in paved areas. Provide H/20 Loading concrete box with bolt-down concrete lid if valve is located in paved area. Obtain location approval by Owner's Representative.

114-1.2.13 Remote Control Valve

A. As shown on Drawings and with the following minimum requirements:

1. Remote control valves shall be those normally manufactured for irrigation systems and shall have a slow, consistent speed of closure through entire closing operation, including last portion. To ensure this, the effective diaphragm working area/valve seating opening ratio must be a minimum 3 to 1.

2. Shall be mechanically self-cleaning to help prevent diaphragm or solenoid port plugging. To ensure this, the flush rod should be tapered to vary the size of the port opening as the diaphragm raises and lowers, thus allowing trapped material

to escape. Rod is to be finished with a serrated surface to help scrub trapped material out. Screens not acceptable.

3. Shall have removable valve seat so valve can be repaired without removal from irrigation line.

4. Shall have ability to operate manually without the use of wrenches or special keys.

5. Shall have one-piece solenoid that attaches directly to valve without shunts or clips that can be lost.

6. Shall have cross top handle to adjust maximum travel of diaphragm to allow "tuning" of valve and closure.

114-1.2.14 Box for Remote Control Valve

A. Rectangular black plastic valve box – Ametek, Carson, Christy, Rain Bird or accepted equal with non-hinged bolt down black colored lid marked "irrigation." Box body shall have knock outs. Do not saw cut body. The minimum size box is as shown on Drawings. Increase box size as required to fit. Valve box lids are to indicate the controller letter and station number of the valve as accepted by Owner's Representative. Also refer herein to required polyurethane tag at valve solenoid control wire under Control Wires. Locate the identification in center of the lid. Provide separate box for each valve. Provide H/20 Loading concrete boxes with bolt-down concrete lids for all valves that occur in paved areas.

114-1.2.15 Control Wires

A. Connections between automatic controllers and the solenoid-operated electric control valves shall be made with direct burial copper wire 14-AWG-UF 600 volt (minimum size). Pilot wires shall be a color other than white and shall be a different color for each automatic controller with wires sharing a common trench. Common wires shall be white

in color, with a different color stripe for each controller with wiring sharing the same common trench. No stripe is required if multiple controller wiring is not present.

B. Size of wire shall conform to the remote-control valve manufacturer's specification for control wire sizes, but in no case shall the control wire be smaller than #14. Runs over 2,000 lineal feet shall be #12-AWG-UF 600-volt copper wire.

C. All wire splices are to be made within a valve box, with a copper crimp-type connector, and a "3-M" #DBY splice kit or Rain Bird "DBTWC25."

D. Use continuous control wiring between controllers and remote-control valves (no splices).

E. Provide polyurethane tag at valve solenoid control wire that shows the controller number and station number. Also refer to valve box lid identification.

F. Provide a spare control wire in each RCV box for future.

114-1.2.16 Swing Joints

A. Sprinklers and Bubblers: Use Dura, Lasco, Rain Bird or equal pre-assembled swing joints with O-rings.

114-1.2.17 Quick Coupling Valve

A. Dura 1-inch 1-A2-1-11-18 pre-assembled swing joint with O-rings and Dura quick lock to receive stabilizing rod.

114-1.2.18 Shrub and Tree Bubblers

A. As shown on drawings

114-1.2.19 Drip Emitter Irrigation

A. Drip Manifold

1. Pressure Regulator: Preset at 30 psi outlet pressure, ¾-inch female threaded inlet and outlet, by RainBird, Torro or approved equal.

2. Emitters: Xeri-Bug (XB Series) by RainBird, Toro EZ Drip Series or approved equal.

3. Flexible PVC: ASTM D2287 algae-resistant flexible PVC as recommended by manufacturer of Drip Emitters.

4. Drip tubing: Conform to A. S. A. E. standards for minimum inside diameter and wall thickness, Minimum 2 percent carbon black, Salco ¾-inch AR Drip PVC flexible drip hose or approved equal.

5. ¾-inch Y-filter, 200 mesh.

6. Toro DL 2000 Air/Vacuum Relief Valves and In-line Spring Check Valves.

7. ¾-inch manual PVC ball valve with extra 3 feet of hose coiled in valve box.

8. Drip system in accordance with "RainBird Xerigation Low-Volume Landscape Irrigation Design Manual" and as shown on the drawings as required for a complete working system.

9. Drip tubing, flush cap and diffuser cap to be non-potable purple color.

114-1.2.20 In-Line Irrigation

A. As specified herein and as shown on the drawings and in accordance with manufacturer's recommendations. Provide all miscellaneous valves, filters fittings etc. required for a complete, operable system including the following:

1. Toro DL 2000 Techline, in-line Treflon impregnated emitter with Netafim Automatic Flush Valves, Toro DL 2000 Air/Vacuum Relief Valves in accordance with "Toro DL-2000 Low-Volume Irrigation Bidding Specifications and Design Details" and as shown on the drawings as required for a complete working system.

2. Pop-up operation indicator

3. Air/vacuum relief valves

4. Flush valves

B. Drip Valve Assembly: Size valve box large enough and deep enough to contain assembly and allow convenient access and easy removal of filter screen. Position filter pointed down, approximately 45 degrees.

C. Pressure regulator: Size regulator in accordance with flow rate. Do not over size. Use factory pre-set regulator at 30 psi.

114-1.2.21 RCV Identification Tags

A. Plastic or brass tags with valve number, approximately 2 inches by 2 inches with number imprinted, as accepted by Owner.

114-1.2.22 Miscellaneous Installation Materials

A. Solvent Cement and Primers for Solvent-weld Joints: Make and type approved by manufacturer(s) of pipe and fittings. Maintain cement proper consistency throughout use.

B. Pipe and Joint Compound: Permatex: Do not use on sprinkler inlet port.

114-1.2.23 Miscellaneous Equipment/Accessories

A. Concrete for equipment pads. Poured-in-place Class A concrete per Section 90 of the Caltrans Standard Specifications.

B. Sleeves and Conduits: See Drawings.

C. Key(s) for Quick-Coupling Valves

1. Type: Same manufacturer as Quick-Coupling Valve.

114-1.2.24 Other Equipment

A. As shown on Drawings and required for a fully functional irrigation system.

114-1.3 Execution

114-1.3.1 Examination

A. Sleeves and Conduits: Verify that all installed sleeving and conduits are undisturbed and are free of defects or errors introduced by the work of other sections.

B. Water Meter/Water Pressure: Test and verify that existing water pressure is the minimum pressure at maximum system g.p.m. to operate the irrigation system as indicated on the drawings.

C. Stub-outs: Verify that all stub-outs to be provided under another contract are correctly sized, located and installed as noted on Drawings.

D. Notification: Submit written notification to Owner's Representative within 10 working days of above inspections describing all acceptable and non-acceptable site conditions.

114-1.3.2 Connections to Services

A. Provide and coordinate connection to water meter.

B. Provide and coordinate connection of irrigation controller to electrical power source.

114-1.3.3 Installation

A. Install irrigation system components in accordance with this section, with the Drawings, with the manufacturer's recommendations, and with established industry standards. The Contractor shall do nothing that may jeopardize any manufacturer warranty.

B. Automatic Controller

1. General: Install with lock box cutoff switch per local code and manufacturer's current printed specifications. Provide each controller with its own independent low voltage common ground wire.

2. Connection to Valves: Connect remote control valves to controller in clockwise sequence to correspond with station setting beginning with Stations 1, 2, 3, etc.

3. Labeling: Affix controller letter (i.e., "A") on inside of controller cabinet door with minimum of 1-inch-high permanent letter.

4. Irrigation Diagram: Affix a non-fading, waterproof copy of irrigation diagram to cabinet door below controller name. Irrigation diagram to be sealed between two plastic sheets, 20-mil. minimum thickness. Use a legible reduced copy of the Record Drawing for the irrigation diagram clearly showing all valves operated by the controller, station, number, valve size, and type of planting irrigated. Color code area operated by each valve.

C. Control Wiring

1. General: Install control wires in common trenches with sprinkler mains and laterals wherever possible. Lay to the bottom side of pipe line. Provide looped slack at valves. Snake wires in trench to allow for contraction of wires. Tie wires in bundles at 10-foot intervals.

2. Extra Length: Provide 30 inches extra control wire at each remote control valve splice to facilitate the removal of the remote control bonnet to finish grade without cutting wires.

3. Spare: Install one unconnected spare control wire running from the controller through each intermediate control valve box.

4. Size: Minimum size of wire is to be determined strictly by the manufacturer's current printed specifications for remote control valves, but not smaller than #14.

5. Detection Wire: Install a bare #12 copper wire or greater on top of the PVC supply line for the purpose of possible future mine detection search. Install the control wires on the bottom of the PVC supply line with electrical tape every 10 feet.

6. Splicing: Crimp control wire splices at remote control valves. Seal with specified splicing materials. In-line splices will be allowed only on runs exceeding 2,500 feet and only in junction boxes.

D. Rain Shutoff Switch

1. Install switch in area not affected by irrigation or rain shadow. Provide wires in rigid conduit as accepted by Owner's Representative.

E. Excavating and Trenching

1. Prior to trenching, layout main and lateral line locations within Drip Line of trees and review locations with Owner's Representative. Relocate any lines that may interfere with existing root systems to avoid or reduce damage to root systems as accepted by Owner's Representative.

2. Dig trenches wide enough to allow a minimum of 3 inches between parallel pipe lines. Provide a minimum cover from finish grade as follows:

F. Conduits and Sleeves

1. Coordination: Provide conduits and sleeves and coordinate installation with other trades.

2. Extent: Install conduits and sleeves where control wires and pipes pass under paving or through walls as shown on Drawings. Extend 12 inches beyond edges of paving and walls and cap ends until ready for use.

G. Pipeline Assembly

1. Install pipe and fittings in accordance with manufacturer's current printed Specifications.

2. Clean all pipes and fittings of dirt, scale and moisture before assembly.

3. Solvent-Welded Joints for PVC Pipes

   a. Solvents: Use solvents and methods specified by pipe manufacturer.

   b. Curing Period: Minimum of 1 hour before applying any external stress on the piping and at least 24 hours before placing the joint under water pressure.

4. Threaded Joints for Plastic Pipes

   a. Use Permatex on all threaded PVC fittings except sprinkler heads and quick coupler valve ACME threads.

   b. Joining: Use strap-type friction wrench only. Do not use metal-jawed wrench. Assemble finger tight plus one or two turns.

5. Laying of Pipe

   a. Bedding On-grade: Remove from trench all rocks or clods. Bed pipe in at least 2 inches of soil excavated from trench. Backfill on all sides of piping to provide a uniform bearing.

   b. Snaking: Snake pipe from side to side of trench bottom to allow for expansion and contraction. Minimum allowance for snaking is 1 additional foot per 100 feet of pipe.

   c. Moisture Restrictions: Do not lay PVC pipe when there is water in the trench. Do not assemble PVC pipe unless the pipe is dry.

H. Closing of Pipe and Flushing of Lines

1. Capping: Cap or plug all openings as soon as lines have been installed to prevent entrance of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.

I. Detection Wire and Warning Tape

1. Install a bare # 12 copper wire or greater on top of the PVC supply line for the purpose of possible future detection search.

J. Control Valves

1. Install in valve boxes where shown on Drawings and group together where practical. Install box flush with finish grade, not necessarily level. If valve occurs in drainage swale, relocate out of drainage swale as approved by Owner's Representative.

2. Where two or more valves are installed adjacent to each other, provide at least 6 inches separation. Align boxes in a row, perpendicular with pavement edge.

3. Permanently mark valve box lid with 2-inch black valve number and controller letter or with numbered metal tag inside box as approved by Owner's Representative.

4. Refer to control wiring for required spare wire in each valve box.

K. RCV Identification Tags

1. Install in remote control valve box as recommended by manufacturer and as accepted by Owner's Representative.

L. Bubblers

1. Coordinate installation with planting contractor to insure timely and proper placement of heads at new planting.

M. In-Line Drip Irrigation

1. Coordinate plant locations with emitter locations.

2. Coordinate emitter spacing with planting types and plant spacing as accepted by Owner's Representative. Install emitters at uniform 12 inches on center maximum and 2 to 4 inches deep, except where emitter spacing and depth is shown otherwise.

3. Provide air/vacuum relief valves at all high points on systems.

4. Provide filter as shown and as recommended by emitter manufacturer.

5. Tape pipe ends during installation and do not allow dirt or debris to enter pipe.

6. Use emitter line with the specified emitter flow rate and emitter spacing. Assemble dripper line to allow water to flow continuously and directly, with no dead ends or dead-end loops between control valve and flush valve.

7. Use fittings at sharp bends and do not allow dripper line to kink.

8. Install emitter line around perimeter of planter not more than 3 inches off edge for ground cover and turf, 18 inches maximum for shrub planting.

9. Adjust alternate rows so emitters are spaced in a triangular pattern.

10. Collect water from multiple dripper lines and convey the water to automatic line flush valve.

11. Install flush valve at end(s) of collector laterals so that entire system will flush and be free of dirt and debris.

12. Flush valves shall be open when water is turned on for the first time and after a break in the main or lateral lines. Extend collector lateral as required and locate flush valve at convenient accessible location.

13. Flush the systems weekly through the first month of the maintenance period.

14. Thoroughly saturate soil prior to planting. Provide additional surface watering as required to keep plant root systems moist during planting establishment period.

N. Drip Emitter Irrigation

1. Install system in accordance with "RainBird Landscape Irrigation Design and Specifications Xerigation Products and Details" or equal and as shown on the Drawings as required for a complete working system.

2. Install Toro DL 2000 Air/Vacuum Relief Valves at high points in system.

3. Install manual PVC ball valve with extra 3 feet of hose coiled in valve box at end(s) of collector laterals so that entire system will flush and be free of dirt and debris.

4. Install a continuous PVC irrigation mainline warning tape 12 inches above the supply line.

114-1.3.4 Miscellaneous Equipment

A. Install miscellaneous equipment with concrete footings, brackets, etc., as required and as recommended by manufacturer.

114-1.3.5 Field Quality Control

A. Testing of Irrigation System

1. Make hydrostatic tests with risers capped when welded PVC joints have cured at least 24 hours. Center load piping with backfill to prevent pipe from moving under pressure. Keep all couplings and fittings exposed.

2. Install two pressure gauges at opposite ends of main line system. Pump system up to a minimum of 125 psi the day preceding the scheduled test and verify that pressure is holding. Inspect system early following day and immediately notify Owner's Representative if the test confirmation must be postponed.

3. Apply continuous static water pressure of 125 psi in accordance with Caltrans Standard Specifications Section 20-5.03H, except after a drop-in pressure (5 psi maximum), then the pressure must stabilize and remain stable for a one (1) hour minimum period before acceptance of the test.

4. Leaks detected during tests shall be repaired and test repeated until system passes tests at no additional cost to Owner.

B. Irrigation Audit Report with Certificate of Completion

1. Per the requirements of the California Model Water Efficient Landscape Ordinance, the Contractor shall perform an irrigation audit and provide a report with certificate of completion to the local agency that may include, but is not limited to inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule. Irrigation audits shall be conducted by a CLIA Certified landscape Irrigation Auditor by the Irrigation Association. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

C. Adjustment of the System

1. When the landscape sprinkler system is completed and before planting, perform a coverage test in the presence of the Owner's Representative to determine if the water coverage for planting areas is adequate.

2. Test controllers individually in the presence of the Owner's Representative and the Landscape Owner's Representative. Demonstrate that all control valves operate electronically. Provide vehicles and radio equipment as necessary to expedite this process.

3. Demonstrate to Owner's Representative that irrigation scheduling programmed into controller is adequate for plant requirements without causing runoff, and that scheduling capacities of controller are utilized.

114-1.3.6 Irrigation Scheduling and Controller Programming

A. Per the requirements of the California Model Water Efficient Landscape Ordinance All irrigation schedules and programs shall be developed, managed and evaluated to utilize the minimum amount of water required to maintain plant health.

B. Irrigation controller Scheduling and Programming Parameters to be conducted by a CLCA Certified Irrigation manager and submitted to the local agency as part of the Certificate of Completion.

C. Parameters used to set the automatic controller shall be developed for each of the following:

1. Plant establishment period
2. Established landscape period
3. Temporary irrigated area (if applicable)

D. Each irrigation schedule shall consider for each station all of the following that apply:

1. Irrigation interval (days between irrigation)
2. Irrigation run times (hours or minutes per irrigation event to avoid runoff
3. Number of cycle starts required for each irrigation event to avoid runoff
4. Amount of applied water scheduled to be applied on a monthly basis
5. Application rate setting
6. Root depth setting

7. Plant type setting

8. Soil type

9. Slope factor setting

10. Shade factor setting

11. Irrigation uniformity or efficiency setting

E. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (CIMIS or soil moisture sensor data).

114-1.3.7 Backfill and Compacting

A. General: After system is operating and required tests and reviews have been made, backfill excavations and trenches with clean soil, free of debris.

B. Backfill for All Trenches: Regardless of the type of pipe covered, compact to minimum 95 percent density under pavements and 85 percent under planted areas.

C. Finishing: Dress off areas to finish grades. Re-dress any areas which subsequently settle.

D. Owner's testing agency will test backfill compaction in areas under paving.

114-1.3.8 Maintenance

A. The entire irrigation system shall be under full automatic operation for a period of 2 days prior to any planting.

B. The Owner's Representative reserves the right to waive or shorten the operation period.

C. Maintain/repair system for full duration of plant maintenance period.

114-1.3.9 Reviews Prior to Acceptance

A. Notify the Owner's Representative in advance for the following reviews, according to the time indicated:

1. Supply line pressure test and control wire installation – 72 hours.

2. Coverage and controller test – 72 hours.

3. Final review – 7 days.

B. No reviews will commence without record drawings, without completing previously noted corrections, or without preparing the system for review.

114-1.3.10 Final Review and Cleanup

A. Operate each system in its entirety for the Owner's Representative at time of final review. Any items deemed not acceptable by the Owner's Representative shall be reworked to the complete satisfaction of the Owner's Representative.

B. Provide evidence to the Owner's Representative that the Owner has received all accessories and equipment as required before final review can occur.

C. Final acceptance and start of warranty period will occur no earlier than the end of the plant maintenance period.

D. For time of final review, Contractor shall arrange a meeting with the Owner's maintenance personnel to demonstrate the operation of the irrigation systems automatically in order to verify acceptance and to familiarize the maintenance personnel with the system and recommended programming.

114-1.4 Payment

The Contract unit price paid per lump sum for this item, "Irrigation System," shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work necessary to install the irrigation system as shown on the Plans, as

specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-2 PLANTING

114-2.1 General

114-2.1.1 Description

A. Provide planting work and planting maintenance complete as shown on the drawings and as specified including staking and layout of the landscaping, including soil sampling as required by the State of California Model Water Ordinance.

B. Related work specified elsewhere includes:

1. Section 19, EARTHWORK
2. Section 14-1, IRRIGATION
3. Section 115, BIORETENTION

114-2.1.2 Quality Assurance

A. Reference Standards

1. All local, municipal and state laws, codes and regulations relating to all portions of this work are to be incorporated as part of these Specifications. These specifications shall not be construed to conflict with any of the above codes, regulations or requirements. The Specifications and Drawings shall take precedence when they call for materials, workmanship or construction of a better quality or higher standard than required by the above-mentioned codes and regulations. Furnish without extra charge additional materials and labor required to comply with above rules and regulations.
2. State of California Model Water Ordinance

3. Public utility agency having jurisdiction over the project work.

4. "Sunset Western Garden Book," Lane Publishing Co., Menlo Park, California; current edition.

5. "American Standards for Nursery Stock," American Association of Nurseryman.

6. International Society of Arboriculture, Guide for Plant Appraisal, latest version.

7. U.S. Composting Council Compost Analysis Program (CAP)

8. U.S. Composting Council (USCC) Seal of Testing Assurance (STA) program.

9. Test Methods for the Evaluation of Composting and Compost (TMECC)

10. Manufacturer's recommendations.

B. Qualifications

1. Experience: Assign a full-time employee to the job as foreman for the duration of the Contract who is certified landscape technician, certification through CLCA or minimum of 4 years of experience in landscape installation and maintenance supervision, with experience or training in turf management, entomology, pest control, soils, fertilizers and plant identification.

2. Labor Force: Provide a landscape installation and maintenance force thoroughly familiar with, and trained in, the work necessary to complete the tasks described herein in a competent, efficient manner acceptable to the Owner.

C. Requirements

1. Site Visit: At beginning of work, visit and walk the site with the Owner's Representative to clarify scope of work and understand existing project/site conditions.

2. Supervision: The foreman shall directly supervise the work force at all times and be present during the entire installation. Notify Owner's Representative of all changes in supervision.

3. Identification: Provide proper identification at all times for landscape maintenance firm's vehicles and a labor force uniformly dressed in a manner satisfactory to Owner's Representative.

4. Protect all existing and new plants from construction activities, deer and rodents: Contractor shall be responsible for protection of all planting per Part 3.

D. Plant Material Standards

1. Quality and Size of Plants: Conform to the State of California Grading Code of Nursery Stock, No. 1 grade. Use only nursery-grown stock which is free from insect pests and diseases.

2. Comply with federal and state laws requiring inspection for plant diseases and infestations. Submit inspection certificates required by law with each shipment of plants and deliver certificates to the Owner. Obtain clearance from the County Agricultural Commissioner as required by law, before planting plants delivered from outside the County in which planted.

E. Soils and Amendment Testing

1. All soils and amendments to be tested for agricultural suitability by one of the following accredited soil testing laboratory (or approved equal). Components of the test shall include all major nutrients, pH, salinity, boron, sodium, micronutrients, copper, zinc, manganese and iron, adsorption rate, organic content and texture. The laboratory report shall include recommendations for adjusting fertilizer and amendment quantities.

Waypoint Analytical California, Inc.
4741 E. Hunter Ave Ste E, Anaheim CA 92807; (714-282-8777)

Wallace Laboratories, LLC
365 Coral Circle, El Segundo, CA 02345, (310-615-0016)

Control Laboratories Inc.
42 Hangar Way, Watsonville CA 95076 (831-724-5422)

2. Upon approval of the laboratory's report by the Owner's Representative, the recommendations in the report shall become a part of the Specifications and the soil preparation procedures, quantities of soil amendment, fertilizer and other additives shall be adjusted to conform with the report at no additional cost to the owner. Note that there is a minimum quantity of organic amendment specified elsewhere in this specification section.

3. Significant issues with soil quality will require soil to be retested in the locations identified on Soil Analysis Plan, prior to proceeding with plant installation, to ensure that the recommendations in the report have been followed and the In-Situ Topsoil is agriculturally suitable as described in Section 25-2.2.

114-2.1.3 Definitions

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms. Subsoil is defined as either existing site soil located below the topsoil prior to construction activities, or select fill used for rough grading during construction. Subsoil cannot be considered for use as planting soil.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; and free of weeds, roots, toxic materials, or other non-soil materials.

D. Planting Soil: Approved existing topsoil or imported planting soil, meeting the requirements herein. Subsoil cannot be considered for use as planting soil.

114-2.1.4 Submittals

A. The following shall be submitted to the Owner's Representative for approval prior to the installation of landscape materials and products.

B. Manufacturer's Technical data sheets for fertilizers, and all other products and materials listed herein.

C. Manufacturer's technical data sheets for amendments. Reports to be dated no more than 3 months prior to soil preparation.

D. 1-pint samples of imported soils, organic amendments/compost, mulches, and stones.

E. Submit planting soil and organic amendment laboratory reports a minimum of 3 weeks prior to beginning soil prep. See below for required soil analysis reports.

F. Required Soil Analysis Reports. Reports to be dated no more than 3 months prior to soil preparation.

1. Soil Analysis Plan: Contractor to submit annotated plan showing confirmed locations of all required soil tests. Each location is to be identified with a unique label.

2. Existing Planting Soil Analysis: After approval of the Soil Analysis Plan, rough grading, and topsoil placement, contractor to obtain three representative samples

of in situ topsoil taken from approved site locations at depth of 4 to 6 inches below finish grade and submit to an accredited soils testing laboratory for "agricultural suitability" analysis, including particle size, infiltration rate, and evaluation of physical and chemical properties of soil and recommendations for adding amendments and fertilizers to the soil.

3. Imported Planting Soil Analysis: Contractor to submit an "agricultural suitability" analysis report from an accredited soil testing laboratory, including particle size, infiltration rate, and evaluation of physical and chemical properties of soil and recommendations for adding amendments and fertilizers to the soil. Soil to conform to requirements in Section 114-2.2.

4. Amended Planting Soil Analysis: Significant issues with soil quality will require soil to be retested in the locations identified on Soil Analysis Plan, prior to proceeding with plant installation, to ensure that the recommendations in the report have been followed and the final Planting Soil is agriculturally suitable as described in Section 114-2.2.

G. The Contractor is responsible to follow all local water ordinances and make available to the local agency the soil analysis report and verification of its implementation as required.

H. Delivery Receipts upon request by Owner, provide delivery receipts for quantities of soil and amendments delivered to the site.

I. Plant sample of each variety of plant. Samples to be delivered to the site 2 weeks prior to plant installation and stored and maintained separately from entire quantity of delivered plants. Contractor to maintain plants throughout maintenance period. Plants to be reviewed in a single site visit.

J. Representative photos of each plant species. Photos to be of plants to be delivered to site and not a stock photograph.

K. Entire plant quantity delivered to the site. Plants to be reviewed prior to installation during a single site visit.

L. Representative photos of each tree species (unless trees previously tagged at nursery by Owner's Representative). Photos to be of trees to be delivered to site and not a stock photograph.

114-2.1.5 Warranty and Replacement

A. Maintenance Period: See Section 114-2.3.13.

B. Warrant all plants to be in a healthy, thriving condition until the end of the maintenance period, and deciduous trees, shrubs and vines beyond that time until active growth is evident.

C. Replace all dead and damaged plants and plants not in a vigorous condition immediately upon discovery and as directed by the Owner's Representative and at no cost to the owner. Install replacement plants before the final acceptance of the maintenance period in the size specified.

D. Warrant all products, prepared soils and plant material installed and maintained by contractor against defects for a period of one year after final acceptance of the maintenance period.

114-2.2 Products

114-2.2.1 Subsoil

A. Submit soil analysis report from an approved soils laboratory for approval by the Owner's Representative.

114-2.2.2 Existing Planting Soil (On-Grade)

A. Existing Planting Soil is defined as on-site topsoil that is either to be removed and stockpiled for reuse or to remain in place during construction. Satisfactory planting soil shall be free of subsoil, clay, lumps, stones, and other objects over 4 inches in diameter,

and without weeds, roots, and other objectionable material. The soil shall be fertile, friable, natural, productive soil containing a normal amount of humus, and shall be capable of sustaining healthy plant life. Soil shall not be infested with nematodes or with other noxious animal life or toxic substances. Soil shall be obtained from well-drained, arable land, and shall be of an even texture. Soil shall not be taken from areas on which are growing any noxious weeds such as Morning Glory, Equisetum, or Bermuda Grass, etc.

B. If herbicide contamination is suspected then a radish/ryegrass growth trial must be performed. Consult with Owner's Representative prior to decision to test or not.

C. Amended Planting Soils are to conform with the following target levels. Elements are expressed as mg/kg dry soil or mg/l for saturation extract

pH value	6.5 to 7.9,	iron	4 to 15 mg/kg
lime	none present	manganese	0.6 to 3.0 mg/kg
salinity (ECe)	0.5 to 3 milli-mho/cm	zinc	1 to 3 mg/kg
chloride	<150 ppm	copper	0.2 to 3.0 mg/kg
nitrate	20 to 30 ppm	boron	0.2 to 0.5 mg/kg
SAR	<3	magnesium	25 to 100 mg/kg
phosphorus	8 to 20 mg/kg	sodium	<200 mg/kg
potassium	60 to 180 mg/kg	sulfur	25 to 100 mg/kg

D. If sufficient on-site surface topsoil is not available, contractor to provide imported planting soil as specified below. Placement of dissimilar soils shall be coordinated with irrigation zones by the contractor to maintain separate valves for dissimilar soils.

E. Submit soil analysis report from an approved soils laboratory for approval by the Owner's Representative.

114-2.2.3 Imported Planting Soil (On-Grade)

A. Imported planting soil shall be screened and shall be free of subsoil, heavy or stiff clay, rocks, gravel, brush, roots, weeds, noxious seeds, sticks, trash, and other deleterious substances.

B. Imported Planting Soils are to conform with the following target levels. Elements are expressed as mg/kg dry soil or mg/l for saturation extract

pH value	6.5 to 7.9,	iron	4 to 15 mg/kg
lime	none present	manganese	0.6 to 3.0 mg/kg
salinity (ECe)	0.5 to 3 milli-mho/cm	zinc	1 to 3 mg/kg
chloride	<150 ppm	copper	0.2 to 3.0 mg/kg
nitrate	20 to 30 ppm	boron	0.2 to 0.5 mg/kg
SAR	<3	magnesium	25 to 100 mg/kg
phosphorus	8 to 20 mg/kg	sodium	<200 mg/kg
potassium	60 to 180 mg/kg	sulfur	25 to 100 mg/kg

C. The silt and clay content of Imported Planting Soil shall not exceed that of the existing soil it is to be placed over. Except where otherwise required, it shall be a "Sandy Loam" as classified in accordance with USDA Standards with a combined total of between 25 percent to 40 percent Clay and Silt.

D. Submit soil analysis report from an approved soils laboratory for approval by the Owner's Representative. Refer to Section 114-2.1 for soil testing requirements.

E. Following approval of the sample, provide a one-half cubic yard sample, which shall be stored at the site of work for comparison with sample and subsequent loads of soil. The comparison sample shall be protected by a cover until the installation of all soil has been completed and accepted.

114-2.2.4 Planting Soil for Stormwater Treatment – Bioretention

A. Planting soil for stormwater treatment shall be used in landscape areas designed for infiltration and the filtration of stormwater runoff before entering the storm drain system as specified below and as shown in drawings.

B. Planting soil mixes for stormwater treatment are available from TMT Enterprises in San Jose, CA, (408-432-9040); American Soil and Stone in Richmond, CA (510-292-3000) and San Rafael, CA (415-456-1381); and Lyngso Garden Materials in Redwood City, CA, (650-364-1730); or approved equal.

C. Planting soil for stormwater treatment shall conform to the following:

1. All material shall be free of trash and debris, expansive clays or any other deleterious materials

2. Material shall be free of seeds.

3. The mineral component shall be classified as USDA sand or loamy sand and shall conform to the following particle size and characteristics.

U.S. Sieve	Size (mm)	Class	% wt. retained
#10	2.0	Gravel	0-10
#35	2.0-0.5	coarse sand	20-35
#270	<0.05	Silt and Clay	6-12
Rock ½ inch – 1 inch = 0-5 percent by volume with none > 1 inch			
Organic = 0-3% by weight			

D. Percolation Rate must fall in the range of 10 inches per hour Initial Rate and 5 inches Sustained Rate as determined by SPL method A06-2, unless otherwise specified by civil engineer.

E. Chemistry Suitability Considerations

1. Salinity: Saturation Extract Conductivity (ECe) Less than 3.0 dS/m at 25°C.

2. Sodium: Sodium Adsorption Ratio (SAR) Less than 6.0

3. Boron: Saturation Extract Concentration Less than 1.0 ppm

4. Reaction: pH of Saturated Paste: 5.5 to 7.8 without high lime content.

5. Top 6 inches should be amended with the approved organic composted yard waste. See Section 114-2.3 for amendment procedures.

F. Submit Soil analysis report(s) for approval by the Owner's Representative and Civil Engineer. Refer to Section 114-2.1 for soil testing requirements.

1. Submit soil analysis report (including infiltration rate) for planting soil mix for stormwater treatment from an approved soils laboratory.

2. Submit subsoil analysis report (including infiltration rate) for subsoils if planting area is designed to allow stormwater to infiltrate into native subsoils.

114-2.2.5 Organic Amendment for Planting Soils (On-Grade)

A. Ground Redwood or Ground Fir Bark with the following properties:

Percent Passing	Sieve Designation	
100	9.51 mm	⅜-inch
50 to 60	6.35 mm	¼ inch
20 to 40	4.76 mm	No. 4
0 to 20	2.38 mm	No. 8 – 8 mesh

1. Redwood Sawdust

   a. Dry bulk density, lbs. per cu. yd., 260 to 280
   b. Nitrogen stabilized – dry weight basis, min. 0.4 percent
   c. Salinity (ECe): 4.0 maximum
   d. Organic Content: 90 percent minimum
   e. Reaction (pH): 4.0 minimum

2. Ground Fir and/or Pine Bark

   a. Dry bulk density, lbs. per cu. yd., minimum 350
   b. Nitrogen stabilized – dry weight basis, min. 0.5 percent
   c. Salinity (ECe): 4.0 maximum
   d. Organic Content: 90 percent minimum
   e. Reaction (pH): 4.0 minimum

B. Submit sample, product's technical data sheet, and analysis report from an approved soils laboratory for approval by the Owner's Representative. The analysis report should include compliance to the specifications above and directions for product use.

C. Contractor may use Composted Yard Waste Amendment in lieu of the above specified Organic Amendment pending approval of product's technical data sheet.

114-2.2.6 Composted Yard Waste Amendment for Planting Soils (On-Grade)

A. The above ORGANIC AMENDMENT FOR PLANTING SOILS (ON-GRADE) is the specified organic amendment material. Acceptance of Composted Yard Waste Amendment in lieu of the above specified amendment material will be considered if the in situ planting soil salinity and soil structure is favorable for the inclusion of recycled yard waste organic matter, as approved by the Owner's Representative.

B. Composted yard waste amendment will not be accepted for use in on-structure raised planters and pots.

C. The composted yard waste amendment shall be a mixture of feedstock materials including green material consisting of chipped, shredded, or ground vegetation and mixed food waste, or clean processed recycled wood products. Single source, biosolids (sewage waste) compost will not be acceptable.

D. The addition of the compost shall result in a final ECe of the amended soil of less than 4.0 dS/m at 25 degrees C as determined in a saturation extract. Use the following table to determine the maximum allowable Ece (dS/m of saturation extract) of compost at desired use rate and allowable Ece increase.

Desired Use Rate		Maximum Allowable ECe Increase from Amendment		
Cu. Yds. Amendment Per 1,000 Sq. Ft. for Incorporation to 6 inches depth	Volume percentage of amendment	1 dS/m	2 dS/m	3 dS/m
		Maximum ECe of Compost		
1	5	14	28	42
2	11	7	14	21
3	16	5	9.5	14
4	22	3.5	7	10.5
5	27	3	5.5	8.5
6	32	2.5	4.5	7

Example: Specification calls for 6 cubic yards. Compost per 1,000 square feet for incorporation to 6 inches depth, and site soil has an ECe of 2.0. In order to avoid exceeding ECe of 4 in final blend, compost ECe shall be less than 4.5 dS/m.

E. Composted Yard Waste Soil Amendment properties to conform to the following:

1. Gradation

% Passing by weight	Sieve Designation	
90	½-inch	
85-100	9.51 mm	⅜-inch
50-80	2.38 mm	No. 8
0-40	500 micron	No. 35

2. Organic Content: Minimum 50 percent based on dry weight and determined by ash method. Minimum 250 pounds organic matter per cubic yard of compost.

3. Carbon to nitrogen ratio: Maximum 35:1 if material is claimed to be nitrogen stabilized.

4. pH: 5.5 to 8.0 as determined in saturated paste.

5. Soluble Salts: See 2. above.

6. Moisture Content: 35 to 60 percent.

7. Contaminants: The compost shall be free of contaminants such as glass, metal and visible plastic. Heavy meals, fecal coliform and Salmonella shall not exceed levels outlined as acceptable in the California integrated waste management regulations

8. Maturity: Physical characteristics suggestive of maturity include:

   a. Color: Dark brown to black.

   b. Acceptable Odor: None, soil-like, or musty.

   c. Unacceptable Odor: Sour, ammonia or putrid.

   d. Particle Characterization: Identifiable wood pieces are acceptable but the balance of the material shall be soil-like without recognizable grass or leaves.

F. Submit sample, product's technical data sheet, and analysis report from an approved soils laboratory for approval by the Owner's Representative. The analysis report should include compliance to the specifications above, directions for product use, and a list of ingredients. It is the Contractor's responsibility to secure test of the proposed composted yard waste amendment (2-quart sample) and submit to a Soils Laboratory for evaluation and recommendations. The composted yard waste amendment sample shall be a grab sample from the currently available material that has been tested within the last 30 days and shall include the composter's Compost Technical Data Sheet that includes lab analytical test results and directions for product use along with list of ingredients. Refer to Part 1 for soil testing requirements.

G. Based on the Soils Laboratory evaluation, the addition of composted yard waste amendment shall not be acceptable if it creates a leaching requirement.

114-2.2.7 Plants

A. Plant the variety, quantity and size indicated on drawings. The total quantities indicated on the drawings are considered approximate and furnished for convenience only. Contractor shall perform plant quantity calculations and provide all plants shown on the drawings.

B. Measure trees and shrubs with branches in normal position. Height and spread dimensions indicated refer to the main body of the plant, and not from branch tip to tip.

C. Take precautions to ensure that the plants will arrive at the site in proper condition for successful growth. Protect plants in transit from windburn and sunburn. Protect and maintain plants on site by proper storage and watering.

D. Install healthy, shapely and well rooted plants with no evidence of having been root-bound, restricted or deformed.

E. Tag plants of the type or name indicated and in accordance with the standard practice recommended by the American Association of Nurserymen.

F. Substitutions will not be permitted, except as follows:

1. If proof is submitted to the Owner's Representative that any plant specified is not obtainable, a proposal will be considered for use of nearest equivalent size or variety with an equitable adjustment of contract price.

2. Substantiate and submit proof of plant availability in writing to the Owner's Representative within 10 days after the effective date of Notice to Proceed.

G. Tree Form

1. Trees shall have a symmetrical form as typical for the species/cultivar and growth form.

2. Central Leader for Single Trunk Trees: Trees shall have a single, relatively straight central leader and tapered trunk, free of co-dominant stems and vigorous, upright branches that compete with the central leader. Preferably, the central leader should not have been headed; however, in cases where the original leader has been removed, an upright branch at least half the diameter of the original leader just below the pruning point shall be present.

3. Potential Main Branches: Branches shall be evenly distributed radially around and appropriately spaced vertically along the trunk, forming a generally symmetrical crown typical for the species.

4. Headed temporary branches should be distributed around and along the trunk as noted above and shall be no greater than ⅜ inch in diameter, and no greater than half the diameter of the trunk at point of attachment.

114-2.2.8 Tree Trunk

A. Trunk diameter and taper shall be sufficient so that the tree will remain vertical without the support of a nursery stake.

B. Trunk shall be free of wounds (except properly-made pruning cuts), sunburned areas, conks (fungal fruiting-bodies), wood cracks, bleeding areas, signs of boring insects, galls, cankers and/or lesions.

C. Tree trunk diameter at 6 inches above the soil surface shall be within the diameter range shown for each container size below, except where shown otherwise:

Container	Trunk Diameter	Soil Level from Container Top
36-inch Box	>2.5"	2.25 to 3 inches
48-inch Box	>2.5"	3 to 4 inches

D. Tree trunks shall be undamaged and uncut with all old abrasions and cuts completely callused over. Do not prune plants prior to delivery.

114-2.2.9 Tree Roots

A. Trunk root collar (root crown) and large roots shall be free of circling and/or kinked roots. Contractor may be required to remove soil near the root collar in order to verify that circling and/or kinked roots are not present.

B. The tree shall be well rooted in the container. When the trunk is lifted the trunk and root system shall move as one and the rootball shall remain intact.

C. The top-most roots or root collar shall be within 1 inch above or below the soil surface. The soil level in the container shall be within the limits shown in above table.

D. The rootball periphery shall be free of large circling and bottom-matted roots.

E. On grafted or budded trees, there shall be no suckers from the root stock.

114-2.2.10 Fertilizers

A. General Landscape Fertilizers: Commercial fertilizer, pelleted or granular form, conform to the requirements of Chapter 7, Article 2, of the Agricultural Code of the State of California for fertilizing materials as follows:

1. Type A: 6 percent Nitrogen, 20 percent Phosphorus Acid and 20 percent Potash, (6-20-20)

2. Type B: 21 gram planting tablets 20 percent Nitrogen, 10 percent Phosphoric Acid and 5 percent Potash (20-10-5) available from Agriform or 10 gm BestPacks packets 20 percent Nitrogen, 10 percent Phosphoric Acid and 5 percent Potash (20-10-5) available from Best Fertilizer Co.

3. Type C (Maintenance Fertilizer): Complete fertilizer 21 percent Nitrogen, 7 percent Phosphoric Acid and 14 percent Potash (21-7-14).

4. If commercial fertilizer having the above analysis is not obtainable, other similar commercial fertilizer may be used providing it meets the approval of the Owner's Representative.

114-2.2.11 Iron Sulfate

A. Dry form.

114-2.2.12 Perforated Drain Pipe

A. Polyvinyl Chloride (PVC) pipe and pipe fittings shall meet extra strength minimum of SDR-35 of the requirements of ASTM Specification D3034.

B. Perforated and non-perforated corrugated polyethylene pipe, 3- to 10-inch-diameter, shall meet the requirements of ASTM D883 and ASTM F412, and shall conform to Section 68 of the Standard Specifications.

C. Inspection Tube Cap: Shall be black or paint cap one coat chocolate-brown color using flat, exterior grade latex paint as accepted by Owner's Representative.

114-2.2.13 Filter Fabric/Permeable Landscape Fabric

A. Polyester or polypropylene non-woven filter fabric with uniform fiber distribution by "Terra Bond" #1115, "Mirafi, Inc." #140N, or approved equal.

114-2.2.14 Permeable Drain Rock

A. Permeable drain rock used in subsurface drain installations to be Class 2 permeable material in conformance with Section 68 "Subsurface Drains" of the Standard Specifications; gradation to ¾-inch maximum size. Submit Sample for approval.

114-2.2.15 Tree Ties

A. Unless otherwise shown on drawings, provide rubber strap, 24-inch minimum length without sharp edges adjacent to trunk, V.I.T. cinch-tie, Dublin, CA, (818)882-9530, or approved equal.

B. Black corded rubber tree ties with clips by greensleeves.com

C. Biodegradable VStrap webbing by Treestrap.

114-2.2.16 Mulch

A. Organic Mulch

1. Fir tree or pine tree bark, dark in color; ¾-inch to 1-inch size.

B. Composted Mulch

1. composted mulch known as Browning-Ferris Industries Newby Island Super Humus Compost as manufactured by Newby Island Composting Facility, Milpitas, CA.

C. Stone Mulch for bioretention areas:

1. Hard, durable smooth, river washed stone, 2-inch to 4-inch-diameter in brown color range, Lin Creek or equal, as available from Broadmoor Landscape Supply, 1350 El Camino Real, South San Francisco, CA (650-761-1515), or Lyngso Garden Materials, 19 Seaport, Redwood City, CA (415-364-1730), or American Soil Products, Richmond, CA (510-292-3000).

2. Submit samples of stone mulch for approval by Owner's Representative until acceptable to Owner, at no extra cost.

114-2.2.17 Cobbles

A. Smooth 4- to 8-inch tan, Lin Creek Rock Cobbles or equal, as available from Broadmoor Landscape Supply, 1350 El Camino Real, South San Francisco, CA (650-761-1515), or Lyngso Garden Materials, 19 Seaport, Redwood City, CA (415-364-1730), or American Soil Products, Richmond, CA (510-292-3000).

B. Cobbles to be installed around Drainage Structures to prevent mulch from migrating into storm drain, and where shown in drawings.

114-2.3 Execution

114-2.3.1 Plant Protection and Replacement

A. Inspect and protect all existing and new plants and trees against damage from construction activities, erosion, trespass, insects, rodents, deer, disease, etc. and provide proper safeguards, including trapping of rodent and applying protective sprays and

fencing to discourage deer browsing. Maintain and keep all temporary barriers erected to prevent trespass.

B. Repair all damaged planted areas. Replace plants and re-seed or re-sod turf immediately upon discovery of damage or loss.

114-2.3.2 Lime Treated Soil

A. If site work includes Lime Treatment of the subsoil, the Contractor shall remove full depth of treated soil beyond 12 inches from structure(s) and replace with approved planting soil.

B. Following removal of lime treated material, scarify subgrade to a minimum depth of 6 inches and test for drainage.

C. Test subgrade in all planting areas for drainage by flooding with minimum 4-inch depth of water puddle and verify complete absorption of standing water within two hours. If standing water is still present after two hours, provide perforated pipe and drain rock "French Drain" system in bottom of non-draining planters and connect to storm drainage system, as accepted by Owner's Representative prior to backfilling with approved planting soil.

114-2.3.3 General Preparation of Planting Soil

A. Submit soil analysis report of amended soils from an approved soils laboratory for approval by the Owner's Representative. Refer to Section 114-2.1 for soil testing requirements.

B. All planting soils to be amended as specified in soil laboratory analysis report(s).

C. Provide a minimum of 12-inch depth of amended planting soil in all planting areas, or more where shown or specified otherwise. Install soil in maximum 12-inch lifts. Compact each lift prior to installing subsequent lifts.

D. Thoroughly wet down the planting areas to settle the soil and confirm irrigation coverage and operation. Allow soil to dry so as to be workable as described herein.

E. After the rototill work, float areas to a smooth, uniform grade as indicated on the drawings. Slope all planting areas to drain. Roll, scarify, rake and level as necessary to obtain true, even planting surfaces. Remove rocks, sticks and debris 1 inch and larger in size in turf areas and 2 inches or larger in shrub and ground cover areas. Secure approval of the grade by the Owner's Representative before any planting.

F. Prior to planting, soil shall be loose and friable to a minimum depth of 12 inches with a relative maximum compaction of 85 percent. Rip and scarify any overly compacted and re-compacted planting areas (in two directions full depth of compacted soil) prior to planting.

G. Water settling, puddling, and jetting of soil and backfill materials as a compaction method is not acceptable.

H. Prior to planting, soil shall be moist, but not so moist that it sticks to a hand shovel. Do not work planting soil in a wet or muddy condition or dump or spread in areas where subgrade is not in proper condition.

I. Provide planting soil as a final lift in all planting areas within and adjacent to paved areas and other construction where native site soil has been covered by engineered fill and/or base rock. Unless otherwise shown or specified, finish grade in planting islands shall be crowned with a minimum 2 percent pitch to drain.

J. Finish Grade: Hold finish grade and/or mulch surface in planting areas ½-inch below adjacent pavement surfaces, tops of curbs, manholes, etc. The subgrade of the mulch in mulched planting areas shall be a minus 2 inches at a distance of 12 to 18 inches from the edge of pavement. Drag finish grade to a smooth, even surface. Grade to form all swales and berms. Pitch grade with uniform slope to catch basins, streets, curb, etc., to ensure uniform surface drainage. Areas requiring grading include adjacent transition areas that

shall be uniformly sloped between finish elevations. Slope surface away from walls so water will not stand against walls or buildings. Control surface water to avoid damage to adjoining properties or to finished work on the site. Take required remedial measures to prevent erosion of freshly graded areas.

K. Planting operations shall be performed only during periods when beneficial results can be obtained. When excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped until conditions are satisfactory.

114-2.3.4 Preparation of In-situ Planting Soil

A. In-Situ Planting Soil is defined as topsoil left in its original place and undisturbed during construction activities which is to receive new planting

B. Except within tree driplines, rip all planting areas in two directions full depth to a minimum of 12 inches into undisturbed native subsoil prior to amending. Scarification of any planting area which cannot be accomplished with a tractor shall be accomplished by an alternative method approved by the Owner's Representative to the specified depth to ensure proper percolation/drainage.

C. Inspect planting areas and remove all base rock and other foreign material. Verify placement of planting soil within dripline of trees with Owner's Representative.

D. Test depth of loose soil with hand shovel in presence of Owner's Representative in several locations as directed.

E. After acceptance of the planting condition, uniformly mix and amend soil with required fertilizers, nutrients, etc. per specifications herein and recommendations given in soils reports.

F. In the case of a contradiction between the quantity of organic amendment required by the soils laboratory analysis and the specified quantity below, the greater of the two quantities shall take precedence. Spread organic amendment, iron and Type A fertilizer

evenly over installed and rough graded on-site topsoil in all planting areas including turf, ground cover and shrub areas at the following rates:

1. Organic Amendment: 6 cubic yards per 1,000 square feet

2. Fertilizer: Type A (6-20-20) at 20 pounds per 1,000 square feet.

3. Iron Sulfate: 10 pounds per 1,000 square feet

G. Rototill above additives into soil [8 to 12 inches] inches deep. Keep iron sulfate off pavement and other surfaces to prevent rust staining. Correct all rust damage to work.

H. Final planting soil shall have a pH range of 6.5 to 7.5.

114-2.3.5 Preparation of Imported Planting Soil (On-Grade)

A. Uniformly distribute and spread Subsoil or select fill in planting areas to achieve rough grading and compact to a maximum of 85 percent relative compaction.

B. Except within tree driplines, rip all planting areas in two directions full depth to a minimum of [12 inches] into undisturbed native subsoil prior to backfilling. Scarification of any planting area which cannot be accomplished with a tractor shall be accomplished by an alternative method approved by the Owner's Representative to the specified depth to ensure proper percolation/drainage.

C. Thoroughly water-settle subsoil to required subgrade prior to installing Topsoil.

D. Prior to placing planting soil secure the Owner's Representatives acceptance of the planting areas subgrade condition. Test depth of loose soil with hand shovel in presence of Owner's Representative in several locations as directed.

E. After acceptance of the planting areas subgrade condition, uniformly distribute and spread planting soil backfill over scarified subgrade in planting areas as specified.

F. Mix and amend soil with required fertilizers, nutrients, etc. per specifications herein and recommendations given in soils reports.

114-2.3.6 Soil Preparation for Stormwater Treatment Planting Areas

A. Earthwork, rough grading, and drainage materials shall be complete and approved prior to installation of planting soil.

B. Do any necessary finish grading in addition to that performed in accordance with earthwork to bring subgrades after final compaction to required grades and sections as indicated.

C. Install the approved specified soil mix for infiltration planting areas as shown in Drawings. Soil depth to be 18 inches minimum typical and 24 inches minimum for planting areas with trees, unless otherwise shown on drawings.

D. After placement of the mineral component, the top 6 inches should be blended with the approved compost for stormwater treatment planting areas. If bulk blended, proportions should be one-part compost to four parts of the above mineral component. If blended in place, this is equivalent to 4½ cubic yards or 1,000 square feet for blending to 6-inch depth

E. If organic content of the mineral component is less than 0.6 percent weight, then it should be blended with compost in volume proportions of 5 percent compost to 95 percent mineral.

F. Finish Grade: Provide a smooth, even surface. Side slopes of stormwater planting areas (e.g., bioswales or basins) not to exceed 3:1 in any direction. Finish grade of flow through planters to be as shown in drawings.

114-2.3.7 Tree and Shrub Planting

A. Mark tree and shrub locations on site using stakes, gypsum or similar approved means and secure location approval by the Owner's Representative before plant holes are dug. Adjust location as required prior to planting.

B. Review location of plants in relationship to irrigation heads and adjust location(s) that interfere with the function of the spray heads. Adjust locations as required to ensure that the plant roots receive the proper amount of water in order for the plants to thrive.

C. Square Tree Pits

1. Drilled tree pits shall be modified to a square pattern with pit walls scarified to promote root penetration.

D. Excavate tree and shrub pits as follows:

	Width	**Depth**
Boxed Trees	Box + 24 inches	Box depth
Canned Trees (15 gc)	Can + 18 inches	Can depth
Canned Shrubs/Vines (1 to 5 gc)	Can + 12 inches	Can depth

E. Test drainage of plant beds and tree pits by filling with water (minimum 6 inches). The retention of water in planting beds and plant pits for more than 2 hours shall be brought to the attention of the Owner's Representative. If rock, underground construction work, tree roots, poor drainage, or other obstructions are encountered in the excavation of plant pits, alternate locations may be selected by Owner's Representative.

F. Break and loosen the sides and bottom of tree pits to ensure root penetration and water test hole for drainage as required above.

G. Excavate plant hole or tree pit keeping excavated planting soil layer on the surface when backfilling around the plant. Carefully set plants as detailed without damaging the root ball. Superficially cut edge roots vertically on three sides. Remove bottom of plant boxes before planting. Remove sides of boxes after positioning the plant and partially backfilling.

H. Set plants in backfill with top of the root ball 1 inch above finished grade of adjacent soil. Backfill remainder of hole and soak thoroughly by jetting with a hose and pipe section. Water backfill until saturated the full depth of the hole.

I. Backfill plant holes with mix as specified, free from rocks, clods or lumpy material. Backfill native soil free of soil amendments under root ball and foot tamp to prevent settlement. Backfill remainder of the hole with soil mix and place plant tablets or packets (Type B fertilizer) 3 inches below finish grade and ½-inch from roots at the following rates:

1 gallon can plant – one tablet or packet
5 gallon can plant – three tablets or packet
36-inch box tree – eight tablets or packet
48-inch box tree – ten tablets or packet

J. Mix the iron, amendment and soil thoroughly for use in the top 8 inches of backfill around plants. For acid loving plants, mixture to be half soil from the hole and half amendment.

K. Remove any soil from top of plant root balls and secure Owner's Representative's approval of root ball height prior to mulching.

L. After approval of root ball height, install mulch as required below.

M. Stake and/or guy trees as detailed. Drive stake(s) until solid (at least 12 inches beyond bottom of root ball) and remove excess stake protruding above top tree tie to prevent rubbing against branches. Avoid driving stakes through root ball. If subgrade does not accept stakes to a stable degree, delete stakes and guy the trees as specified herein and as detailed. Locate tree ties to avoid contact with tree branches. Locate top tie at tree flex point.

114-2.3.8 Ground Cover Planting

A. Plant in neat, straight, parallel and staggered rows as indicated on plan. Plant first row one-half required ground cover spacing behind adjacent curbs, structures, or other plant bed limits. Plant ground cover to edge of water basins of adjacent trees and shrubs.

114-2.3.9 Mulch

A. Except where rock mulch is required, mulch all tree, shrub and ground cover areas with organic mulch to a 3-inch depth, except mulch to 2-inch depth where planting with ground cover plants from flats.

B. Hold bark mulch away from base (trunk) of plant 4 inches or as directed by the Owner's Representative.

C. Individual trees and/or shrubs planted in non-irrigated areas shall, at minimum, receive bark mulch over their watering basin and berm.

D. No mulch is required around trees in turf areas.

E. Install rock mulch to depth as detailed, minimum 2 inches for full coverage of soil surface, whichever is greater.

114-2.3.10 Watering

A. Water all trees, shrubs and ground cover immediately after planting. Apply water to all plants as often and in sufficient amount as conditions may require keeping the plants in a healthy vigorous growing condition until completion of the Contract. Provide supplemental hand watering of trees and shrubs, as required, to maintain a moist root zones throughout plant establishment period.

114-2.3.11 Pre-Maintenance Period Review and Approval of Planting

A. Maintain plants from time of delivery to site until final acceptance of landscape installation.

B. Receive approval of the installed planting prior to commencement of planting establishment maintenance period. Notify the Owner's Representative or Owner's Representative a minimum of 7 days prior to requested review. Before the review, complete the following:

1. Complete all construction work.

2. Present all planted areas neat and clean with all weeds removed and all plants installed and appearing healthy.

3. Plumb all trees and tree and shrub supports.

4. No partial approvals will be given.

114-2.3.12 Planting Establishment Maintenance

A. General Requirements

1. Maintenance Period: The planting establishment maintenance period required shall be 120 calendar days after all planting and irrigation is complete, turf is installed/seeded, and as approved by Owner's representative. A longer period may be required if the turf is not thick, vigorous and even and has been mowed a minimum of four times, or if the plant material is not acceptably maintained during the maintenance period. The start of the maintenance period to be confirmed by Owner's representative. Contractor to notify Owner's Representative of start and end dates of maintenance period. The maintenance period may be suspended at any time upon written notice to the Contractor that the landscaping is not being acceptably maintained, and the day count suspended until the landscape is brought up to acceptable standards as determined by the Owner Representative.

2. Planting establishment maintenance immediately follows, coincides with, and is continuous with the planting operations, and continues through turf installation, and after all planting is complete and accepted; or longer where necessary to establish acceptable stands of thriving plants.

3. Protect all areas against damage, including erosion, trespass, insects, rodents, disease, etc. and provide proper safeguards. Maintain and keep all temporary barriers erected to prevent trespass.

4. Keep all walks and paved areas clean. Keep the site clear of debris resulting from construction or maintenance activities.

5. Repair all damaged planted areas and replace plants and resod turf immediately upon discovery of damage or loss.

6. Check sprinkler systems at each watering; adjust coverage and clean heads immediately. Adjust timing of sprinkler controller to prevent flooding.

7. Maintain adequate moisture depth in soil to ensure vigorous growth. Check root ball of trees and shrubs independent of surrounding soils and hand water as required.

8. Keep contract areas free from weeds by cultivating, hoeing or hand pulling. Use of chemical weed killers will not relieve the Contractor of the responsibility of keeping areas free of weeds at all times.

B. Tree and Plant Maintenance

1. Maintain during the entire establishment period by regular watering, cultivating, weeding, repair of stakes and ties, and spraying for insect pests. Prune when requested by the Owner's Representative.

2. Keep watering basins in good condition and weed-free at all times.

3. Replace all damaged, unhealthy or dead trees, shrubs, grasses, vines and ground covers with new stock immediately; size as indicated on the drawings.

C. Fertilizing

1. Early spring and fall substitute a complete fertilizer such as 15-15-15 applied at the rate of 6 pounds per 1,000 square feet, to help insure continuing adequate phosphorus and potassium.

2. Observe plant's color, and if a soil pH imbalance is suspected, take soil samples and obtain laboratory analysis for confirmation. Take necessary action recommended in laboratory analysis such as top dressing with soil sulfur, leaching soil, etc.

114-2.3.13 Final Planting Review and Acceptance

A. At the conclusion of the Maintenance Period, schedule a final review with the Owner, the Owner's maintenance person, and/or the Owner's Representative. On such date, all project improvements and all corrective work shall have been completed. If all project improvements and corrective work are not completed, continue the planting establishment maintenance period at no additional cost to the Owner until all work has been completed. This condition will be waived by the Owner under such circumstances wherein the Owner has granted an extension of time to permit the completion of a particular portion of the work beyond the time of completion set forth in the Agreement.

B. Submit written notice requesting review at least 10 days before the anticipated review.

C. Prior to review, weed and restore all planted areas, plumb trees and tree supports, clear the site of all debris and present in a neat, orderly manner.

114-2.3.14 Payment

The Contract unit price paid per planting each tree, shrub, and other vegetation shall include full compensation for furnishing all labor, maintenance services, fertilizing, watering, soil preparation, regrading, backfill, clean-up, disposal, and materials, including mulch, posts, soil, tools, equipment, and incidentals, and for doing all the work necessary to plant trees, shrubs, and other vegetation as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3 LANDSCAPE ELEMENTS (INCLUDING SITE FURNISHINGS, SPECIAL BULB-OUT SEATING AND SPECIAL BULB OUT PAVING)

114-3.1 General

114-3.1.1 Description

A. Furnish and install all site furnishings shown on drawings and specified in accordance with the manufacturer's instructions and as shown on the drawings and as specified.

B. Related requirement specifications elsewhere:

1. Section 40, PORTLAND CEMENT CONCRETE PAVEMENT

114-3.1.2 References

A. Perform work in accordance with all applicable laws, codes and regulations required by the County of San Mateo and the State of California.

B. Manufacturer's Instructions

1. Where required in the Specifications that materials, products, processes, equipment or the like to be installed or applied in accordance with manufacturer's instructions, directions or specifications, or words to this effect, it shall be constructed to mean that said application or installation shall be in strict accordance with printed instructions furnished by the manufacturer of the material for use under conditions similar to those at the job site.

2. All site furnishings shall be anchored or otherwise secured to prevent movement, unless stated otherwise. Provide concrete footings, corrosion resistant clips, etc. as accepted by the Owner's Representative.

C. Reference Standards

1. State of California, Business and Transportation Agency, Department of Transportation: "Standard Specifications."

2. Manufacturers' specifications and recommendations.

114-3.1.3 Coordination

A. Coordinate items of other trades. Contractor shall be responsible for the proper installation of all accessories embedded in concrete and for the provision of connections, holes, openings, etc., necessary to the execution of the work of the trades.

114-3.1.4 Submittals

A. Benches and Special Bulb-out Seatwall including Pre-cast Concrete Seatwall shop drawings, mosaic tile patterns and skateboard deterrent.

B. Bike Racks

C. Trash and Recycle Receptacles, including required leveling spacers

D. Tree Grates

E. Special Bulb-Out Paving color and finish treatments.

114-3.2 Materials

114-3.2.1 Benches

A. B1-Bench. Model: 164 Series 6-foot backless bench with middle armrest. Custom "brick red" RAL color finish. Manufactured by DuMor, Inc., Mifflintown, PA. (800) 598-4018.

B. B2-Special Bulb-Out Seatwall.

1. Model: Custom manufactured precast concrete bench 18 inches high by 24 inches wide by 9 feet 6 inches long, with ½-inch deep inset for mosaic tiles modules on the top and sides and 4 cast-in ¾-inch diameter inserts with 9-inch length coil rod for anchoring. Color shall be "Harvest" with Craftsmen Etch finish. Manufactured by QCP Products, Norco, CA (951) 824-7378.

2. Mosaic Tiles: Reference is made to Section 114-5, "Seatwall Mosaic Tiles," of these Special Provisions.

C. Skateboard deterrent installed on B2 Seatwall edges 2'-0" on center model 'Cylinder GrinderMinder, by Grind To A Halt, Elburn, IL (630) 365-2375.

D. Computer generated mosaic tile modules on netting installed within seatwall insets on top (102" x 18") and two sides (102" x 12"). Created and manufactured by Artaic, model # 01191086 Middlefield Streetscape Monarch RHAA -1.2.1 and 1.2.2, Design ID 1.2.1 and 1.2.2, dated 02-07-2019. Contact west coast representative Heidi Behrens-Benedict (206) 226-5464.

114-3.2.2 Bike Rack

A. Model: Welle circular rack square tube surface flange, #WCR02-SQ-SF –GP. Custom "brick red" RAL color finish. Manufactured by Bike Parking.com, Palmer Group (415) 333-6428.

114-3.2.3 Trash and Recycle Receptacle

A. County standard model #CG32-D005 (recycle) and #CG32-D006 (trash) with County standard colors and decals, manufactured by Securr, Ontario, CA (909) 605-0538.

114-3.2.4 Tree Grate

A. Model: #MX48-72I99TG "Minione" rectangular tree grate 48 inches by 72 inches, modified center opening to approximately 18 inches, raw cast iron. Rectangular E-Frame for embedment into concrete or 'R' Retro Tab with existing concrete, model #4x6, steel. Manufactured by Iron Age Design, Burien, WA. Contact Park Pacific (888) 460-7275.

114-3.2.5 Special Bulb-Out Paving

A. Integral color and finish for bulb-out concrete paving. Color to contrast with seatwall with "Adobe" by Davis Colors, Los Angeles, CA. (844) 341-4780, with an acid etch finish (#C3 Light Violet color code) Top-Cast surface retarder by GCP Applied Technologies, Bay Area Rep. Jason Straka (408) 219-6423. Reference is made to Section 51-5, Textured Concrete and Colored Concrete Surfaces.

114-3.3 Execution

114-3.3.1 General Installation

A. Install manufactured items in accordance with the manufacturer's instruction and as shown in the drawings and as specified herein.

B. Perform all work in accordance with all applicable laws, codes and regulations required by State of California and the County of San Mateo.

C. Size bolts to fit flush with nuts.

D. Galvanized metal that is cut, damaged or modified after fabrication shall be immediately painted with Zinc-rich paint to prevent rusting.

E. Touch up paint any damaged surfaces to match original finish as accepted by Owner's Representative.

F. Provide spacers under furniture to level as specified herein and acceptable to Owner's Representative

G. Transport, store and handle precast units and manufactured items in a manner to avoid hairline cracks, staining or other damage. Store units free of the ground and protected from mud or rain splashes. Cover units, secure covers firmly, and protect the units from dust, dirt or other staining material.

114-3.3.2 Benches

A. Install level and in accordance with the manufacturer's instruction and as acceptable to Owner's Representative.

114-3.3.2.1 Payment

The Contract unit price paid per each bench shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to place benches as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

The Contract unit price paid per each special bulb-out seatwall shall include full compensation for furnishing all labor, materials (including seatwall mosaic tiles), tools, equipment, and incidentals, and for doing all the work necessary to place special bulb-out seatwalls as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3.3.3 Bike Rack

A. Install in accordance with the manufacturer's instruction and as shown.

114-3.3.3.1 Payment

The Contract unit price paid per each bike rack shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to place bike racks as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3.3.4 Trash and Recycle Receptacles

A. Install level and in accordance with the manufacturer's instruction and as shown. Provide spacers under receptacles to level as specified and acceptable to Owner's Representative.

114-3.3.4.1 Payment

The Contract unit price paid per each trash and recycle receptacles shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to place trash receptacles as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3.3.5 Tree Grates

A. Install in accordance with the manufacturer's instruction and as shown.

114-3.3.5.1 Payment

The Contract unit price paid per each tree grate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to place tree grates as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3.3.6 Special Bulb-Out Paving

A. Construct in accordance with Section 51-5, "Textured Concrete and Colored Concrete Surfaces," of these Special Provisions.

114-3.3.6.1 Payment

The Contract unit price paid per square foot of special bulb-out paving shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work necessary to place special bulb-out paving as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-3.3.7 Cleanup

114-4 TREE PROTECTION

114-4.1 General

114-4.1.1 Description

A. Preserve and protect existing trees, shrubs and other plant materials to remain, including protecting plants on adjoining properties during site preparation work and construction.

B. Provide tree and shrub pruning and removal in accordance with these Specifications if required by the Contract Documents.

C. Layout and review of utility and irrigation trenches that occur in the Tree Protection Root Zone.

D. Related requirements specified elsewhere include:

1. Section 19, EARTHWORK
2. Section 102, TRIMMING AND PROTECTION OF EXISTING TREES
3. Section 114-1, IRRIGATION
4. Section 114-2, PLANTING

114-4.1.2 Quality Assurance

A. Reference Standards

1. Ordinances and Regulations: All local, municipal and state laws, codes and regulations governing or relating to all portions of this work are hereby incorporated into and made a part of these Specifications. Anything contained in these Specifications shall not be construed to conflict with any of the above codes, regulations or requirements of the same. However, when these Specifications and Drawings call for or describe materials, workmanship or construction of a better quality, higher standard than is required by the above-mentioned codes and regulations, the provisions of these Specifications and Drawings shall take precedence. Furnish without extra charge additional materials and labor required to comply with above rules and regulations.

2. International Society of Arboriculture, Guide for Plant Appraisal, latest version.

B. Pre-Installation Conference

1. Conduct conference at the project site. Contractor shall review and identify with the Owner's Representative the limits of Work and extent of plant materials and other improvements to be protected. Notify Owner's Representative of discrepancies between existing conditions and Drawings before proceeding with Work.

2. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

   a. Tree-service firm's personnel, and equipment needed

   b. Arborist's responsibilities.

   c. Quality-control program.

   d. Coordination of Work and equipment movement with the locations of protection zones.

   e. Trenching by hand or with air spade within protection zones.

C. At the Owner's discretion, an Arborist may represent the Owner to review the work of the Contractor in regard to plant protection. Arborist Qualifications: ISA-Certified Arborist licensed to work in the State of California.

D. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this project and that will assign an experienced, qualified arborist to project site during execution of the Work.

114-4.1.3 Project Conditions

A. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

B. Nuisances: Keep dirt, dust, noise, and other objectionable nuisance to a minimum. Use temporary enclosures, coverings and sprinkling, and combinations thereof, as necessary to limit dust to lowest practicable level, except do not use water to the extent that it causes flooding or contaminated run-off.

C. Traffic: Conduct work to ensure minimum interference with vehicular and pedestrian traffic, and to permit unencumbered access to site and adjacent properties.

1. Do not close or obstruct streets, sidewalks, alleys or other public passageways without permission from authorities having jurisdiction.

2. If required by governing authorities, provide alternate routes around closed and obstructed traffic ways.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.

2. Moving or parking vehicles or equipment.

3. Erection of sheds or structures.

4. Impoundment of water.

5. Excavation or other digging unless otherwise indicated.

6. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

114-4.1.4 Definitions

A. Diameter breast height (DBH): diameter of a trunk as measured at a height 54 inches above the ground line.

B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and as identified on the drawings or otherwise by a certified arborist.

D. Structural Root Zone: A circular area with the tree trunk at the center and a radius equal to three times the diameter of the tree trunk measured at breast height (4.5 feet above ground line). This zone, where most of the structural roots exist, is based upon tree failure research conducted by E.T. Smiley at the Bartlett Tree Research Laboratory. Any structural (buttress) root, which has been severed or is rotten within this zone, can no longer provide adequate support to the tree and must be considered missing.

E. Dripline: The area of the ground directly beneath the vertical projection (shadow) of the tree foliage canopy.

114-4.1.5 Submittals

A. Product Data: For each type of product.

B. Samples: For each type of the following:

1. Organic Mulch: 1 quart of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.

2. Planting Soil: 1 quart of soil; in sealed plastic bags; for soils to be used within the protection zones.

C. Shop Drawings

1. Protection-Zone Signage

D. Qualification Data: For arborist and tree service firm.

E. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

F. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

G. Survey of Existing Conditions: Provide to Owner a Survey of Existing Conditions. Record existing conditions, including underground utilities, etc. on As Built Drawings by use of field measurements and preconstruction photographs. Make permanent record of measurements, materials, and construction details required to make exact reproduction.

H. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.

1. Species and size of tree.
2. Location on site plan. Include unique identifier for each.
3. Reason for pruning.
4. Description of pruning to be performed.
5. Description of maintenance following pruning.

114-4.2 Products

114-4.2.1 Materials

A. Backfill Soil: Approved planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:

1. Type: Wood and bark chips
2. Size Range: ½ to 2 inches
3. Color: Natural Brown.

C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:

D. Chain-Link Protection-Zone Fencing: Galvanized-steel fencing fabricated from minimum 2-inch opening, 0.148-inch-diameter wire chain-link fabric; with pipe posts, minimum 2-⅜-inch-OD line posts, and 2-7/8-inch-OD corner and pull posts; with 1⅝-inch-OD top and bottom rails; with tie wires, hog ring ties, and other accessories for a complete fence system.

1. Height: 72 inches

E. Tree Branch and Trunk Protection: for branches trunks exposed to, or at risk of exposure to impact by construction equipment.

1. 2x lumber
2. ½-inch-wide steel straps

114-4.3 Execution

114-4.3.1 Examination

A. Examine areas in which work is to be performed. Report in writing to the Owner's Representative all prevailing conditions that will adversely affect the existing plant materials to remain. Do not proceed with work until a solution acceptable to the Owner's Representative has been arrived at.

B. Survey of Existing Conditions: Record existing conditions, including underground utilities, etc. by use of measured drawings and preconstruction photographs.

C. Starting work constitutes acceptance of the existing conditions and the Contractor shall then, at his expense, be responsible for correcting all unsatisfactory and defective work encountered.

114-4.3.2 Preparation

A. Locate and clearly identify trees, shrubs, and other vegetation to remain and/or relocated. Tie a 1-inch blue vinyl tape around each tree trunk at 54 inches above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.

1. Apply 4-inch uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.

D. Install and maintain temporary fencing and other required protective devices and exclude construction activities from tree/shrub zones except as supervised by the Arborist/ Owner's Representative.

E. If tree/plant protection zones cannot be protected with fencing, a 4-inch layer of mulch with minimum 1.25-inch thick, metal strap linked plywood shielding shall be maintained in the tree/shrub zone where heavy equipment will be operated.

114-4.3.3 Protection Zones

A. Protect trees and shrubs against cutting, breaking, skinning and bruising of bark; permit no traffic or stockpiling within drip line.

B. Do not change earth surface within drip line of trees and shrubs except as approved in writing by the Owner.

C. Do not park vehicles or store materials, supplies and construction equipment within Tree Protection Zone.

D. Verify details of protection-zone fencing before retaining last option in "Protection-Zone Fencing" Paragraph below.

E. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

1. Chain-Link Fencing: Install to comply with ASTM F 567 and with manufacturer's written instructions.

2. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Owner's Representative. Post may be steel driven type, or self-supporting type.

F. Where tree branches and trunks are exposed to, or at risk of exposure to impact by construction equipment, secure 2x lumber radially around tree branches and/or trunk to prevent damage. Secure lumber with steel strapping.

G. Maintain protection zones free of weeds and trash.

H. Maintain protection-zone fencing in good condition as acceptable to Owner's Representative and remove when construction operations are complete, and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.

2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

114-4.3.4 Excavation and Trenching

A. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.

B. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

114-4.3.5 Root Pruning

A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as approved by certified arborist.

1. Generally cutting of roots 2 inches or greater shall be avoided. Roots 1 inch and greater in diameter that must be cut shall be cut cleanly and obliquely with the cut surface facing down.

2. Exposed and pruned roots shall be covered with light well-drained soil backfill and mulch over. The area shall be kept moist. Retain applicable subparagraphs below.

3. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.

4. Cut Ends: Do not paint cut root ends.

5. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.

6. Cover exposed roots with burlap and water regularly.

7. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune tree roots 6 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

114-4.3.6 Air Spading

A. Air spading, or hand removal of soil or tunneling is required for excavation in the Tree Protection Zone of any trees for the installation of infrastructure where roots 2 inches in diameter and larger are encountered. The "critical root zone" is defined as any area around a tree in which a 2-inch-diameter root is encountered. The Arborist/Owner's Representative shall define the critical root zone and the Contractor shall excavate using a pneumatic excavator (AIR-SPADE or equivalent) as follows:

B. Trenching for utility lines or other infrastructure may be done mechanically outside the Tree Protection Zone. As the equipment operator approaches the canopy radius, or for certain species up to 1.5 times the canopy radius out from the base of the tree (Oaks, Poplars, Redwoods, etc.) the operator shall be assisted by a spotter who shall inspect the excavation for roots. If a root of 2 inches in diameter is encountered the spotter shall halt mechanical excavation and pneumatic excavation shall proceed. If no other 2-inch or greater diameter root is encountered in an excavation of two feet forward and two feet deep, the single 2-inch root may be cleanly cut proximal to (on the tree side of) any fracture or torn bark. Mechanical excavation may continue until a 2-inch-diameter root is encountered, and the pneumatic excavation, exploration is then repeated.

C. The Contractor shall control dust and the spread of soils excavated. The air-spade operator shall moisten the soil to field capacity and to a minimum probe depth of 2.5 feet with a watering needle (hydro-spear) 48 hours prior to pneumatic excavation. The spread

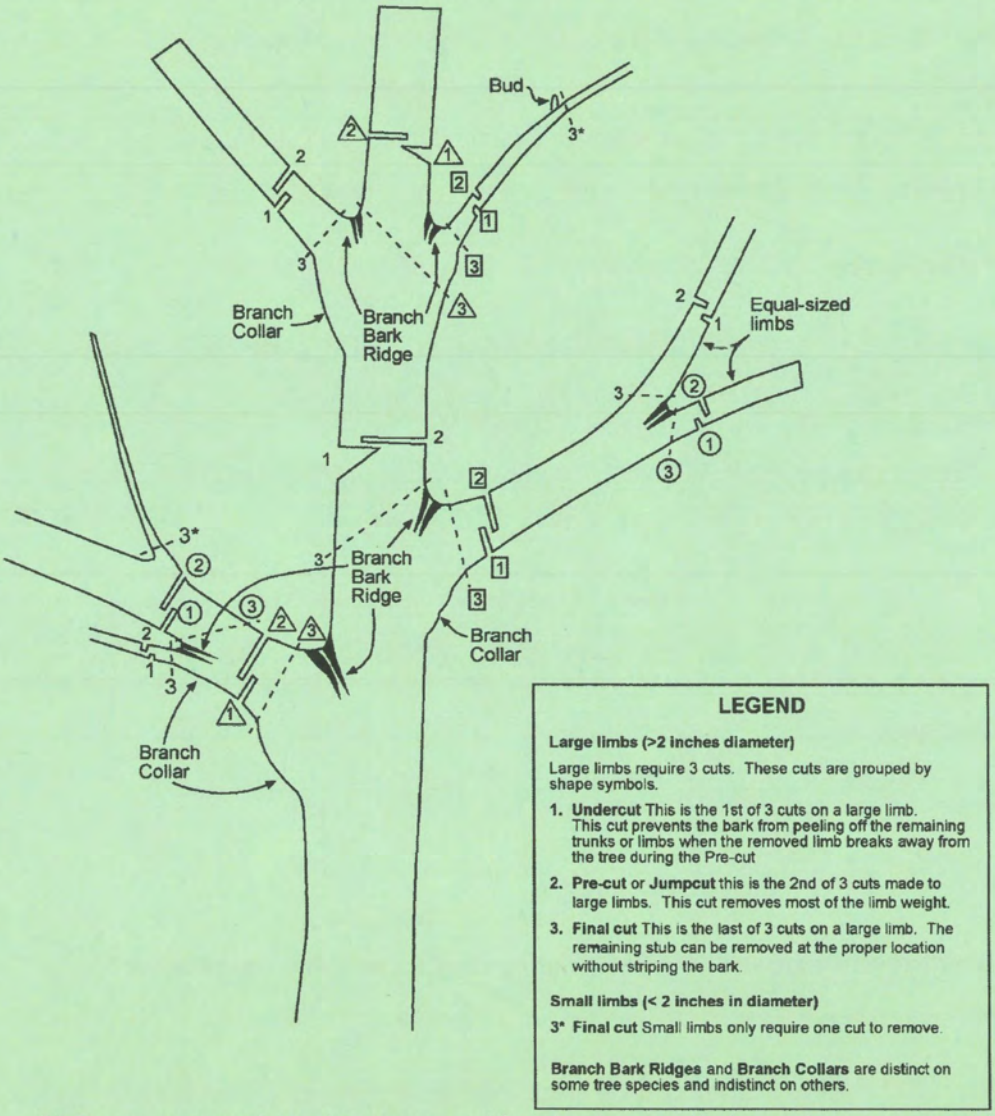
of excavated soil shall be contained to the area adjacent to the trench path with upright plywood sheeting.

D. These specifications shall not be considered operating instructions or a requirement to use a specific pneumatic excavation product. It is the responsibility of the Contractor to read and understand the pneumatic excavator operation instructions and safety procedures (including the proper and safe use of air compressor, hoses, excavation tools, etc.) prior to operations.

114-4.3.7 Tree Pruning

A. Obtain specific instruction from Arborist/Owner's Representative for pruning of trees, shrubs, roots or disturbance of soil within spread of tree branches. The Contractor shall utilize protection measures as outlined by Arborist/Owner's Representative, which may include directional drilling, or hand clearing to expose the roots.

B. Provide periodic watering for all planting within Contract limit and any adjacent areas affected by the work. Maintain moisture to a minimum 6-inch depth, minimum.



C. Using an approved pruning saw, provide selective tree limb pruning as accepted by the Owner's Representative if branches interfere with new construction. Limb diameter shall be limited to 5-inch-diameter and shall be pruned just outside the branch collar in

accordance with American National Standards Institute, (ANSI 300) and International Society of Arboriculture, (ISA) standards.

D. Approved branches to be shortened must be cut just above a fork with another living branch which is plus or minus half the diameter of the removed branch as shown in the pruning figure herein. Branches to be removed which exceed 2 inches in diameter shall be severed with a 3-step cut to prevent bark peeling. Final cuts must not injure the branch collar or branch bark ridge of the remaining branches and trunk.

E. Prune branches that are affected by temporary and permanent construction.

1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.

2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.

3. Pruning Standards: Prune trees according to ANSI A300 (Section 25-4.1)

F. Unless otherwise directed by arborist and acceptable to Owner's Representative, do not cut tree leaders.

G. Cut branches with sharp pruning instruments; do not break or chop.

H. Do not paint or apply sealants to wounds.

I. Provide subsequent maintenance pruning during Contract period as recommended by arborist.

J. Chip removed branches and stockpile in areas approved by Owner's Representative

114-4.3.8 Regrading

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: Where existing grade is 6 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single un-compacted layer and hand grade to required finish elevations.

114-4.3.9 Field Quality Control

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain. Owner's Representative

114-4.3.10 Tree and Plant Removal and Replacement

A. Field Verification: Before removing non-designated trees, shrubs, stumps, bushes, vines, rubbish, undergrowth and deadwood as shown on the Drawings and as specified, obtain verification from Owner's Representative.

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Owner's Representative.

1. Submit details of proposed pruning and repairs.

2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.

C. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

D. Backfill and compact areas excavated and open pits and holes resulting from removal operations. Comply with requirements herein and as specified in Earthwork, Section 19 for backfill materials, compaction and installation methods.

E. Remove all stumps and roots in their entirety. Tree trunks shall be removed minimum depth of 2½ feet below existing grade or finish grade, whichever is deeper. Stump grinding is an acceptable method of removal of roots and stumps of trees and shrubs; however, the chip contaminated soil shall be replaced with approved clean planting soil in planting areas and with approved clean fill soil in all other areas.

F. Backfill and compact voids excavated and open pits and holes resulting from removal operations. Comply with Earthwork Specification for backfill materials, compaction and installation methods. Unless required otherwise, in planting areas backfill holes with clean approved planting soil compacted to 90 percent relative compaction to a minus 12 inches below finish grade and 85 percent relative compaction for the top 12 inches, except as required elsewhere to a greater degree by Civil or Structural Engineer. In non-planting areas backfill holes with approved fill soil compacted to 95 percent relative compaction.

G. Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Owner's Representative determines are incapable of restoring to normal growth pattern.

H. Plant Replacement: Contractor shall replace trees cut or severely damaged due to the Contractor's work as follows:

1. An ISA-Certified Arborist may be retained by the Owner to determine the condition of trees in question as to their ability to survive in a healthy condition and in their original shape, or a pruned aesthetically pleasing shape acceptable to the Owner. Comply with recommendations to rehabilitate as recommended by the Arborist, or to replace in accordance with the requirements below.

2. Trees size shall be determined by Diameter at Brest Height (DBH). Replacement of trees and shrubs shall also include providing acceptable plant installation, automatic irrigation system and a minimum maintenance period of 120 days. If plant(s) is not acceptably maintained and is not healthy and thriving at the end of the 120-day maintenance period, the Contractor shall continue the maintenance work until such time that healthy tree(s) and/or shrub(s) is achieved.

3. Replace any damaged planting in kind using "specimen" plants as follows and at no cost to Owner:

   a. Trees up to 3 inches DBH: Replace with 36-inch box size.

   b. Trees 3 to 6 inches DBH: Replace with 72-inch box size.

   c. Trees 6 to 12 inches DBH: Replace with 84-inch box size.

   d. Trees 12 inches DBH and larger: Tree value shall be determined by Arborist using Council of Tree and Landscape Appraisers (CTLA) method. Replace damaged tree with largest available nursery boxed tree and cash difference between value of damaged tree and nursery stock replacement cost.

4. Plant and maintain new trees as specified

114-4.3.11 Cleanup and Disposal

A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

B. Clean excess soil may be distributed on site as accepted by Owner's Representative, if it does not adversely affect specified finish grades or percolation of water into planting soil.

1. Upon completion of work under this section, remove all tools, equipment and temporary protections, enclosures and structures.

114-4.4 Payment

The Contract unit price paid per lump sum protection of all trees, shrubs, and other vegetation shall include full compensation for furnishing all labor, arborist services, and root and limb/branch pruning, air spading, regrading, backfilling, clean-up and disposal, and materials, including mulch, fencing, posts, tools, equipment, and incidentals, and for doing all the work necessary to protect trees, shrubs, and other vegetation, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

114-5 SEATWALL MOSAIC TILES

114-5.1 General

114-5.1.1 Description

A. Work Included: Provide all mosaic pattern tile work complete in place, as indicated on drawings, specified herein, or otherwise needed for a complete proper installation of the work in this section.

B. Related work described elsewhere: Section 114-3 Landscape Elements

114-5.1.2 Quality Assurance

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the installation of the mosaic tile matrices and who are completely familiar with the methods needed for proper performance of the work of this section.

B. Tile work shall be subjected to performance standards as set by the American National Standards Institute (ANSI) specification A137.1-88 for ceramic tile or CTI-69-5 for special purpose tile and the Tile Council of America (TCA) current Handbook for Ceramic Tile Installation.

114-5.1.3 Submittals

A. Submit complete materials list of all items proposed to be furnished and installed under this section.

B. Submit samples of each item, color and pattern specified for the project for approval by Owner's Representative.

114-5.1.4 Product Handling

A. Deliver material to the job site and store in original unopened cartons with all labels intact and legible.

B. Mosaic tile sheets shall be stored in a protected and secure area.

114-5.2 Products

114-5.2.1 Tile Shall Be as Follows:

A. Mosaic pattern ¾" vitreous glass tile sheets made to order manufactured by Artaic.

B. 18" x 102" top and 12" x 102" sides of ¾" vitreous glass matrix. Artaic design identification 1.2.1 and 1.2.2 dated 02-07-2019 or design identification 4.2.1 and 4.2.2 dated 02-19-2019.

C. Mosaic tile sheets by Artaic Innovative Mosaic. Contact west coast representative Heidi Behrens-Benedict (206) 226-5464.

114-5.2.2 Setting Materials

A. Consult the current TCA Handbook for Ceramic Tile installation or the Ceramic Tile Institute for information regarding the selection of methods of setting the work and as recommended by the manufacturer:

B. Latex Mortar.

114-5.2.3 Grouting Materials

A. Refer to grout and manufacturer for more specific information regarding selection of grouting material.

B. Latex-Portland Cement Grout.

C. Color of grout to match color of precast concrete seatwall. Submit samples for approval by Owner's Representative.

114-5.2.4 Other Materials

A. All other materials not specifically described herein but required for a complete and proper installation of the work in this section, shall be as recommended by the manufacturer of the materials used, as approved by the Owner's Representative, and meet standards as set by ANSI and the TCA.

114-5.2.5 Payment

Full compensation for Seatwall Mosaic Tiles shall be considered as included in the unit price paid per each for "Special Bulb-Out Seatwall," and no separate payment or additional compensation will be allowed therefore.

114-5.3 Execution

A. Acceptability of surfaces: Surface to be tiled shall be smooth and level for mortar bed at the required finish elevation.

B. Latex and Cement Mortars

C. Seatwall – align and flush with adjacent precast concrete border.

114-5.3.1 Preparation

A. Prior to the start of laying tile, sweep or vacuum and wash all surfaces to be covered. Surface shall be free from coating, curing compounds, oil, grease, wax and dust.

114-5.3.2 Job Conditions

A. A minimum temperature of 50°F (10°C) shall be maintained during tile work.

114-5.3.3 Layout of Work

A. Lay out all tile work so as to minimize cuts less than one-half tile in size. Locate cuts so as to be least conspicuous.

114-5.3.4 Setting Methods

A. TCA Method F112, Cement Mortar.

B. See TCA "Handbook for Ceramic Tile Installation" for other methods of installing tile work.

114-5.3.5 Grouting

A. Follow grout manufacturer's recommendation as to grouting procedures and precautions. Remove all grout haze, observing grout manufacturer's recommendations as to the use of various cleaners.

114-5.3.6 Finishing

A. Thoroughly rinse all tile work. Use neutral cleaners for final cleaning. Acid cleaners are not recommended.

END OF SECTION

SECTION 115
BIORETENTION BASINS

115-1 GENERAL

115-1.1 Description

A. Provide all material, equipment and services necessary for the furnishing and installation of a complete landscape grading installation, as shown on the Drawings and as specified herein. The work includes but is not limited to:

1. Bioretention concrete walls
2. Collection and discharge piping and structures
3. Bioretention basin soil filter mix
4. Soil amendment and Fertilizer
5. Drain Rock
6. Finish grading of landscape areas

Attention is directed to Section 5-2, "Order of Work," of these Special Provisions.

115-2 BIORETENTION CONCRETE WALLS REINFORCING

115-2.1 General

115-2.1.1 Work Includes

Furnish and install reinforcing steel bars and accessories and perform all related and incidental work for the following:

A. Cast-in-place concrete as shown on the contract drawings.

B. Equipment pads and curbs, footings, wall stems and tie-beams as shown on the contract drawings.

115-2.1.2 Related Sections

A. Section 51 – Class 2 Concrete

115-2.1.3 References

A. Latest editions of the following codes and standards:

B. ACI 315: American Concrete Institute – Detailing Manual

C. ACI 318: Building Code Requirements for Reinforced Concrete

D. CRSI: Manual of Standard Practice

E. ASTM: American Society for Testing and Materials Standards

115-2.1.4 Submittals

A. Shop Drawings:

The Contractor shall submit to the Engineer for review reinforcing steel shop drawings, prepared in accordance with ACI 315, showing a list of materials, sizes, dimensions, cutting, bending, placement details, splicing and/or laps

Reinforcing steel shall not be fabricated and placed before the shop drawings have been reviewed and approved by the Engineer and returned to the Contractor. Review of shop drawings by the Engineer in no way relieves the Contractor from the full responsibility for both the accuracy of these shop drawings, and the accurate and complete placing of the work.

Mill Test Reports: Certified mill test reports (tensile and bending), for each heat or melt of steel, showing physical and chemical analyses, shall be submitted to the Engineer before delivery to the job site. Where reinforcing is required or requested to be welded, mill test reports shall verify the weldability of the steel.

115-2.1.5 Quality Assurance

Perform concrete reinforcement work in accordance with CRSI Manual of Practice and conforming to ACI 315. Also see paragraph 3.3 for inspection requirements.

115-2.1.6 Delivery, Storage and Handling

Reinforcement shall be shipped and stored with bars of the same size and shape fastened in bundles with durable tags, marked in a legible manner with waterproof markings showing the same designations as shown on the approved placing drawings.

Reinforcement shall be stored off the ground and shall be protected from moisture and kept free from dirt, oil, or other injurious contaminants. All steel which cannot be properly identified will be rejected, and shall be immediately removed from the job site.

115-2.2 Products

115-2.2.1 Reinforcing Materials

Steel bars: ASTM A615, Grade 60 for #4 and larger, and Grade 40 for #3, except where otherwise indicated. All reinforcement shall be deformed billet bars.

Steel wire: Cold drawn, plain, ASTM A82, unless otherwise indicated.

115-2.2.2 Accessories

Tie wire: Minimum 16 gage galvanized annealed wire.

Supports and Spacers: Provide spacers, chairs, bolsters, and other devices to support and secure the reinforcement in place. Use plastic tip chairs for exposed finished concrete surfaces.

115-2.2.3 Fabrication

All reinforcing steel shall be shop fabricated to conform to the required shapes and dimensions, in accordance with CRSI standards. Field bending will not be permitted, except that a No. 5 and smaller bars may be bent in the field when allowed by the County Representative.

Bars shall be cold bent.

Bars shall be bent around a revolving collar having a diameter not less than that recommended by the ACI 318. Hooks shall conform to the same code.

Bars that are to be butt spliced, placed through limited diameter holes in metal or have a threaded end shall have the applicable end(s) saw-cut.

Bars shall not be damaged in bending or straightening, and bars with kinks or improper bends shall not be used.

115-2.3 Execution

115-2.3.1 Placement

Before placing concrete, the reinforcement shall be cleaned, free of mortar, oil, grease, dirt, loose mill scale, loose rust, and any other coating that would destroy or reduce the bond.

Contractor shall not place any reinforcement until approved shop drawings have been received on the job site.

Provide continuous reinforcement where possible, splice only as shown or approved stagger splices where possible.

Reinforcing bars shall be firmly and securely held in position by wiring with minimum No. 16-gauge black annealed wire at intersections, and by using precast mortar blocks or metal chairs, spacers, metal hangers, supporting wires, or other approved devices of sufficient strength to resist crushing under full load and to prevent displacement during concrete placing operations.

Minimum clear protective covering for reinforcement adjacent to concrete surfaces and minimum clear bar spacing shall be as specified on drawings, but in no case shall it be less than values specified in the "Building Code Requirements for Reinforced Concrete" (ACI 318).

Placing bars on layers of fresh concrete as the work progresses, or adjusting bars during the placing of concrete, will not be permitted.

115-2.3.2 Splicing

Lap Splices: Reinforcing bars shall be spliced as indicated by lapping and securely wiring together. Splices at locations other than those indicated are subject to the approval of the County Representative and, if permitted, shall conform to the lap lengths specified in ACI-318, except as indicated on Contract Drawings.

Welded Splices: No reinforcing bars shall be welded or tack welded, either during fabrication or erection unless specifically called for on the drawings, specified herein, or with prior written consent of the County Representative. All bars that have been welded without such

approval shall be rejected and immediately removed from the work. When welding of reinforcement is approved or called for, it shall conform to the AWS Structural Welding Code-Reinforcing Steel, AWS D1.4. If the Contractor chooses to use ASTM A706 reinforcing steel to facilitate welding, it shall be at no extra cost to the County. Inspection by a testing laboratory is required for all reinforcing bar welding.

115-2.3.3 Inspection

Before any concrete is placed, the placing of reinforcing steel shall be inspected by the County Representative. Any errors or discrepancies shall be corrected before the concrete is placed. Notify the County Representative not less than 48 hours before reinforcing steel inspection is required.

115-2.3.4 Payment

The Contract unit price paid per square foot, "Bioretention Concrete Walls Reinforcing" shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work necessary to place the bioretention concrete walls reinforcing, including grade beams, pipe penetrations, curbing, inlets as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

115-3 BIORETENTION COLLECTION AND DISCHARGE PIPING AND STRUCTURES

115-3.1 Work Includes

A. Collection and discharge piping to and from bioretention areas. Includes all fittings and appurtenances, including clean-outs, inlets, outlets, grates, and backflow preventers.

115-3.2 Related Sections

A. Section 64 – Plastic Piping

B. Section 68.6.2.3 – DIP Piping

115-3.3 Products

A. Nyloplast or approved equal PVC and DIP drainage piping, fittings, and grates as shown on the Plans.

B. Redvalve Checkmate backflow preventer or approved equal

115-3.4 Payment

The Contract unit price paid per linear foot of PVC pipe installed under this item "Bioretention Collection and Discharge Piping and Structures" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing plastic pipe, all appurtenances, backflow devices, wyes and fittings, reducers, overflow structures, bioretention grates, clean-outs, perforations when underdrain, excavation, and backfill, complete in place, including but not limited to establishing alignments and layout work complete in place, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

115-4 BIORETENTION BASIN FILL MATERIAL

Bioretention basin construction will include: Bioretention basin soil filter mix; Soil amendment and Fertilizer; Drain Rock; and, Finish grading of landscape areas. Planting is included in Section 114.

A. Comply with the applicable provisions of the following:

1. Agricultural Experimental Station Extension Service, University of California, 1979, Publication No. 4091.

115-4.1 Definitions

A. Site Soil: All existing topsoil.

B. Soil Filter Mix: Engineered soil for backfill in bioretention basins designed specifically for infiltrating and cleansing stormwater.

C. Bioretention Basin: Vegetated bed that receives stormwater inflow through curb cuts to provide flow control and water quality treatment.

115-4.2 Quality Assurance

A. Testing Laboratory: Recognized laboratory for soil and plant disease analysis for ornamental horticulture, approved by the County. Testing laboratory is to perform all work in accordance with the current methods of the Association of Official Agricultural Chemists at the Contractor's cost.

B. For each soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.

C. Testing methods and written recommendations shall comply with USDA's Handbook No. 60, "Diagnosis and Improvement of Saline and Alkali Soils."

115-4.3 Submittals

115-4.3.1 General

Product Data and Samples: Furnish copies of concrete mix design, reinforcing bar steel data sheets, and manufacturer's literature and laboratory analytical data for review of the following items.

Soil Filter Mix for bioretention basins: two 1-quart samples

Provide certifications from the Soil Filter Mix supplier or an accredited laboratory that the Soil Filter Mix meets the requirements of this guideline specification including:

Results from test ASTM F1815-06 (method A) [saturated hydraulic conductivity], ASTM D422 [grain size analysis]. Approved testing labs include: Cooper Testing Labs, 650.213.8436

Results from A17 Test [detailed fertility package]. Approved testing labs include:
Waypoint Analytical California, Inc.
4741 E. Hunter Avenue, Ste E, Anaheim CA 92807; (714-282-8777)

Wallace Laboratories, LLC
365 Coral Circle, El Segundo, CA 02345, (310-615-0016)

Control Laboratories Inc.
42 Hangar Way, Watsonville CA 95076 (831-724-5422)

Description of equipment and methods used to mix the sand and compost to produce Soil Filter Mix.

Report suitability of tested soil for plant growth.

A. Based upon the test results, state recommendations for organic and natural soil treatments and soil amendments to be incorporated. State recommendations in weight per 1,000 sq. ft. (92.9 sq. m) or volume per cu. yd (0.76 cu. m) for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.

B. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

Compost: two 1-quart samples

Organic enzymatic fertilizer (powder): two ¼ cup samples

Organic soil micro-organism/fertilizer (liquid): two ¼ cup samples

Mychorrhizal inoculum: two 1-tablespoon packets

Other fertilizers as recommended by soil testing laboratory

Drain Rock

Test Reports: Submit the results of the following tests to the County Representative:

Soil Filter Mix for bioretention basins: Test A17 for soil fertility and micronutrient analysis.

Soil analysis test reports shall include:

- Soil texture;
- Infiltration rate determined by laboratory test or soil texture infiltration rate table;
- pH;
- Total soluble salts;
- Sodium;
- Essential nutrients;
- Percent organic matter;

Recommendations for amending the soil with compost to bring the soil organic matter to a minimum of 5 percent by dry weight and incorporating natural, non-synthetic fertilizers to recommended levels for planting area.

115-4.4 Product Delivery, Storage, and Handling

Fertilizers and Amendments: Store fertilizers and amendments, bark mulch, soil mix, and other materials which could stain concrete and similar surfaces in such a manner that staining does not occur.

Soil Filter Mix: Soil Filter Mix shall only be delivered once bioretention basins have been excavated to the proper subgrade.

The Contractor is required to coordinate all delivery of soil filter mix material with bioretention basin excavation and soil filter mix installation. A written schedule shall be submitted for review and acceptance as part of the submittal package.

115-4.5 Products

A. Bioretention Basin Soil Filter Mix

Soil Filter Mix: "Lennox Blend Bioswale Mix" as supplied by L.H. Voss Landscape Materials, Fremont and Dublin, Ca. (Rob Hawkins 925.676.7910 ext. 108) or acceptable equivalent.

Soil Filter Mix shall consist of:

Coarse sand:	30 to 40 percent
Fine sand:	1 to 5 percent
Organics (by volume):	30 to 40 percent
5/16-inch aggregate:	< 20 percent

Aggregate shall be scoria type red lava rock, lightweight mineral aggregate free of sediments and other materials deleterious to plant growth.

Fines (silt and clay) content: <5 percent
Infiltration rate shall be a minimum of 5 to 10 inches per hour.

Soil Filter Mix shall be supplied from one single approved production batch meeting specifications and testing requirements identified in Section 115, or if additional batches are required, provide new testing results as identified in Section 115 that demonstrate the Soil Filter Mix meets specifications.

Initially delivered batch from approved Soil Filter Mix shall be tested using two separate constant head permeability tests in accordance with ASTM F1815-06 (method A) and ASTM D2434. Test ASTM D2434 shall be conducted with a 6-inch mold and vacuum saturation minimum. Each testing method will be conducted on two samples to confirm that the percolation

rate meets specifications prior to installation. Approved testing labs include: Cooper Testing Labs, 650-213-8436.

Each delivered batch of Soil Filter Mix for bioretention basin shall be accompanied by a certification letter from the supplier verifying that the material meets specifications and is supplied from the approved Soil Filter Mix stockpile. Soil Filter Mix shall not be stockpiled onsite.

B. Soil Components

Sand shall be free of wood, waste, coating such as clay, stone dust, carbonate, etc., or any other deleterious material. All fines passing the No. 200 sieve size shall be non-plastic.

Sand for bioretention basin soil filter mix shall be analyzed by an accredited lab using #200, #100, #40, #30, #16. #8, #4, and ⅜ inch sieves (ASTM D 422 or as approved by municipality), and meet the following gradation

Sieve Size	Percent Passing (by weight)	
	Minimum	Maximum
⅜ inch	100	100
No. 4	90	100
No. 8	70	100
No. 16	40	95
No. 30	15	70
No. 40	5	55
No. 100	0	15
No. 200	0	5

Note: all sands complying with ASTM C33 for fine aggregate comply with the above gradation requirements.

C. Compost

1. Compost shall be a finished humus; well decomposed, stable and weed free; meeting U.S. Compost Council STA/TMECC criteria or equal for Class I or II stable, mature product.

Compost shall be "well-aged" meeting or exceeding USEPA Class A standard, 40 CFR 503.13, Tables 1 and 3 (chemical contaminants) and 40 CFR 503.32(a (pathogens) and/or be permitted in the state of origin to produce Class A material.

2. It shall be derived from one or more locally sourced organic materials such as : food waste or urban plant debris, agricultural crop residue or herbivore animal manures with a preference for urban plant debris and food waste. It shall not contain mixed solid waste.

3. The product shall contain no substances toxic to plants, will possess no objectionable odors and shall not resemble the feedstock (the original material from which it was derived).

4. Compost shall be tested through the U.S. Composting Councils USCC Seal of Testing Assurance Program (STA). A lab analysis shall be performed by a STA certified laboratory using the test methods used in the Seal of Testing Assurance program found in the Test Methods for Examination of Compost and Composting Manual (TMECC). Verifying current participation in the STA program can be confirmed by logging onto the USCC website at www.compostingcouncil.com. The compost lab analysis shall be submitted as part of the "Compost Technical Data Sheet" before delivery of compost.

5. The compost laboratory report shall confirm the following compost parameters:

Parameters	**Reported as (units of measure)**	**General Range**
Plant Nutrients:		
Nitrogen	Total N %	0.9
Phosphorus	P%	< 0.6
Calcium	Ca%	<3.5
Total NPK	Sum %	>2.0
Sodium	Na%	<0.5
Moisture Content	% wet weight basis	>35

Parameters	Reported as (units of measure)	General Range
Organic Matter Content	% by dry weight basis	>35
Ph	pH units	6.5-8.5
Soluble Salt Concentration (electrical conductivity)	dS/m (mmhos/cm)	<12
Particle Size or Sieve Size	% pass in a select mesh size, dry weight basis	95 percent < ½-inch or smaller
Stability Carbon Dioxide Evolution Rate	Mg CO_2-C/g OM per day	<8
Maturity (Bioassay) Seed Emergence and Seed Vigor	%, relative to positive control %, relative to positive control	Minimum 80 percent Minimum 80 percent
Select Pathogens Fecal Coliform Bacteria Salmonella	MPN per gram per dry weight MPN per 4 grams per dry weight	Fecal Coliform <1,000 MPN/gram of total solids. Salmonella <3 MPN/4 grams of total solids
Trace Metals Chemical Contaminants	mg/kg (ppm)	Arsenic <16 Cadmium <8 Chromium < 100 Copper <400 Lead <100, Mercury <4 Molybdenum <75 ppm Nickel <80 Selenium <5 Zinc <500
Carbon Nitrogen Ratio	ratio of Carbon to nitrogen	≤25:1
Physical Contaminants (inerts)	% dry weight basis	<1
Ammonium-N	Ppm	<450
Nitrate-N	Ppm	> 10
Soluble Sodium	% of ECE	<40

Parameters	Reported as (units of measure)	General Range
Soluble Chloride	% of ECE	< 50
Bulk Density	dry lbs/cubic yard	>500 and <1,100
Boron	Ppm	Soluble shall be <2.5 total shall be <80
Organics		
Clyopyralid		Pass plant test
Organochlorine Pesticides		Non Detect
Organophyosphate Pesticides		Non Detect
Chlorinated Herbicides		Non Detect
Chlorinated Hydrocarbons		Non Detect

(Table modified from the U.S. Composting Council Landscape Architectural Specifications)

Acceptable compost products include manures, mushroom composts, straw, alfalfa, and sludge that are low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.

Composts from peat mosses, redwood or cedar wood-based products, and sludge-based materials with a toxic level of zinc, copper or other heavy metals are not acceptable.

115-4.6 Fertilizers and Amendments

Organic enzymatic fertilizer compound, in a fine powder composed of organic matter, humic acid and enzymes prepared specifically to help replenish soil health, as per "Soil ReVive," available from Marin Soil Solutions, Novato, Ca (415.456.3300), or acceptable equivalent.

Organic soil micro-organism/fertilizer liquid compound prepared specifically to replenish beneficial soil micro-organisms and processes for plant growth, as per "Soil ProVide," available from Marin Soil Solutions, Novato, Ca (415.456.3300), or acceptable equivalent.

Mycorrhizal inoculation containing minimum of 110 million propagules/pound; particle size less than 212 microns; with beneficial endo- and ectomycorrhizal species, including

Trichoderma (300 million CFU/lb) and bacteria (6 billion CFU/lb); "MycoApply Soluble" available from Mycorrhizal Applications Inc. (541.476.3985) or acceptable equivalent.

Slow-release organic fertilizer shall be per Section 25-2 Planting.

Non-synthetic, organic fertilizers as recommended by the soils report and per Section 25-2 Planting. Synthetic, quick-release fertilizers shall not be permitted. Fertilizers prohibited in the Generic Materials List by the Organic materials Review Institute (OMRI) are prohibited in the project.

115-4.7 Rock Storage

A. Crushed stone with 90 percent fractured faces, LA Abrasion < 40 per ASTM C131.

B. Do not use rounded river gravel for vehicular applications.

C. All stone materials shall be washed with less than two percent (2 percent) passing the No. 200 sieve.

D. Rock to conform to ASTM D448 gradation as shown in Tables 1 and 2 below:

1. Alternative material as recommended by the manufacturer may be used if approved in writing by the County Representative.

Table 1
AASHTO No. 9 Choking Layer
Grading Requirements

Sieve Size	Percent Passing
½ in.	100
⅜ in.	100
No. 4	85 to 100
No. 8	10 to 40
No. 16	0 to 10

Table 2 AASHTO No. 7 Rock Storage Grading Requirements	
Sieve Size	**Percent Passing**
¾ in.	100
½ in.	90 to 100
⅜ in.	40 to 70
No. 4	0 to 15
No. 8	0 to 5

2. Locally available material. Contractor to submit to be used as approved equal:

3. AASHTO #9: Graniterock ¼-inch premium screenings (Wilson ¼-inch by #10 Premium Screenings)

4. AASHTO #7: Graniterock ½-inch drain rock (Wilson ½-inch by #4 Roofing Aggregate)

115-4.8 Examination

Examine surfaces, substrates and conditions for compliance with requirements of other sections in which that related work is specified, and determine if surfaces, substrates and conditions affecting performance of the work of this section are satisfactory.

The Contractor shall request an inspection by the County Representative prior to the placement of any soil mixes.

Do not proceed with work of this section until unsatisfactory conditions have been corrected in a manner acceptable to the installer. Starting installation constitutes acceptance of surfaces, substrates and conditions.

115-4.9 Placement of Soil Filter Mix Backfill in Bioretention Basin

Soil Filter Mix shall be handled in a manner so as to prevent segregation of ingredients.

Install Soil Filter Mix following adjacent roadway paving.

Handle and place the Soil Filter Mix to required depths as shown on Drawings.

Do not work Soil in a wet or muddy condition or dump or spread in areas where subgrade is not in proper condition.

The Soil Filter Mix shall be placed in 6-inch lifts and moistened. Each lift shall be loosely compacted by hand tamping. The final lift shall be raked to provide a uniformly smooth, friable, fine textured finished surface, so as to form a firm setting for the plantings and eliminate significant settling, but not hinder growth.

If the Soil Filter Mix settles to below the specified design elevation, install additional Soil Filter Mix to achieve elevation as specified on drawing.

There shall be no mechanical compaction of the Soil Filter Mix in the bioretention basin.

Following installation of the Soil Filter Mix and the bioretention basin concrete structures (and prior to installation of vegetation), perform test using the "fire hose" method or equivalent (using potable water) for functionality of grading for entry and exit of water to and from the bioretention basin, functionality of curb cut dimensions and quality, and assessment of infiltration capacity.

Broom sweep concrete and other impervious surfaces within the test area prior to testing grading functionality to remove sediments or other material that may impact Soil Filter Mix. Test to be completed on each bioretention basin as completed rather than at the completion of overall project construction.

115-4.10 Soil Amendments

Spread mycorrhizal inoculant, organic enzymatic fertilizer compound and micro-organism/fertilizer compound evenly over installed and rough graded soil at rates recommended by the Soils Report and/or the manufacturer's written specifications.

Incorporate amendments and fertilizers into top 6 inches of Soil Filter Mix.

115-4.11 Finish Grading

General: All areas to be planted shall be free of rocks more than 0.5 inch in diameter and free of foreign debris, subsoil, refuse, plants or roots, clods, weeds, sticks, solvents, petroleum products, concrete, base rock, or other deleterious or extraneous material.

Areas to be planted shall be free of soil-borne diseases and capable of sustaining healthy plant life. Do all work necessary to bring Soil Filter Mix to compliance with these requirements.

Verify positive drainage rate in planting areas and elsewhere as directed by County Representative.

Test drainage at bioretention basin prior to back fill. See section 26-7 Testing Soil Filter Mix for Bioretention Basins herein.

Surface Drainage: Contractor is responsible for proper surface drainage of planted areas. Report in writing to the County Representative any discrepancies in the Contract Documents, obstructions on the site, or any other conditions, which prevents establishing proper drainage. Contractor shall proceed with the work under the direction of the County Representative.

Final Contouring Within Bioretention Basins. Grade Soil Filter Mix sufficiently so that after hand tamping, and after full settlement has occurred, the site will be graded to within +0.10 of a foot from the lines, grades, and elevations shown, and as may be directed by the County Representative.

115-4.12 Testing Soil Filter Mix for Bioretention Basins

Conduct a double-ring infiltration field test on installed Soil Filter Mix (ASTM D3385).

Infiltration rate must be a minimum of 5 to 10 inches per hour to verify that soil media meets requirements.

Infiltration rate (in/hr) will be recorded and submitted in writing to the County Representative for each bioretention basin. Test must be conducted on each bioretention basin. Test to be completed on each bioretention basin as completed rather than at the completion of overall project construction.

115-4.13 Bioretention Basin Protection

Stormwater shall not be allowed to enter the bioretention basin during construction and staging thereby reducing impacts on the subgrade and Soil Filter Mix from high sediment loads associated with construction.

All inlets to the bioretention basin shall be blocked using sandbags or equivalent and silt screens to eliminate inflow of stormwater and sediment into the bioretention basin. Sandbags and screens shall stay in place until all construction and staging upstream is complete and plants are established.

If a bioretention basin receives runoff from the site and therefore is contaminated with sediments, the bed shall be remediated. Remediate the bed by excavating all Soil Filter Mix and over excavating sub-grade by at least 6 inches (or as existing utilities allow). Dispose of excavated material and replace with approved Soil Filter Mix. Machinery shall not be used within the basins in order to avoid compaction.

115-4.14 Field Quality Control

Tests: Right is reserved to take samples of soil mixes and/or prepared soil for testing for conformity to Specifications.

Rejected Materials: Remove off site at Contractor's cost. Pay cost of testing of materials, not meeting Specifications.

Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done

by another party, which contractor feels precludes establishing proper drainage shall be brought to the attention of the County Representative in writing.

115-4.15 Disposal and Clean-Up

Maintain the site in an orderly condition during the progress of the Work. Continuously and promptly remove waste materials; keep walks and roads clear.

Promptly remove equipment, surplus materials, refuse and debris resulting from Work upon completion. Leave the site in a neat, orderly "broom clean" condition.

Dispose of all refuse and debris offsite legally. Do not dump or burn materials on site.

115-4.16 Payment

The Contract unit price paid per cubic yard for "Bioretention Basin Fill Material" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing bioretention basin soil filter mix; soil amendment and fertilizer; drain rock; and, finish grading of bioretention basins, complete in place, including but not limited to establishing grades and layout work, plant placement and installation of irrigation complete in place, as shown on the Plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefore.

END OF SECTION

SECTION 116
AGENCY RELATIONS

The Contractor's work takes place in an area in which other agencies have facilities. The Contractor shall jointly coordinate with the County and those other agencies where agency utilities or infrastructure may be impacted. Listed below, but not limited to, are the agencies that the Contractor is expected to coordinate with prior to commencing any work. Section 7-5, "Permits and Licenses," and Appendix G, "Inter-Agency Permits and Requirements," of these Special Provisions, includes related requirements.

Full compensation for coordination efforts between all utility companies such as but not limited to, PG&E, AT&T, Comcast, Verizon, Wave Broadband, Union Pacific Rail Road, SamTrans, San Francisco Public Utility Commission, and including documents, work plans, and permits that need to be submitted or requirements made by these agencies shall be considered as included in the unit prices paid for the various Contract items of work, and no separate payment or additional compensation will be allowed therefore.

116-1 SAN FRANCISCO PUBLIC UTILITY COMMISSION

The term SFPUC refers to the San Francisco Public Utility Commission.

It shall be noted that SFPUC may have maintenance work in the vicinity. The Contractor shall notify SFPUC ten (10) calendar days prior to the start of on-site construction in the vicinity of the SFPUC right of way and 48 hours before any construction in the vicinity of the SFPUC aqueducts. In the event of emergency involving SFPUC facilities, the Contractor shall immediately notify SFPUC Millbrae Dispatch at 650-872-5900.

Contact at SFPUC: Albert Hao, SFPUC Construction Inspector, (650) 871-3015.

116-2 SAN MATEO COUNTY TRANSIT DISTRICT

The term SamTrans refers to San Mateo County Transit District. **Contact SamTrans at:** Richmond Apande of SamTrans at (650) 508-6240.

Reference is made to Section 113, "Jack and Bore Steel Casing Under Railway, and Install Steel Casing Pipe," for requirements.

116-3 UNION PACIFIC RAILROAD

The term UPRR refers to Union Pacific Railroad. **Contact Union Pacific Railroad at:** Maikel Younan, at miyounan@up.com.

Contractor shall coordinate and allow UPRR representative to conduct inspections on all railroad related phases of work. Contractor shall also coordinate to allow UPRR's Contractor/ Subcontractor to construct railroad traffic signal work adjacent to the Redwood Junction intersection. UPRR's Contractor/Subcontractor shall be responsible for installing railroad related traffic signals and facilities.

Reference is made to Section 113, "Jack and Bore Steel Casing Under Railway, and Install Steel Casing Pipe," for requirements.

116-4 PACIFIC GAS AND ELECTRIC COMPANY

The term PG&E refers to Pacific Gas & Electric Company. **Contact at PG&E: Scott Garvey, (408) 463-7608.**

Contractor shall coordinate and allow PG&E's representative to conduct inspections on all PG&E related phases of work. PG&E inspections shall include all overhead utilities, joint trench, joint trench laterals, utilities, vaults, and manholes. Contractor shall also coordinate to allow PG&E's Contractor/Subcontractor to perform work within the roadway and adjacent to the joint utility poles, joint trench, and along the project limits.

The Contractor is advised that Contractor shall develop a baseline progress schedule (construction sequence by a critical path method), incorporate PG&E, and Union Pacific Rail Road's construction work into the schedule, coordinate with PG&E and Union Pacific Rail Road to allow their Contractor/Subcontractor onto the Project site to perform work within the roadway limits. The baseline progress schedule shall be approved in writing by the Engineer.

The Contractor may incur task-specific liquidated damages in the amount of $1,000.00 per calendar day for every day the Contractor fails to meet the dates specified in the baseline progress schedule to allow PG&E, Union Pacific Rail Road, SamTrans, Comcast, AT&T, Verizon, Wave Broadband and other utility company to access the Project site, or if the Contractor fails to coordinate with these agencies, as specified in these Special Provisions, and as directed by the Engineer. Reference is made to Section 8-2, "Liquidated Damages," of these Special Provisions.

END OF SECTION

Appendix A

County of San Mateo Waste Management Plan Form

Waste Management Daily Transport Report

County of San Mateo
WASTE MANAGEMENT PLAN

Submit to:
County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

Information and support: 888-442-2666
www.smcsustainability.org/waste-reduction/construction-demolition

Case/group number(s):
BLD _____ - _____

Project address:

Street: _____

City: _____

Zip Code: _____

Green Halo number(s):

_____

WMP required because project is a:

❑ Residential ❑ Demolition

❑ Nonresidential ❑ New Construction

❑ Addition

Section One: Permit Application

This Waste Management Plan (WMP) must be completed, submitted for review, and approved to obtain a permit. Separate WMPs are required for demolition and construction at the same site unless the Building Department requires only one permit. Need for a WMP is at the discretion of the Building Official or designee.

Applicant's Name: _____ Owner's Name: _____

Phone Number: _____ Email: _____

Applicant is (please check one): ❑ Owner ❑ Architect ❑ Builder ❑ Owner/Builder ❑ Other _____

Contractor (if applicable): _____ Contact Phone Number: _____

Project Description: _____

Project Square Footage: _____ Estimated Completion Date: _____

Waste Management Requirements:
You are required to recycle or re-use all inert solids (asphalt, brick, concrete, dirt, fines, rock, sand, and stone) and 65% of all construction and demolition debris.

I understand that I am required by San Mateo County Building Regulations Section 9210 - Adoption Of 2016 California Green Building Standards Code (Building Regulations) to salvage, reuse, or recycle **all inert solids** (asphalt, brick, concrete, dirt, fines, rock, sand, and stone) and **a minimum of 65%** of all construction and demolition debris (C&D). _____(Initial)

I understand that failure to meet the requirements of the Building Regulations shall constitute a misdemeanor, and shall be punishable by imprisonment in the county jail for up to 6 months and/or a fine of up to $1,000, calculated as a percentage of the required 65% diversion of C&D debris, and that the fine must be paid as a condition of final approval. _____ (Initial)

At the completion of this project, or more frequently if required, all weight tags or other equivalent documentation from salvage, recycling and waste facilities will be provided and I understand that I may not be issued my final inspection unless all original receipts and documentation are submitted to the County of San Mateo Department of Public Works. _____ (Initial)

Recycling and waste facilities ask for the correct origin of the materials generated as they come through the scale house. These tons are reported to the State of California. I understand that I need to advise my debris box company, waste haulers, and my drivers that the materials generated on this project originated in Unincorporated County of San Mateo. _____ (Initial)

1) Deconstruction/salvage/reuse:

What materials will be salvaged/reused? _____

Deconstruction or salvage company (if applicable): _____

What materials will be reused on site? _____

How will this be documented? _____

2) Material transportation:

Will you be using a hauling company, debris box company or hauling the material yourself?

❑ Hauler ❑ Debris Box ❑ Self-haul

If using a hauling or debris box company, which company? _____

Have they been notified that the diversion of 65% mixed debris and all insert solids is required? ❑ Yes ❑ No

3) Waste management plan:

Check the materials you anticipate generating and fill in the facilities that you plan to use.

Category	Material	√	Reuse, Recycling or Disposal Facility
Mixed C&D	Mixed Debris		
Inerts	Asphalt		
	Bricks		
	Concrete		
	Dirt		
	Other inert solids		
Source Separated	Cardboard		
	Metals		
	Wood		
	Roofing		
	Carpet		
	Drywall		
	Yard trimmings		
	Other		
Disposal	Waste		

The undersigned hereby agrees to comply with the Waste Management Plan as submitted and is the owner or authorized agent to sign for the owner of this project.

Applicant Signature _____ **Date** _____

County Approval: ❑ Approved ❑ Approved with comments ❑ Denied

All receipts, weight tags and documentation for salvage, recycling, and disposal must be submitted:

❑ On completion of project ❑ Other _____

Office of Sustainability Approval: _____ Date: _____

County of San Mateo
WASTE MANAGEMENT PLAN

Case/Group Number(s):
BLD _____ - _____

Project Address:

Street: _____

City: _____

Section Two: Final Report Approval

Please complete, submit, and get this section approved by the Department of Public Works, prior to obtaining final approval by the Department of Public Works no later than 30 days after completion of the demolition or construction project. Please provide weight of materials in **tons**. If needed, please use the conversion table on the next page to convert cubic yards to tons.

This section must be completed and signed, and all receipts or other supporting documentation must be attached in order to receive final project approval.

Category	Date	Material/items	Name of facility debris was hauled to	Weight (Tons)	Volume (CU. YD.)
Mixed C&D					
Salvage/Reuse					
Inerts Asphalt, bricks, concrete, dirt, rock, sand, soil, stone					
Source Separated Cardboard, wood, metal, sheetrock, wire, carpet, yard trimmings					
Disposal (Waste)					

❑ All receipts or equivalent documentation for salvage, recycling, and disposal are hereby attached.

❑ This project has recycled all of the inert solids and at least 65% of all debris generated.

Applicant Signature _____ **Date** _____

County Approval: ☐ Approved ☐ Approved with Comments ☐ Fine Payment Required

Comments:

_____

Fine Calculation: 1 – (C&D Diversion % Achieved ____ / 65%) x $1000 = $_____

Office of Sustainability Approval: _____ Date: _____

County of San Mateo
WASTE MANAGEMENT PLAN

Cubic Yards to Tons Conversion Table

Category	Material	Cubic Yards	Pounds	Tons
Mixed C&D	Mixed load C&D	1	500	0.25
Inerts	Asphalt	1	1380	0.69
	Bricks	1	3000	1.5
	Concrete	1	1860	0.93
	Dirt	1	2000	1
	Other inert solids	1	1240	0.62
Source Separated	Cardboard	1	100	0.05
	Metals	1	900	0.45
	Wood	1	300	0.15
	Asphalt roofing	1	1188	0.59
	Carpet	1	600	0.3
	Drywall	1	400	0.2
	Green waste	1	300	0.15
	Gravel	1	2600	1.3
Disposal	Waste	1	300	0.15

WASTE MANAGEMENT DAILY TRANSPORT REPORT				
Date :		**Day :**	**Multiple Pages : Yes___ No ___**	
			Contractor Representative :	
Project :				
			County Inspector :	
	Transport Vehicle Type	**Vehicle License/I.D.**	**Load Destination**	
			Inert Material	**Non-Inert Material**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Note : Inert material shall be as defined in the Construction Waste Management Section. of these specifications.

Comments :

_____

_____

_____

_____

_____

Appendix B

Sanitary Sewer Monitoring and Reporting Requirements:

State Water Resources Control Board
Order No. WQ 2013-0058-EXEC

STATE OF CALIFORNIA
WATER RESOURCES CONTROL BOARD
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM
FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR
SANITARY SEWER SYSTEMS

The State of California, Water Resources Control Board (hereafter State Water Board) finds:

1. The State Water Board is authorized to prescribe statewide general Waste Discharge Requirements (WDRs) for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code section 13263(i).

2. Water Code section 13193 *et seq.* requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) to gather Sanitary Sewer Overflow (SSO) information and make this information available to the public, including but not limited to, SSO cause, estimated volume, location, date, time, duration, whether or not the SSO reached or may have reached waters of the state, response and corrective action taken, and an enrollee's contact information for each SSO event. An enrollee is defined as the public entity having legal authority over the operation and maintenance of, or capital improvements to, a sanitary sewer system greater than one mile in length.

3. Water Code section 13271, *et seq.* requires notification to the California Office of Emergency Services (Cal OES), formerly the California Emergency Management Agency, for certain unauthorized discharges, including SSOs.

4. On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ, "Statewide Waste Discharge Requirements for Sanitary Sewer Systems"[1] (hereafter SSS WDRs) to comply with Water Code section 13193 and to establish the framework for the statewide SSO Reduction Program.

5. Subsection G.2 of the SSS WDRs and the Monitoring and Reporting Program (MRP) provide that the Executive Director may modify the terms of the MRP at any time.

6. On February 20, 2008, the State Water Board Executive Director adopted a revised MRP for the SSS WDRs to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state.

7. When notified of an SSO that reaches a drainage channel or surface water of the state, Cal OES, pursuant to Water Code section 13271(a)(3), forwards the SSO notification information[2] to local government agencies and first responders including local public health officials and the applicable Regional Water Board. Receipt of notifications for a single SSO event from both the SSO reporter

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[1] Available for download at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2006/wqo/wqo2006_0003.pdf

[2] Cal OES Hazardous Materials Spill Reports available Online at:
http://w3.calema.ca.gov/operational/malhaz.nsf/$defaultview and http://w3.calema.ca.gov/operational/malhaz.nsf

and Cal OES is duplicative. To address this, the SSO notification requirements added by the February 20, 2008 MRP revision are being removed in this MRP revision.

8. In the February 28, 2008 Memorandum of Agreement between the State Water Board and the California Water and Environment Association (CWEA), the State Water Board committed to re-designing the CIWQS[3] Online SSO Database to allow "event" based SSO reporting versus the original "location" based reporting. Revisions to this MRP and accompanying changes to the CIWQS Online SSO Database will implement this change by allowing for multiple SSO appearance points to be associated with each SSO event caused by a single asset failure.

9. Based on stakeholder input and Water Board staff experience implementing the SSO Reduction Program, SSO categories have been revised in this MRP. In the prior version of the MRP, SSOs have been categorized as Category 1 or Category 2. This MRP implements changes to SSO categories by adding a Category 3 SSO type. This change will improve data management to further assist Water Board staff with evaluation of high threat and low threat SSOs by placing them in unique categories (i.e., Category 1 and Category 3, respectively). This change will also assist enrollees in identifying SSOs that require Cal OES notification.

10. Based on over six years of implementation of the SSS WDRs, the State Water Board concludes that the February 20, 2008 MRP must be updated to better advance the SSO Reduction Program[4] objectives, assess compliance, and enforce the requirements of the SSS WDRs.

IT IS HEREBY ORDERED THAT:

Pursuant to the authority delegated by Water Code section 13267(f), Resolution 2002-0104, and Order 2006-0003-DWQ, the MRP for the SSS WDRs (Order 2006-0003-DWQ) is hereby amended as shown in Attachment A and shall be effective on 07/26/2013.

7/30/13
Date

Thomas Howard
Executive Director

[3] California Integrated Water Quality System (CIWQS) publicly available at http://www.waterboards.ca.gov/ciwqs/publicreports.shtml

[4] Statewide Sanitary Sewer Overflow Reduction Program information is available at: http://www.waterboards.ca.gov/water_issues/programs/sso/

ATTACHMENT A

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM
FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR
SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to $5,000 a day per violation pursuant to Water Code section 13350; up to $1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

A. SUMMARY OF MRP REQUIREMENTS

Table 1 – Spill Categories and Definitions

CATEGORIES	DEFINITIONS [see Section A on page 5 of Order 2006-0003-DWQ, for Sanitary Sewer Overflow (SSO) definition]
CATEGORY 1	Discharges of untreated or partially treated wastewater of <u>any volume</u> resulting from an enrollee's sanitary sewer system failure or flow condition that: • Reach surface water and/or reach a drainage channel tributary to a surface water; or • Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
CATEGORY 2	Discharges of untreated or partially treated wastewater of <u>1,000 gallons or greater</u> resulting from an enrollee's sanitary sewer system failure or flow condition that <u>do not</u> reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
CATEGORY 3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems <u>within a privately owned sewer lateral</u> connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be <u>voluntarily</u> reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION (see section B of MRP)	• Within two hours of becoming aware of any Category 1 SSO **greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water**, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number	Call Cal OES at: (800) 852-7550
REPORTING (see section C of MRP)	• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date. • Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. • "No Spill" Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred. • Collection System Questionnaire: Update and certify every 12 months.	Enter data into the CIWQS Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
WATER QUALITY MONITORING (see section D of MRP)	• Conduct water quality sampling **within 48 hours** after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters
RECORD KEEPING (see section E of MRP)	• SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	Self-maintained records shall be available during inspections or upon request.

B. NOTIFICATION REQUIREMENTS

Although Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) staff do not have duties as first responders, this MRP is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES and obtain a notification control number.

2. To satisfy notification requirements for each applicable SSO, the enrollee shall provide the information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:

    i. Name of person notifying Cal OES and direct return phone number.
    ii. Estimated SSO volume discharged (gallons).
    iii. If ongoing, estimated SSO discharge rate (gallons per minute).
    iv. SSO Incident Description:
        a. Brief narrative.
        b. On-scene point of contact for additional information (name and cell phone number).
        c. Date and time enrollee became aware of the SSO.
        d. Name of sanitary sewer system agency causing the SSO.
        e. SSO cause (if known).
    v. Indication of whether the SSO has been contained.
    vi. Indication of whether surface water is impacted.
    vii. Name of surface water impacted by the SSO, if applicable.
    viii. Indication of whether a drinking water supply is or may be impacted by the SSO.
    ix. Any other known SSO impacts.
    x. SSO incident location (address, city, state, and zip code).

3. Following the initial notification to Cal OES and until such time that an enrollee certifies the SSO report in the CIWQS Online SSO Database, the enrollee shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).

4. PLSDs: The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

C. REPORTING REQUIREMENTS

1. **CIWQS Online SSO Database Account:** All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS. These accounts allow controlled and secure entry into the CIWQS Online SSO Database.

2. **SSO Mandatory Reporting Information:** For reporting purposes, if one SSO event results in multiple appearance points in a sewer system asset, the enrollee shall complete one SSO report in the CIWQS Online SSO Database which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.

3. **SSO Categories**

   i. **Category 1** – Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee's sanitary sewer system failure or flow condition that:

      a. Reach surface water and/or reach a drainage channel tributary to a surface water; or

      b. Reach a MS4 and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

   ii. **Category 2** – Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee's sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.

   iii. **Category 3** – All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

4. **Sanitary Sewer Overflow Reporting to CIWQS - Timeframes**

   i. **Category 1 and Category 2 SSOs** – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:

      a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within three (3) business days of the enrollee becoming aware of the SSO. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 8.i.a. below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 8.i.c below.

      b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 8.i.b below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 8.i.d below.

ii. **Category 3 SSOs** – All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section 8.i.e below.

iii. **"No Spill" Certification** – If there are no SSOs during the calendar month, the enrollee shall either 1) certify, within 30 calendar days after the end of each calendar month, a "No Spill" certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, "No Spill" certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 - April/May/June, Q3 - July/August/September, and Q4 - October/November/December.

If there are no SSOs during a calendar month but the enrollee reported a PLSD, the enrollee shall still certify a "No Spill" certification statement for that month.

iv. **Amended SSO Reports** – The enrollee may update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be amended up to 120 days after the effective date of this MRP. After 120 days, the enrollee may contact the SSO Program Manager to request to amend an SSO report if the enrollee also submits justification for why the additional information was not available prior to the end of the 120 days.

5. **SSO Technical Report**

The enrollee shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

i. **Causes and Circumstances of the SSO:**

a. Complete and detailed explanation of how and when the SSO was discovered.

b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).

c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.

d. Detailed description of the cause(s) of the SSO.

e. Copies of original field crew records used to document the SSO.

f. Historical maintenance records for the failure location.

ii. **Enrollee's Response to SSO:**

a. Chronological narrative description of all actions taken by enrollee to terminate the spill.

b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.

c. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

iii. **Water Quality Monitoring:**

a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.

b. Detailed location map illustrating all water quality sampling points.

6. **PLSDs**

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

i. The enrollee is also encouraged to provide notification to Cal OES per section B above when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the enrollee is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified above and required by State law.

ii. If a PLSD is recorded in the CIWQS Online SSO Database, the enrollee must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party (other than the enrollee), if known. Certification of PLSD reports by enrollees is not required.

7. **CIWQS Online SSO Database Unavailability**

In the event that the CIWQS Online SSO Database is not available, the enrollee must fax or e-mail all required information to the appropriate Regional Water Board office in accordance with the time schedules identified herein. In such event, the enrollee must also enter all required information into the CIWQS Online SSO Database when the database becomes available.

8. **Mandatory Information to be Included in CIWQS Online SSO Reporting**

All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS which can be reached at CIWQS@waterboards.ca.gov or by calling (866) 792-4977, M-F, 8 A.M. to 5 P.M. These accounts will allow controlled and secure entry into the CIWQS Online SSO Database. Additionally, within thirty (30) days of initial enrollment and prior to recording SSOs into the CIWQS Online SSO Database, all enrollees must complete a Collection System Questionnaire (Questionnaire). The Questionnaire shall be updated at least once every 12 months.

i. **SSO Reports**

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report for each category of SSO:

a. **Draft Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 1 SSO report:

1. SSO Contact Information: Name and telephone number of enrollee contact person who can answer specific questions about the SSO being reported.
2. SSO Location Name.
3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
4. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
5. Whether or not the SSO reached a municipal separate storm drain system.
6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
7. Estimate of the SSO volume, inclusive of all discharge point(s).
8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
9. Estimate of the SSO volume recovered (if applicable).
10. Number of SSO appearance point(s).
11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
12. SSO start date and time.
13. Date and time the enrollee was notified of, or self-discovered, the SSO.
14. Estimated operator arrival time.
15. For spills greater than or equal to 1,000 gallons, the date and time Cal OES was called.
16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.

b. **Certified Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 8.i.a :

1. Description of SSO destination(s).
2. SSO end date and time.
3. SSO causes (mainline blockage, roots, etc.).
4. SSO failure point (main, lateral, etc.).
5. Whether or not the spill was associated with a storm event.
6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
7. Description of spill response activities.
8. Spill response completion date.
9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.

10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
11. Whether or not health warnings were posted as a result of the SSO.
12. Name of beach(es) closed and/or impacted. If no beach was impacted, NA shall be selected.
13. Name of surface water(s) impacted.
14. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
15. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
16. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
17. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.

c. **Draft Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 2 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO.

d. **Certified Category 2 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 2 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-9, and 17 in section 8.i.b above for Certified Category 1 SSO.

e. **Certified Category 3 SSOs**: At a minimum, the following mandatory information shall be reported for a certified Category 3 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-6, and 17 in section 8.i.b above for Certified Category 1 SSO.

ii. **Reporting SSOs to Other Regulatory Agencies**

These reporting requirements do not preclude an enrollee from reporting SSOs to other regulatory agencies pursuant to state law. In addition, these reporting requirements do not replace other Regional Water Board notification and reporting requirements for SSOs.

iii. **Collection System Questionnaire**

The required Questionnaire (see subsection G of the SSS WDRs) provides the Water Boards with site-specific information related to the enrollee's sanitary sewer system. The enrollee shall complete and certify the Questionnaire at least every 12 months to facilitate program implementation, compliance assessment, and enforcement response.

iv. **SSMP Availability**

The enrollee shall provide the publicly available internet web site address to the CIWQS Online SSO Database where a downloadable copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP is posted. If all of the SSMP documentation listed in this subsection is not publicly available on the Internet, the enrollee shall comply with the following procedure:

a. Submit an **electronic** copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP to the State Water Board, within 30 days of that approval and within 30 days of any subsequent SSMP re-certifications, to the following mailing address:

State Water Resources Control Board
Division of Water Quality
Attn: SSO Program Manager
1001 I Street, 15th Floor, Sacramento, CA 95814

D. WATER QUALITY MONITORING REQUIREMENTS:

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO Water Quality Monitoring Program, shall, at a minimum:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 48 hours of the enrollee becoming aware of the SSO, require water quality sampling for, at a minimum, the following constituents:
   i. Ammonia
   ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction which may include total and fecal coliform, enterococcus, and e-coli.

E. RECORD KEEPING REQUIREMENTS:

The following records shall be maintained by the enrollee for a minimum of five (5) years and shall be made available for review by the Water Boards during an onsite inspection or through an information request:

1. General Records: The enrollee shall maintain records to document compliance with all provisions of the SSS WDRs and this MRP for each sanitary sewer system owned including any required records generated by an enrollee's sanitary sewer system contractor(s).
2. SSO Records: The enrollee shall maintain records for each SSO event, including but not limited to:
   i. Complaint records documenting how the enrollee responded to all notifications of possible or actual SSOs, both during and after business hours, including complaints that do not

result in SSOs. Each complaint record shall, at a minimum, include the following information:

a. Date, time, and method of notification.

b. Date and time the complainant or informant first noticed the SSO.

c. Narrative description of the complaint, including any information the caller can provide regarding whether or not the complainant or informant reporting the potential SSO knows if the SSO has reached surface waters, drainage channels or storm drains.

d. Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously.

e. Final resolution of the complaint.

ii. Records documenting steps and/or remedial actions undertaken by enrollee, using all available information, to comply with section D.7 of the SSS WDRs.

iii. Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated.

3. Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.

4. Electronic monitoring records relied upon for documenting SSO events and/or estimating the SSO volume discharged, including, but not limited to records from:

i. Supervisory Control and Data Acquisition (SCADA) systems

ii. Alarm system(s)

iii. Flow monitoring device(s) or other instrument(s) used to estimate wastewater levels, flow rates and/or volumes.

F. CERTIFICATION

1. All information required to be reported into the CIWQS Online SSO Database shall be certified by a person designated as described in subsection J of the SSS WDRs. This designated person is also known as a Legally Responsible Official (LRO). An enrollee may have more than one LRO.

2. Any designated person (i.e. an LRO) shall be registered with the State Water Board to certify reports in accordance with the CIWQS protocols for reporting.

3. Data Submitter (DS): Any enrollee employee or contractor may enter draft data into the CIWQS Online SSO Database on behalf of the enrollee if authorized by the LRO and registered with the State Water Board. However, only LROs may certify reports in CIWQS.

4. The enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO or DS (e.g., retired staff), including deactivation or a change to the LRO's or DS's contact information, shall be submitted by the enrollee to the State Water Board within 30 days of the change by calling (866) 792-4977 or e-mailing help@ciwqs.waterboards.ca.gov.

5. A registered designated person (i.e., an LRO) shall certify all required reports under penalty of perjury laws of the state as stated in the CIWQS Online SSO Database at the time of certification.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order amended by the Executive Director of the State Water Resources Control Board.

7/30/13
Date

Jeanine Townsend
Clerk to the Board

Appendix C

Sample "Payment Bond" Form

Sample "Performance Bond" Form

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That WHEREAS, the County of San Mateo hereinafter designated as the "County," has awarded to _____, hereinafter designated
(Contractor's Name)
as the "Principal," a contract dated _____, hereinafter designated
(Contract Award Date)
as the "Contract," which Contract is by this reference made a part hereof, for the work described as **Middlefield Road Improvement Project (County Project No. OD420)**.
(Project Name, Location and Number)

And WHEREAS, pursuant to law, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by whom the Contract is awarded to secure the claims to which reference is made in Sections 9550 to 9566 and 9100 to 9364 both inclusive, of the Civil Code of California.

NOW THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned,
(Surety's Name)
as corporate Surety, are held and firmly bound unto all laborers, material men and other persons referred to in said statutes in the sum of

_____ Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the above bonded Principal, contractor, person, company or corporation, or his or its sub-contractor, fails to pay any claimant name in Section 9100 of the Civil Code of the State of California, or amounts due under the Unemployment Insurance Code, with respect to work or labor performed by any such claimant, that the Surety on this bond will pay the same, in an amount not exceeding the aggregate sum specified in this bond, and also, in case suit is brought upon this bond, a reasonable attorney's fee, which shall be awarded by the court to the prevailing party in said suit, and attorney's fees to be taxed as costs in said suit.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Section 9100 to 9364 of the Civil Code, so as to give a right of action to them 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 the Civil Code, Sections 9550-9566 inclusive, and all amendments thereto.

Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

And the said Surety, for value received, hereby stipulates and agrees that no change will be made which increases the total Contract price more than twenty percent (20 percent) in excess of the original Contract price without notice to the Surety, then, this obligation to be void, otherwise to remain in full force and virtue.

Correspondence relating to this bond shall be sent to the Surety at the address set forth below.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety this _____ day of _____, 20___.

_____	_____
Principal	Surety
_____	_____
Signature	Signature
_____	_____
Printed Name	Printed Name

Address for Notices:

_____

_____

_____

_____

NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That WHEREAS, the County of San Mateo hereinafter designated as the "County," has awarded to _____, hereinafter designated
(Contractor's Name)
as the "Principal," a contract dated _____, hereinafter designated
(Contract Award Date)
as the "Contract," which Contract is by this reference made a part hereof, for the work described as **Middlefield Road Improvement Project (County Project No. OD420)**.
(Project Name, Location and Number)

And WHEREAS, Principal is required to furnish a bond in connection with the Contract, guaranteeing the faithful performance thereof.

NOW THEREFORE, THESE PRESENTS WITNESSETH:

That the said Principal and the undersigned _____,
(Surety's Name)
as corporate Surety, are held and firmly bound unto the County in the sum of

_____ Dollars ($_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the above bonded Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the County, with or without notice to the Surety, and during the life of any guarantee required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may

hereafter be made, except that no change will be made which increases the total Contract price more than twenty percent (20 percent) in excess of the original Contract price without notice to the Surety, then, this obligation to be void, otherwise to remain in full force and virtue.

Correspondence relating to this bond shall be sent to the Surety at the address set forth below.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety this _____ day of _____, 20___.

_____	_____
Principal	Surety
_____	_____
Signature	Signature
_____	_____
Printed Name	Printed Name

Address for Notices:

_____

_____

_____

_____

NOTE: Notary acknowledgement for Surety and Surety's Power of Attorney must be attached.

Appendix D

Daily Personnel and Equipment Log

DAILY PERSONNEL AND EQUIPMENT LOG

Using as many copies of this form necessary, the Contractor shall provide the Engineer with a list of all personnel and their title and, if applicable, equipment said employee is operating. This information is required of the Prime and their Subcontractors.

This form, if used in lieu of Contractor's Daily Dispatch Report, shall be submitted to the Engineer by the start of the first working day subsequent to the performance of the work, or Contractor may incur task-specific liquidated damages in the amount of $500 per day for every day hence until submittal is made. Reference is made to Section 7-4.1, "Payroll Records," of the Project Special Provisions.

Date: _____ **Project No.:** OD420

Project: Middlefield Road Improvement Project

Contractor: _____

Is this log for Subcontractor? _____ **Yes** _____ **No**

If yes, Name of Subcontractor: _____

Personnel		Equipment			
Name	Title/Trade	No.	Type	Make	Model

Notes: _____

Appendix E

Public Contract Code
Sections 9204 and 20104 et seq.

Public Contract Code Section 9204 et seq.

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.

SEC. 2.

The Legislature finds and declares that it is of statewide concern to require a charter city, charter county, or charter city and county to follow a prescribed claims resolution process to ensure there are uniform and equitable procurement practices.

SEC. 3.

If the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

Public Contract Code Section 20104 et seq.

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.

(Amended by Stats. 2010, Ch. 697, Sec. 47. Effective January 1, 2011. Operative July 1, 2012, by Sec. 105 of Ch. 697.)

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.

(Added by Stats. 1994, Ch. 726, Sec. 22. Effective September 22, 1994.)

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.

(Amended by Stats. 2004, Ch. 182, Sec. 54. Effective January 1, 2005. Operative July 1, 2005, by Sec. 64 of Ch. 182.)

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.

(Added by Stats. 1994, Ch. 726, Sec. 22. Effective September 22, 1994.)

Appendix F

Regulatory Environmental Documents:

Mitigation Measures and
Mitigation Monitoring and Reporting Program

Mitigation and Monitoring Reporting Program

Where a California Environmental Quality Act (CEQA) document has identified significant environmental effects, Public Resources Code Section 21081.6 requires adoption of a "reporting or monitoring program for the changes to the project which it has adopted or made a condition of a project approval to mitigate or avoid significant effects on the environment."

A public agency is required to ensure that the measures are fully enforceable, through permit conditions, agreements, or other means (Public Resources Code Section 21081.6(b)). The Mitigation Monitoring and Reporting Program (MMRP) must be designed to ensure project compliance with mitigation measures during project implementation. The County of San Mateo (County) is the Lead Agency that must adopt the MMRP for development of the project.

This MMRP has been prepared to provide for the monitoring of mitigation measures required of the Middlefield Road Improvement Project (the project), as set forth in the Final Initial Study/Mitigated Negative Declaration. Table F-1 lists each of the mitigation measures identified in Section 4 of the IS/MND, along with information about the entity responsible for implementing each measure, timing requirements, and implementation procedures. Key features of the MMRP are briefly described below:

- **Implementation Responsibility** identifies the person/group responsible for implementation of the mitigation measure.
- **Mitigation Responsibility** assigns the responsibility for each mitigation measure and reporting tasks.
- **Monitoring and Reporting Action** identifies the outcome from implementation of mitigation measures.
- **Mitigation Schedule** provides the general schedule for conducting each mitigation task.
- **Verification of Compliance** documents the person who verified implementation of the mitigation measure and the date on which this verification occurred.

The MMRP is incorporated into the Final IS/MND (State Clearinghouse Number 2018082043), as Appendix F. Implementation of this MMRP by the County would reduce the potential environmental effects from the Project to a less than significant level.

The Final IS/MND, including this MMRP, provides the basis for the County to determine that the Project would not have a significant effect on the environment.

Table F: Middlefield Road Improvement Project Mitigation Monitoring and Reporting Program

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Mitigation Measure AQ-1: Implement BAAQMD Basic Construction Mitigation Measures. The County shall include the following measures in contractor specifications for the Project, and such measures, if applicable and as directed by the County's Engineer, shall be implemented during all phases of construction: All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered 2 times per day. All haul trucks transporting soil, sand, or other loose material shall be covered. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads will be laid as soon as possible after grading, unless seeding or soil binders are used. Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations). Clear signage shall be provided for construction workers at all access points. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will be checked by a certified visible emissions evaluator. A publicly visible sign shall be posted at the Project construction site(s) with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number also shall be visibly posted, for compliance with applicable regulations.	County Construction Contractor(s)	County	Review and approve construction plans, bid documents, and specifications for inclusion of BAAQMD Basic Construction mitigation measures as specified in this measure.	Prior to and during construction	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Mitigation Measure BIO-1: Nesting Birds Project construction activities, particularly any tree trimming or removal (if necessary), shall be timed to avoid the bird nesting season (February 1st through August 31st) when possible. If construction activities are scheduled during the nesting season, and if any tree trimming or removal is necessary, a qualified biologist shall conduct a preconstruction survey at least two weeks prior to commencement of construction activities to identify any potential nesting activity. If the survey indicates the presence of nesting birds, protective buffer zones shall be established around the nests. The size of the buffer zone shall be recommended by the biologist in *consultation* with the CDFW depending on the species of nesting bird and level of potential disturbance. The buffer zones shall remain in place until the young have fledged and are foraging independently. A qualified biologist shall monitor the nests closely until it is determined the nests are no longer active, at which time construction activities may commence within the buffer area.	County Construction Contractor(s) Qualified biologist retained by the County (if necessary)	County	Monitor project schedule and contractor compliance. If construction activities scheduled during nesting season, and if any trimming or removal is necessary, verify pre-construction surveys are completed and recommended buffers maintained during construction.	Prior to and during construction	
Mitigation Measure CUL-1: Treatment of Unanticipated Archaeological Discoveries: If unanticipated prehistoric or historic-period archaeological resources are encountered during construction, work shall be temporarily halted in the vicinity of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist has evaluated, recorded and determined appropriate treatment of the resource, in consultation with the County. Project personnel shall not collect cultural resources. Cultural resources shall be recorded on California Department of Parks and Recreation (DPR) 523 historic resource recordation forms. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle	County Construction Contractor(s)	County	Monitor contractor compliance	During construction	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
dumps, often located in old wells or privies. If it is determined that the proposed development could damage a unique archaeological resource, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. This measure would reduce the potential impact on archaeological resources to a less-than-significant level.					
Mitigation Measure CUL-2: Treatment of Human Remains: If human remains of Native American origin are discovered during construction of the Project, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (Public Resources Code Section 5097). If any human remains are discovered in any location in the Project area, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: The San Mateo County coroner has been informed and has determined that no investigation of the cause of death is required; and If the remains are of Native American origin: The descendants of the deceased Native Americans have made a recommendation regarding the disposition of remains and any associated grave goods, as provided in Public Resources Code Section 5097.98; or The NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified.	County Construction Contractor(s)	County	Monitor contractor compliance	During construction	
Mitigation Measure HAZ-1: Environmental Site Investigation. Prior to any substantial ground disturbance within the areas specified below, the County or their Construction Contractor(s) shall hire a qualified environmental professional to conduct a Phase II environmental site investigation (ESI) to determine the potential presence of metals and organic compounds in soil and groundwater within the railroad ROW or within 100 feet of the following properties: 2655 Middlefield Road (Geotracker Case T0608100544: Tilton Properties)	County Construction Contractor(s) Qualified environmental professional	County	Verify a Phase II ESI has been prepared and recommendations implemented. If site-specific soil and groundwater management plan	Prior to any ground disturbance within the railroad ROW or within 100 feet of	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
2682 Middlefield Road (Geotracker Case T0608100066: Beals and Martin Associates) 3157 Middlefield Road (Geotracker Case T0608100218: Figueras Property) 3233 Middlefield Road (Geotracker Case T0608152727: Zohrab's Garage) The Phase II ESI shall compare soil and groundwater sampling results against applicable environmental screening levels developed by the Regional Water Quality Control Board and/or Department of Toxic Substances Control. If the Phase II ESI identifies contaminant concentrations above the screening levels, a site-specific soil and groundwater management plan shall be prepared and implemented. The County shall consult with the RWQCB, DTSC, and/or other appropriate regulatory agencies to ensure sufficient minimization of risk to human health and the environment is completed. The site-specific soil and groundwater management plan shall be formulated with the objective of handling and disposing of excavated soil, groundwater, and/or dewatering effluent in accordance with federal and state hazardous waste disposal laws, and with state and local stormwater and sanitary sewer requirements, and at a minimum, shall include the following: Identification and delineation of contaminated areas and procedures for limiting access to such areas to properly trained personnel; Procedures for handling, excavating, characterizing and managing excavated soils and dewatering effluent including potential procedures for managing and disposing of hazardous waste; Procedures for notification and reporting, including internal management and local agencies, as needed; Minimum requirements for site-specific health and safety plans, to protect the general public and workers in the construction area (note: these requirements and the environmental sampling results shall be provided to contractors who shall be responsible for developing their own construction worker health and safety plans and training requirements).			is required, verify that it is prepared and implemented, and provide appropriate closure documentation or written statement from the relevant oversight agency(ies) that remediation work has been satisfactorily completed and without further conditions or obligations.	the specified properties	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Mitigation Measure HAZ-2: Contractor Specifications. The County shall include the following measures in its contractor specifications, and such measures shall be implemented by the contractor(s) during construction: During all ground-disturbing activities throughout the Project area, the Contractor(s) shall inspect the exposed soil and groundwater for obvious signs of contamination, such as odors, stains, or other suspect materials. Should signs of unanticipated contamination be encountered, work will be suspended, San Mateo County Department of Environmental Health (SMCDEH) will be notified, and the area secured. An investigation shall be designed and performed to verify the presence and extent of contamination at the site, and a site-specific soil and groundwater management plan, as described under Mitigation Measure HAZ-1 above, shall be prepared and implemented. Prior to commencement of construction activities, the Contractor shall prepare and implement a site-specific health and safety plan (HASP), in accordance with State and federal Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120). Copies of the HASP shall be made available to construction workers for review during their orientation and/or regular health and safety meetings, and a copy provided to the County Department of Public Works (DPW). The HASP shall be amended, as necessary, if new information becomes available that could affect implementation of the plan.	County Construction Contractor(s)	County	Review and approve construction plans, bid documents, and specifications for inclusion of measures as specified in this measure.	Prior to and during construction	
Mitigation Measure NOI-1: Limitations on Construction Activities Generating Excessive Vibration. The County shall include the following measures in its contractor specifications, and such measures shall be implemented by the Contractor(s) during construction: Operation of construction equipment shall be prohibited within the following specified distances of adjacent building facades, per the following categories, unless the precautions in subsection (b) below are implemented: 15 feet for large bulldozers (and comparable large mobile equipment/vehicles having a reference PPV of 0.089 inch per second at 25 feet, per FTA guidance);	County Construction Contractor(s)	County	Review and approve construction plans, bid documents, and specifications for inclusion of vibration reduction measures as specified in this measure.	Prior to and during construction	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
8 feet for jackhammers (and comparable portable vibratory equipment having a reference PPV of 0.035 inch per second at 25 feet, per FTA guidance); and D feet for any other vibratory equipment having a reference PPV of X inches per second vibration velocity at 25 feet, that satisfies the following expression: 0.2 inch per second = X * (25/D)^1.5. If the restrictions within subsection (a) above cannot be achieved, the contractor implement the following measures: Pre-construction inspections of the facades of adjacent buildings within the specified distances to document pre-construction conditions. Daily inspections of the facades of adjacent buildings during use of heavy or vibratory equipment within the specified distances, to document any construction-related vibration damage. If any construction-related damage is observed, the Contractor shall be responsible for repairing any construction-related vibratory damage to building facades to pre-construction conditions.					
Mitigation Measure NOI-2: Limitations on Construction Activities Generating Excessive Noise. The County shall include the following measures in its contractor specifications, and such measures shall be implemented by the contractor(s) during construction: Per San Mateo County's Municipal Code, construction activities shall be limited to the hours of 7 a.m. to 6 p.m. on weekdays, 9:00 am to 5:00 pm on Saturdays. Construction activities are prohibited at any time on Sundays, Thanksgiving, and Christmas. Provide written notification of construction activities and schedule to all noise-sensitive receptors (e.g., residential properties, hospitals, and schools) adjacent to the Project area. The notification shall include anticipated dates and hours during which construction activities are anticipated to occur and contact information, including a daytime telephone number, for the Project representative to be contacted in the event that noise levels are deemed excessive. Recommendations to assist noise-sensitive land uses in reducing	County Construction Contractor(s)	County	Review and approve construction plans, bid documents, and spec fications for inclusion of noise reduction measures as specified in this measure.	Prior to and during construction	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
interior noise levels (e.g., closing windows and doors) shall be included in the notification.					
Prohibit unnecessary idling of internal combustion engines. Equip all equipment driven by internal combustion engines with mufflers which are in good mechanical condition, appropriate for the equipment, and no less effective that those originally installed by the manufacturer.					
Utilize "quiet" air compressors and other stationary noise sources where practical and feasible. Use electrically powered equipment instead of internal combustion equipment where practicable and feasible.					
Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors and place equipment so that emitted noise is directed away from nearby sensitive receptors.					
Construct temporary noise barriers, where feasible and as directed by the County Engineer, to screen stationary noise-generating equipment when located within 200 feet of adjoining sensitive land uses. Temporary noise barrier fences would provide a 5-15 dBA noise reduction if the noise barrier interrupts the line-of-sight between the noise source and receiver and if the barrier is constructed in a manner that eliminates any cracks or gaps.					
Control noise from construction workers' radios to a point where they are not audible at existing residences bordering the Project area.					
Equip concrete saws (or similar portable/mobile equipment) with modern noise-reducing blades; and install sound-absorptive and sound-blocking shrouds or temporary barriers (e.g., curtains or blankets suspended from portable field-erected framing systems, such as EchoBarrier or comparable commercially-available products and assemblies) that can be readily moved--and thus stay in proximity to the concrete saw—as work progresses to different locations on the Project area.					
Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad					

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
muffler, etc.) and institute reasonable measures as warranted to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.					
Mitigation Measure TRA-1: Traffic Control Plan. The Construction Contractor shall be responsible for preparing and implementing a Traffic Control Plan (TCP) approved by the County, prior to the start of construction. The TCP shall include traffic control measures to ensure the safety of all roadway users (including motorists, transit riders, bicyclists, and pedestrians) and minimize disruptions to traffic, transit, bicycle, and pedestrian circulation during the construction period. Towards the above goals, the TCP shall include, but not be limited to, the following provisions: Identification of required temporary traffic control devices (as determined necessary by the County), including signage, delineators, flashing arrows, and/or temporary pavement markings (e.g., lane striping). Advance notification (signage) to notify all roadway users of major construction activities (e.g., lane closures, bus stop relocations) and other associated information (e.g., recommended detour routes). Coordination with transit service providers (i.e., SamTrans) to identify potential effects to transit access or operations and potential solutions to address these issues (e.g., relocation of bus stops). Coordination with County and local emergency service providers (e.g., police, fire, and medical) to minimize effects on response times through the Project area (e.g., identification of detour routes) and maintenance of emergency vehicle access for properties adjacent to or in the vicinity of the Project area at all times. Identification of locations for contractor parking (e.g., existing on- and/or off-street facilities, staging areas within the Middlefield Road ROW, etc.), if necessary, to minimize the loss of on-street parking capacity within the Project area during construction.	County Construction Contractor(s)	County	Review and approve a Traffic Control Plan, with contents specified in this measure.	Prior to and during construction	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Identification of construction equipment/material delivery procedures and staging areas. Restrictions on construction truck traffic to and from the site during the weekday AM and PM peak periods, when feasible. Deployment of flaggers and appropriate signage to ensure the safety of all roadway users during lane closures. Notification to adjacent property owners and public safety personnel regarding schedules for major deliveries, recommended detour routes, and other construction effects (e.g., lane/sidewalk closures). Identification of designated routes for construction trucks traveling to/from the site and monitoring of pavement quality along these routes so that damage and debris attributable to construction trucks can be identified and corrected by the Construction Contractor. Procedures for granting access to delivery trucks and service vehicles to businesses within the active construction segment during construction hours, including signage, barricades, use of flaggers; and for maintaining access after hours and/or during weekends when construction personnel are not present. Maintenance of dedicated pedestrian walkways to all businesses throughout the construction period, with appropriate signage and notification to affected businesses.					
Mitigation Measure TRA-2: Middlefield Road/Fifth Avenue Intersection Improvements. To mitigate the Project's LOS impacts at the Middlefield Road/Fifth Avenue intersection, the County Department of Public Works shall fund and implement the following improvements such that the increase in	County	County	Confirm that improvements have been included within final design drawings.	Prior to approval of final project design	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
average peak-hour delay over 2020 No Build conditions would be less than 4 seconds: Re-stripe the eastbound and westbound approaches of Fifth Avenue to include a left-turn pocket and a shared through/right-turn lane; and Modify signal timing.					
Mitigation Measure TRA-3: Monitoring and Improvements at Middlefield Road/Berkshire Avenue, Middlefield Road/First Avenue, Middlefield Road/Sixth Avenue, Middlefield Road/Seventh Avenue, and El Camino Real/Fifth Avenue. The County Department of Public Works shall monitor traffic delay at the five intersections listed above to determine when a significant impact would be triggered. Monitoring shall be performed every five years, starting in 2021 or one year following completion of Project construction (whichever is later), and a monitoring report shall be prepared for the County Department of Public Works. The monitoring reports shall include, but not be limited to, a narrative of the site conditions, the method of determining average traffic delay, the results of the monitoring program, and a comparison to 2050 No Build conditions as described in the traffic study. If monitoring at any of these intersections shows that the traffic delays would exceed the 2050 No Build Conditions by more than 4 seconds, the County Department of Public Works would fund and implement actions or improvements to decrease the average delay at those intersections to no more than 4 seconds above the delay under 2050 No Build conditions. The following suggested improvement actions have been identified for each intersection, and have been assessed as being sufficient to mitigate Project impacts to less-than-significant levels: Middlefield Road/Berkshire Avenue: Installation of a traffic signal. Middlefield Road/First Avenue: Installation of a traffic signal. Middlefield Road/Sixth Avenue: Installation of a traffic signal.	County	County	Implementation of intersection delay monitoring and preparation of monitoring report; Review of monitoring report; Fund and implement suggested improvements and/or fund and implement analysis of alternative improvements to achieve required reduction in delay.	Every five years, starting in 2021 or one year following completion of Project construction (whichever is later); If and when monitoring indicates that intersection delay would exceed the 2050 No Build Conditions by more than 4 seconds.	

Mitigation Measures	Implementation Responsibility	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Middlefield Road/Seventh Avenue: Modification of the eastbound approach (driveway) to right-turn-only egress (i.e., prohibition of left-turn and through movements out of the driveway). El Camino Real/Fifth Avenue: Addition of a second westbound left-turn pocket, and modification of signal timing to separate pedestrian crossing and left-turn phases. With the installation of each traffic signal (or combination of traffic signals), the County Department of Public Works shall re-evaluate traffic operations at nearby upstream and downstream intersections within the corridor, consistent with standard traffic engineering practice. This exercise would determine appropriate signal timing offsets or other specific design considerations, if warranted, to address any secondary impacts to traffic circulation. However, it is possible that at such future time when improvements are required to be implemented, the County Department of Public Works may seek to implement alternative improvement actions to mitigate the impacts. If so, the County Department of Public Works shall analyze the alternative improvements prior to implementation to document that they would achieve the same performance standard as the suggested improvements by reducing the average delay to no more than 4 seconds above the delay under 2050 No Build conditions.					

Appendix G

INTER-AGENCY PERMITS AND REQUIREMENTS

San Francisco Public Utilities Commission (SFPUC)

SFPUC Consent Letter (forthcoming)

San Mateo County Transit District (SamTrans)

SamTrans Right of Entry Permit Agreement

Exhibit C Working Procedures,

Exhibit D Operating System Interface (OSI)

Exhibit E Peninsula Corridor Joint Power Board (PCJPB)

Insurance Requirements

Union Pacific Railroad (UPRR)

Crossing Agreements

Track Monitoring Requirements,

Work Plan

Reference Drawings (See Project Plan Sheets RR2-RR7)

Final Interconnected Crossing Agreement

Contractor's Right of Entry Agreement (Sample)

San Francisco Public Utilities Commission (SFPUC)

SFPUC Consent Letter

(forthcoming)

Agreement No. 800865

RIGHT OF ENTRY PERMIT AGREEMENT

(Dumbarton Line)

This Right of Entry Permit Agreement ("Agreement" or "Permit") is entered into as of this ___ day of _____, 20__ ("Effective Date"), by and between the SAN MATEO COUNTY TRANSIT DISTRICT, a public agency ("SamTrans" or "Railroad") and the County of San Mateo by and through its Department of Public Works, a public agency ("Permittee").

RECITALS:

A. Railroad is the owner of the Dumbarton Line right-of-way ("Right-of-Way"), and specifically that certain real property which is located in the County of San Mateo, State of California, as depicted on Exhibit A (Location Map) which is attached to this Agreement and incorporated into it by this reference (the "Property").

B. Permittee desires to repave and reconfigure Middlefield Road in the unincorporated area in San Mateo County and relocate all overhead utilities and infrastructure to an underground joint utility trench. As part of this, the overhead utilities will be undergrounded to below grade crossing at the Dumbarton Railroad tracks (the "Work"). Work will be done by means of jack and bore in accordance with the plans shown on Exhibit B, attached hereto and by this reference made a part hereof.

C. Permittee desires to obtain a right of entry permit from Railroad that will permit Permittee to enter onto and work on Railroad's Property in connection with the Work.

D. Railroad is willing to grant the Permit to Permittee on the terms and conditions hereinafter set forth for the purposes of performing said Work.

FOR VALUABLE CONSIDERATION, the receipt of which is acknowledged, the parties agree as follows:

1. Grant of Permit. Subject to the conditions, covenants and restrictions of this Agreement, Railroad grants to Permittee a personal, revocable right of entry permit for the purposes of performing the Work on the Property together with necessary rights of ingress and egress over the Property for these purposes in the location described in the print of the drawing attached and incorporated as Exhibit B.

2. Permanent Improvements. Permittee shall not construct any permanent improvements on the Property unless Permittee has entered into a separate agreement with Railroad allowing such improvements.

3. Permit Fee. Permittee shall pay the permit fee of $1,500.00 payable to the San Mateo County Transit District.

4. Service Agreement. Agency has entered into a Service Agreement with Railroad.

5. Working Procedures. All Work performed by Permittee shall be performed in accordance with the Railroad's Operating Systems Interface, Exhibit C and the Work Procedures described in Exhibit D, both of which are attached hereto and by this reference made a part hereof.

6. Condition to Effectiveness. As a condition precedent to the effectiveness of this Agreement, Permittee shall have paid the permit fee indicated in Section 3 above, and provided to Railroad the insurance certificates that certify that Permittee has the kinds of insurance described in Exhibit E, attached hereto and by this reference made a part hereof.

7. Nonexclusiveness of Permit. This permit is nonexclusive and non-possessory. Permittee must allow access to the Property by other parties possessing prior rights, unless separate arrangements are made with such parties.

8. Prior Rights. This Permit is made subject and subordinate to the prior and continuing right and obligation of Railroad, its successors and assigns, to use the Right-of-Way in the performance of its transportation operations. There is reserved unto Railroad, its successors and assigns, the right to construct, reconstruct, maintain and use existing and future facilities and appurtenances, including, without limitation, existing and future transportation, communication, railroad tracks and pipeline facilities and appurtenances in, upon, over, under, across and along the Right-of-Way.

This grant is made subject to all licenses, leases, easements, restrictions, conditions, covenants, encumbrances, liens and claims of title that may affect the Right-of-Way. The word "grant" shall not be construed as a covenant against the existence of any of these or establish any ownership interest in the Right-of-Way.

9. Term of Permit. The term of this Permit shall commence upon the start of the Work upon the Property and shall continue until the Work is completed or this Permit is terminated or suspended as set forth herein:

(a) Either party may terminate this Agreement without cause by giving thirty (30) calendar days' written notice.

(b) Railroad may immediately terminate the Permit by notice to Permittee upon Permittee's discontinuance of the Work for one continuous year or the abandonment of any facilities installed on the Property.

(c) Railroad may immediately suspend the Permit by notice to Permittee if Permittee defaults with respect to any covenant or condition of this Agreement; Railroad may immediately terminate this Permit by notice to Permittee if Permittee fails to correct the default within thirty (30) days after receipt of notice from Railroad to do so.

(d) Railroad may immediately terminate or suspend this Permit by notice to Permittee upon any failure of Permittee (or Agency) to reimburse Railroad for any amount owing as and when due as provided any agreement with Railroad.

(e) The Permit shall lapse and become void if Work is not commenced within one year of the date of this Agreement.

Upon suspension of the Permit, Permittee shall immediately vacate the Property and refrain from entering onto it until the Permit is reinstated in writing by Railroad. Upon termination of the Permit for any reason established in this Section 9, Railroad may, at its sole election, at any time thereafter either complete the Work or remove the improvements placed on the Property or any portion thereof and restore the Property to its original condition, at Permittee's sole cost and expense. Permittee acknowledges and agrees that the performance of the Work or the installation of any improvements on the Property pursuant to this Agreement shall not in any way whatsoever limit Railroad's right to terminate this Permit pursuant to the terms hereof or any of Railroad's rights hereunder. Permittee's indemnity obligations set forth in Sections 13 and 14 shall survive termination of this Permit for any reason.

10. Protection of Railroad Facilities. The presence of Railroad's representatives, conductors, flagmen or watchmen may be required when Permittee or any of Permittee's forces or contractors are working on or near the Property and will be provided by Railroad to protect its facilities, property and movements of its trains or engines. In general, Railroad will furnish such personnel or other protective devices:

(a) When any part of any equipment is standing or being operated within 15 feet, measured horizontally, from centerline of any track on which trains may operate, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

(b) For any excavation below elevation or track subgrade if, in the opinion of Railroad's representative, track or other Railroad facilities may be subject to settlement or movement.

(c) For any clearing, grubbing, grading, or blasting which, in the opinion of Railroad's representative, may endanger Railroad facilities or operations.

Permittee specifically agrees that the need for and staffing of Railroad personnel or those of its Operator as provided in this Section shall be within Railroad's sole discretion, and the attendant costs shall be borne entirely by the Permittee.

11. Fiber Optics Systems. The rights granted by this Agreement are subject to the

rights of Railroad (or anyone acting with the permission of Railroad) to construct, reconstruct, maintain and operate fiber optic and other telecommunications systems ("Systems") in, upon, along, across and beneath the Right-of-Way, including the Property upon which the Work shall be conducted.

Permittee agrees to reimburse Railroad and/or the owner of the systems for all expenses which would not have been incurred except by reason of the use of the Property by Permittee, its agents, employees or invitees, including relocation costs or any damages incurred by such owner due to injury to the Systems.

In addition to other provisions of this Agreement requiring Permittee to give notice prior to commencing work, Permittee shall telephone Underground Service Alert at 1-800-642-2444 (a 24-hour number) to determine if a telecommunications system is buried anywhere on or about the Property. If there is, Permittee will telephone the owner of any system identified, arrange for a cable locator and make arrangements for relocation or other protection for the system prior to beginning any work on the Property.

12. Assumption of Risk/Waiver of Claims. Permittee shall assume all risk of damage to any and all improvements constructed as part of the Work and appurtenances and to any other property of Permittee, or any property under the control or custody of Permittee while upon or near the Property of Railroad incident to the performance of the Work, caused by or contributed to in any way by the construction, operation, maintenance or presence of Railroad's operations at the Property and Railroad shall not be liable therefor. Permittee hereby releases Railroad from any liability, including any claims for damages or extra compensation (i) arising from construction delays due to work by Railroad forces or Railroad operations, (ii) as the result of the failure or inability of Railroad to provide necessary flaggers or inspectors, (iii) due to the presence of Hazardous Materials on the Property, (iv) any failure by Railroad to investigate or identify the presence of such materials, (v) for work done by Railroad forces, or (vi) for Railroad operations.

(a) Neither Railroad nor any of its directors, officers, agents or employees shall be liable for any damage to the property of Permittee, its officers, agents, employees, contractors or subcontractors, or their employees, or for any bodily injury or death to such persons, resulting or arising from the condition of the Property or its use by Permittee.

(b) Permittee acknowledges that this Permit is freely revocable by Railroad and in view of such fact, Permittee expressly assumes the risk of making any expenditures in connection with this Permit, even if such expenditures are substantial. Without limiting any indemnification obligations of Permittee or other waivers contained in this Permit and as a material part of the consideration for this Permit, Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against, and covenants not to sue, Indemnitees (as defined in Section 13 below) under any present or future laws, statutes, or regulations, including, but not limited to, any claim for inverse condemnation or the payment of just compensation under law or equity, in the event that Railroad exercises its right to revoke or terminate this Permit.

(c) Permittee acknowledges that it will not be a displaced person referenced in The Uniform Relocation Assistance and Real Property Acquisition Act at the time this Permit is terminated or revoked or expires by its own terms, and Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against, and covenants not to sue, Indemnitees under any present or future laws, statutes, or regulations, including, without limitation, any and all claims for relocation benefits or assistance from Railroad under federal and state relocation assistance laws.

(d) Permittee expressly acknowledges and agrees that the fees payable hereunder do not take into account any potential liability of Railroad for any consequential or incidental damages including, but not limited to, lost profits and arising out of disruption to the facilities or Permittee's uses hereunder. Railroad would not be willing to give this Permit in the absence of a waiver of liability for consequential or incidental damages due to the acts or omissions of Railroad or its Agents, and Permittee expressly assumes the risk with respect thereto. Accordingly, without limiting any indemnification obligations of Permittee or other waivers contained in this Permit and as a material part of the consideration for this Permit, Permittee fully RELEASES, WAIVES AND DISCHARGES forever any and all claims, demands, rights, and causes of action against for consequential and incidental damages (including without limitation, lost profits and covenants not to sue Indemnitees for such damages) arising out of this Permit or the uses authorized hereunder, including, without limitation, any interference with uses conducted by Permittee pursuant to this Permit, regardless of the cause, and whether or not due to the negligence of Railroad Indemnitees, except for the gross negligence and willful misconduct of Railroad.

(e) As part of Permittee's agreement to accept the Permit in its existing condition, and without limiting such agreement, Permittee on behalf of itself and its successors and assigns, waives its right to recover from, and forever releases and discharges, Railroad Indemnitees, and their respective heirs, successors, administrators, personal representatives and assigns, from any and all Claims, whether direct or indirect, known or unknown, foreseen and unforeseen, that may arise on account of or in any way be connected with the physical or environmental condition of the Property and any related improvements or any law or regulation applicable thereto or the suitability of the Permit for Permittee's intended use.

(f) In connection with the foregoing releases, Permittee acknowledges that it is familiar with Section 1542 of the California Civil Code, which reads:

> A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her would have materially affected his or her settlement with the debtor or released party.

Permittee acknowledges that the releases contained herein include all known and unknown, disclosed and undisclosed, and anticipated and unanticipated claims. Permittee realizes and acknowledges that it has agreed upon this Permit in light of this

realization and, being fully aware of this situation, it nevertheless intends to waive the benefit of Civil Code Section 1542, or any statute or other similar law now or later in effect. The releases contained herein shall survive any termination of this Permit.

13. Indemnity. Permittee shall release, defend (with counsel reasonably satisfactory to Railroad) and indemnify the San Mateo County Transit District, the Union Pacific Railroad Company, and all of their respective officers, directors, employees, volunteers and agents, the successors and assigns of any of them, (all of the above hereinafter collectively known as "Indemnitees"), from and against all claims, causes of action, proceedings, losses, damages, liability, cost, and expense (including, without limit, any fines, penalties, judgments, litigation costs, attorneys' fees and consulting, engineering and construction costs) for damage to natural resources or other loss of or damage to property and for injuries to or death of any person (including, but not limited to, the property and employees of each party) ("Liability") when arising or resulting from the use of the Property or performance of the Work by Permittee, its agents, employees, contractors, subcontractors, or invitees or Permittee's breach of the provisions of this Agreement. The duty of Permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code. It is the express intent of the parties that Permittee will indemnify and hold harmless Indemnitees from any and all claims, suits or actions arising from any cause whatsoever as set forth above regardless of the existence or degree of fault or negligence on the part of Indemnitees, Permittee, or any subcontractor or employee of any of these, except to the extent the Liability was attributable to the sole negligence, willful misconduct or criminal acts of a particular Indemnitee, it being understood and agreed that any Indemnitee not acting in such a manner shall still be entitled to the benefits of this indemnity. Permittee waives any and all rights to any type of express or implied indemnity against Indemnitees. This indemnity shall survive termination of this Agreement.

14. Hazardous Waste. No Hazardous Materials (as defined below) shall be created, stored, used, disposed of, brought to or handled at any time upon the Property, except Hazardous Materials contained in or used in connection with construction equipment necessary for the operation of such equipment or vehicle being used for work which is authorized on the Property under this Permit. In conducting its operations on the Property, and in arranging for the handling, transport and disposal of any materials known (whether or not hazardous), Permittee shall at all times comply with all applicable laws, statutes, ordinances, rules, regulations or orders of whatever kind or nature and pay all costs of such compliance. Permittee shall immediately notify Railroad when Permittee learns of, or has reason to believe that, a release of Hazardous Material has occurred in, on or about the Property. The term "release" or "threatened release" when used with respect to Hazardous Material shall include any actual or imminent spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing in, on, under or about the Property. Permittee shall further comply with all laws requiring notice of such releases or threatened releases to governmental agencies, and shall take all action necessary to mitigate the release or minimize the spread of contamination. In the event that a Permittee or its Agents or Invitees cause a release of Hazardous Material, Permittee shall, without cost to Railroad and in accordance with all laws and regulations, return the Property to the condition immediately prior to the release. In connection therewith, Permittee shall

afford Railroad a full opportunity to participate in any discussion with governmental agencies regarding any settlement agreement, cleanup or abatement agreement, consent decree or other compromise proceeding involving Hazardous Material.

Any Hazardous Materials introduced onto the Property by Permittee, its agents, employees, contractors, subcontractors or invitees, shall remain the property of Permittee, its agents, employees, contractors, subcontractors or invitees, which shall be responsible for disposing of these materials at no cost to Railroad or any Indemnitee, and Permittee shall be obligated to defend, indemnify and hold Indemnitees harmless from any and all Liability arising from it, regardless of whether such Liability arises during or after the term of this Permit. This indemnity shall not extend to Liability arising from the presence of any Hazardous Materials on the Property, unless (i) such Hazardous Materials were introduced onto the Property by Permittee, its agents, employees, contractors, subcontractors or invitees, in which case this indemnity shall apply, or (ii) Hazardous Materials are present on the Property, and Permittee's handling, excavation, relocation, investigation, disposal or other exercise of control over the Property imposes on the Railroad new or additional liability, which the Railroad would not otherwise have incurred in the absence of Permittee's activities or project. (In such event, Permittee shall pay for and defend and indemnify Indemnitees from and against such additional liability to the extent of the increment.)

Any Hazardous Materials not introduced onto the Property by Permittee, its agents, employees, contractors, subcontractors or invitees shall remain the property of the Railroad (or other responsible third parties) and shall not be deemed property of Permittee.

For purposes of this Agreement, "Hazardous Material" means material that, because of its quantity, concentration or physical or chemical characteristics, is at any time now or hereafter deemed by any federal, state or local governmental authority to pose a present or potential hazard to public health, welfare or the environment. Hazardous Material includes, without limitation, any material or substance defined as a "hazardous substance, pollutant or contaminant" pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. Sections 9601 et seq.), the Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.) or pursuant to Section 25316 of the California Health and Safety Code; a "hazardous waste" listed pursuant to Section 25140 of the California Health and Safety Code; any asbestos and asbestos containing materials whether or not such materials are part of the Property or are naturally occurring substances on the Property, and any petroleum, including, without limitation, crude oil or any fraction thereof, natural gas or natural gas liquids. This indemnity shall survive termination of this Agreement.

It is the intention of the parties that should any term of this indemnity provision be found to be void or unenforceable, the remainder of the provision shall remain in full force and effect.

15. Compliance with Laws. Permittee shall comply, at Permittee's expense, with all applicable laws, regulations, rules and orders with respect to the use of the property, regardless of when they become or became effective, including, without limitation, those relating to construction, grading, signage, health, safety, noise, environmental protection, hazardous materials, waste disposal and water and air quality, and furnish satisfactory evidence of such compliance upon request of Railroad. Before beginning work on the Property, Permittee shall also obtain, at Permittee's expense, any and all permits, licenses and approvals required for construction and operation of the Work and shall provide Railroad with copies of such approvals. Under no circumstances shall Permittee damage, harm or take any rare, threatened or endangered species on or about the Property.

16. Notices. All notices required or permitted to be given under this Agreement shall be in writing and mailed postage prepaid by certified or registered mail, return receipt requested, or by personal delivery or by overnight courier, to the appropriate address indicated below or at such other place or places as either Railroad or Permittee may, from time to time, respectively, designate in a written notice given to the other. Notices shall be deemed sufficiently served four (4) days after the date of mailing or upon personal delivery.

To Permittee:	County of San Mateo Department of Public Works 555 County Center, 5th Floor Redwood City, CA 94063 Attn: James C. Porter, Director of Public Works
To Railroad:	San Mateo County Transit District 1250 San Carlos Avenue P.O. Box 3006 San Carlos, CA 94070-1306 Attn: General Manager/CEO
With a copy to:	Hanson Bridgett LLP 426 Market Street, 26th Floor San Francisco, CA 94105-2173 Attn: Joan L. Cassman

Day-to-day communications shall be directed to JPB's Senior Engineer, Richmond Apande (Tel: (650) 508-6240; Email: apander@samtrans.com) and to Permittee's Principal Civil Engineer, Gilles Tourel (Tel: (650) 363-4100; Email: gtourel@smcgov.org).

17. Relocation of Permit. In the event Railroad shall at any time so require, Permittee, at Permittee's expense, shall reconstruct, alter, make changes in the location of its facilities on the Property, within 30 calendar days of receipt of written notice from Railroad so to do or such longer period as approved by Railroad. The Railroad shall designate the location for the Permittee to relocate its permit, if on property owned by Railroad. Any necessary property interests shall be obtained at Permittee's sole cost and expense.

Permittee shall perform the work in a manner and at times satisfactory to Railroad. If Permittee fails to perform such work, Railroad may perform the work at the expense of Permittee, which expense shall, upon demand, be paid by the Permittee. The provisions of this Agreement shall apply to all work Permittee performs under this section.

18. Successors and Assigns. Permittee shall not assign nor sublet, in whole or in part, any rights covered by this Agreement, or permit any other person, firm or corporation to use, in whole or in part, any of the rights or privileges granted pursuant to this Agreement, without first obtaining the written consent of the Railroad.

19. Reports. Permittee shall provide to SamTrans, at no cost to SamTrans, a copy of all testing and analytical results, soil boring logs, and surveys, final reports or studies submitted by Permittee to any governmental authorities in connection with their investigation of the Property. In order to determine the conditions of the Property and the existence or presence of any hazardous materials in or about the Property, Permittee shall have the right, subject to the terms of this Agreement, at its sole cost and expense, to conduct such tests, studies, evaluations, audits or surveys (collectively, "Engineering Surveys") as Permittee deem appropriate, subject to the following further terms and conditions:

(a) SamTrans shall have the right to approve any and all engineers, consultants, or other persons that Permittee intends to retain for any Engineering Surveys which approval shall not be unreasonably withheld, delayed or conditioned;

(b) SamTrans shall have the right, but not the duty, to review and monitor any and all physical tests, studies and procedures in or about the Property which are made or implemented in connection with any Engineering Surveys, including, without limitation, the review and approval of the number, type, extent and location of any test or groundwater monitoring wells or drillings which approval shall not be unreasonably withheld, conditioned or delayed (approval shall not impose any duty or liability on SamTrans);

(c) Permittee agrees to provide each of its agents, consultants, and subcontractors who will exercise or invoke any rights under this Right of Entry with a copy of this Right of Entry Agreement and to obtain such agents' agreement to abide by the terms and conditions of this Agreement. Termination of this Agreement shall not relieve Permittee from any liability for any damages incurred by SamTrans by reason of a breach by Permittee of any of the provisions of this Section.

20. No Waiver. No waiver of any default or breach of any covenant of this Agreement by either party shall be implied from any omission by either party to take action on account of such default if such default persists or is repeated, and no express waiver shall affect any default other than the default specified in the waiver, and then the waiver shall be operative only for the time and to the extent stated. Waivers of any covenant, term or condition by either party shall not be construed as a waiver of any subsequent breach of the same covenant, term or condition. The consent or approval by either party to or of any act by either party requiring further consent or approval shall not be deemed to waive or render unnecessary their consent or approval to or of any subsequent similar acts.

21. Severability. Each provision of this Agreement is intended to be severable. If any term of provision shall be determined by a court of competent jurisdiction to be illegal or invalid for any reason whatsoever, such provision shall be severed from this Agreement and shall not affect the validity of the remainder of this Agreement.

22. Attorneys' Fees. If any legal proceeding should be instituted by either of the parties to enforce the terms of this Agreement or to determine the rights of the parties under this Agreement, the prevailing party in the proceeding shall receive, in addition to all court costs, reasonable attorneys' fees.

23. Condemnation. In the event all or any portion of the Property is condemned for public use, Permittee shall receive compensation only in the amount awarded for the taking and damaging of Permittee's facilities related to the Work. Any compensation for damages for taking the Property or Permittee's permit interest thereon awarded to Permittee shall be assigned to Railroad.

24. Governing Law. The rights and obligations of the parties under this Agreement shall be interpreted in accordance with the laws of the State of California as applied to contracts that are made and performed entirely in California.

25. Integration. This Agreement constitutes the complete expression of the agreement between the parties and supersedes any prior agreements, whether written or oral, concerning the subject of this Agreement, which are not fully expressed in this Agreement. The parties intend this Agreement to be an integrated agreement. Any modification of or addition to this Agreement must be in writing signed by both parties.

26. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original but both of which shall constitute one and the same agreement.

IN WITNESS WHEREOF, the parties have executed this Permit as of the day and year first above written by their duly authorized representatives.

San Mateo County Transit District

By:_____
Brian W. Fitzpatrick
Title: Director, Real Estate & Development

APPROVED AS TO FORM:

_____
Attorney

County of San Mateo
Department of Public Works

*By:_____
James C. Porter
Title: Director of Public Works

*By:_____

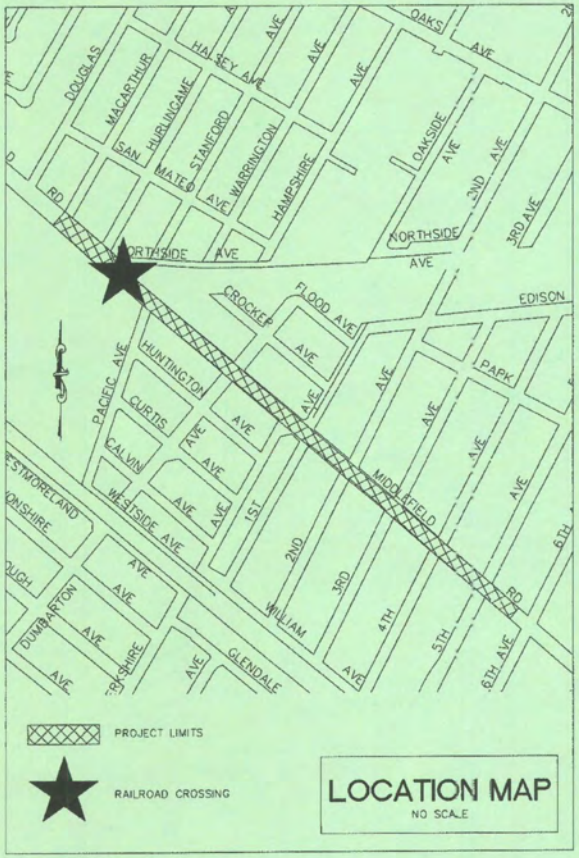
Title: _____

*NOTE: If Permittee is a corporation, this Agreement must be executed by two corporate officers, consisting of: (1) the President, Vice President or Chair of the Board, and (2) the Secretary, Assistant Secretary, Chief Financial Officer, Assistant Chief Financial Officer, or by any person authorized by the corporation to execute written contracts.

EXHIBIT A

COUNTY OF SAN MATEO

MIDDLEFIELD ROAD IMPROVEMENT PROJECT



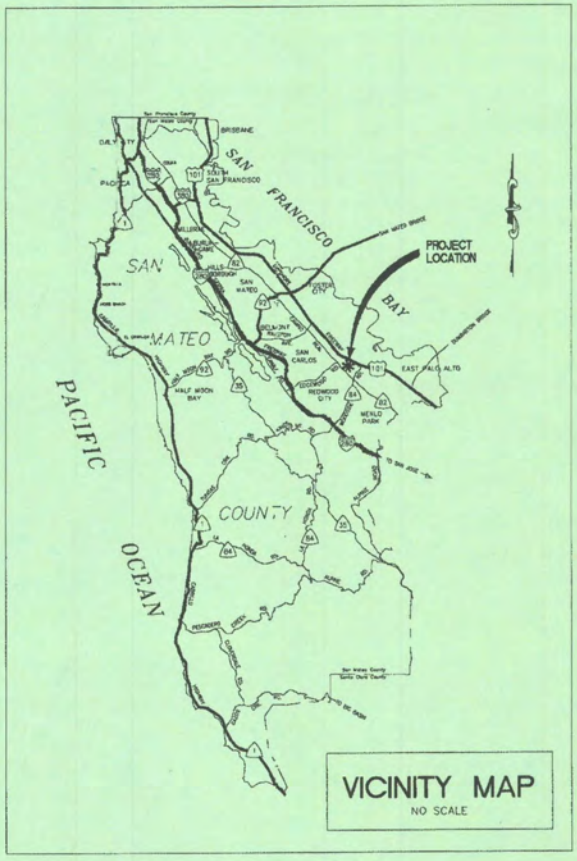
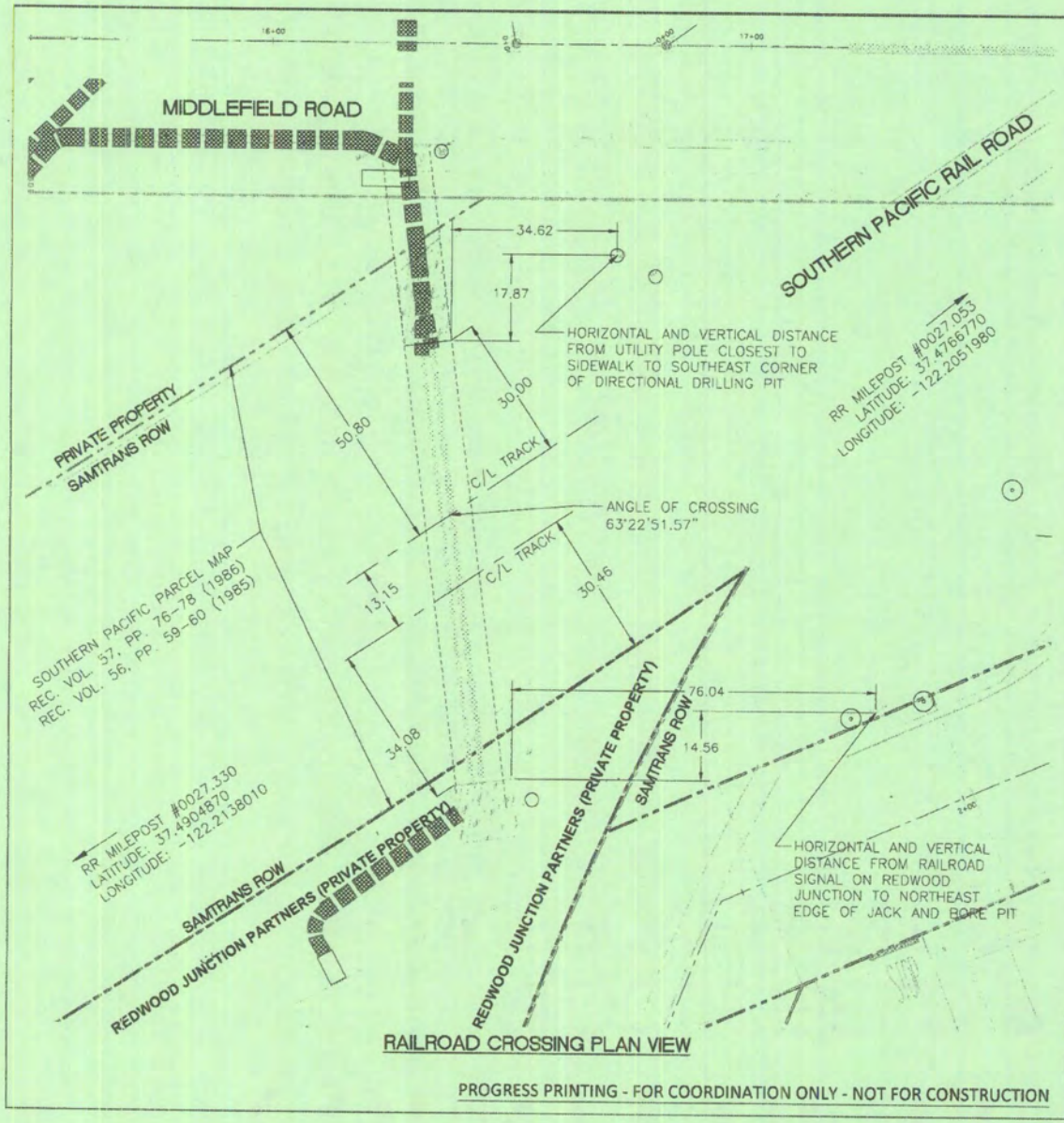


EXHIBIT B



RAILROAD CROSSING PLAN VIEW

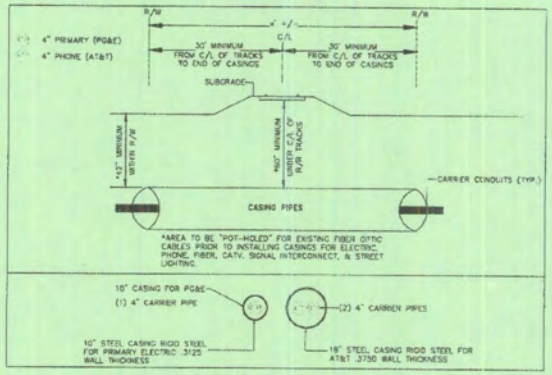
PROGRESS PRINTING - FOR COORDINATION ONLY - NOT FOR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER JAMES C. PORTER C 48056 EXPIRES 12/31/19 CIVIL STATE OF CALIFORNIA

APPROVED:

DATE:

JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS
R. C. E. # 48056 / EXPIRES 12-31-2019



RAILROAD CROSSING PROFILE VIEW

A) IS PIPELINE CROSSING WITHIN DEDICATED STREET? _ YES; X NO.

B) IF YES, NAME OF STREET: _

C) DISTRIBUTION LINE X OR TRANSMISSION LINE _
COMMODITY TO BE CONVEYED ELECTRICITY AND DATA_
OPERATING PRESSURE _ PSI
WALL THICKNESS 0.337"; DIAMETER 4"; MATERIAL PLASTIC;

E) CASING PIPE:
PRIMARY ELECTRIC
WALL THICKNESS 0.3125; DIAMETER 10"; MATERIAL RIGID STEEL;
AT&T
WALL THICKNESS 0.3750; DIAMETER 18"; MATERIAL RIGID STEEL;

F) METHOD OF INSTALLING CASING PIPE UNDER TRACK(S):
_ DRY BORE AND JACK (WET BORE NOTE PERMITTED);

G) WILL CONSTRUCTION BE BY AN OUTSIDE CONTRACTOR? X YES; _ NO;

H) DISTANCE FROM CENTER LINE OF TRACK TO NEAR FACE OF BORING AND JACKING PITS WHEN MEASURED AT RIGHT ANGLES TO TRACK 30 FEET AND 34.08 FEET

I) APPLICANT HAS CONTACTED 1-800-336-9163, U.P. COMMUNICATION DEPARTMENT, AND HAS DETERMINED FIBER OPTIC CABLE _ DOES; X DOES NOT EXIST IN VICINITY OF WORK TO BE PERFORMED. TICKET NO. _

LEGEND:

- REMOVE (E) AC PAVEMENT FOR JOINT TRENCH MAIN
- REMOVE (E) AC PAVEMENT FOR JOINT TRENCH MINOR
- JOINT TRENCH DIRECTIONAL DRILLING
- REMOVE (E) GROUND SURFACE FOR JOINT TRENCH JACK AND BORE PIT

		DESIGNED BY: AB	COUNTY OF SAN MATEO	SCALE: AS SHOWN
		CHECKED BY: TS	MIDDLEFIELD ROAD IMPROVEMENT PROJECT	DATE: 04-09-2019
		DRAWN BY: AB	UNION PACIFIC RAILROAD CO. EXHIBIT "A"	FILE NO.: 1/0XXX
REVISION	DATE	JAMES C. PORTER, DIRECTOR OF PUBLIC WORKS SAN MATEO COUNTY	555 COUNTY CENTER, 5th FLOOR REDWOOD CITY, CALIFORNIA 94063	
		FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3 4		D-7 SHEET X OF X

PATHNAME: S:\COUNTY OF SAN MATEO\0345\16 MIDDLEFIELD RD STREETSCAPE\100_CADD\RAIL\RAIL CROSSING\UP SECONDARY CROSSING.DWG (36-1)

Exhibit C
Working Procedures

Permittee shall at all times abide by the Operating Systems Interface, a copy of which is attached to this Agreement as Exhibit D, as well as with the other regulations of SamTrans. Permittee's Work on the Property shall be subject to SamTrans' approval. Without limiting the foregoing, Permittee shall at all times comply with the regulations of SamTrans and Union Pacific Railroad Company ("Union Pacific") and the instructions of either of their representatives relating to the proper manner of protecting the tracks, pipelines, wire lines, signals and all other property at said location the traffic moving on such tracks and the removal of tools, equipment and materials. In addition, Permittee will adhere to the following specific requirements:

(a) Repair and Maintenance. After installation, Permittee shall bear the entire cost of maintaining and operating facilities installed by Permittee on the Property.

(b) Plans Approved Prior to Commencing Work. Permittee's work on the Property shall be performed in accordance with plans and specifications approved in advance and in writing by SamTrans as to overall layout, clearances established by the California Public Utilities Commission (including, but not limited to, PUC General Order 26-D), shoring, temporary supports, false work, railroad bridges and any other works on SamTrans's Right-of-Way and in such manner and at such times as shall not endanger or interfere with the safe operation of the tracks and other railroad facilities on or adjacent to the Right-of-Way. Any waiver of these standards must be in writing and must be issued by SamTrans' Chief Engineer. Any revisions and amendments to the approved plans and specifications pertaining to the Work on the Property must be approved in writing by SamTrans. The details of construction affecting the SamTrans tracks and property not included in the contract plans shall be submitted to the SamTrans for approval before such work is undertaken. All plans and designs related to track rearrangement shall be subject to the prior approval of SamTrans. Permittee shall submit to SamTrans three (3) sets of working drawings showing details of construction affecting SamTrans' tracks and the Property, including those for false work over and/or adjacent to the tracks or shoring of excavations near tracks, not included in the contract plans, and Permittee shall not begin such work until notified by SamTrans that such plans have been approved. SamTrans' approval for these limited purposes shall not relieve Permittee from liability arising out of performance of the Work or lead to an assumption of design or construction responsibility on the part of SamTrans or Union Pacific. Approval by SamTrans shall not constitute a warranty by SamTrans that such plans conform to applicable federal, state, and/or local codes and regulations.

(c) Notice Prior to Commencing Work. Permittee shall cooperate with the SamTrans and Union Pacific where work is over or under the tracks, or within the limits of the Property, in order to expedite the work and to avoid interference with the operation of SamTrans' equipment. Permittee shall notify the SamTrans' Chief Engineer at least ten (10) working days (or such additional notice as may be provided herein) before commencing any work on the Property. Although SamTrans will reasonably cooperate with Permittee so that the Work may be handled in an efficient manner, Permittee hereby waives and releases SamTrans from any claim for damages against SamTrans in the event the Work is delayed for any reason whatsoever.

(d) No Interference With SamTrans Operations. Permittee shall perform its work in such manner and at such times as shall not endanger or interfere with the safe operation of the tracks and property of SamTrans and traffic moving on such tracks, as well as wires, signals, pipelines, utilities and other property of SamTrans, its tenants or licensees, at or in the vicinity of the work. All work contemplated in this Agreement shall be performed in a good and worker-like manner to the satisfaction of the parties, and each portion shall be promptly commenced by the party obligated to do the same and thereafter diligently prosecuted to completion in its logical order and sequence.

(e) Repair of Damage. Permittee shall take protective measures necessary to keep SamTrans' facilities, including track ballast, free of sand or debris resulting from its operations. Any damage to SamTrans' facilities resulting from Permittee's operations will be repaired or replaced by SamTrans at Permittee's sole cost and expense, which Permittee shall pay to SamTrans promptly upon demand therefor.

(f) Underground Facilities. Permittee shall be solely responsible at its own cost for identifying the location of all pipelines (including, but not limited to, high pressure petroleum, gas and water pipelines), fiber optic lines and all other utilities of whatever nature on the Property, and for relocating all said pipelines and utilities which would interfere with Permittee's Work. Permittee shall relocate, or arrange for the relocation by a third-party contractor approved by SamTrans, any and all SamTrans signal lines and SamTrans communication facilities, the existing location of which would interfere with the Work, at Permittee's sole cost and expense, unless other arrangements are made by separate agreement. Absence of markers does not constitute a warranty by SamTrans of the absence of subsurface installations. It shall be Permittee's responsibility to determine the existence of any underground facilities and Permittee shall call Underground Service Alert at 1-800-642-2444 prior to beginning any work on the Property. Since there is the possibility of the existence of pipelines or other structures beneath the Property, if Permittee should excavate or drill, then Permittee's forces shall explore such structures with hand tools to a depth of at least eight feet (8') below the surface of the ground or, at Permittee's option, use suitable detection equipment, prior to drilling or excavating with mechanized equipment.

(g) Storage. Permittee shall not pile or store any tools or other materials or park any equipment, when not in use, closer to the center of nearest railroad track then permitted by the following permanent clearances:

(i) 25'-0" horizontally from center line of track; and

(ii) 22'-6" vertically above top of rail.

The placement of piles, forms, braces, shoring, false work, or other construction supports shall be in accordance with Appendix H of the most current Caltrans Trenching and Shoring manual.

Walkways with railings shall be constructed by Permittee over open excavation areas when in close proximity of tracks, and railings shall not be closer than 8'-6" horizontally from centerline of the nearest track, if tangent, or 9'-6" if curved. Any infringement on the above temporary construction clearances due to the Permittee's operations shall be submitted to SamTrans for approval, and shall not be undertaken until approved by SamTrans. When the temporary vertical clearance is less than 22'-6" above top of rail, SamTrans shall have the option of installing tell-tales or other protective devices SamTrans deems necessary for protection of SamTrans trainmen or traffic. Permittee shall notify the SamTrans in writing, at least twenty-five (25) calendar days, but no more than forty (40) calendar days, in advance of the starting date of installing temporary work with less than permanent clearances established above for approval as provided herein.

(h) Open Holes. Any open holes shall be satisfactorily covered at all times when Permittee's forces are not physically working in the vicinity. Upon completion of work, all holes will be filled in to meet the surrounding ground level with clean, compacted, earthen material and the property left in a neat and safe condition reasonably satisfactory to SamTrans.

(i) No Crossing of Tracks. Permittee shall not be permitted to cross SamTrans' tracks located on or adjacent to the Property without SamTrans' prior written approval, which may be conditioned on such terms as SamTrans deems appropriate. Absent such approval, Permittee's access shall be by use only of designated public streets or crossings.

(j) Payments and Liens. With respect to the Work, Permittee shall fully pay for all materials joined or affixed to the Property, and shall pay in full all persons who perform labor on or deliver materials to the Property. As SamTrans is a public entity, its property is not subject to mechanics' or materialmen's liens, and nothing in this Permit shall be construed to make its property subject to such liens. Nevertheless, if any stop notice claims, mechanics' or materialmen's liens of any kind are filed, Permittee shall immediately remove them at Permittee's own expense, and shall pay any judgment which may be entered. Should Permittee fail, neglect, or refuse so to do, SamTrans, after

48 hours prior notice to Permittee, shall have the right to pay any amount required to release any such liens, or to defend any action brought, and to pay any judgment entered. Permittee shall be liable to SamTrans for all costs, damages, reasonable attorneys' fees, and any amounts expended in defending any proceedings or in the payment of any of said liens or any judgment. SamTrans may post and maintain upon the Property notices of nonresponsibility as provided by law.

(k) Tests. Permittee shall cooperate with SamTrans in making any tests SamTrans requires of any installation or condition that in SamTrans' reasonable judgment may have an adverse effect on any of the facilities of SamTrans. All costs incurred by the tests, or any corrections, shall be borne by Permittee.

(l) Completion. Permittee shall notify SamTrans the date said work is completed, and also the date the Permittee's Work is accepted by the Permittee. Upon completion of the work to be done upon SamTrans' Property, Permittee shall promptly remove from the Property all tools, equipment and materials placed thereon by Permittee or its agents. Permittee shall restore said property to the same state and condition as when Permittee entered thereon and shall leave said Property in a clean and presentable condition.

(m)Compliance with Laws. Permittee shall comply, at Permittee's expense, with all applicable laws, regulations, rules and orders with respect to the use of the Property, regardless of when they become or became effective, including, without limitation, those relating to construction, grading, signage, health, safety, noise, environmental protection, hazardous materials, waste disposal and water and air quality, and furnish satisfactory evidence of such compliance to SamTrans upon request.

(n) Condition of Property. Permittee agrees to keep the Property and the Work in good and safe condition, free from waste, so far as affected by Permittee's operations, to the reasonable satisfaction of SamTrans. If, during the term of this Agreement, Permittee fails to keep the Property and the Work in good and safe condition, free from debris, then SamTrans may, at SamTrans' option (1) perform the necessary work at the expense of Permittee which expense Permittee agrees to pay to SamTrans upon demand, and/or (2) immediately terminate this Permit without limiting its remedies. Permittee shall not conduct any activities on or about the Property that constitute a nuisance or unreasonable annoyance (including without limitation, emission of objectionable odors, noises or lights) to SamTrans, to the owners or occupants of neighboring property or to the public.

(o) Project Markers. Project markers in a form and size satisfactory to SamTrans, identifying the facility and its owner, shall be installed and constantly maintained by and at the expense of Permittee at SamTrans' property lines or such locations as SamTrans shall approve. Such markers shall be relocated or removed upon request of SamTrans without expense to SamTrans. The absence of markers does not constitute a warranty by SamTrans that there are no subsurface installations.

(p) Engineering Review. SamTrans (or its contractor) shall provide all engineering review, marketing and scheduling, detouring, flagging and engineering inspection required in connection with said Work, as determined by SamTrans in its reasonable discretion, at Permittee's sole cost and expense.

(q) Reimbursement. Permittee agrees to reimburse SamTrans for the actual cost and expense to SamTrans of furnishing any materials or performing any labor in connection with the Work, including, but not limited to, the review of plans and specifications, the installation and removal of any falsework or other protection beneath or along railroad tracks, and the furnishing of such security persons, flaggers and inspectors as SamTrans deems necessary. Flaggers and/or inspectors are required when work is performed in proximity to the tracks and are furnished at the cost of approximately $1600 per day for inspectors and $1000 per day for flaggers.

(r) Intentionally Blank.

(s) No Blasting. Permittee shall not conduct any blasting on the Property without the prior written authorization of SamTrans.

(t) Workplace Safety. Permittee shall at all times comply with the provisions of the Federal SamTrans Administration regulations, including 49 CFR Part 214, pertaining to SamTrans Workplace Safety, and Railroad's On-Track Safety Program.

(u) Conflict with Operating Systems Interface. To the extent any of the foregoing specific requirements of this exhibit conflict with provisions set forth in the Operating Systems Interface and Caltrain's Track Specifications and Design Guidelines for Grade Separations, the provisions of Operating Systems Interface and Track Specifications and Design Guidelines for Grade Separations shall control.

(v) Protection of SamTrans Facilities. The presence of SamTrans' representatives, conductors, inspectors, flagmen or watchmen may be required when Permittee or any of Permittee's forces or contractors are working on or near the Property and will be provided by SamTrans to protect its facilities, property and movements of its trains or engines. In general, SamTrans will furnish such personnel or other protective devices:

(1) When any part of any equipment is standing or being operated within 15 feet, measured horizontally, from centerline of any track on which trains may operate, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

(2) For any excavation below elevation or track subgrade if, in the opinion of SamTrans' representative, track or other SamTrans facilities may be subject to settlement or movement.

(3) For any clearing, grubbing, grading, or blasting which, in the opinion of SamTrans' representative, may endanger SamTrans facilities or operations.

Permittee specifically agrees that the need for and staffing of SamTrans personnel or those of Union Pacific as provided in this Section shall be within SamTrans' sole discretion, and the attendant costs shall be borne entirely by the Permittee. The reasonable cost to Permittee of such inspector shall be payable to Licensor within 30 days after presentation of a bill.

(w) Fiberoptics. In addition to other provisions of this Agreement requiring Permittee to give notice prior to commencing work, Permittee shall telephone Underground Service Alert at 1-800-642-2444 (a 24-hour number) to determine if a telecommunications system is buried anywhere on or about the Property. If there is, Permittee will telephone the owner of any system identified, arrange for a cable locator and make arrangements for relocation or other protection for the system prior to beginning any work on the Property.

(x) Site Specific Work Plan. Prior to commencing the Work, and each week during the core of conducting the Work, Permittee shall have a Site Specific Work Plan approved by SamTrans. If such a plan is not approved by SamTrans or not available on site, Permittee may cancel this Agreement.

(y) Traffic. Permittee shall provide all barriers, directions, signage and other form of notice to the public to assure the smooth and uninterrupted flow of traffic around the Property.

EXHIBIT D
OPERATING SYSTEM INTERFACE (OSI)

PART 1 - GENERAL

1.01 DESCRIPTION

Outline for Contractor's interface with SamTrans' operating system, including track work, train control, and communications.

1.02 DEFINITIONS

A. **SamTrans:** The San Mateo County Transit District.

B. **PCJPB:** The Peninsula Corridor Joint Powers Board is a public agency comprised of three counties; San Francisco, San Mateo and Santa Clara, and is otherwise known as SamTrans

C. **Railroad Contract Operator:** Under contract with the PCJPB to operate and maintain the PCJPB system.

D. **Operating System:** Includes, but is not limited to, the tracks on which trains and on-track equipment operate or may potentially operate, and in addition any facilities closely related to the operation of the railroad system including signal and communication masts, bridges, poles, cables, signal houses, tunnels, culverts, grade crossings and station platforms and facilities.

E. **Operating Envelope:** Anywhere within SamTrans property including any area that is an essential component of the operating system.

F. **Work Window:** A designated period of time with a specific beginning and ending time for which the track, signals, bridges and other Operating System elements within the Operating Envelope are modified or temporarily removed from service to allow construction or maintenance work to occur. Written authority from SamTrans, and an approved Weekly Site Specific Work Plan (SSWP), is required before a Contractor is granted a Work Window. The Contractor's Work Window shall have specific geographic limits, which are defined in the approved SSWP. Modifications or suspension of train and on-track equipment movements resulting from a Work Window involves written changes to the PCJPB's Rules of Train and On-Track Equipment Operations. These written changes are known as Track Bulletins and are categorized as follows.

(a) Multiple Track Window: An approved Work window in which passenger/ commuter and freight train service on two or more adjacent main tracks is suspended or halted. However, trains and on-track equipment associated with construction and maintenance activities may still operate on the tracks with suspended service but subject to the control of the Employee-in-Charge/ Flagman. Within rail corridors with three or more main tracks passenger/ commuter and freight train service may operate on the remaining main tracks subject to "Form B" restrictions. A "Form C" Track Bulletin will be issued by the Railroad Contract Operator/ Operating Railroad of Record to suspend or modify the train service on the two or more adjacent main tracks.

(b) Single Track Window: An approved Work Window in which passenger/ commuter and freight service on a single main track is suspended or halted. However, trains and on-track equipment associated with construction and maintenance activities may still operate on the single main track with suspended service subject to the control of the Employee-in-Charge/ Flagman. Additionally, passenger/ commuter and freight train service will operate on the single main track or main tracks remaining in service subject to "Form B" restrictions. A "Form C" Track Bulletin will be issued by the Railroad Contract Operator/ Operating Railroad of Record to suspend or modify the train service on the single main track removed from service. The limits of Single Track Windows will be a segment of track situated between the two nearest crossovers (universal or single). Single Track Windows within a track segment will not be allowed to extend beyond the limits of the two nearest crossovers, and in the case of more than one Single Track Window construction work will not be allowed on two adjacent track segments.

(c) "Form B" Work Window: An approved Work Window in which passenger/ commuter, freight and all other trains and on-track equipment movements can be prohibited from entering the defined limits of a segment of track. The "Form B" Work Window does not allow the Contractor to remove from service or modify the tracks, signals, bridges, stations or other elements of the Operating System in a manner which will delay or in any way affect the safe operation of the trains. The "Form B" Work Window allows the Contractor the ability to enter the Operating Envelope and perform construction activities subject to the conditions above. An Employee-in-Charge/Flagman from the Contract Operator will exercise strict control over the Contractor's construction activities in conjunction with Roadway Worker Protection requirement to assure that the Contractor's activities do not delay or impact train service.

(d) "Track and Time": A period of time on a particular segment of track for which the Control Operator (Train Dispatcher) grants exclusive usage to a qualified employee of the SamTrans.

(e) Track and Time will be granted by the Control Operator specifying the authority number, track limits and time. An employee (Flagman) granted Track and Time may occupy a track or tracks within the specified limits for the time period authorized. The limits of Track and Time are normally designated by Control Points (CPs). Track and Time is not normally used to protect work or trains for extended periods of time unless there are no other means readily available to do so.

(f) Exclusive Track Occupancy: This refers to a method, such as those above, of establishing working limits on controlled track in which movement authority of trains and other equipment is withheld by the Control Operator or Train Dispatcher or restricted by a Flagman.

G. Work Plan (WP): A document submitted by the Contractor, detailing the activities associated with a particular element of work. The Work Plan must include a description of the activity as well as the number of men and a list of the equipment required in the performance of the activity.

H. Site Specific Work Plan (SSWP): A program, plan, and schedule prepared and submitted by the Contractor three weeks prior to the proposed work and approved by the Engineer that accurately describes and illustrates the manner in which Work within the Operating Envelope will be accomplished, the impacts on any elements of the Operating System and the manner in which Work will be accomplished with the allotted Work Windows or protected period.

I. Engineer/Project Manager: SamTrans Engineer/Project Manager or other authorized representative.

1.03 WORK PLAN (WP)

A. The Contractor will prepare a detailed Work Plan for each and every task associated with the work that is required by the Contract or any associated Field Instructions or Change Notices. The SamTrans Project Manager will provide directions and assistance to the Contractor in the preparation and submittal of the Work Plan.

B. WP's shall include all activities necessary to perform construction tasks within the SAMTRANS Right of Way, including use of stations, sidings, temporary construction easements and proposed storage areas.

C. WP's shall include a description of any proposed changes to the Operating System between start and finish of the work, including any requested Work Windows.

D. The WP shall conform to all other requirements applicable to the Contract Documents.

E. The WP must contain a basic schedule of the work showing each activity and where and how it affects normal operation of the Operating System. Each activity in the plan shall include all labor, materials and equipment required to complete the activity within the SAMTRANS allotted time period.

F. The WP must include Contingency Plans for putting the Operating System back in operation in case of an emergency or in case the Contractor fails to complete the work within the Work Window. The Contingency Plans shall address the various stages of activities to restore the System.

G. The WP's must be of sufficient detail, clarity and organization to permit efficient review by the Engineer and approval at least 10 calendar days before the proposed work is performed. The WP shall be submitted to the Engineer as follows.

a) At least 21 calendar days prior to start of the subject work within the SAMTRANS Right of Way for work other than signal and overhead wire installation.

b) At least 30 calendar days prior of the start of the work for work involving signal and overhead wire installation, such as signal system cutover, overhead wire involving third parties, etc.

H. The Engineer may request explanations and changes to the WP to ensure that it conforms to the requirements of the Contract Documents. If the WP is not acceptable, Contractor shall revise the WP to make it acceptable. The Contractor is responsible for submitting a revised WP that can be reviewed and approved by the Engineer at least seven (7) days in advance of any work within SAMTRANS Right of Way.

I. The Contractor will be informed if the WP is acceptable not less than seven (7) calendar days prior to the scheduled start of work within the SAMTRANS Right of Way. Once the plan is accepted, Contractor shall muster the resources necessary to perform the work represented by the SSWP, so that necessary resources are available and ready for use, in general on the day which begins the week in which the work is to be accomplished. At this time, the Engineer will make a final decision as to whether or not the work is to proceed as planned or will be canceled. The prime consideration will be the stage of readiness of the Contractor, which the Contractor shall demonstrate to the Engineer.

1.04 WEEKLY SITE SPECIFIC WORK PLAN (SSWP)

A. In addition to Work Plans, the Contractor shall submit a Site Specific Work Plan (SSWP) on a weekly basis three weeks in advance of the proposed work. All SSWPs shall detail the proposed weekly events and activities, and include the Contractor's request for Work Windows. Approval of a WP or SSWP by the Engineer may require the placement of an appropriate protective divider (k-rail, snow fence, etc.) between construction operations and the operating system. Contractor shall furnish and install protective dividers as specified by the Engineer. The SamTrans Project Manager will provide directions and assistance to the Contractor in the preparation and submittal of the Site Specific Work Plan.

B. The Contractor shall furnish all labor, materials, and equipment as required to perform and complete the work within the approved work window. The Contractor shall maintain the approved schedule in the SSWP.

C. All work outlined in the SSWP with a potential to impact normal functioning of any part of the operating system shall include a detailed schedule of events indicating the expected hourly progress of each activity that has a duration of one hour or longer. The schedule shall include a time at which all activities planned under the SSWP will be completed. The SSWP shall also include the mobile phone numbers of individuals responsible for compliance with the approved SSWP. Failure of the Contractor to complete the scheduled activities by the planned time or to put in place an approved contingency plan may adversely impact the operations of SamTrans. In the event that SamTrans service is delayed by Contractor's actions, damage will be incurred and liquidated damages will be assessed.

D. The SSWP shall be a plan that describes the activities necessary to perform the work within the Operating Envelope and indicates which Work Plans will be utilized. The plan shall explain each activity along with the proposed schedule to complete each item. Each activity

in the plan shall include all material and equipment required to complete the activity within the scheduled time period.

E. The SSWP shall also include contingency plans for putting the system back in operation in case of an emergency or in case the Contractor fails to perform and complete the work on time. Contingency plans shall address the various stages of construction.

F. The contractor shall have a copy of the current SamTrans schedule. Schedules are available at SamTrans Stations or on the Internet at www.SamTrans.com.

G. The SSWP will be submitted to the Engineer for review no later than the opening of the business day on the Monday three (3) weeks before the proposed start of work within the SamTrans property. The Engineer may request explanations and changes to the SSWP, if the plan is not acceptable, the Contractor shall revise the plan accordingly.

H. The Contractor will be informed if the SSWP is acceptable not less than three (3) calendar days prior to the scheduled start of work. Once the plan is accepted, the Contractor will be prepared to perform the work represented by the SSWP.

I. References herein to weeks mean the week starting with Monday, and the next six (6) days of the proposed work schedule.

J. All work within SamTrans's property requires an SSWP approval by SamTrans.

K. No work will be permitted during weekday commute hours less than fifteen (15) feet horizontally from of the nearest rail until after 9:00 AM and prior to 3:00 PM. Work closer than fifteen (15) feet from the nearest rail may require a night or weekend schedule. Some work performed more than fifteen (15) feet horizontally from the nearest rail may be restricted to night and weekends when so required by the approved SSWP.

L. Materials and equipment shall not be piled, stored or parked when not in use closer than twenty-five (25) feet horizontally from the centerline of the nearest operating track.

M. The placement of piles, forms, braces, shoring, falsework or other construction supports shall be in accordance with the current State of California, Department of Transportation (Caltrans) Falsework Manual, PCJPB Standards Volumes 1 and 2, PCJPB Engineering Standards for Excavation Support Systems, and PUC General Orders 26-D and 118 as applicable.

    i. Temporary overhead structures shall have a minimum vertical clearance of twenty-two (22) feet, six (6) inches above top of rail for all tracks and at any location under the structure. Temporary overhead structures with proposed vertical clearance less than twenty-two (22) feet, six (6) inches above top of rail must have an exemption from the California Public Utilities Commission (CPUC) and approval of SamTrans.

N. In general, open excavation areas shall be protected per OSHA regulations. Open excavation areas adjacent to operating tracks shall be protected by walkways with handrails no closer than eight (8) feet, six (6) inches horizontally from the nearest operating track, if tangent, and nine (9) feet, six (6) inches if track is curved.

1.05 AVAILABILITY OF ACTIVE TRACKS:

A. Active main line tracks and sidings are only available during Work Windows as approved by the Engineer.

B. The Contractor does not have exclusive rights to the Work Windows. The Contractor must share these Work Windows with other Contractors and current Owner's Contract Operator.

1.06 CURRENT AND FUTURE CORRIDOR TRAFFIC

The following is a general summary of train traffic in the rail corridor:

A. Current UPRR freight traffic. UPRR freight traffic is subject to change without notice at the discretion of UPRR.

1.07 SAFETY

A. Employees of the Contractor scheduled or expected to perform work within SamTrans Property are required to have successfully completed, within the last twelve (12) months, SamTrans' Roadway Worker Protection training program. The Contractor shall forward to SamTrans records of those successfully completing the course.

B. Roadway Worker Protection Act: Contractor shall at all times comply with provisions of the Federal Rail Administration Regulation 49CFR214 (Roadway Worker Protection) as well as to the Permittor (Licensor) On-Track Safety Program.

C. Zero Tolerance: The SamTrans Zero Tolerance Policy is attached and made a part hereof.

Zero Tolerance Procedure
OTS Rules Enforcement

Amended 6/5/11

Every individual performing work on the right-of-way is both entitled to and responsible for a safe working environment. The objective of this "Zero Tolerance Procedure" statement is to establish clear and concise standards for Roadway Worker Protection (RWP) compliance on the SamTrans system.

This is a minimum requirement and any supervisor or manager of any group or organization working on the SAMTRANS right of way may set more stringent standards for their own employees.

A. General

1. **The Zero Tolerance Procedure applies to all employees and contractors of the PCJPB and its contract operator or any other entity entering upon the SamTrans right-of-way for the purpose of performing work as a Roadway Worker, as defined in the SamTrans On-Track Safety Rules.**

2. **The EIC will be responsible for overseeing the enforcement of SamTrans RWP requirements and all other applicable right-of-entry requirements for workers in his group. The EIC will not allow anyone to work within his/her workgroup until all RWP requirements are met.**

B. Roadway Worker Protection Infractions

Individual who are determined to be non-compliant with SamTrans' RWP requirements will be subject to the following procedures:

- **First infraction – A written notice will be delivered to the non-compliant individual, the individual's supervisor and the SamTrans Supervising Safety Officer – Rail. A copy will be forwarded to the appropriate JPB manager. The individual or work group must leave the right-of-way until the reason for the infraction is corrected.**
- **Second infraction – The individual or work group will be banned for 5 days from the SamTrans right-of-way with re-training within 7 days of infraction. Notification procedures will be the same as with the first infraction.**
- **Third infraction – The individual or work group will be banned for 1 year from the SamTrans right-of-way. Notification procedures will be the same as with the first infraction**
- **Fourth infraction – The individual or work group will be permanently banned from SamTrans right-of-way. Notification procedures will be the same as with the first infraction.**

In addition, any persons in a position of RWP responsibility (EIC, Watchman, etc.) will forfeit their Advanced RWP certification and will be required to re-train at the next scheduled Advanced RWP class following an infraction.

Any infraction in which the individual cannot provide evidence of training will result in immediate removal from SAMTRANS right-of-way.

Each infraction will be automatically removed from SamTrans records 3 years from the date of occurrence.

C. Accountability

Infractions to this procedure will be referred to and handled by SamTrans Department of Safety and Risk Management. Refer by phone immediately, and then written follow up within 24 hours to the Project Manager and Rail Safety Officer – Construction/Engineering.

Corrective actions or other follow up resulting from infractions covered by this procedure are the responsibility of the Resident Engineer, reporting back to the Rail Safety Officer – Construction/Engineering and the Project Manager.

EXHIBIT E

Insurance Terms

INSURANCE

All entities entering into License Agreements and Right of Entry Permits shall follow the below requirements. All Permittees and Licensee's shall be referred to as Licensee's for the purposes of this section.

The insurance requirements specified in this Section shall cover Licensee's own liability and any liability arising out of work or services performed under this Agreement by any subcontractors, subconsultants, suppliers, temporary workers, independent contractors, leased employees, or any other persons, firms or corporations (hereinafter collectively referred to as "Agents") that Licensee authorizes to work under this Agreement. Licensee is required to procure and maintain at its sole cost and expense the insurance coverages subject to all of the requirements set forth below. Such insurance shall remain in full force and effect throughout the term of this Agreement. Licensee is also required to assess the risks associated with work to be performed by Agents under subcontract and to include in every subcontract the requirement that the Agent maintain adequate insurance coverages with appropriate limits and endorsements to cover such risks; the limit for the Commercial General Liability insurance in each subcontract shall not be less than $2 million. To the extent that any Agent does not procure and maintain such insurance coverage, Licensee shall assume any and all costs and expenses that may be incurred in fulfilling Licensee's indemnity obligation as to itself or any of its Agents in the absence of coverage. In the event Licensee or its Agents procure excess or umbrella coverage to maintain certain requirements outlined below, these policies shall also satisfy all specified endorsements and stipulations, including provisions that the Licensee's insurance be primary without any right of contribution from the JPB. Prior to beginning work under this Agreement, Licensee shall provide the JPB's authorized insurance consultant, Insurance Tracking Services, Inc. (ITS), with satisfactory evidence of compliance with the insurance requirements of this Section, by submitting such evidence of compliance to the address indicated in C.1. below.

A. MINIMUM TYPES AND SCOPE OF INSURANCE

1. Workers' Compensation and Employer's Liability Insurance.

a. Workers' Compensation with Statutory Limits and/or Federal Employer's Liability ("FELA") coverage (whichever is applicable) to its employees, as required by the Federal Employer's Liability Act of 1908, applying to Interstate railroad employees, or, as required by Section 3700 et seq. of the California Labor Code, or any subsequent amendments or successor acts thereto, governing the liability of employers to their employees.

b. If FELA applies, it shall be in accordance with federal statutes and have minimum limits of $10,000,000 per occurrence.

c. If the California Labor Code requiring Workers' Compensation applies, the Licensee shall also maintain Employer's Liability coverage with minimum limits of **$5** million.

d. Such insurance shall include the following endorsement as further detailed in the Endorsements Section below:

- Waiver of Subrogation.

2. Commercial General Liability Insurance.

Commercial General Liability insurance for bodily injury and property damage coverage of at least **$5** million per occurrence or claim and a general aggregate limit of at least **$5** million. Such insurance shall cover all of Licensee's operations both at and away from the project site. Such insurance shall not have any exclusion for Cross Liability or Cross-Suits. In addition, for any construction and public works projects, the insurance shall not have any exclusion for Explosion, Collapse and Underground perils (xcu) and for construction or demolition work within 50 feet of railroad tracks, the contractual liability exclusion for liability assumed shall be deleted.

a. This insurance shall include coverage for, but not be limited to:

- Premises and operations.
- Products and completed operations.
- Personal injury.
- Advertising injury.

b. Such insurance shall include the following endorsements as further detailed in the Endorsements Section below:

- Additional Insured.
- Separation of Insureds Clause.
- Primary and Non-Contributory wording.
- Waiver of Subrogation.

Products and completed operations insurance shall be maintained for three (3) years following termination of this Agreement.

3. Business Automobile Liability Insurance.

Business Automobile Liability insurance providing bodily injury and property damage coverage with a combined single limit of at least **$5** million per accident or loss.

a. This insurance shall include coverage for, but not be limited to:
   - All owned vehicles.
   - Non-owned vehicles.
   - Hired or rental vehicles.

b. Such insurance shall include the following endorsements as further detailed in the Endorsements Section below:

   - Additional Insured.
   - Primary and Non-Contributory wording.
   - Waiver of Subrogation.

4. Property Insurance.

Property insurance with Special Form coverage including theft, but excluding earthquake, with limits at least equal to the replacement cost of the property described below.

a. This insurance shall include coverage for, but not be limited to:

   - Licensee's own business personal property and equipment to be used in performance of this Agreement.
   - Materials or property to be purchased and/or installed on behalf of the JPB, if any.
   - Builders risk for property in the course of construction.

b. Such insurance shall include the following endorsement as further detailed in the Endorsements Section below:

- Waiver of Subrogation.

5. Railroad Protective Liability Insurance.

Prior to commencing demolition, construction or remodeling within 50 feet of railroad tracks, Licensee shall contact the JPB. The JPB shall obtain Licensee's Railroad Protective Liability insurance with limits of liability of **$5** million per occurrence and **$10** million in the aggregate. The named insureds shall be the Peninsula Corridor Joint Powers Board, the San Mateo County Transit District, the Santa Clara Valley Transportation Authority, the City and County of San Francisco, TransitAmerica Services, Inc. or any successor Operator of the Service, and the Union Pacific Railroad Company.

Coverage shall be on the RIMA policy form and include, but not be limited to:

- Claims arising out of injury to or death of any person.
- Physical loss or damage to or destruction of property including the JPB's rolling stock and any resulting loss of use thereof.
- Coverage for supervisory acts of railroad employees.
- FELA coverage for railroad employees.
- All other railroads operating on the right-of-way.
- Pollution extension for fuels and lubricants brought onto the job location.

On the Licensee's commercial general liability insurance policy, the contractual liability exclusion for liability assumed shall be deleted.

B. ENDORSEMENTS

1. Additional Insured.

The referenced policies and any Excess or Umbrella policies shall include as Additional Insureds the Peninsula Corridor Joint Powers Board, the San Mateo County Transit District, the Santa Clara Valley Transportation Authority, the City and County of San Francisco, TransitAmerica Services, Inc. or any successor Operator of the Service, and the Union Pacific Railroad Company and their respective directors, officers, employees, volunteers and agents while acting in such capacity, and their successors or assignees, as they now, or as they may hereafter be constituted, singly, jointly or severally.

2. Waiver of Subrogation.

The referenced policies and any Excess or Umbrella policies shall contain a waiver of subrogation in favor of the Peninsula Corridor Joint Powers Board, the San Mateo County Transit District, the Santa Clara Valley Transportation Authority, the City and County of San Francisco, TransitAmerica Services, Inc. or any successor Operator of the Service, and the Union Pacific Railroad Company and their respective directors, officers, employees, volunteers and agents while acting in such capacity, and their successors or assignees, as they now, or as they may hereafter be constituted, singly, jointly or severally.

3. Primary Insurance.

The referenced policies and any Excess and Umbrella policies shall indicate that they are primary to any other insurance and the insurance company(ies) providing such policy(ies) shall be liable thereunder for the full amount of any loss or claim, up to and including the total limit of liability, without right of contribution from any of the insurance effected or which may be effected by the JPB.

4. Separation of Insureds.

The referenced policies and any Excess or Umbrella policies shall contain a Separation of Insureds Clause and stipulate that inclusion of the Peninsula Corridor Joint Powers Board, the San

Mateo County Transit District, the Santa Clara Valley Transportation Authority, the City and County of San Francisco, TransitAmerica Services, Inc. or any successor Operator of the Service, and the Union Pacific Railroad Company as Additional Insureds shall not in any way affect the JPB's rights either as respects any claim, demand, suit or judgment made, brought or recovered against the Licensee. The purpose of this coverage is to protect Licensee and the JPB in the same manner as though a separate policy had been issued to each, but nothing in said policy shall operate to increase the insurance company's liability as set forth in its policy beyond the amount or amounts shown or to which the insurance company would have been liable if only one interest had been named as an insured.

C. EVIDENCE OF INSURANCE

1. All Coverages except Railroad Protective.

Prior to commencing work or entering onto the Property, Licensee shall provide to Insurance Tracking Services, Inc. (ITS), the JPB's authorized insurance consultant, a certificate of insurance with respect to each required policy to be provided by the Licensee under the Agreement. The required certificates must be signed by the authorized representative of the Insurance Company shown on the certificate. **The JPB Contract number and Project name shall be clearly stated on the face of each Certificate of Insurance.**

Submit Certificates of Insurance to:
Peninsula Corridor Joint Powers Board
C/O Insurance Tracking Services, Inc. (ITS)
P.O. Box 198
Long Beach, CA 90801

OR

Email Address: smt.certificates@instracking.com

OR

Fax: (562) 435-2999

In addition, the Licensee shall promptly deliver to ITS a certificate of insurance with respect to each renewal policy, as necessary to demonstrate the maintenance of the required insurance coverage for the terms specified herein. Such certificate shall be delivered to ITS not less than three business days after to the expiration date of any policy.

2. Railroad Protective.

Prior to Licensee commencing work or entering onto the Property, Licensee the JPB will obtain the Railroad Protective Liability insurance. However, Licensee's Certificate of Insurance should state that the contractual liability exclusion for liability assumed has been deleted on the Licensee's commercial general liability insurance policy,

D. GENERAL PROVISIONS

1. Notice of Cancellation.

Each insurance policy supplied by the Licensee shall provide at least 30 days' written notice to Licensee of cancellation or non-renewal. Licensee must then provide at least 30 days' prior written notice to the JPB's authorized insurance consultant, Insurance Tracking Services, Inc. (ITS), if any of the above policies are non-renewed or cancelled.

Submit written notice to:
Peninsula Corridor Joint Powers Board
C/O Insurance Tracking Services, Inc. (ITS)
P.O. Box 198
Long Beach, CA 90801
OR
Email Address: smt.certificates@instracking.com
OR
Fax: (562) 435-2999

2. Acceptable Insurers.

All policies will be issued by insurers acceptable to the JPB (generally with a Best's Rating of A- 10 or better).

3. Self-insurance.

Upon evidence of financial capacity satisfactory to the JPB and Licensee's agreement to waive subrogation against the JPB respecting any and all claims that may arise, Licensee's obligation hereunder may be satisfied in whole or in part by adequately funded self-insurance.

4. Failure to Maintain Insurance.

All insurance specified above shall remain in force until all work to be performed is satisfactorily completed, all of Licensee's personnel and equipment have been removed from the JPB property, and the work has been formally accepted. The failure to procure or maintain required insurance and/or an adequately funded self-insurance program will constitute a material breach of this Agreement.

5. Claims Made Coverage.

If any insurance specified above shall be provided on a claim-made basis, then in addition to coverage requirements above, such policy shall provide that:

a. Policy retroactive date coincides with or precedes the Licensee's start of work (including subsequent policies purchased as renewals or replacements).
b. Licensee shall make every effort to maintain similar insurance for at least three (3) years following project completion, including the requirement of adding all additional insureds.
c. If insurance is terminated for any reason, Licensee agrees to purchase an extended reporting provision of at least three (3) years to report claims arising from work performed in connection with this Agreement.
d. Policy allows for reporting of circumstances or incidents that might give rise to future claims.

6. Deductibles and Retentions.

Licensee shall be responsible for payment of any deductible or retention on Licensee's policies without right of contribution from the JPB. Deductible and retention provisions shall not contain any restrictions as to how or by whom the deductible or retention is paid. Any deductible or retention provision limiting payment to the Named Insured is unacceptable.

In the event that the policy of the Licensee or any subcontractor contains a deductible or self-insured retention, and in the event that the JPB seeks coverage under such policy as an additional insured, Licensee shall satisfy such deductible or self-insured retention to the extent of loss covered by such policy for a lawsuit arising from or connected with any alleged act or omission of Licensee, subcontractor, or any of their officers, directors, employees, agents, or suppliers, even if Licensee or subcontractor is not a named defendant in the lawsuit.

March 05, 2020
Folder: 03108-36

CARTER CHOI
COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS
555 COUNTY CENTER,
5TH FLOOR
REDWOOD CITY CA 94063

Dear Carter:

Attached is your original copy of our Agreement, fully executed on behalf of the Railroad Company. When you or your representative enters the Railroad Company's property, a copy of this fully-executed document must be available at the site to be shown on request to any Railroad employee or official.

In accordance with the terms of the Agreement, you are required to notify the following Railroad Company's field representative, Manager of Signal Maintenance, and the Telecommunications ("Call Before You Dig") number at least 10 days in advance of the date you plan on entering the right of way for further instructions and approval to commence construction.

UP.info@railpros.com (877)-315-0513 x. 116	Maikel I. Younan Manager Signal Maintenance Work Phone: (402-216-2342 Email: miyounan@up.com

Telecommunications ("Call Before You Dig"): 1-800-336-9193

As an additional note, the top of the casing must be a minimum of two feet below any existing fiber optic cable. Any open excavation required within five feet of the fiber optic cable must be dug by hand.

All future insurance notices should be forwarded to my attention per the address below with the Folder number identified:

Real Estate Department
Folder No: 03108-36
Union Pacific Railroad Company
1400 Douglas Street STOP 1690
Omaha, NE 68179-1690

Sincerely,

Valerie Harrill
Mgr II Real Estate Contracts - Real Estate
Email : VAHARRILL@up.com
Phone : (402) 544-8801

Wireline Crossing 051918
Last Modified: 05/19/18
Form Approved, AVP-Law

Folder No. 03108-36

WIRELINE CROSSING
AGREEMENT

Mile Post: 26.73, Redwood Junction Industrial Lead
Location: Redwood City, San Mateo County, California

THIS AGREEMENT ("Agreement") is made and entered into as of March 5 2020, 2020, ("Effective Date") by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation, ("Licensor") and **COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS**, to be addressed at 555 County Center,, 5th Floor Redwood City, California 94063 ("Licensee").

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

Article 1. LICENSOR GRANTS RIGHT.

A. In consideration of the license fee to be paid by Licensee set forth below and in further consideration of the covenants and agreements to be performed by Licensee, Licensor hereby grants to Licensee the right to construct and thereafter, during the term hereof, maintain and operate one (1) 30inch steel pipeline containing eight (8) conduits to be used for future fiber optic and communication wireline crossings only, including any appurtenances required for the operation of said wireline (collectively, "Licensee's Facilities") across Licensor's real property, trackage, or other facilities located in Redwood City, San Mateo County, State of California ("Railroad Property"). The specific specifications and limited purpose for Licensee's Facilities on, along, across and under Railroad Property are described in and shown on the Print and Specifications dated August 27, 2019, attached hereto as Exhibit A and made a part hereof.

B. Licensee represents and warrants that Licensee's Facilities will (i) only be used for one (1) 30 inch steel pipeline containing eight (8) conduits to be used for future fiber optic and communication wireline crossings, and (ii) not be used for any other purpose, whether such use is currently technologically possible, or whether such use may come into existence during the life of this Agreement.

C. Licensee acknowledges that if it or its contractor provides Licensor with digital imagery depicting Licensee's Facilities ("Digital Imagery"), Licensee authorizes Licensor to use the Digital Imagery in preparing Exhibit A. Licensee represents and warrants that through a license or otherwise, it has the right to use the Digital Imagery and to permit Licensor to use the Digital Imagery in said manner.

D. Under no circumstances shall Licensee modify the Wireline or add additional wirelines to the conduit, or allow any third-parties to modify the Wireline or add additional wirelines to the conduit, without Licensor's prior review and approval, which may be withheld in Licensor's sole discretion. Any application to modify the Wireline or add additional wirelines to the conduit shall be made in accordance with Licensor's then-current wireline crossing application procedures.

Article 2. TERM.

This Agreement shall take effect as of the Effective Date first herein written and shall continue in full force and effect until terminated as provided in the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B**.

Article 3. LICENSEE'S COMPLIANCE WITH GENERAL TERMS.

Licensee represents and warrants that all work on Licensee's Facilities performed by Licensee or its contractors will strictly comply with all terms and conditions set forth herein, including the General Terms and Conditions, attached hereto as Exhibit B and made a part hereof.

Article 4. INSURANCE.

A. During the term of this Agreement, Licensee shall fully comply or cause its contractor(s) to fully comply with the insurance requirements described in **Exhibit C**, attached hereto and made a part hereof. Upon request only, Licensee shall send copies of all insurance documentation (e.g., certificates, endorsements, etc.) to Licensor at the address listed in the "NOTICES" Section of this Agreement.

B. If Licensee is subject to statute(s) limiting its insurance liability and/or limiting its ability to obtain insurance in compliance with **Exhibit C** of this Agreement, those statutes shall apply.

Article 5. DEFINITION OF LICENSEE.

For purposes of this Agreement, all references in this Agreement to Licensee will include Licensee's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority (collectively, a "Contractor"). If a Contractor is hired by Licensee to perform any work on Licensee's Facilities (including initial construction and subsequent relocation, maintenance, and/or repair work), then Licensee shall provide a copy of this Agreement to its Contractor(s) and require its Contractor(s) to comply with all terms and conditions of this Agreement, including the indemnification requirements set forth in the "INDEMNITY" Section of **Exhibit B**. Licensee shall require any Contractor to release, defend, and indemnify Licensor to the same extent and under the same terms and conditions as Licensee is required to release, defend, and indemnify Licensor herein.

Article 6. ATTORNEYS' FEES, EXPENSES, AND COSTS.

If litigation or other court action or similar adjudicatory proceeding is undertaken by Licensee or Licensor to enforce its rights under this Agreement, all fees, costs, and expenses, including, without limitation, reasonable attorneys' fees and court costs, of the prevailing Party in such action, suit, or proceeding shall be reimbursed or paid by the Party against whose interest the judgment or decision is rendered. The provisions of this Article shall survive the termination of this Agreement.

Article 7. WAIVER OF BREACH.

The waiver by Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by Licensee shall in no way impair the right of Licensor to avail itself of any remedy for any subsequent breach thereof.

Article 8. **ASSIGNMENT.**

A. Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of Licensor, which must be requested in writing by Licensee. Any assignment or attempted transfer of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without Licensor's written consent, will be absolutely void and may result in Licensor's termination of this Agreement pursuant to the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B.**

B. Upon Licensor's written consent to any assignment, this Agreement will be binding upon and inure to the benefit of the parties thereto, successors, heirs, and assigns, executors, and administrators.

Article 9. **SEVERABILITY.**

Any provision of this Agreement which is determined by a court of competent jurisdiction to be invalid or unenforceable shall be invalid or unenforceable only to the extent of such determination, which shall not invalidate or otherwise render ineffective any other provision of this Agreement.

Article 10. **NOTICES.**

Except Licensee's commencement of work notice(s) required under Exhibit B, all other notices required by this Agreement must be in writing, and (i) personally served upon the business address listed below ("Notice Address"), (ii) sent overnight via express delivery by a nationally recognized overnight delivery service such as Federal Express Corporation or United Parcel Service to the Notice Address, or (iii) by certified mail, return receipt requested to the Notice Address. Overnight express delivery notices will be deemed to be given upon receipt. Certified mail notices will be deemed to be given three (3) days after deposit with the United States Postal Service.

If to Licensor: Union Pacific Railroad Company
Attn: Analyst – Real Estate Utilities (03108-36)
1400 Douglas Street, MS 1690
Omaha, Nebraska 68179

If to Licensee: COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS
555 County Center,
5th Floor

Redwood City, California, 94063

Article 11. **TRACK AND GROUND MONITORING PLANS.**

Track and Ground Monitoring plans must be submitted for review and approved prior to any installations can begin.

Article 12. **SPECIAL PROVISION – CONSTRUCTION OBSERVATION.**

Licensor requires Licensee to provide monitoring of tracks and construction observation through Licensor approved observer named below during all construction and installation work. Licensee is to directly coordinate services with the named inspector:

Railpros Field Services
Email: RP.Utility@railpros.com
Phone (682)223-5271

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

By: _____
Valerie Harrill
Mgr II Real Estate Contracts

COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS

By: _____

Name Printed: Jim Porter

Title: Director of Public Works

PLACE ARROW INDICATING NORTH DIRECTION RELATIVE TO CROSSING

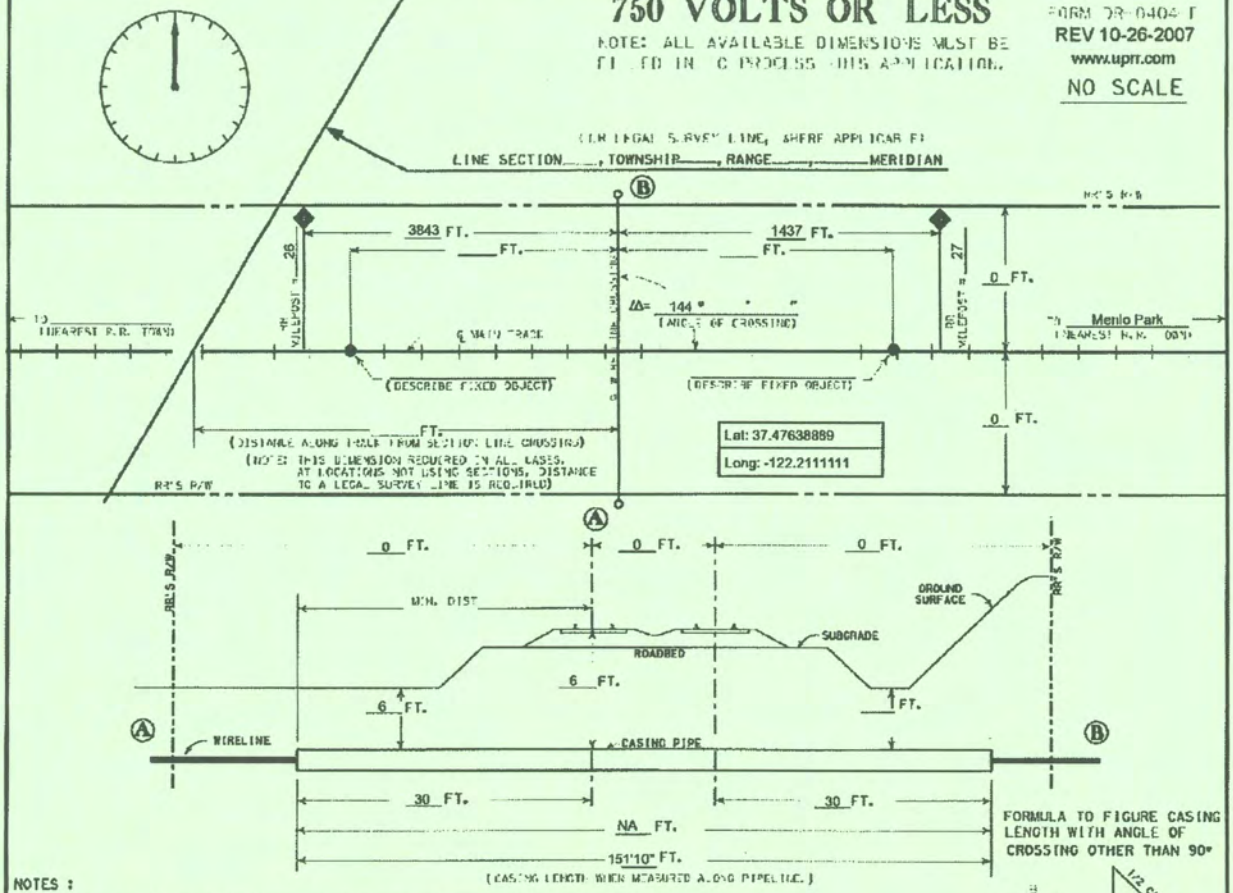
UNDERGROUND WIRELINE CROSSING

750 VOLTS OR LESS

NOTE: ALL AVAILABLE DIMENSIONS MUST BE FILLED IN TO PROCESS THIS APPLICATION.

FORM DR-0404 F
REV 10-26-2007
www.uprr.com

NO SCALE



FORMULA TO FIGURE CASING LENGTH WITH ANGLE OF CROSSING OTHER THAN 90°

$$\frac{\text{MIN. DIST.}}{\sin\Delta} = \text{1/2 CASING LENGTH}$$

(Δ = TRACK)

NOTES :

Wireline to be located 2.6' west of the Middlefield Rd. C/L measured perpendicularly from the road C/L.

A) TYPE WIRELINE CROSSING: Conduits will be used by companies for communications and fiber

B) VOLTAGE TO BE CARRIED UNDER TRACK 0 NO. OF WIRES 1

C) CASING TYPE TO BE INSTALLED 30" STEEL CONTAINING 8 CONDUITS

D) METHOD OF INSTALLING CASING PIPE UNDER TRACK(S): (WET BORE NOT PERMITTED); DRY BORE AND JACK

E) DISTANCE FROM CENTER LINE OF TRACK TO NEAR FACE OF BORING AND JACKING PITS WHEN MEASURED AT RIGHT ANGLES TO TRACK 30 (30' MIN.)

F) DISTANCE TO NEAREST ROAD CROSSING WITH SIGNAL LIGHTS OR GATES (IF LESS THAN ONE MILE) 15

G) APPLICANT HAS CONTACTED 1-800-336-9193, U. P. COMMUNICATION DEPARTMENT, AND HAS DETERMINED FIBER OPTIC CABLE _____ EXIST IN VICINTY OF WORK TO BE PERFORMED. TICKET NO. _____

EXHIBIT "A"

FOR RAILROAD USE ONLY - DO NOT WRITE IN THIS BOX

UNION PACIFIC RAILROAD CO.

Redwood Jct. Ind. Ld.
(SUBDIVISION)

M. P. 26.73 E. S. 832+03 ±

UNDERGROUND WIRELINE CROSSING

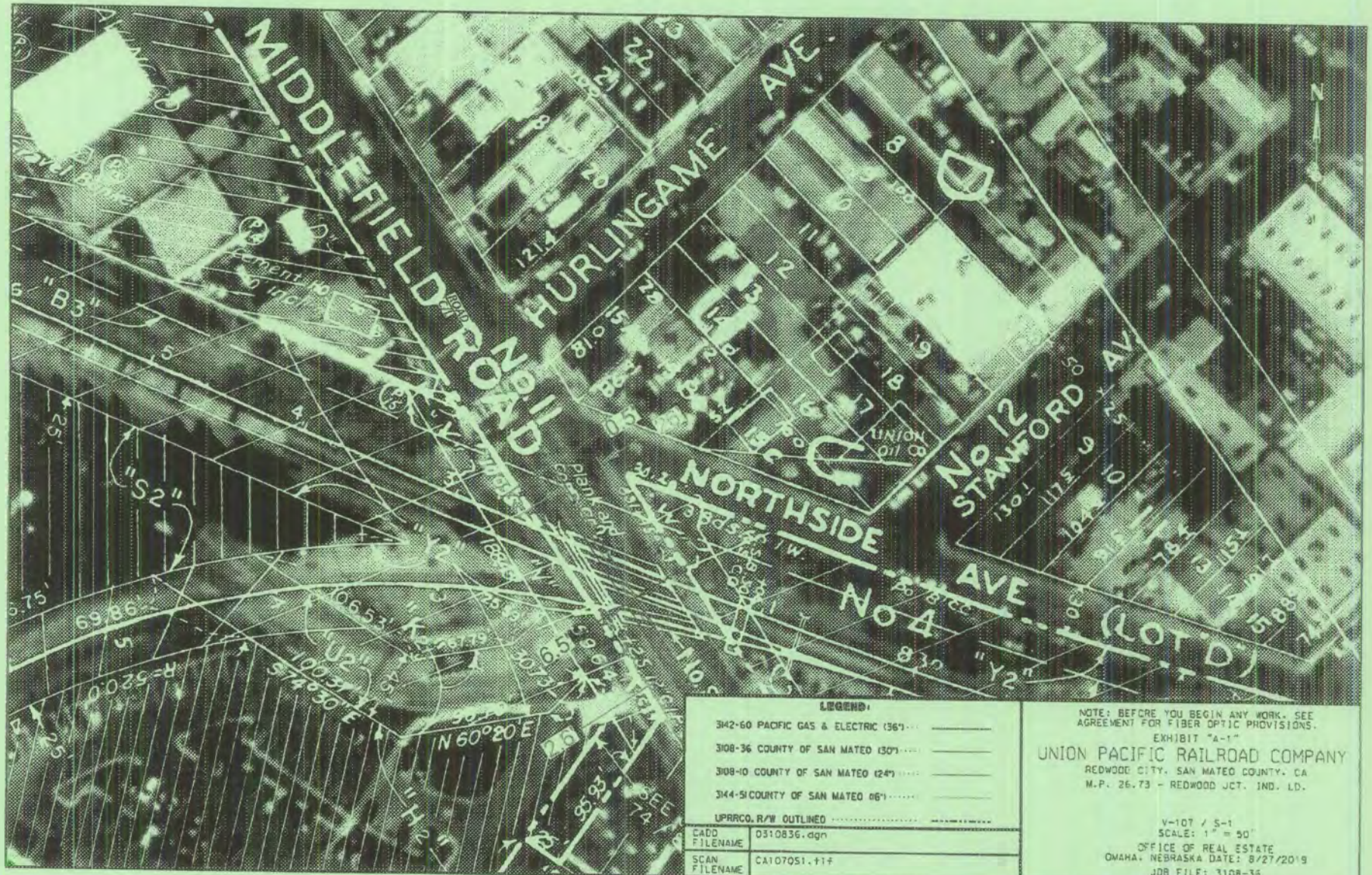
REDWOOD CITY (NEAREST TOWN) SAN MATEO (COUNTY) CA (STATE)

FOR County of San Mateo, Department of Public Works
(APPLICANT)

RR FILE NO. 0310836 DATE 8/27/2019

WARNING

IN ALL OCCASIONS, U. P. COMMUNICATIONS DEPARTMENT MUST BE CONTACTED IN ADVANCE OF ANY WORK TO DETERMINE EXISTENCE AND LOCATION OF FIBER OPTIC CABLE.
PHONE : 1-800-336-9193



LEGEND:

3142-60 PACIFIC GAS & ELECTRIC (36")	———
3108-36 COUNTY OF SAN MATEO (30")	———
3108-10 COUNTY OF SAN MATEO (24")	———
3144-51 COUNTY OF SAN MATEO (6")	———
UPRRCO. R/W OUTLINED	-----

CADD FILENAME	0310836.dgn
SCAN FILENAME	CA107051.tif

NOTE: BEFORE YOU BEGIN ANY WORK, SEE AGREEMENT FOR FIBER OPTIC PROVISIONS.

EXHIBIT "A-1"

UNION PACIFIC RAILROAD COMPANY

REDWOOD CITY, SAN MATEO COUNTY, CA

M.P. 26.73 - REDWOOD JCT. IND. LD.

V-107 / S-1

SCALE: 1" = 50'

OFFICE OF REAL ESTATE

OMAHA, NEBRASKA DATE: 8/27/2019

JOB FILE: 3108-36

Form Approved, AVP-Law
Updated 051918

EXHIBIT B

GENERAL TERMS AND CONDITIONS

Section 1. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED.

A. The foregoing grant is subject and subordinate to the prior and continuing right and obligation of Licensor to use and maintain its entire property including the right and power of Licensor to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Licensor without liability to Licensee or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of Railroad Property) and the right of Licensor to renew and extend the same, and is made without covenant of title or for quiet enjoyment. It shall be Licensee's sole obligation to obtain such additional permission, license and grants necessary on account of any such existing rights.

Section 2. ENGINEERING REQUIREMENTS; PERMITS.

A. Licensee's Facilities will be designed, constructed, operated, maintained, repaired, renewed, modified, reconstructed, removed, or abandoned in place on Railroad Property by Licensee or its contractor to Licensor's satisfaction and in strict conformity with: (i) Licensor's current engineering standards and specifications, including those for aerial marker balls, shoring and cribbing to protect Licensor's railroad operations and facilities ("UP Specifications"), except for variances approved in advance in writing by Licensor's Assistant Vice President Engineering – Design or its authorized representative ("UP Engineering Representative"); (ii) such other additional safety standards as Licensor, in its sole discretion, elects to require, including, without limitation, American Railway Engineering and Maintenance-of-Way Association ("AREMA") standards and guidelines (collectively, "UP Additional Requirements"); and (iii) all applicable laws, rules, and regulations, including any applicable Federal Railroad Administration, Federal Energy Regulatory Commission, and Federal Aviation Administration regulations and enactments (collectively, "Laws"). If there is any conflict between UP Specifications, UP Additional Requirements, and Laws, the most restrictive will apply.

B. If Licensee's Facilities will be located underground, Licensee shall keep the soil over Licensee's Facilities thoroughly compacted, and maintain the grade over and around Licensee's Facilities even with the surface of the adjacent ground.

C. Licensee shall not transmit electric current from Licensee's Facilities at a difference of potential in excess of the voltage indicated on **Exhibit A**. If the voltage indicated is in excess of seven hundred fifty volts (750V), and Licensee's Facilities will be buried at any location outside of track ballast or roadbed on Railroad Property, Licensee shall install metallic conduit, or non-metallic conduit encased in a minimum of three inches (3") of concrete with a minimum of four feet (4') of ground cover the entire length of Licensee's Facilities. Any of Licensee's Facilities buried by removal of soil shall have, at a depth of one foot (1') beneath the surface of the ground directly above Licensee's Facilities, with a six inch (6") wide warning tape labeled "Danger-High Voltage" or equivalent wording. Any of Licensee's

Facilities encased in conduit, jacked, or bored under Railroad Property must be identified with warning signs ("Warning Signs") at each edge of Railroad Property, to be installed and properly maintained at Licensee's cost and expense. Licensee shall not utilize Warning Signs in lieu of the warning tape where portions of the casing are installed by direct burial.

D. If needed, Licensee shall secure, at Licensee's sole cost and expense, any and all necessary permits required to perform any work on Licensee's Facilities.

Section 3. NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES.

A. Licensee and it contractors are strictly prohibited from commencing any work associated with Licensee's Facilities without Licensor's written approval that the work will be in strict compliance with the "ENGINEERING REQUIREMENTS; PERMITS" Section of this **Exhibit B**. Upon Licensor's approval, Licensee shall contact both of Licensor's field representatives ("Licensor's Field Representatives") at least ten (10) days before commencement of any work on Licensee's Facilities.

B. Licensee shall not commence any work until: (1) Licensor has determined whether flagging or other special protective or safety measures ("Safety Measures") are required for performance of the work pursuant to the "FLAGGING" Section of this **Exhibit B** and provided Licensee written authorization to commence work; and (2) Licensee has complied with the "PROTECTION OF FIBER OPTIC CABLE SYSTEMS" Section of this **Exhibit B**.

C. If, at any time, an emergency arises involving Licensee's Facilities, Licensee or its contractor shall immediately contact Licensor's Response Management Communications Center at (888) 877-7267.

Section 4. FLAGGING.

A. Following Licensee's notice to Licensor's Field Representatives required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensor shall inform Licensee if Safety Measures are required for performance of the work by Licensee or its contractor on Railroad Property. If Safety Measures are required, no work of any kind may be performed by Licensee or its contractor(s) until arrangements for the Safety Measures have been made and scheduled. If no Safety Measures are required, Licensor will give Licensee written authorization to commence work.

B. If any Safety Measures are performed or provided by Licensor, including but not limited to flagging, Licensor shall bill Licensee for such expenses incurred by Licensor, unless Licensor and a federal, state, or local governmental entity have agreed that Licensor is to bill such expenses to the federal, state, or local governmental entity. Additional information regarding the submission of such expenses by Licensor and payment thereof by Licensee can be found in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**. If Licensor performs any Safety Measures, Licensee agrees that Licensee is not relieved of any of responsibilities or liabilities set forth in this Agreement.

C. For flagging, the rate of pay per hour for each flagger will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage, and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One

and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Licensor and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Licensee (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.

D. Reimbursement to Licensor will be required covering the full eight-hour day during which any flagger is furnished, unless the flagger can be assigned to other railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagger is engaged in other railroad work. Reimbursement will also be required for any day not actually worked by the flaggers following the flaggers' assignment to work on the project for which Licensor is required to pay the flaggers and which could not reasonably be avoided by Licensor by assignment of such flaggers to other work, even though Licensee may not be working during such time. When it becomes necessary for Licensor to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Licensee must provide Licensor a minimum of five (5) days notice prior to the cessation of the need for a flagger. If five (5) days notice of cessation is not given, Licensee will still be required to pay flagging charges for the days the flagger was scheduled, even though flagging is no longer required for that period. An additional ten (10) days notice must then be given to Licensor if flagging services are needed again after such five day cessation notice has been given to Licensor.

Section 5. SAFETY.

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of any work on Railroad Property performed by Licensee or its contractor, and takes precedence over any work on Licensee's Facilities to be performed by Licensee or its contractors. Licensee shall be responsible for initiating, maintaining and supervising all safety operations and programs in connection with any work on Licensee's Facilities. Licensor and its contractor shall, at a minimum comply, with Licensor's then current safety standards located at the below web address ("Licensor's Safety Standards") to ensure uniformity with the safety standards followed by Licensor's own forces. As a part of Licensee's safety responsibilities, Licensee shall notify Licensor if it determines that any of Licensor's Safety Standards are contrary to good safety practices. Licensee and its contractor shall furnish copies of Licensor's Safety Standards to each of its employees before they enter Railroad Property found at the link below.

Union Pacific Current Safety Requirements

B. Licensee shall keep the job site on Railroad Property free from safety and health hazards and ensure that their employees are competent and adequately trained in all safety and health aspects of the work.

C. Licensee represents and warrants that all parts of Licensee's Facilities within and outside of the limits of Railroad Property will not interfere whatsoever with the constant, continuous, and uninterrupted use of the tracks, property, and facilities of Licensor, and nothing shall be done or suffered to be done by Licensee at any time that would in any manner impair the safety thereof. Licensee shall take all suitable precaution to prevent interference (by induction, leakage of electricity, or otherwise) with the operation of the signal, communication lines or other installations or facilities of Licensor or of its tenants. If, at any time, the operation or maintenance of Licensee's Facilities results in any electrostatic effects which Licensor deems undesirable or harmful, or causes interference with the operation of the signal, communication lines or other installations or facilities, as now existing or which may hereafter be

provided by Licensor and/or its tenants, Licensee shall, at the sole cost and expense of Licensee, immediately modify or take action as may be necessary to eliminate such interference.

D. Licensor's operations and work performed by Licensor's personnel may cause delays in Licensee's or its contractor's work on Licensee's Facilities. Licensee accepts this risk and agrees that Licensor shall have no liability to Licensee or any other person or entity for any such delays. Licensee must coordinate any work on Railroad Property by Licensee or any third party with Licensor's Field Representatives in strict compliance with the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**.

E. Licensor shall have the right, if it so elects, to provide any support it deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, repair, renewal, modification, relocation, reconstruction, or removal of Licensee's Facilities. In the event Licensor provides such support, Licensor shall invoice Licensee, and Licensee shall pay Licensor as set forth in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**.

F. Licensee may use unmanned aircraft systems ("UAS") to inspect Licensee's Facilities only upon the prior authorization from and under the direction of Licensor's Field Representatives. Licensee represents and warrants that its use of UAS on Railroad Property will comply with Licensor's then-current Unmanned Aerial Systems Policy and all applicable laws, rules and regulations, including any applicable Federal Aviation Administration regulations and enactments pertaining to UAS.

Section 6. **PROTECTION OF FIBER OPTIC CABLE SYSTEMS.**

Fiber optic cable systems may be buried on Railroad Property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. In addition to the notifications required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensee shall telephone Licensor during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except for holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad Property to be used by Licensee. If it is, Licensee shall telephone the telecommunications company(ies) involved, and arrange for a cable locator, make arrangements for relocation or other protection of the fiber optic cable, all at Licensee's expense, and will not commence any work on Railroad Property until all such protection or relocation has been completed.

Section 7. **LICENSEE'S PAYMENT OF EXPENSES.**

A. Licensee shall bear the entire cost and expense of the design, construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities.

B. Licensee shall fully pay for all materials joined, affixed to and labor performed on Railroad Property in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of Licensee. Licensee shall promptly pay or discharge all taxes, charges, and assessments levied upon, in respect to, or on account of Licensee's Facilities, to prevent the same from becoming a charge or lien upon any property of Licensor, and so that the taxes, charges, and assessments levied upon or in respect to such property shall not be increased because of the location, construction, or maintenance of Licensee's Facilities or any improvement, appliance, or fixture connected therewith placed upon such property, or on account of

Licensee's interest therein. Where such tax, charge, or assessment may not be separately made or assessed to Licensee but shall be included in the assessment of the property of Licensor, then Licensee shall pay to Licensor an equitable proportion of such taxes determined by the value of Licensee's property upon property of Licensor as compared with the entire value of such property.

C. As set forth in the "FLAGGING" Section of this **Exhibit B**, Licensor shall have the right, if it so elects, to provide any Safety Measures Licensor deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, including, but not limited to supervision, inspection, and flagging services. In the event Licensor provides such Safety Measures, Licensor shall submit an itemized invoice to Licensee's notice recipient listed in the "NOTICES" Article of this Agreement. Licensee shall pay to Licensor the total amount listed on such invoice within thirty (30) days of Licensee's receipt of such invoice.

Section 8. **MODIFICATIONS TO LICENSEE'S FACILITIES.**

A. This grant is subject to Licensor's safe and efficient operation of its railroad, and continued use and improvement of Railroad Property (collectively, "Railroad's Use"). Accordingly, Licensee shall, at its sole cost and expense, modify, reconstruct, repair, renew, revise, relocate, or remove (individually, "Modification", or collectively, "Modifications") all or any portion of Licensee's Facilities as Licensor may designate or identify, in its sole discretion, (i) in the furtherance of Railroad's Use, or (ii) as is necessary to ensure safe and reliable maintenance and operation of the facilities of Licensor and/or its tenants because of interference from Licensee's Facilities.

B. Upon any Modification of all or any portion of Licensee's Facilities to another location on Railroad Property, Licensor and Licensee shall execute a Supplemental Agreement to this Wireline Agreement to document the Modification(s) to Licensee's Facilities on Railroad Property. If the Modifications result in Licensee's Facilities moving off of Railroad Property, this Agreement will terminate upon Licensee's completion of such Modification(s) and all requirements contained within the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of this **Exhibit B**. Any such Modification(s) off of Railroad Property will not release Licensee from any liability or other obligation of Licensee arising prior to and upon completion of any such Modifications to the Licensee's Facilities.

Section 9. **RESTORATION OF RAILROAD PROPERTY.**

In the event Licensee, in any manner moves or disturbs any property of Licensor in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, then, Licensee shall, as soon as possible and at Licensee's sole cost and expense, restore Licensor's property to the same condition as the same were before such property was moved or disturbed.

Section 10. **INDEMNITY.**

A. Definitions. As used in this Section:

1. "Licensor" includes Licensor, its affiliates, its and their officers, directors, agents and employees, and other railroad companies using Railroad Property at or near the location of Licensee's installation and their officers, directors, agents, and employees.

2. "Licensee" includes Licensee and its agents, contractors, subcontractors,

sub-subcontractors, employees, officers, and directors, or any other person or entity acting on its behalf or under its control.

3. "Loss" includes claims, suits, taxes, loss, damages (including punitive damages, statutory damages, and exemplary damages), costs, charges, assessments, judgments, settlements, liens, demands, actions, causes of action, fines, penalties, interest, and expenses of any nature, including court costs, reasonable attorneys' fees and expenses, investigation costs, and appeal expenses.

B. Licensee shall release, defend, indemnify, and hold harmless Licensor from and against any and all Loss, even if groundless, fraudulent, or false, that directly or indirectly arises out of or is related to Licensee's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, removal, presence, use, or operation of Licensee's Facilities, including, but not limited to, any actual or alleged:

1. Bodily harm or personal injury (including any emotional injury or disease) to, or the death of, any person(s), including, but not limited to, Licensee, Licensor, any telecommunications company, or the agents, contractors, subcontractors, sub-subcontractors, or employees of the foregoing;

2. Damage to or the disturbance, loss, movement, or destruction of Railroad Property, including loss of use and diminution in value, including, but not limited to, any telecommunications system(s) or fiber optic cable(s) on or near Railroad Property, any property of Licensee or Licensor, or any property in the care, custody, or control of Licensee or Licensor;

3. Removal of person(s) from Railroad Property;

4. Any delays or interference with track or Railroad's Use caused by Licensee's activity(ies) on Railroad Property, including without limitation the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities or any part thereof, any activities, labor, materials, equipment, or machinery in conjunction therewith ;

5. Right(s) or interest(s) granted pursuant to this Agreement;

6. Electrical interference or other types of interference created or caused by or escaping from Licensee's Facilities;

7. Licensee's breach of this Agreement or failure to comply with its provisions, including, but not limited to, any violation or breach by Licensee of any representations and warranties Licensee has made in this Agreement; and

8. Violation by Licensee of any law, statute, ordinance, governmental administrative order, rule, or regulation, including without limitation all applicable Federal Railroad Administration regulations.

C. THE FOREGOING OBLIGATIONS SHALL APPLY TO THE FULLEST EXTENT PERMITTED BY LAW FOR THE BENEFIT OF LICENSOR TO LOSSES CAUSED BY, ARISING FROM, RELATING TO, OR RESULTING FROM, IN WHOLE OR IN PART, THE NEGLIGENCE OF LICENSOR, AND SUCH NEGLIGENCE OF LICENSOR SHALL NOT LIMIT, DIMINISH, OR

PRECLUDE LICENSEE'S OBLIGATIONS TO LICENSOR IN ANY RESPECT. NOTWITHSTANDING THE FOREGOING, SUCH OBLIGATION TO INDEMNIFY LICENSOR SHALL NOT APPLY TO THE EXTENT THE LOSS IS CAUSED BY THE SOLE, ACTIVE AND DIRECT NEGLIGENCE, GROSS NEGLIGENCE, OR WILLFUL MISCONDUCT OF LICENSOR AS DETERMINED IN A FINAL JUDGMENT BY A COURT OF COMPETENT JURISDICTION.

Section 11. TERMINATION; REMOVAL OF LICENSEE'S FACILITIES.

A. If Licensee does not use the right herein granted on Licensee's Facilities for one (1) year, or if Licensee continues in default in the performance of any provision of this Agreement for a period of thirty (30) days after written notice from Licensor to Licensee specifying such default, Licensor may, at its sole discretion, terminate this Agreement by written notice to Licensee at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

B. In addition to the provisions of Paragraph "A" above, this Agreement may be terminated by written notice given by either party, without cause, upon thirty (30) days written notice to the non-terminating party at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

C. Prior to the effective date of any termination described in this Section, Licensee shall submit an application to Licensor's online at this link, for Licensee's removal, or if applicable, abandonment in place of Licensee's Facilities located underground on Railroad Property ("Removal/Abandonment Work"). Upon the UP Engineering Representative's approval of Licensee's application for the Removal/Abandonment Work, Licensor and Licensee shall execute a separate consent document that will govern Licensee's performance of the Removal/Abandonment Work from those portions of Railroad Property not occupied by roadbed and/or trackage ("Consent Document"). Licensee shall then restore the impacted Railroad Property to the same or reasonably similar condition as it was prior to Licensee's installation of Licensee's Facilities.
For purposes of this Section, Licensee's (i) performance of the Removal/Abandonment Work, and (ii) restoration work will hereinafter be collectively referred to as the "Restoration Work".

D. Following Licensee's completion of the Restoration Work, Licensee shall provide a written certification letter to Licensor at the address listed in the "NOTICES" Article of this Agreement which certifies that the Restoration Work has been completed in accordance with the Consent Document. Licensee shall report to governmental authorities, as required by law, and notify Licensor immediately if any environmental contamination is discovered during Licensee's performance of the Restoration Work. Upon discovery, the Licensee shall initiate any and all removal, remedial and restoration actions that are necessary to restore the property to its original, uncontaminated condition. Licensee shall provide written certification to Licensor at the address listed in the "NOTICES" Article of this Agreement that environmental contamination has been remediated and the property has been restored in accordance with Licensor's requirements. Upon Licensor's receipt of Licensee's restoration completion certifications, this Agreement will terminate.

E. In the event that Licensee fails to complete any of the Restoration Work, Licensor may, but is not obligated, to perform the Restoration Work. Any such work actually performed by Licensor will be at the cost and expense of Licensee. In the event that Licensor performs any of the Restoration Work, Licensee shall release Licensor from any and all Loss (defined in the "INDEMNITY" Section of this **Exhibit B**) arising out of or related to Licensor's performance of the Restoration Work.

F. Termination of this Agreement for any reason will not affect any of rights or obligations

of the parties which may have accrued, or liabilities or Loss (defined in the "INDEMNITY" Section of this **Exhibit B**), accrued or otherwise, which may have arisen prior to such termination.

Approved: Insurance Group
Created: 5/19/18
Last Modified: 05/19/18
Form Approved, AVP-Law

EXHIBIT C

INSURANCE REQUIREMENTS

In accordance with Article 5 of this Agreement, Licensee shall (1) procure and maintain at its sole cost and expense, or (2) require its Contractor(s) to procure and maintain, at their sole cost and expense, the following insurance coverage:

A. **Commercial General Liability Insurance**. Commercial general liability (CGL) with a limit of not less than $2,000,000 each occurrence and an aggregate limit of not less than $4,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Contractual Liability Railroads" ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

B. **Business Automobile Coverage Insurance**. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a limit of not less $2,000,000 for each accident, and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

The policy must contain the following endorsements, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Coverage For Certain Operations In Connection With Railroads" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site.

C. **Workers' Compensation and Employers' Liability Insurance**. Coverage must include but not be limited to:

- Licensee's statutory liability under the workers' compensation laws of the state(s) affected by this Agreement.

- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 disease policy limit $500,000 each employee.

If Licensee is self-insured, evidence of state approval and excess workers' compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor

Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

D. **Railroad Protective Liability Insurance**. Licensee must maintain for the duration of work "Railroad Protective Liability" insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Licensor only as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate of $6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement. Notwithstanding the foregoing, Licensee does not need Railroad Protective Liability Insurance after its initial construction work is complete and all excess materials have been removed from Licensor's property; PROVIDED, however, that Licensee shall procure such coverage for any subsequent maintenance, repair, renewal, modification, reconstruction, or removal work on Licensee's Facilities.

The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement.

E. **Umbrella or Excess Insurance**. If Licensee utilizes umbrella or excess policies, and these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

F. All policy(ies) required above (except worker's compensation and employers' liability) must include Licensor as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to Licensor as additional insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 26, and CA 20 48 provide coverage for Licensor's negligence whether sole or partial, active or passive, and shall not be limited by Licensee's liability under the indemnity provisions of this Agreement.

G. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (a) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this Agreement, or (b) all punitive damages are prohibited by all states in which this Agreement will be performed.

H. Licensee waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Licensor and its agents, officers, directors and employees for damages covered by the workers' compensation and employers' liability or commercial umbrella or excess liability obtained by Licensee required in this Agreement, where permitted by law. This waiver must be stated on the certificate of insurance.

I. All insurance policies must be written by a reputable insurance company acceptable to Railroad or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the work is to be performed.

J. The fact that insurance is obtained by Licensee or by Licensor on behalf of Licensee will not be deemed to release or diminish the liability of Licensee, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Licensor from Licensee or any third party will not be limited by the amount of the required insurance coverage.

March 05, 2020
Folder: 03108-10

CARTER CHOI
COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, MENLO PARK HIGHWAY LIGHTING DISTRICT
555 COUNTY CENTER, 5TH FLOOR
REDWOOD CITY CA 94063

Dear Carter:

Attached is your original copy of our Agreement, fully executed on behalf of the Railroad Company. When you or your representative enters the Railroad Company's property, a copy of this fully-executed document must be available at the site to be shown on request to any Railroad employee or official.

In accordance with the terms of the Agreement, you are required to notify the following Railroad Company's field representative, Manager of Signal Maintenance, and the Telecommunications ("Call Before You Dig") number at least 10 days in advance of the date you plan on entering the right of way for further instructions and approval to commence construction.

UP.info@railpros.com (877)-315-0513 x. 116	Maikel I. Younan Manager Signal Maintenance Work Phone: (402-216-2342 Email: miyounan@up.com

Telecommunications ("Call Before You Dig"): 1-800-336-9193

As an additional note, the top of the casing must be a minimum of two feet below any existing fiber optic cable. Any open excavation required within five feet of the fiber optic cable must be dug by hand.

All future insurance notices should be forwarded to my attention per the address below with the Folder number identified:

Real Estate Department
Folder No: 03108-10
Union Pacific Railroad Company
1400 Douglas Street STOP 1690
Omaha, NE 68179-1690

Sincerely,

Valerie Harrill
Mgr II Real Estate Contracts - Real Estate
Email : VAHARRILL@up.com
Phone : (402) 544-8801

Wireline Crossing 051918
Last Modified: 05/19/18
Form Approved, AVP-Law

Folder No. 03108-10

WIRELINE CROSSING
AGREEMENT

Mile Post: 26.73, Redwood Junction Industrial Lead
Location: Redwood City, San Mateo County, California

THIS AGREEMENT ("Agreement") is made and entered into as of October 30, 2019, ("Effective Date") by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation, ("Licensor") and **COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, MENLO PARK HIGHWAY LIGHTING DISTRICT** to be addressed at 555 County Center, 5th Floor, Redwood City, California 94063 ("Licensee").

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

Article 1. LICENSOR GRANTS RIGHT.

A. In consideration of the license fee to be paid by Licensee set forth below and in further consideration of the covenants and agreements to be performed by Licensee, Licensor hereby grants to Licensee the right to construct and thereafter, during the term hereof, maintain and operate three (3) 240 volt wires encased in a 24 inch steel casing only, including any appurtenances required for the operation of said wireline (collectively, "Licensee's Facilities") across Licensor's real property, trackage, or other facilities located in Redwood City, San Mateo County, State of California ("Railroad Property"). The specific specifications and limited purpose for Licensee's Facilities on, along, across and under Railroad Property are described in and shown on the Print and Specifications dated August 27, 2019, attached hereto as Exhibit A and made a part hereof.

B. Licensee represents and warrants that Licensee's Facilities will (i) only be used for three (3) 240 volt wires encased in a 24 inch steel casing, and (ii) not be used for any other purpose, whether such use is currently technologically possible, or whether such use may come into existence during the life of this Agreement.

C. Licensee acknowledges that if it or its contractor provides Licensor with digital imagery depicting Licensee's Facilities ("Digital Imagery"), Licensee authorizes Licensor to use the Digital Imagery in preparing Exhibit A. Licensee represents and warrants that through a license or otherwise, it has the right to use the Digital Imagery and to permit Licensor to use the Digital Imagery in said manner.

Article 2. TERM.

This Agreement shall take effect as of the Effective Date first herein written and shall continue in full force and effect until terminated as provided in the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B**.

Article 3. **LICENSEE'S COMPLIANCE WITH GENERAL TERMS.**

Licensee represents and warrants that all work on Licensee's Facilities performed by Licensee or its contractors will strictly comply with all terms and conditions set forth herein, including the General Terms and Conditions, attached hereto as Exhibit B and made a part hereof.

Article 4. **INSURANCE.**

A. During the term of this Agreement, Licensee shall fully comply or cause its contractor(s) to fully comply with the insurance requirements described in **Exhibit C**, attached hereto and made a part hereof. Upon request only, Licensee shall send copies of all insurance documentation (e.g., certificates, endorsements, etc.) to Licensor at the address listed in the "NOTICES" Section of this Agreement.

B. If Licensee is subject to statute(s) limiting its insurance liability and/or limiting its ability to obtain insurance in compliance with **Exhibit C** of this Agreement, those statutes shall apply.

Article 5. **DEFINITION OF LICENSEE.**

For purposes of this Agreement, all references in this Agreement to Licensee will include Licensee's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority (collectively, a "Contractor"). If a Contractor is hired by Licensee to perform any work on Licensee's Facilities (including initial construction and subsequent relocation, maintenance, and/or repair work), then Licensee shall provide a copy of this Agreement to its Contractor(s) and require its Contractor(s) to comply with all terms and conditions of this Agreement, including the indemnification requirements set forth in the "INDEMNITY" Section of **Exhibit B**. Licensee shall require any Contractor to release, defend, and indemnify Licensor to the same extent and under the same terms and conditions as Licensee is required to release, defend, and indemnify Licensor herein.

Article 6. **ATTORNEYS' FEES, EXPENSES, AND COSTS.**

If litigation or other court action or similar adjudicatory proceeding is undertaken by Licensee or Licensor to enforce its rights under this Agreement, all fees, costs, and expenses, including, without limitation, reasonable attorneys' fees and court costs, of the prevailing Party in such action, suit, or proceeding shall be reimbursed or paid by the Party against whose interest the judgment or decision is rendered. The provisions of this Article shall survive the termination of this Agreement.

Article 7. **WAIVER OF BREACH.**

The waiver by Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by Licensee shall in no way impair the right of Licensor to avail itself of any remedy for any subsequent breach thereof.

Article 8. **ASSIGNMENT.**

A. Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of Licensor, which must be requested in writing by Licensee. Any assignment or attempted transfer of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without Licensor's written consent, will be absolutely void and may result

in Licensor's termination of this Agreement pursuant to the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B.**

B. Upon Licensor's written consent to any assignment, this Agreement will be binding upon and inure to the benefit of the parties thereto, successors, heirs, and assigns, executors, and administrators.

Article 9. SEVERABILITY.

Any provision of this Agreement which is determined by a court of competent jurisdiction to be invalid or unenforceable shall be invalid or unenforceable only to the extent of such determination, which shall not invalidate or otherwise render ineffective any other provision of this Agreement.

Article 10. NOTICES.

Except Licensee's commencement of work notice(s) required under Exhibit B, all other notices required by this Agreement must be in writing, and (i) personally served upon the business address listed below ("Notice Address"), (ii) sent overnight via express delivery by a nationally recognized overnight delivery service such as Federal Express Corporation or United Parcel Service to the Notice Address, or (iii) by certified mail, return receipt requested to the Notice Address. Overnight express delivery notices will be deemed to be given upon receipt. Certified mail notices will be deemed to be given three (3) days after deposit with the United States Postal Service.

If to Licensor: Union Pacific Railroad Company
Attn: Analyst – Real Estate Utilities (03108-10)
1400 Douglas Street, MS 1690
Omaha, Nebraska 68179

If to Licensee: **COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, MENLO PARK HIGHWAY LIGHTING DISTRICT**
555 County Center, 5th Floor

Redwood City, California, 94063

Article 11. TRACK AND GROUND MONITORING PLANS.

Track and Ground Monitoring plans must be submitted for review and approved prior to any installations can begin.

Article 12. SPECIAL PROVISION – CONSTRUCTION OBSERVATION.

Licensor requires Licensee to provide monitoring of tracks and construction observation through Licensor approved observer named below during all construction and installation work. Licensee is to directly coordinate services with the named inspector:

Railpros Field Services
Email: RP.Utility@railpros.com
Phone (682)223-5271

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

By: _____

Valerie Harrill
Mgr II Real Estate Contracts

COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, MENLO PARK HIGHWAY LIGHTING DISTRICT

By: _____

Name Printed: Jim Porter

Title: Director of Public Works

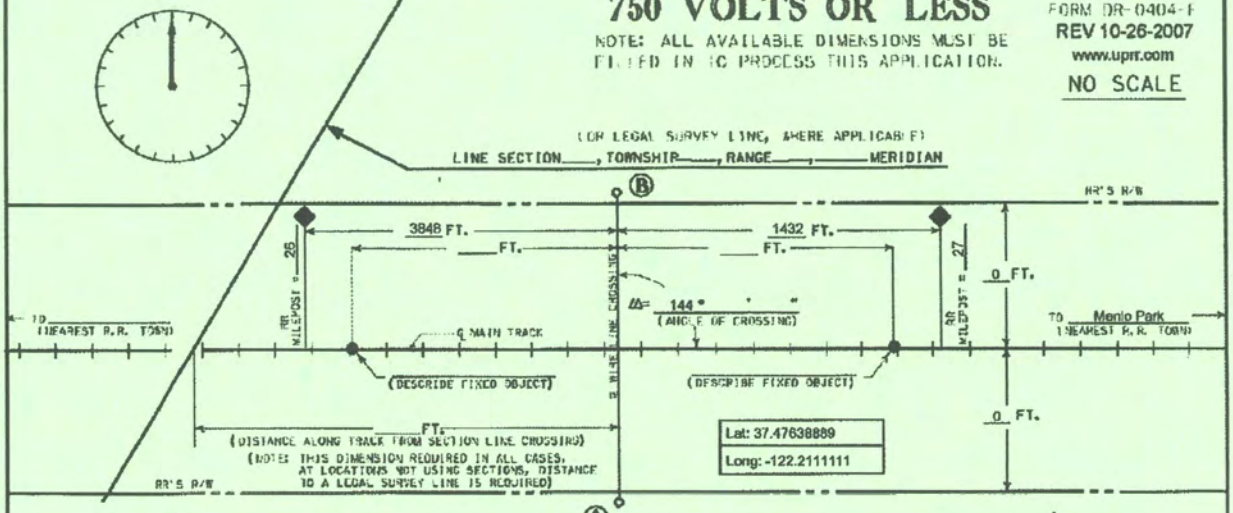
PLACE ARROW INDICATING NORTH DIRECTION RELATIVE TO CROSSING

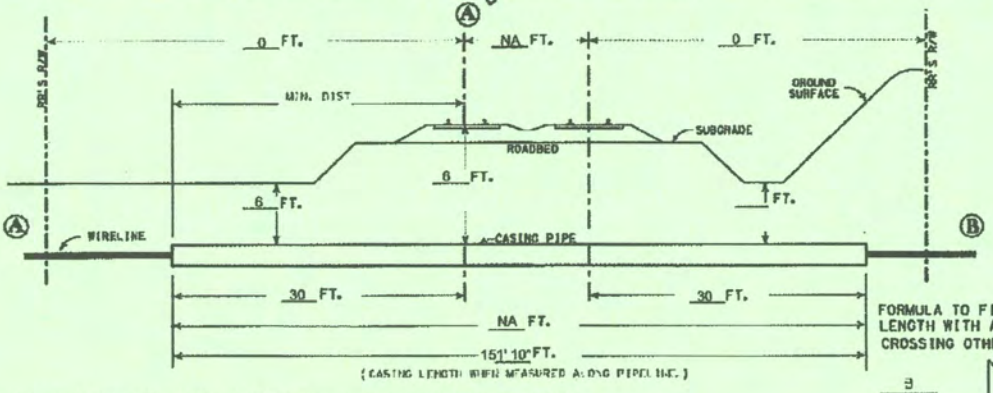
UNDERGROUND WIRELINE CROSSING

750 VOLTS OR LESS

NOTE: ALL AVAILABLE DIMENSIONS MUST BE FILLED IN TO PROCESS THIS APPLICATION.

FORM DR-0404-F
REV 10-26-2007
www.uprr.com
NO SCALE





FORMULA TO FIGURE CASING LENGTH WITH ANGLE OF CROSSING OTHER THAN 90°

$$\frac{B}{\sin\Delta} = \text{MIN. DIST.}$$



NOTES :

24" Steel casing to be located 0.5' east of the Middlefield Rd. C/L. measured perpendicularly from the road C/L.

A) TYPE WIRELINE CROSSING: ELECTRIC
B) VOLTAGE TO BE CARRIED UNDER TRACK 240 NO. OF WIRES 3
C) CASING TYPE TO BE INSTALLED 24" STEEL
D) METHOD OF INSTALLING CASING PIPE UNDER TRACK(S): (WET BORE NOT PERMITTED); DRY BORE AND JACK
E) DISTANCE FROM CENTER LINE OF TRACK TO NEAR FACE OF BORING AND JACKING PITS WHEN MEASURED AT RIGHT ANGLES TO TRACK 30 (30' MIN.)
F) DISTANCE TO NEAREST ROAD CROSSING WITH SIGNAL LIGHTS OR GATES (IF LESS THAN ONE MILE) 15
G) APPLICANT HAS CONTACTED 1-800-336-9193, U. P. COMMUNICATION DEPARTMENT, AND HAS DETERMINED FIBER OPTIC CABLE _____ EXIST IN VICINTY OF WORK TO BE PERFORMED. TICKET NO. _____

EXHIBIT "A"

(FOR RAILROAD USE ONLY - DO NOT WRITE IN THIS BOX)

UNION PACIFIC RAILROAD CO.

Redwood Jct. Ind. Ld.
(SUBDIVISION)

M. P. 26.73 E. S. 831+98 ±

UNDERGROUND WIRELINE CROSSING

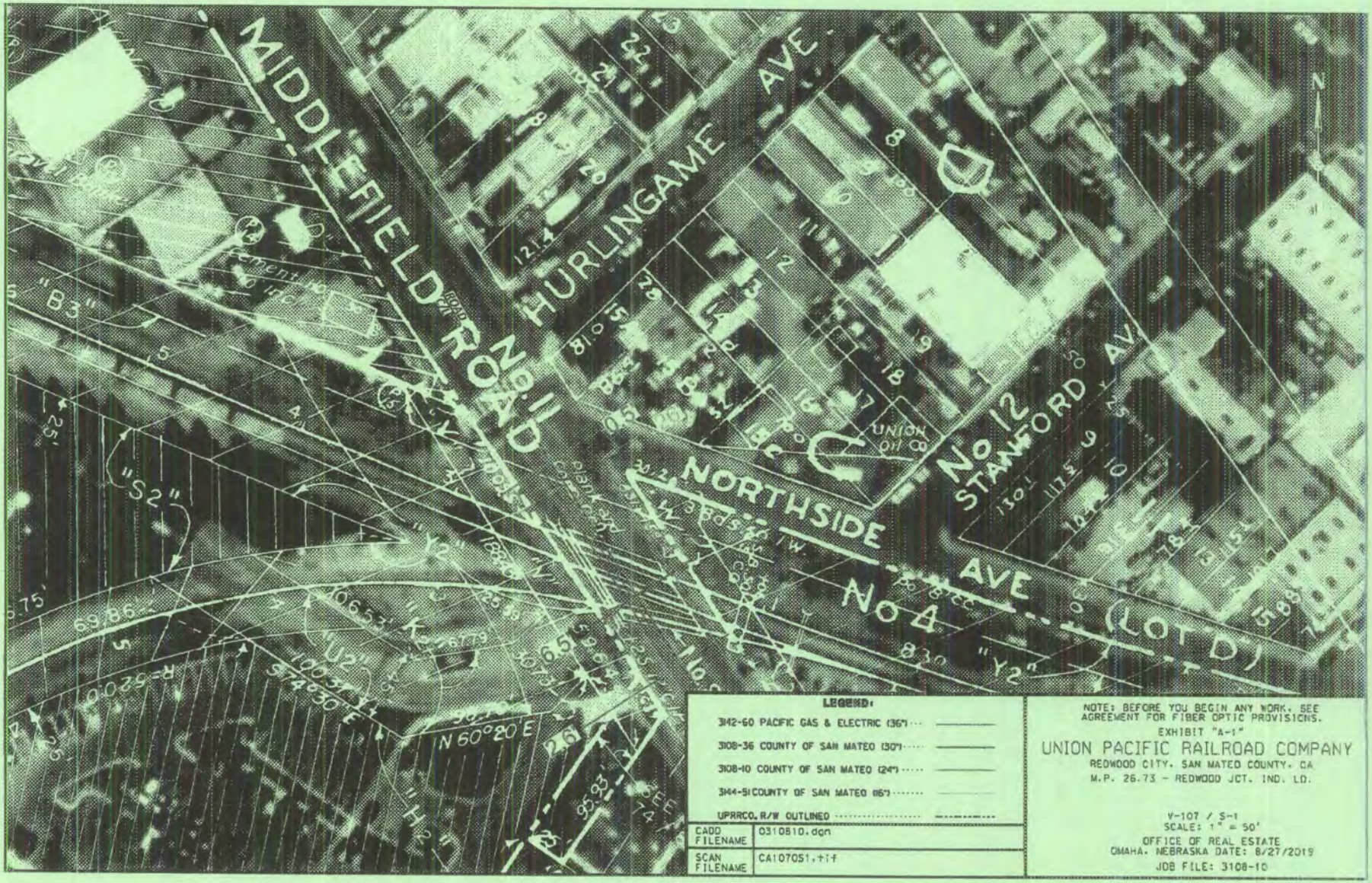
REDWOOD CITY (NEAREST OR STATION) SAN MATEO (COUNTY) CA (STATE)

FOR County of San Mateo, Department of Public Works, Menlo Park Lighting District
(APPLICANT)

RR FILE NO. 0310810 DATE 8/27/2019

WARNING

IN ALL OCCASIONS, U. P. COMMUNICATIONS DEPARTMENT MUST BE CONTACTED IN ADVANCE OF ANY WORK TO DETERMINE EXISTENCE AND LOCATION OF FIBER OPTIC CABLE.
PHONE : 1-800-336-9193


MIDDLEFIELD ROAD
HURLINGAME AVE.
NORTHSIDE
No 12 STANFORD AV
No 4 AVE
(LOT D)
UNION Oil Co
"B3"
"S2"
"Y2"
"U2"
"H2"
N 50°20 E
S 4°30 E
R=620.0'
69.86'
106.53'
95.93'
N
LEGEND:
3142-60 PACIFIC GAS & ELECTRIC (36")
3108-36 COUNTY OF SAN MATEO (30")
3108-10 COUNTY OF SAN MATEO (24")
3144-51 COUNTY OF SAN MATEO (15")
UPRRCO. R/W OUTLINED
CADD FILENAME 0310810.dgn
SCAN FILENAME CA107051.tif
NOTE: BEFORE YOU BEGIN ANY WORK, SEE AGREEMENT FOR FIBER OPTIC PROVISIONS.
EXHIBIT "A-1"
UNION PACIFIC RAILROAD COMPANY
REDWOOD CITY, SAN MATEO COUNTY, CA
M.P. 26.73 - REDWOOD JCT. IND. LD.
V-107 / S-1
SCALE: 1" = 50'
OFFICE OF REAL ESTATE
OMAHA, NEBRASKA DATE: 8/27/2019
JOB FILE: 3108-10

Form Approved, AVP-Law
Updated 051918

EXHIBIT B

GENERAL TERMS AND CONDITIONS

Section 1. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED.

A. The foregoing grant is subject and subordinate to the prior and continuing right and obligation of Licensor to use and maintain its entire property including the right and power of Licensor to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Licensor without liability to Licensee or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of Railroad Property) and the right of Licensor to renew and extend the same, and is made without covenant of title or for quiet enjoyment. It shall be Licensee's sole obligation to obtain such additional permission, license and grants necessary on account of any such existing rights.

Section 2. ENGINEERING REQUIREMENTS; PERMITS.

A. Licensee's Facilities will be designed, constructed, operated, maintained, repaired, renewed, modified, reconstructed, removed, or abandoned in place on Railroad Property by Licensee or its contractor to Licensor's satisfaction and in strict conformity with: (i) Licensor's current engineering standards and specifications, including those for aerial marker balls, shoring and cribbing to protect Licensor's railroad operations and facilities ("UP Specifications"), except for variances approved in advance in writing by Licensor's Assistant Vice President Engineering – Design or its authorized representative ("UP Engineering Representative"); (ii) such other additional safety standards as Licensor, in its sole discretion, elects to require, including, without limitation, American Railway Engineering and Maintenance-of-Way Association ("AREMA") standards and guidelines (collectively, "UP Additional Requirements"); and (iii) all applicable laws, rules, and regulations, including any applicable Federal Railroad Administration, Federal Energy Regulatory Commission, and Federal Aviation Administration regulations and enactments (collectively, "Laws"). If there is any conflict between UP Specifications, UP Additional Requirements, and Laws, the most restrictive will apply.

B. If Licensee's Facilities will be located underground, Licensee shall keep the soil over Licensee's Facilities thoroughly compacted, and maintain the grade over and around Licensee's Facilities even with the surface of the adjacent ground.

C. Licensee shall not transmit electric current from Licensee's Facilities at a difference of potential in excess of the voltage indicated on **Exhibit A**. If the voltage indicated is in excess of seven hundred fifty volts (750V), and Licensee's Facilities will be buried at any location outside of track ballast or roadbed on Railroad Property, Licensee shall install metallic conduit, or non-metallic conduit encased in a minimum of three inches (3") of concrete with a minimum of four feet (4') of ground cover the entire length of Licensee's Facilities. Any of Licensee's Facilities buried by removal of soil shall have, at a depth of one foot (1') beneath the surface of the ground directly above Licensee's Facilities, with a six inch (6") wide warning tape labeled "Danger-High Voltage" or equivalent wording. Any of Licensee's

Facilities encased in conduit, jacked, or bored under Railroad Property must be identified with warning signs ("Warning Signs") at each edge of Railroad Property, to be installed and properly maintained at Licensee's cost and expense. Licensee shall not utilize Warning Signs in lieu of the warning tape where portions of the casing are installed by direct burial.

D. If needed, Licensee shall secure, at Licensee's sole cost and expense, any and all necessary permits required to perform any work on Licensee's Facilities.

Section 3. NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES.

A. Licensee and it contractors are strictly prohibited from commencing any work associated with Licensee's Facilities without Licensor's written approval that the work will be in strict compliance with the "ENGINEERING REQUIREMENTS; PERMITS" Section of this **Exhibit B**. Upon Licensor's approval, Licensee shall contact both of Licensor's field representatives ("Licensor's Field Representatives") at least ten (10) days before commencement of any work on Licensee's Facilities.

B. Licensee shall not commence any work until: (1) Licensor has determined whether flagging or other special protective or safety measures ("Safety Measures") are required for performance of the work pursuant to the "FLAGGING" Section of this **Exhibit B** and provided Licensee written authorization to commence work; and (2) Licensee has complied with the "PROTECTION OF FIBER OPTIC CABLE SYSTEMS" Section of this **Exhibit B**.

C. If, at any time, an emergency arises involving Licensee's Facilities, Licensee or its contractor shall immediately contact Licensor's Response Management Communications Center at (888) 877-7267.

Section 4. FLAGGING.

A. Following Licensee's notice to Licensor's Field Representatives required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensor shall inform Licensee if Safety Measures are required for performance of the work by Licensee or its contractor on Railroad Property. If Safety Measures are required, no work of any kind may be performed by Licensee or its contractor(s) until arrangements for the Safety Measures have been made and scheduled. If no Safety Measures are required, Licensor will give Licensee written authorization to commence work.

B. If any Safety Measures are performed or provided by Licensor, including but not limited to flagging, Licensor shall bill Licensee for such expenses incurred by Licensor, unless Licensor and a federal, state, or local governmental entity have agreed that Licensor is to bill such expenses to the federal, state, or local governmental entity. Additional information regarding the submission of such expenses by Licensor and payment thereof by Licensee can be found in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**. If Licensor performs any Safety Measures, Licensee agrees that Licensee is not relieved of any of responsibilities or liabilities set forth in this Agreement.

C. For flagging, the rate of pay per hour for each flagger will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage, and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One

and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Licensor and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Licensee (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.

D. Reimbursement to Licensor will be required covering the full eight-hour day during which any flagger is furnished, unless the flagger can be assigned to other railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagger is engaged in other railroad work. Reimbursement will also be required for any day not actually worked by the flaggers following the flaggers' assignment to work on the project for which Licensor is required to pay the flaggers and which could not reasonably be avoided by Licensor by assignment of such flaggers to other work, even though Licensee may not be working during such time. When it becomes necessary for Licensor to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Licensee must provide Licensor a minimum of five (5) days notice prior to the cessation of the need for a flagger. If five (5) days notice of cessation is not given, Licensee will still be required to pay flagging charges for the days the flagger was scheduled, even though flagging is no longer required for that period. An additional ten (10) days notice must then be given to Licensor if flagging services are needed again after such five day cessation notice has been given to Licensor.

Section 5. SAFETY.

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of any work on Railroad Property performed by Licensee or its contractor, and takes precedence over any work on Licensee's Facilities to be performed by Licensee or its contractors. Licensee shall be responsible for initiating, maintaining and supervising all safety operations and programs in connection with any work on Licensee's Facilities. Licensor and its contractor shall, at a minimum comply, with Licensor's then current safety standards located at the below web address ("Licensor's Safety Standards") to ensure uniformity with the safety standards followed by Licensor's own forces. As a part of Licensee's safety responsibilities, Licensee shall notify Licensor if it determines that any of Licensor's Safety Standards are contrary to good safety practices. Licensee and its contractor shall furnish copies of Licensor's Safety Standards to each of its employees before they enter Railroad Property found at the link below.
http://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf

B. Licensee shall keep the job site on Railroad Property free from safety and health hazards and ensure that their employees are competent and adequately trained in all safety and health aspects of the work.

C. Licensee represents and warrants that all parts of Licensee's Facilities within and outside of the limits of Railroad Property will not interfere whatsoever with the constant, continuous, and uninterrupted use of the tracks, property, and facilities of Licensor, and nothing shall be done or suffered to be done by Licensee at any time that would in any manner impair the safety thereof. Licensee shall take all suitable precaution to prevent interference (by induction, leakage of electricity, or otherwise) with the operation of the signal, communication lines or other installations or facilities of Licensor or of its tenants. If, at any time, the operation or maintenance of Licensee's Facilities results in any electrostatic effects which Licensor deems undesirable or harmful, or causes interference with the operation of the

signal, communication lines or other installations or facilities, as now existing or which may hereafter be provided by Licensor and/or its tenants, Licensee shall, at the sole cost and expense of Licensee, immediately modify or take action as may be necessary to eliminate such interference.

D. Licensor's operations and work performed by Licensor's personnel may cause delays in Licensee's or its contractor's work on Licensee's Facilities. Licensee accepts this risk and agrees that Licensor shall have no liability to Licensee or any other person or entity for any such delays. Licensee must coordinate any work on Railroad Property by Licensee or any third party with Licensor's Field Representatives in strict compliance with the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**.

E. Licensor shall have the right, if it so elects, to provide any support it deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, repair, renewal, modification, relocation, reconstruction, or removal of Licensee's Facilities. In the event Licensor provides such support, Licensor shall invoice Licensee, and Licensee shall pay Licensor as set forth in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B.**

F. Licensee may use unmanned aircraft systems ("UAS") to inspect Licensee's Facilities only upon the prior authorization from and under the direction of Licensor's Field Representatives. Licensee represents and warrants that its use of UAS on Railroad Property will comply with Licensor's then-current Unmanned Aerial Systems Policy and all applicable laws, rules and regulations, including any applicable Federal Aviation Administration regulations and enactments pertaining to UAS.

Section 6. **PROTECTION OF FIBER OPTIC CABLE SYSTEMS.**

Fiber optic cable systems may be buried on Railroad Property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. In addition to the notifications required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensee shall telephone Licensor during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except for holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad Property to be used by Licensee. If it is, Licensee shall telephone the telecommunications company(ies) involved, and arrange for a cable locator, make arrangements for relocation or other protection of the fiber optic cable, all at Licensee's expense, and will not commence any work on Railroad Property until all such protection or relocation has been completed.

Section 7. **LICENSEE'S PAYMENT OF EXPENSES.**

A. Licensee shall bear the entire cost and expense of the design, construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities.

B. Licensee shall fully pay for all materials joined, affixed to and labor performed on Railroad Property in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of Licensee. Licensee shall promptly pay or discharge all taxes, charges, and assessments levied upon, in respect to, or on account of Licensee's Facilities, to prevent the same from becoming a charge or lien upon any property of Licensor, and so that the taxes, charges, and assessments levied upon or in respect to such property shall not be increased because of the location, construction, or maintenance of Licensee's Facilities or any

improvement, appliance, or fixture connected therewith placed upon such property, or on account of Licensee's interest therein. Where such tax, charge, or assessment may not be separately made or assessed to Licensee but shall be included in the assessment of the property of Licensor, then Licensee shall pay to Licensor an equitable proportion of such taxes determined by the value of Licensee's property upon property of Licensor as compared with the entire value of such property.

C. As set forth in the "FLAGGING" Section of this **Exhibit B**, Licensor shall have the right, if it so elects, to provide any Safety Measures Licensor deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, including, but not limited to supervision, inspection, and flagging services. In the event Licensor provides such Safety Measures, Licensor shall submit an itemized invoice to Licensee's notice recipient listed in the "NOTICES" Article of this Agreement. Licensee shall pay to Licensor the total amount listed on such invoice within thirty (30) days of Licensee's receipt of such invoice.

Section 8. **MODIFICATIONS TO LICENSEE'S FACILITIES.**

A. This grant is subject to Licensor's safe and efficient operation of its railroad, and continued use and improvement of Railroad Property (collectively, "Railroad's Use"). Accordingly, Licensee shall, at its sole cost and expense, modify, reconstruct, repair, renew, revise, relocate, or remove (individually, "Modification", or collectively, "Modifications") all or any portion of Licensee's Facilities as Licensor may designate or identify, in its sole discretion, (i) in the furtherance of Railroad's Use, or (ii) as is necessary to ensure safe and reliable maintenance and operation of the facilities of Licensor and/or its tenants because of interference from Licensee's Facilities.

B. Upon any Modification of all or any portion of Licensee's Facilities to another location on Railroad Property, Licensor and Licensee shall execute a Supplemental Agreement to this Wireline Agreement to document the Modification(s) to Licensee's Facilities on Railroad Property. If the Modifications result in Licensee's Facilities moving off of Railroad Property, this Agreement will terminate upon Licensee's completion of such Modification(s) and all requirements contained within the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of this **Exhibit B**. Any such Modification(s) off of Railroad Property will not release Licensee from any liability or other obligation of Licensee arising prior to and upon completion of any such Modifications to the Licensee's Facilities.

Section 9. **RESTORATION OF RAILROAD PROPERTY.**

In the event Licensee, in any manner moves or disturbs any property of Licensor in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, then, Licensee shall, as soon as possible and at Licensee's sole cost and expense, restore Licensor's property to the same condition as the same were before such property was moved or disturbed.

Section 10. **INDEMNITY.**

A. Definitions. As used in this Section:

1. "Licensor" includes Licensor, its affiliates, its and their officers, directors, agents and employees, and other railroad companies using Railroad Property at or near the location of Licensee's installation and their officers, directors, agents, and employees.

2. "Licensee" includes Licensee and its agents, contractors, subcontractors, sub-subcontractors, employees, officers, and directors, or any other person or entity acting on its behalf or under its control.

3. "Loss" includes claims, suits, taxes, loss, damages (including punitive damages, statutory damages, and exemplary damages), costs, charges, assessments, judgments, settlements, liens, demands, actions, causes of action, fines, penalties, interest, and expenses of any nature, including court costs, reasonable attorneys' fees and expenses, investigation costs, and appeal expenses.

B. Licensee shall release, defend, indemnify, and hold harmless Licensor from and against any and all Loss, even if groundless, fraudulent, or false, that directly or indirectly arises out of or is related to Licensee's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, removal, presence, use, or operation of Licensee's Facilities, including, but not limited to, any actual or alleged:

1. Bodily harm or personal injury (including any emotional injury or disease) to, or the death of, any person(s), including, but not limited to, Licensee, Licensor, any telecommunications company, or the agents, contractors, subcontractors, sub-subcontractors, or employees of the foregoing;

2. Damage to or the disturbance, loss, movement, or destruction of Railroad Property, including loss of use and diminution in value, including, but not limited to, any telecommunications system(s) or fiber optic cable(s) on or near Railroad Property, any property of Licensee or Licensor, or any property in the care, custody, or control of Licensee or Licensor;

3. Removal of person(s) from Railroad Property;

4. Any delays or interference with track or Railroad's Use caused by Licensee's activity(ies) on Railroad Property, including without limitation the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities or any part thereof, any activities, labor, materials, equipment, or machinery in conjunction therewith ;

5. Right(s) or interest(s) granted pursuant to this Agreement;

6. Electrical interference or other types of interference created or caused by or escaping from Licensee's Facilities;

7. Licensee's breach of this Agreement or failure to comply with its provisions, including, but not limited to, any violation or breach by Licensee of any representations and warranties Licensee has made in this Agreement; and

8. Violation by Licensee of any law, statute, ordinance, governmental administrative order, rule, or regulation, including without limitation all applicable Federal Railroad Administration regulations.

C. THE FOREGOING OBLIGATIONS SHALL APPLY TO THE FULLEST EXTENT PERMITTED BY LAW FOR THE BENEFIT OF LICENSOR TO LOSSES CAUSED BY, ARISING FROM, RELATING TO, OR RESULTING FROM, IN WHOLE OR IN PART, THE NEGLIGENCE OF

LICENSOR, AND SUCH NEGLIGENCE OF LICENSOR SHALL NOT LIMIT, DIMINISH, OR PRECLUDE LICENSEE'S OBLIGATIONS TO LICENSOR IN ANY RESPECT. NOTWITHSTANDING THE FOREGOING, SUCH OBLIGATION TO INDEMNIFY LICENSOR SHALL NOT APPLY TO THE EXTENT THE LOSS IS CAUSED BY THE SOLE, ACTIVE AND DIRECT NEGLIGENCE, GROSS NEGLIGENCE, OR WILLFUL MISCONDUCT OF LICENSOR AS DETERMINED IN A FINAL JUDGMENT BY A COURT OF COMPETENT JURISDICTION.

Section 11. TERMINATION; REMOVAL OF LICENSEE'S FACILITIES.

A. If Licensee does not use the right herein granted on Licensee's Facilities for one (1) year, or if Licensee continues in default in the performance of any provision of this Agreement for a period of thirty (30) days after written notice from Licensor to Licensee specifying such default, Licensor may, at its sole discretion, terminate this Agreement by written notice to Licensee at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

B. In addition to the provisions of Paragraph "A" above, this Agreement may be terminated by written notice given by either party, without cause, upon thirty (30) days written notice to the non-terminating party at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

C. Prior to the effective date of any termination described in this Section, Licensee shall submit an application to Licensor's online at https://www.up.com/real_estate/index.htm, for Licensee's removal, or if applicable, abandonment in place of Licensee's Facilities located underground on Railroad Property ("Removal/Abandonment Work"). Upon the UP Engineering Representative's approval of Licensee's application for the Removal/Abandonment Work, Licensor and Licensee shall execute a separate consent document that will govern Licensee's performance of the Removal/Abandonment Work from those portions of Railroad Property not occupied by roadbed and/or trackage ("Consent Document"). Licensee shall then restore the impacted Railroad Property to the same or reasonably similar condition as it was prior to Licensee's installation of Licensee's Facilities. For purposes of this Section, Licensee's (i) performance of the Removal/Abandonment Work, and (ii) restoration work will hereinafter be collectively referred to as the "Restoration Work".

D. Following Licensee's completion of the Restoration Work, Licensee shall provide a written certification letter to Licensor at the address listed in the "NOTICES" Article of this Agreement which certifies that the Restoration Work has been completed in accordance with the Consent Document. Licensee shall report to governmental authorities, as required by law, and notify Licensor immediately if any environmental contamination is discovered during Licensee's performance of the Restoration Work. Upon discovery, the Licensee shall initiate any and all removal, remedial and restoration actions that are necessary to restore the property to its original, uncontaminated condition. Licensee shall provide written certification to Licensor at the address listed in the "NOTICES" Article of this Agreement that environmental contamination has been remediated and the property has been restored in accordance with Licensor's requirements. Upon Licensor's receipt of Licensee's restoration completion certifications, this Agreement will terminate.

E. In the event that Licensee fails to complete any of the Restoration Work, Licensor may, but is not obligated, to perform the Restoration Work. Any such work actually performed by Licensor will be at the cost and expense of Licensee. In the event that Licensor performs any of the Restoration Work, Licensee shall release Licensor from any and all Loss (defined in the "INDEMNITY" Section of this **Exhibit B)** arising out of or related to Licensor's performance of the Restoration Work.

F. Termination of this Agreement for any reason will not affect any of rights or obligations of the parties which may have accrued, or liabilities or Loss (defined in the "INDEMNITY" Section of this **Exhibit B**), accrued or otherwise, which may have arisen prior to such termination.

Approved: Insurance Group
Created: 5/19/18
Last Modified: 05/19/18
Form Approved, AVP-Law

EXHIBIT C

INSURANCE REQUIREMENTS

In accordance with Article 5 of this Agreement, Licensee shall (1) procure and maintain at its sole cost and expense, or (2) require its Contractor(s) to procure and maintain, at their sole cost and expense, the following insurance coverage:

A. **Commercial General Liability Insurance**. Commercial general liability (CGL) with a limit of not less than $2,000,000 each occurrence and an aggregate limit of not less than $4,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Contractual Liability Railroads" ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

B. **Business Automobile Coverage Insurance**. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a limit of not less $2,000,000 for each accident, and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

The policy must contain the following endorsements, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Coverage For Certain Operations In Connection With Railroads" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site.

C. **Workers' Compensation and Employers' Liability Insurance**. Coverage must include but not be limited to:

- Licensee's statutory liability under the workers' compensation laws of the state(s) affected by this Agreement.

- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 disease policy limit $500,000 each employee.

If Licensee is self-insured, evidence of state approval and excess workers' compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor

Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

D. **Railroad Protective Liability Insurance**. Licensee must maintain for the duration of work "Railroad Protective Liability" insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Licensor only as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate of $6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement. Notwithstanding the foregoing, Licensee does not need Railroad Protective Liability Insurance after its initial construction work is complete and all excess materials have been removed from Licensor's property; PROVIDED, however, that Licensee shall procure such coverage for any subsequent maintenance, repair, renewal, modification, reconstruction, or removal work on Licensee's Facilities.

> The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement.

E. **Umbrella or Excess Insurance**. If Licensee utilizes umbrella or excess policies, and these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

F. All policy(ies) required above (except worker's compensation and employers' liability) must include Licensor as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to Licensor as additional insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 26, and CA 20 48 provide coverage for Licensor's negligence whether sole or partial, active or passive, and shall not be limited by Licensee's liability under the indemnity provisions of this Agreement.

G. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (a) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this Agreement, or (b) all punitive damages are prohibited by all states in which this Agreement will be performed.

H. Licensee waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Licensor and its agents, officers, directors and employees for damages covered by the workers' compensation and employers' liability or commercial umbrella or excess liability obtained by Licensee required in this Agreement, where permitted by law. This waiver must be stated on the certificate of insurance.

I. All insurance policies must be written by a reputable insurance company acceptable to Railroad or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the work is to be performed.

J. The fact that insurance is obtained by Licensee or by Licensor on behalf of Licensee will not be deemed to release or diminish the liability of Licensee, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Licensor from Licensee or any third party will not be limited by the amount of the required insurance coverage.

March 05, 2020
Folder: 03144-51

CARTER CHOI
COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, FAIR OAKS SEWER MAINTENANCE DISTRICT
555 COUNTY CENTER
5TH FLOOR
REDWOOD CITY CA 94063

Dear Carter:

Attached is your original copy of our Agreement, fully executed on behalf of the Railroad Company. When you or your representative enters the Railroad Company's property, a copy of this fully-executed document must be available at the site to be shown on request to any Railroad employee or official.

In accordance with the terms of the Agreement, you are required to notify the following Railroad Company's field representative, Manager of Signal Maintenance, and the Telecommunications ("Call Before You Dig") number at least 10 days in advance of the date you plan on entering the right of way for further instructions and approval to commence construction.

UP.info@railpros.com (877)-315-0513 x. 116	Maikel I. Younan Manager Signal Maintenance Work Phone: (402-216-2342 Email: miyounan@up.com

Telecommunications ("Call Before You Dig"): 1-800-336-9193

As an additional note, the top of the casing must be a minimum of two feet below any existing fiber optic cable. Any open excavation required within five feet of the fiber optic cable must be dug by hand.

All future insurance notices should be forwarded to my attention per the address below with the Folder number identified:

Real Estate Department
Folder No: 03144-51
Union Pacific Railroad Company
1400 Douglas Street STOP 1690
Omaha, NE 68179-1690

Sincerely,

Valerie Harrill
Mgr II Real Estate Contracts - Real Estate
Email : VAHARRILL@up.com
Phone : (402) 544-8801

Pipeline Crossing 080808
Last Modified: 06/05/18
Form Approved, AVP-Law

Folder No. 03144-51

PIPELINE CROSSING AGREEMENT

Mile Post: 26.74, Redwood Junction Industrial Lead
Location: Redwood City, San Mateo County, California

THIS AGREEMENT ("Agreement") is made and entered into as of February 6, 2020, ("Effective Date") by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation, ("Licensor") and **COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS**, FAIR OAKS SEWER MAINTENANCE DISTRICT to be addressed at 555 County Center, 5th Floor Redwood City, California 94063 ("Licensee").

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

Article 1. **LICENSOR GRANTS RIGHT.**

A. In consideration of the license fee to be paid by Licensee set forth below and in further consideration of the covenants and agreements to be performed by Licensee, Licensor hereby grants to Licensee the right to construct and thereafter, during the term hereof, maintain and operate one (1) 8 inch plastic sanitary sewer pipe encased in a 16 inch steel pipeline crossing only, including any appurtenances required for the operation of said pipeline (collectively, "Licensee's Facilities") across Licensor's real property, trackage, or other facilities located in Redwood City, San Mateo County, State of California ("Railroad Property"). The specific specifications and limited purpose for Licensee's Facilities on, along, across and under Railroad Property are described in and shown on the Print and Specifications dated February 5, 2020, attached hereto as **Exhibit A** and **Exhibit A-1** dated 8/27/2019 made a part hereof.

B. Licensee represents and warrants that Licensee's Facilities will (i) only be used for one (1) 8 inch plastic sanitary sewer pipe encased in a 16 inch steel pipeline crossing, and (ii) not be used to convey any other substance, any fiber optic cable, or for any other use, whether such use is currently technologically possible, or whether such use may come into existence during the life of this Agreement.

C. Licensee acknowledges that if it or its contractor provides Licensor with digital imagery depicting Licensee's Facilities ("Digital Imagery"), Licensee authorizes Licensor to use the Digital Imagery in preparing **Exhibit A**. Licensee represents and warrants that through a license or otherwise, it has the right to use the Digital Imagery and to permit Licensor to use the Digital Imagery in said manner.

Article 2. **TERM.**

This Agreement shall take effect as of the Effective Date first herein written and shall continue in full force and effect until terminated as provided in the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B.**

Article 3. **LICENSEE'S COMPLIANCE WITH GENERAL TERMS.**

Licensee represents and warrants that all work on Licensee's Facilities performed by Licensee or its contractors will strictly comply with all terms and conditions set forth herein, including the General Terms and Conditions, attached hereto as **Exhibit B** and made a part hereof.

Article 4. **INSURANCE.**

A. During the term of this Agreement, Licensee shall fully comply or cause its contractor(s) to fully comply with the insurance requirements described in **Exhibit C**, attached hereto and made a part hereof. Upon request only, Licensee shall send copies of all insurance documentation (e.g., certificates, endorsements, etc.) to Licensor at the address listed in the "NOTICES" Section of this Agreement.

B. If Licensee is subject to statute(s) limiting its insurance liability and/or limiting its ability to obtain insurance in compliance with **Exhibit C** of this Agreement, those statutes shall apply.

Article 5. **DEFINITION OF LICENSEE.**

For purposes of this Agreement, all references in this Agreement to Licensee will include Licensee's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority (collectively, a "Contractor"). If a Contractor is hired by Licensee to perform any work on Licensee's Facilities (including initial construction and subsequent relocation, maintenance, and/or repair work), then Licensee shall provide a copy of this Agreement to its Contractor(s) and require its Contractor(s) to comply with all terms and conditions of this Agreement, including the indemnification requirements set forth in the "INDEMNITY" Section of **Exhibit B**. Licensee shall require any Contractor to release, defend, and indemnify Licensor to the same extent and under the same terms and conditions as Licensee is required to release, defend, and indemnify Licensor herein.

Article 6. **ATTORNEYS' FEES, EXPENSES, AND COSTS.**

If litigation or other court action or similar adjudicatory proceeding is undertaken by Licensee or Licensor to enforce its rights under this Agreement, all fees, costs, and expenses, including, without limitation, reasonable attorneys' fees and court costs, of the prevailing Party in such action, suit, or proceeding shall be reimbursed or paid by the Party against whose interest the judgment or decision is rendered. The provisions of this Article shall survive the termination of this Agreement.

Article 7. **WAIVER OF BREACH.**

The waiver by Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by Licensee shall in no way impair the right of Licensor to avail itself of any remedy for any subsequent breach thereof.

Article 8. **ASSIGNMENT.**

A. Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of Licensor, which must be requested in writing by Licensee. Any assignment or attempted transfer of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without Licensor's written consent, will be absolutely void and may result

in Licensor's termination of this Agreement pursuant to the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B.**

B. Upon Licensor's written consent to any assignment, this Agreement will be binding upon and inure to the benefit of the parties thereto, successors, heirs, and assigns, executors, and administrators.

Article 9. SEVERABILITY.

Any provision of this Agreement which is determined by a court of competent jurisdiction to be invalid or unenforceable shall be invalid or unenforceable only to the extent of such determination, which shall not invalidate or otherwise render ineffective any other provision of this Agreement.

Article 10. NOTICES.

Except Licensee's commencement of work notice(s) required under **Exhibit B**, all other notices required by this Agreement must be in writing, and (i) personally served upon the business address listed below ("Notice Address"), (ii) sent overnight via express delivery by a nationally recognized overnight delivery service such as Federal Express Corporation or United Parcel Service to the Notice Address, or (iii) by certified mail, return receipt requested to the Notice Address. Overnight express delivery notices will be deemed to be given upon receipt. Certified mail notices will be deemed to be given three (3) days after deposit with the United States Postal Service.

If to Licensor: Union Pacific Railroad Company
Attn: Analyst – Real Estate Utilities (Folder No. 03144-51)
1400 Douglas Street, MS 1690
Omaha, Nebraska 68179

If to Licensee: COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS
555 County Center
5th Floor

Redwood City, California, 94063

Article 11. TRACK AND GROUND MONITORING PLANS.

Track and Ground Monitoring plans must be submitted for review and approved prior to any installations can begin.

Article 12. SPECIAL PROVISION – CONSTRUCTION OBSERVATION.

Licensor requires Licensee to provide monitoring of tracks and construction observation through Licensor approved observer named below during all construction and installation work. Licensee is to directly coordinate services with the named inspector:

Railpros Field Services
Email: RP.Utility@railpros.com
Phone (682)223-5271

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

By: _____
Valerie Harill
Mgr II Real Estate Contracts

COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, FAIR OAKS SEWER MAINTENANCE DISTRICT

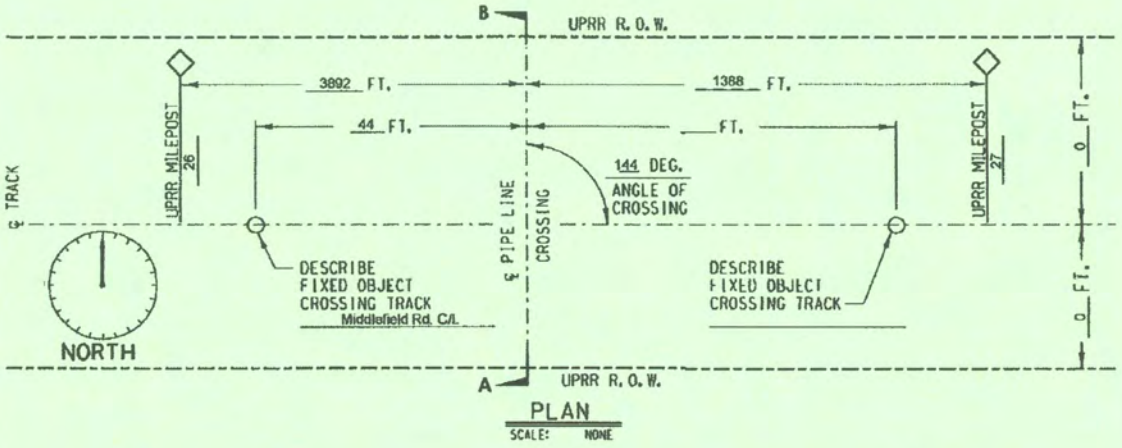
By: _____

Name Printed: Jim Porter

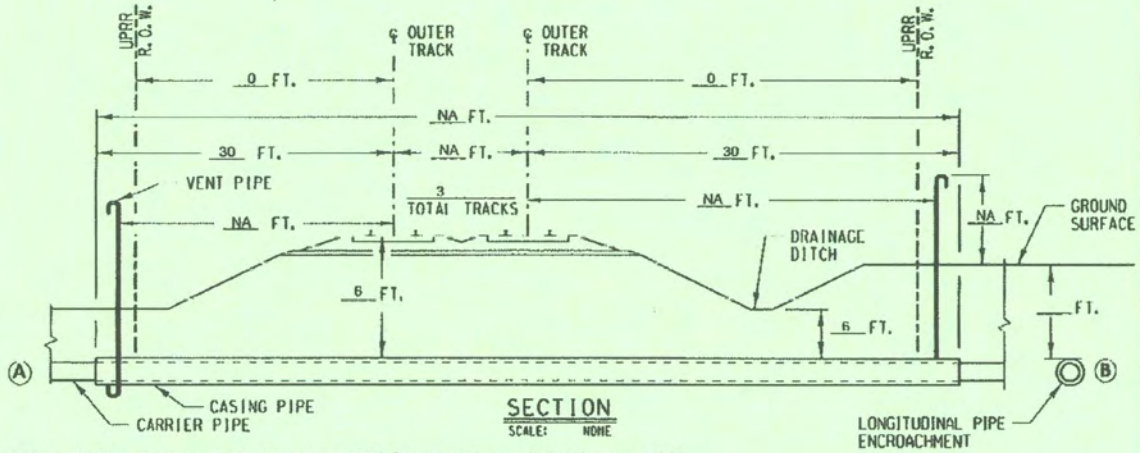
Title: Director of Public Works

NON-FLAMMABLE LIQUID PIPELINE

☑ CROSSING
☐ ENCROACHMENT
☐ BOTH



PLAN
SCALE: NONE



SECTION
SCALE: NONE

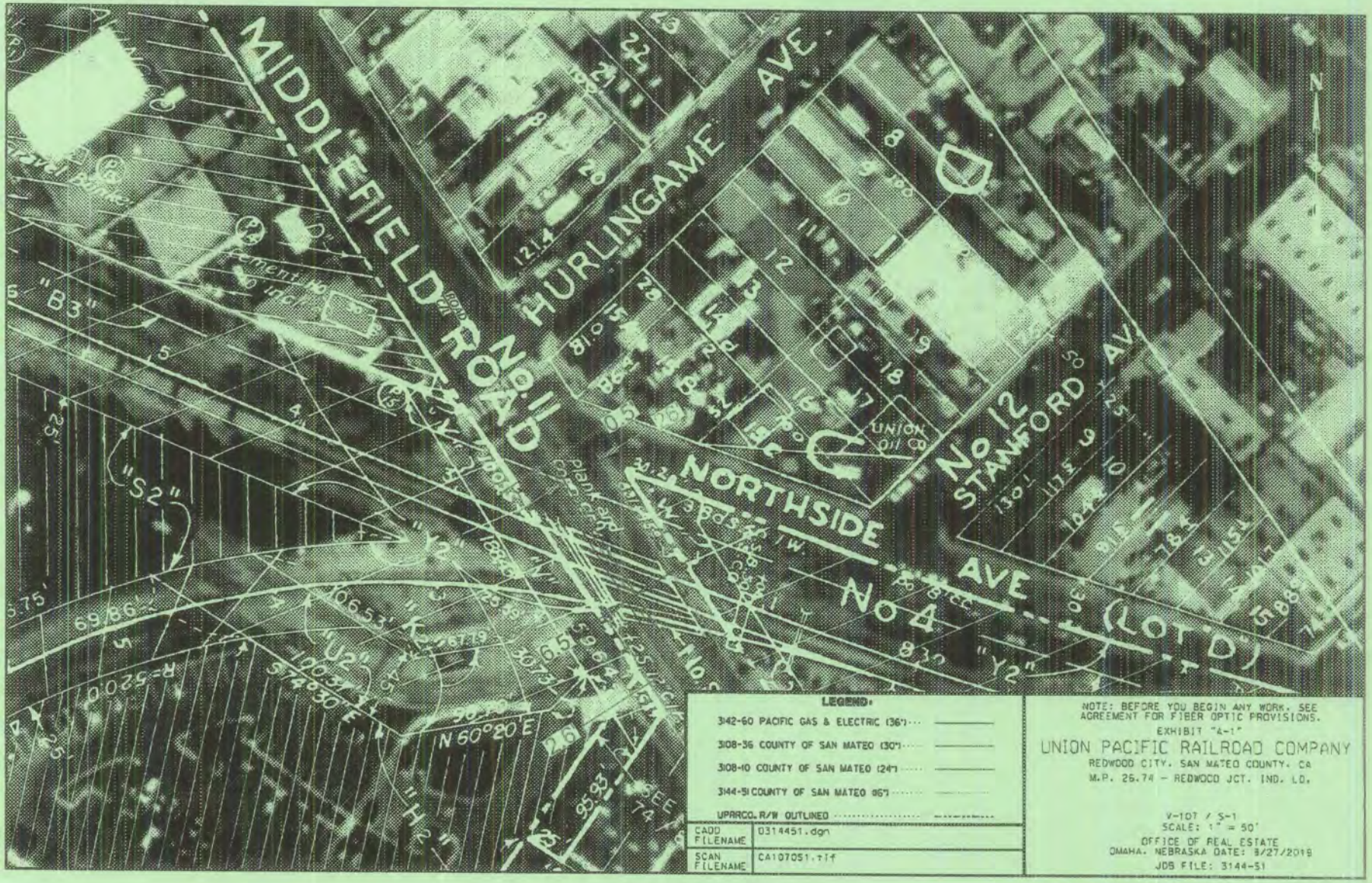
NOTES: Pipeline to be located 26' NE of the Middlefield Rd. C/L measured perpendicularly from the road C/L.
1) ALL DIMENSIONS MEASURED PERPENDICULAR TO THE CENTERLINE OF TRACK
2) REFER TO AREMA VOLUME 1. CHAPTER 1. PART 5. SECTION 5.1

A) METHOD OF INSTALLATION BORED AND JACKED
B) DIST. FROM CENTERLINE OF TRACK TO PIPE ENCROACHMENT ____.
C) SIGNS PROVIDED? AT MINIMUM SIGNS WILL BE PROVIDED AS STATED ABOVE
D) CARRIER MATERIAL PLASTIC. IF RCP, CLASS V? NA.
COMMODITY TO BE CONVEYED SEWER.
OPERATIONAL PRESSURE 0 PSI. MAOP 0 PSI.
WALL THICKNESS (INCH)/ SCHEDULE 40. DIAMETER 8 IN.
CATHODIC/COATING PROTECTION NO
E) CASING MATERIAL STEEL PIPE. IF RCP, CLASS V? NA.
TOTAL LENGTH CASING PIPE: 156'3" FT.
WALL THICKNESS 0.3125 IN. DIAMETER 16 IN.
CATHODIC/COATING PROTECTION NO
CASING PIPE IS OPEN AT THE ENDS.
F) DISTANCE FROM CENTERLINE OF TRACK TO NEAR FACE OF BORING AND JACKING PITS WHEN MEASURED AT RIGHT ANGLES 30 AND 30.

UNION PACIFIC **BUILDING AMERICA®**

EXHIBIT "A"

SUBDIVISION: Redwood Jct. Ind. Ld.	
TRACK TYPE: MAINLINE	
M.P.: 26.74	LAT.: 37.476479
E.S.M.: 831+56 ±	LONG.: -122.211062
NEAREST CITY: REDWOOD CITY	COUNTY: SAN MATEO — STATE: CA
APPLICANT: COUNTY OF SAN MATEO, DEPARTMENT OF PUBLIC WORKS, FAIR OAKS SEWER MAINTENANCE DISTRICT	
FILE NO.: 0314451	DATE: 2/5/2020



LEGEND:	
3142-60 PACIFIC GAS & ELECTRIC (36")	
3108-36 COUNTY OF SAN MATEO (30")	
3108-10 COUNTY OF SAN MATEO (24")	
3144-51 COUNTY OF SAN MATEO 96"	
UPRRCO. R/W OUTLINED	

CADD FILENAME	0314451.dgn
SCAN FILENAME	CA107051.tif

NOTE: BEFORE YOU BEGIN ANY WORK, SEE AGREEMENT FOR FIBER OPTIC PROVISIONS.

EXHIBIT "A-1"

UNION PACIFIC RAILROAD COMPANY

REDWOOD CITY, SAN MATEO COUNTY, CA

M.P. 26.74 – REDWOOD JCT. IND. LD.

V-107 / S-1

SCALE: 1" = 50'

OFFICE OF REAL ESTATE

OMAHA, NEBRASKA DATE: 8/27/2019

JOB FILE: 3144-51

EXHIBIT B

GENERAL TERMS AND CONDITIONS

Section 1. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED.

A. The foregoing grant is subject and subordinate to the prior and continuing right and obligation of Licensor to use and maintain its entire property including the right and power of Licensor to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Licensor without liability to Licensee or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of Railroad Property) and the right of Licensor to renew and extend the same, and is made without covenant of title or for quiet enjoyment. It shall be Licensee's sole obligation to obtain such additional permission, license and grants necessary on account of any such existing rights.

Section 2. ENGINEERING REQUIREMENTS; PERMITS.

A. Licensee's Facilities will be designed, constructed, operated, maintained, repaired, renewed, modified, reconstructed, removed, or abandoned in place on Railroad Property by Licensee or its contractor to Licensor's satisfaction and in strict conformity with: (i) Licensor's current engineering standards and specifications, including those for shoring and cribbing to protect Licensor's railroad operations and facilities ("UP Specifications"), except for variances approved in advance in writing by Licensor's Assistant Vice President Engineering – Design or its authorized representative ("UP Engineering Representative"); (ii) such other additional safety standards as Licensor, in its sole discretion, elects to require, including, without limitation, American Railway Engineering and Maintenance-of-Way Association ("AREMA") standards and guidelines (collectively, "UP Additional Requirements"); and (iii) all applicable laws, rules, and regulations, including any applicable Federal Railroad Administration and Federal Energy Regulatory Commission regulations and enactments (collectively, "Laws"). If there is any conflict between UP Specifications, UP Additional Requirements, and Laws, the most restrictive will apply.

B. Licensee shall keep the soil over Licensee's Facilities thoroughly compacted, and maintain the grade over and around Licensee's Facilities even with the surface of the adjacent ground.

C. If needed, Licensee shall secure, at Licensee's sole cost and expense, any and all necessary permits required to perform any work on Licensee's Facilities.

Section 3. **NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES.**

A. Licensee and it contractors are strictly prohibited from commencing any work associated with Licensee's Facilities without Licensor's written approval that the work will be in strict compliance with the "ENGINEERING REQUIREMENTS; PERMITS" Section of this **Exhibit B**. Upon Licensor's approval, Licensee shall contact both of Licensor's field representatives ("Licensor's Field Representatives") at least ten (10) days before commencement of any work on Licensee's Facilities.

B. Licensee shall not commence any work until: (1) Licensor has determined whether flagging or other special protective or safety measures ("Safety Measures") are required for performance of the work pursuant to the "FLAGGING" Section of this **Exhibit B** and provided Licensee written authorization to commence work; and (2) Licensee has complied with the "PROTECTION OF FIBER OPTIC CABLE SYSTEMS" Section of this **Exhibit B**.

C. If, at any time, an emergency arises involving Licensee's Facilities, Licensee or its contractor shall immediately contact Licensor's Response Management Communications Center at (888) 877-7267.

Section 4. **FLAGGING.**

A. Following Licensee's notice to Licensor's Field Representatives required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensor shall inform Licensee if Safety Measures are required for performance of the work by Licensee or its contractor on Railroad Property. If Safety Measures are required, no work of any kind may be performed by Licensee or its contractor(s) until arrangements for the Safety Measures have been made and scheduled. If no Safety Measures are required, Licensor will give Licensee written authorization to commence work.

B. If any Safety Measures are performed or provided by Licensor, including but not limited to flagging, Licensor shall bill Licensee for such expenses incurred by Licensor, unless Licensor and a federal, state, or local governmental entity have agreed that Licensor is to bill such expenses to the federal, state, or local governmental entity. Additional information regarding the submission of such expenses by Licensor and payment thereof by Licensee can be found in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**. If Licensor performs any Safety Measures, Licensee agrees that Licensee is not relieved of any of responsibilities or liabilities set forth in this Agreement.

C. For flagging, the rate of pay per hour for each flagger will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage, and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Licensor and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Licensee (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.

D. Reimbursement to Licensor will be required covering the full eight-hour day during which any flagger is furnished, unless the flagger can be assigned to other railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagger is engaged in other railroad work. Reimbursement will also be required for any day not actually worked by the flaggers following the flaggers' assignment to work on the project for which Licensor is required to pay the flaggers and which could not reasonably be avoided by Licensor by assignment of such flaggers to other work, even though Licensee may not be working during such time. When it becomes necessary for Licensor to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Licensee must provide Licensor a minimum of five (5) days notice prior to the cessation of the need for a flagger. If five (5) days notice of cessation is not given, Licensee will still be required to pay flagging charges for the days the flagger was scheduled, even though flagging is no longer required for that period. An additional ten (10) days notice must then be given to Licensor if flagging services are needed again after such five day cessation notice has been given to Licensor.

Section 5. **SAFETY.**

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of any work on Railroad Property performed by Licensee or its contractor, and takes precedence over any work on Licensee's Facilities to be performed Licensee or its contractors. Licensee shall be responsible for initiating, maintaining and supervising all safety operations and programs in connection with any work on Licensee's Facilities. Licensee and its contractor shall, at a minimum comply, with Licensor's then current safety standards located at the below web address ("Licensor's Safety Standards") to ensure uniformity with the safety standards followed by Licensor's own forces. As a part of Licensee's safety responsibilities, Licensee shall notify Licensor if it determines that any of Licensor's Safety Standards are contrary to good safety practices. Licensee and its contractor shall furnish copies of Licensor's Safety Standards to each of its employees before they enter Railroad Property.

Union Pacific Current Safety Requirements

B. Licensee shall keep the job site on Railroad Property free from safety and health hazards and ensure that their employees are competent and adequately trained in all safety and health aspects of the work.

C. Licensee represents and warrants that all parts of Licensee's Facilities within and outside of the limits of Railroad Property will not interfere whatsoever with the constant, continuous, and uninterrupted use of the tracks, property, and facilities of Licensor, and nothing shall be done or suffered to be done by Licensee at any time that would in any manner impair the safety thereof.

D. Licensor's operations and work performed by Licensor's personnel may cause delays in Licensee's or its contractor's work on Licensee's Facilities. Licensee accepts this risk and agrees that Licensor shall have no liability to Licensee or any other person or entity for any such delays. Licensee must coordinate any work on Railroad Property by Licensee or any third party with Licensor's Field Representatives in strict compliance with the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit**

E. Licensor shall have the right, if it so elects, to provide any support it deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, repair, renewal, modification, relocation, reconstruction, or removal of Licensee's Facilities. In the event Licensor provides such support, Licensor shall invoice Licensee, and Licensee shall pay Licensor as set forth in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B.**

F. Licensee may use unmanned aircraft systems ("UAS") to inspect Licensee's Facilities only upon the prior authorization from and under the direction of Licensor's Field Representatives. Licensee represents and warrants that its use of UAS on Railroad Property will comply with Licensor's then-current Unmanned Aerial Systems Policy and all applicable laws, rules and regulations, including any applicable Federal Aviation Administration regulations and enactments pertaining to UAS.

Section 6. PROTECTION OF FIBER OPTIC CABLE SYSTEMS.

Fiber optic cable systems may be buried on Railroad Property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. In addition to the notifications required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensee shall telephone Licensor during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except for holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad Property to be used by Licensee. If it is, Licensee shall telephone the telecommunications company(ies) involved, and arrange for a cable locator, make arrangements for relocation or other protection of the fiber optic cable, all at Licensee's expense, and will not commence any work on Railroad Property until all such protection or relocation has been completed.

Section 7. LICENSEE'S PAYMENT OF EXPENSES.

A. Licensee shall bear the entire cost and expense of the design, construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities.

B. Licensee shall fully pay for all materials joined, affixed to and labor performed on Railroad Property in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of Licensee. Licensee shall promptly pay or discharge all taxes, charges, and assessments levied upon, in respect to, or on account of Licensee's Facilities, to prevent the same from becoming a charge or lien upon any property of Licensor, and so that the taxes, charges, and assessments levied upon or in respect to such property shall not be increased because of the location, construction, or maintenance of Licensee's Facilities or any improvement, appliance, or fixture connected therewith placed upon such property, or on account of Licensee's interest therein. Where such tax, charge, or assessment may not be separately made or assessed to Licensee but shall be included in the assessment of the property of Licensor, then Licensee shall pay to Licensor an equitable proportion of such taxes determined by the value of Licensee's property upon property of Licensor as compared with the entire value of such property.

C. As set forth in the "FLAGGING" Section of this **Exhibit B**, Licensor shall have the right, if it so elects, to provide any Safety Measures Licensor deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, including, but not limited to supervision, inspection, and flagging services. In the event Licensor provides such Safety Measures, Licensor shall submit an itemized invoice to Licensee's notice recipient listed in the "NOTICES" Article of this Agreement. Licensee shall pay to Licensor the total amount listed on such invoice within thirty (30) days of Licensee's receipt of such invoice.

Section 8. **MODIFICATIONS TO LICENSEE'S FACILITIES.**

A. This grant is subject to Licensor's safe and efficient operation of its railroad, and continued use and improvement of Railroad Property (collectively, "Railroad's Use"). Accordingly, Licensee shall, at its sole cost and expense, modify, reconstruct, repair, renew, revise, relocate, or remove (individually, "Modification", or collectively, "Modifications") all or any portion of Licensee's Facilities as Licensor may designate or identify, in its sole discretion, in the furtherance of Railroad's Use.

B. Upon any Modification of all or any portion of Licensee's Facilities to another location on Railroad Property, Licensor and Licensee shall execute a Supplemental Agreement to this Pipeline Agreement to document the Modification(s) to Licensee's Facilities on Railroad Property. If the Modifications result in Licensee's Facilities moving off of Railroad Property, this Agreement will terminate upon Licensee's completion of such Modification(s) and all requirements contained within the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of this **Exhibit B**. Any such Modification(s) off of Railroad Property will not release Licensee from any liability or other obligation of Licensee arising prior to and upon completion of any such Modifications to the Licensee's Facilities.

Section 9. **RESTORATION OF RAILROAD PROPERTY.**

In the event Licensee, in any manner moves or disturbs any property of Licensor in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, then, Licensee shall, as soon as possible and at Licensee's sole cost and expense, restore Licensor's property to the same condition as the same were before such property was moved or disturbed.

Section 10. **INDEMNITY.**

A. Definitions. As used in this Section:

1. "Licensor" includes Licensor, its affiliates, its and their officers, directors, agents and employees, and other railroad companies using Railroad Property at or near the location of Licensee's installation and their officers, directors, agents, and employees.

2. "Licensee" includes Licensee and its agents, contractors, subcontractors, sub-subcontractors, employees, officers, and directors, or any other person or entity acting on its behalf or under its control.

3. "Loss" includes claims, suits, taxes, loss, damages (including punitive damages, statutory damages, and exemplary damages), costs, charges, assessments, judgments, settlements, liens, demands, actions, causes of action, fines, penalties, interest, and expenses of any nature, including court costs, reasonable attorneys' fees and expenses, investigation costs, and appeal expenses.

B. Licensee shall release, defend, indemnify, and hold harmless Licensor from and against any and all Loss, even if groundless, fraudulent, or false, that directly or indirectly arises out of or is related to Licensee's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, removal, presence, use, or operation of Licensee's Facilities, including, but not limited to, any actual or alleged:

1. Bodily harm or personal injury (including any emotional injury or disease) to, or the death of, any person(s), including, but not limited to, Licensee, Licensor, any telecommunications company, or the agents, contractors, subcontractors, sub-subcontractors, or employees of the foregoing;

2. Damage to or the disturbance, loss, movement, or destruction of Railroad Property, including loss of use and diminution in value, including, but not limited to, any telecommunications system(s) or fiber optic cable(s) on or near Railroad Property, any property of Licensee or Licensor, or any property in the care, custody, or control of Licensee or Licensor;

3. Removal of person(s) from Railroad Property;

4. Any delays or interference with track or Railroad's Use caused by Licensee's activity(ies) on Railroad Property, including without limitation the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities or any part thereof, any activities, labor, materials, equipment, or machinery in conjunction therewith ;

5. Right(s) or interest(s) granted pursuant to this Agreement;

6. Contents escaping from Licensee's Facilities, including without limitation any actual or alleged pollution, contamination, breach, or environmental Loss;

7. Licensee's breach of this Agreement or failure to comply with its provisions, including, but not limited to, any violation or breach by Licensee of any representations and warranties Licensee has made in this Agreement; and

8. Violation by Licensee of any law, statute, ordinance, governmental administrative order, rule, or regulation, including without limitation all applicable Federal Railroad Administration regulations.

C. THE FOREGOING OBLIGATIONS SHALL APPLY TO THE FULLEST EXTENT PERMITTED BY LAW FOR THE BENEFIT OF LICENSOR TO LOSSES CAUSED BY, ARISING FROM, RELATING TO, OR RESULTING FROM, IN WHOLE OR IN PART, THE NEGLIGENCE OF LICENSOR, AND SUCH NEGLIGENCE OF LICENSOR SHALL NOT LIMIT, DIMINISH, OR PRECLUDE LICENSEE'S OBLIGATIONS TO LICENSOR IN ANY RESPECT. NOTWITHSTANDING THE FOREGOING, SUCH OBLIGATION TO INDEMNIFY LICENSOR SHALL NOT APPLY TO THE EXTENT THE LOSS IS CAUSED BY THE SOLE, ACTIVE AND DIRECT NEGLIGENCE, GROSS NEGLIGENCE, OR WILLFUL MISCONDUCT OF LICENSOR AS DETERMINED IN A FINAL JUDGMENT BY A COURT OF COMPETENT JURISDICTION.

Section 11. **TERMINATION; REMOVAL OF LICENSEE'S FACILITIES.**

A. If Licensee does not use the right herein granted on Licensee's Facilities for one (1) year, or if Licensee continues in default in the performance of any provision of this Agreement for a period of thirty (30) days after written notice from Licensor to Licensee specifying such default, Licensor may, at its sole discretion, terminate this Agreement by written notice to Licensee at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

B. In addition to the provisions of Paragraph "A" above, this Agreement may be terminated by written notice given by either party, without cause, upon thirty (30) days written notice to the non-terminating party at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

C. Prior to the effective date of any termination described in this Section, Licensee shall submit an application to Licensor's online Utility Contracts System at this link for Licensee's removal, or if applicable, abandonment in place of Licensee's Facilities located on Railroad Property ("Removal/Abandonment Work"). Upon the UP Engineering Representative's approval of Licensee's application for the Removal/Abandonment Work, Licensor and Licensee shall execute a separate consent document that will govern Licensee's performance of the Removal/Abandonment Work from those portions of Railroad Property not occupied by roadbed and/or trackage ("Consent Document"). Licensor shall then restore the impacted Railroad Property to the same or reasonably similar condition as it was prior to Licensee's installation of Licensee's Facilities. For purposes of this Section, Licensee's (i) performance of the Removal/Abandonment Work, and (ii) restoration work will hereinafter be collectively referred to as the "Restoration Work".

D. Following Licensee's completion of the Restoration Work, Licensee shall provide a written certification letter to Licensor at the address listed in the "NOTICES" Article of this Agreement which certifies that the Restoration Work has been completed in accordance with the Consent Document. Licensee shall report to governmental authorities, as required by law, and notify Licensor immediately if any environmental contamination is discovered during Licensee's performance of the Restoration Work. Upon discovery, the Licensee shall initiate any and all removal, remedial and restoration actions that are necessary to restore the property to its original, uncontaminated condition. Licensee shall provide written certification to Licensor at the address listed in the "NOTICES" Article of this Agreement that environmental contamination has been remediated and the property has been restored in accordance with Licensor's requirements. Upon Licensor's receipt of Licensee's restoration completion certifications, this Agreement will terminate.

E. In the event that Licensee fails to complete any of the Restoration Work, Licensor may, but is not obligated, to perform the Restoration Work. Any such work actually performed by Licensor will be at the cost and expense of Licensee. In the event that Licensor performs any of the Restoration Work, Licensee shall release Licensor from any and all Loss (defined in the "INDEMNITY" Section of this **Exhibit B)** arising out of or related to Licensor's performance of the Restoration Work.

F. Termination of this Agreement for any reason will not affect any of rights or obligations of the parties which may have accrued, or liabilities or Loss (defined in the "INDEMNITY" Section of this **Exhibit B)**, accrued or otherwise, which may have arisen prior to such termination.

EXHIBIT C

INSURANCE REQUIREMENTS

In accordance with Article 5 of this Agreement, Licensee shall (1) procure and maintain at its sole cost and expense, or (2) require its Contractor(s) to procure and maintain, at their sole cost and expense, the following insurance coverage:

A. **Commercial General Liability Insurance**. Commercial general liability (CGL) with a limit of not less than $2,000,000 each occurrence and an aggregate limit of not less than $4,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- Contractual Liability Railroads ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

B. **Business Automobile Coverage Insurance**. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a limit of not less $2,000,000 for each accident, and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

The policy must contain the following endorsements, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Coverage For Certain Operations In Connection With Railroads" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

C. **Workers' Compensation and Employers' Liability Insurance**. Coverage must include but not be limited to:

- Licensee's statutory liability under the workers' compensation laws of the state(s) affected by this Agreement.
- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 disease policy limit $500,000 each employee.

If Licensee is self-insured, evidence of state approval and excess workers' compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

D. **Environmental Liability Insurance**. Environmental Legal Liability Insurance (ELL) applicable to bodily injury, property damage, including loss of use of damaged property or of property that has not been physically injured or destroyed, cleanup costs, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims, or compliance with statute, all in

connection with any loss arising from the insured's performance under this Agreement. Except with respect to the limits of insurance, and any rights or duties specifically assigned to the first named insured, this insurance must apply as if each named insured were the only named insured; and separately to the additional insured against which claim is made or suit is brought. Coverage shall be maintained in an amount of at least $2,000,000 per loss, with an annual aggregate of at least $4,000,000.

Licensee warrants that any retroactive date applicable to ELL insurance coverage under the policy is the same as or precedes the Effective Date of this Agreement, and that continuous coverage will be maintained for a period of five (5) years beginning from the time the work under this Agreement is completed or if coverage is cancelled for any reason the policies extended discovery period, if any, will be exercised for the maximum time allowed.

E. **Railroad Protective Liability Insurance**. Licensee must maintain for the duration of work "Railroad Protective Liability" insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Licensor only as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate of $6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement. Notwithstanding the foregoing, Licensee does not need Railroad Protective Liability Insurance after its initial construction work is complete and all excess materials have been removed from Licensor's property; PROVIDED, however, that Licensee shall procure such coverage for any subsequent maintenance, repair, renewal, modification, reconstruction, or removal work on Licensee's Facilities.

F. **Umbrella or Excess Insurance**. If Licensee utilizes umbrella or excess policies, and these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

G. All policy(ies) required above (except business automobile, workers' compensation and employers' liability) must include Licensor as "Additional Insured" using ISO Additional Insured Endorsement CG 20 26 (or substitute form(s) providing equivalent coverage). The coverage provided to Licensor as additional insured shall not be limited by Licensee's liability under the indemnity provisions of this Agreement. BOTH LICENSOR AND LICENSEE EXPECT THAT LICENSOR WILL BE PROVIDED WITH THE BROADEST POSSIBLE COVERAGE AVAILABLE BY OPERATION OF LAW UNDER ISO ADDITIONAL INSURED FORM CG 20 26.

H. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (a) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this Agreement, or (b) all punitive damages are prohibited by all states in which this Agreement will be performed.

I. Licensee waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Licensor and its agents, officers, directors and employees for damages covered by the workers' compensation and employers' liability or commercial umbrella or excess liability obtained by Licensee required in this Agreement, where permitted by law. This waiver must be stated on the certificate of insurance.

J. All insurance policies must be written by a reputable insurance company acceptable to Licensor or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the work is to be performed.

K. The fact that insurance is obtained by Licensee will not be deemed to release or diminish the liability of Licensee, including, without limitation, liability under the indemnity provisions of this

Agreement. Damages recoverable by Licensor from Licensee or any third party will not be limited by the amount of the required insurance coverage.

2. Track and Ground Monitoring

A. General track and ground monitoring requirements

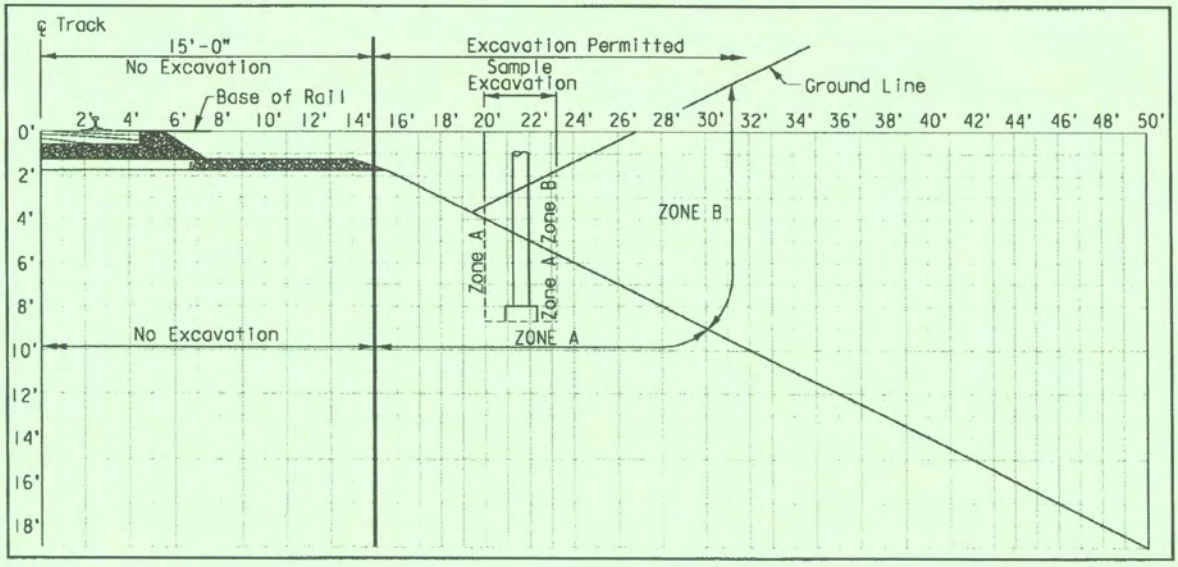
1. General requirement
   i. Temporary lighting may also be required by the Railroad to identify tripping hazards to train crewmen and other Railroad personnel.
   ii. Any excavation, holes or trenches on the Railroad property shall be covered, guarded and/or protected. Handrails, fence, or other barrier methods must meet OSHA and FRA requirements.
2. Track and ground monitoring are required as follows:
   i. For crossings with pipe diameter and depth (below base of rail) as shown below in Table 2-1.
   ii. For shoring within Zone A of any track, as shown below in Figure 2-1.
   iii. Additional monitoring may be required by the Railroad on a case by case basis.
3. Monitoring schedule
   i. Monitoring shall commence once any construction activity is within Zone A. See Figure 2-1.
   ii. Monitoring shall continue, after installation is complete, for 7 days or as required by the Railroad.
      a. For large and/or shallow pipeline installations monitoring may be required for up to 30 days.

Table 2-1

Depth, feet (below base of rail)	<=6	<=12	<=18	<=24	<=30	<=36	<=42	<=48	<=54	<=60	>60
<=5	X	X	X	X	X	X	X	X	X	X	X
<=10	X	X	X	X	X	X	X	X	X	X	X
<=15	X	X	X	X	X	X	X	X	X	X	X
<=20			X	X	X	X	X	X	X	X	X
<=25					X	X	X	X	X	X	X
<=30								X	X	X	X
>30										X	X

X = Monitoring is required

Figure 2-1



B. Track Monitoring

1. Track Deflection Limits
   i. The top of rail shall not permanently deflect more than ¼ inch vertical or horizontal.
2. Targets
   i. Track monitoring shall not require track access other than to place the track monitoring targets.
   ii. Monitoring targets should be placed such that monitoring is possible when a train is present. However, monitoring during the passing of a train is not required as the train will temporarily deflect the track.
   iii. Adhesive backed reflective targets may be attached to the side of the rail temporarily. Targets should be removed once monitoring phase is complete.
3. Monitoring Plan
   i. If the top of rail does deflect more than 1/4 inch, all operations shall stop until the matter is resolved.
   ii. Provide established contingency plan, See Section 2.D, in the event of ground loss and/or the rail deviates ¼ inch vertical or horizontal.
   iii. Establish a bench mark in the vicinity of the construction. Establish locations for shooting elevations on the top of rail at each area of construction.
      a. Example locations for shooting rail elevations would be at:
      - At the centerline of an under track crossing.
      - At both outside edges of the crossing. ie. For a wide excavation.
      - At multiple locations from the crossing/excavation edge but no less than 10, 20, 30, 40 and 50 feet from the crossing.
   iv. Monitoring shall be continuous and recorded in a field log book dedicated for this purpose. Copies of these field log entries can be made available to all concerned parties upon request at any time during construction.

C. Ground Monitoring

1. Provide means for monitoring ground settlement. Submit monitoring plan for Railroad review.
2. Ground monitoring points should be in alignment above the proposed construction activities.

D. Contingency Plans

1. The Contractor shall supply Contingency Plan(s), which anticipate reaching the Threshold and Shutdown values, for all construction activities which may result in horizontal and/or vertical track deflection.
   i. Track monitoring values:
      a. Threshold value = 1/8 inch permanent vertical or horizontal deflection
      b. Shutdown value = 1/4 inch permanent vertical or horizontal deflection
2. The Contingency Plans shall provide means and methods, with options if necessary.
3. The Contractor should anticipate the need to implement each Contingency Plan with required materials, equipment and personnel.
   i. Once the Threshold value is met, the contractor shall determine the appropriate Contingency Plan(s) and immediately discuss this plan with, and receive approval confirmation from, the Railroad.
   ii. Once the Shutdown value is exceeded all project work shall stop and the chosen Contingency Plan shall commence.
      a. The Railroad may choose to allow and/or require the immediate implementation of specific approved Contingency Plans, submitted by the Contractor, once the Shutdown value is exceeded.

WORK PLAN

Union Pacific Railroad Folder Number:

Date Submitted to RailPros Field Services:

Work Plan Directions:
This project has been identified by Union Pacific Railroad (UPRR) as requiring third party construction observation. RailPros will be providing the Construction Observation services for this project and is here to assist in moving this project to completion.

The Union Pacific Railroad Real Estate Agreement outlines the requirements and standards for this installation. This work plan describes the specific details of the project, in terms of the site layout, schedule, means and methods, and general requirements, to ensure compliance with the agreement. This work plan, once released, is the basis that the Construction Observer will assess the work. Any field changes from the work plan shall be submitted via email to utilities.office.staff@railpros.com for review and must meet or exceed UPRR and/or AREMA standards.

Work Plan Submittal Check List: **(Please check off all requirements in list, or strike through text if item is not required)**

1. ***Engineering Plan and Profile (Exhibit A does not qualify)***:
    a. Mark locations of launch and receiving locations.
    b. Dimension the distances from the centerline of track and any existing utilities.
    c. Dimension depth of excavation.
    d. Railroad right of way and railroad tracks clearly outlined

2. ***Track Monitoring Plan (if required):***
    a. See attached Track Monitoring Guideline (pdf)

3. ***HDD Installations Only:***
    a. Inadvertent Return Contingency Plan (Frac-Out Plan)
    b. HDD Plan Requirements

4. ***Shoring Plan Only for excavation within UPRR property and Zone A or Zone B:***
    a. Calculations for shoring within zone a.
    b. Cut sheets for proprietary systems as applicable.
    c. Description of shoring to include but is not limited to:
    d. Exploration (pot holing)
    e. Demolition
    f. Excavation
    g. Fall protection/confined space entry
    h. Work process
    i. Backfill
    j. Close-out
    k. Contingencies which include weather events and hazmat
    l. Reference the following link to assure compliance.
    Https://www.up.com/cs/groups/public/@uprr/@customers/@industrialdevelopment/@operationsspecs/@specifications/documents/up_pdf_nativedocs/pdf_up_str_temp-shoring.pdf

Prime Contractor Contact Name:
Email Address:
Phone Number:
Note: The field contact will be asked to sign the daily report to verify hours.
Sub-Contractor (if performing the installation) Contact Name:
Email Address:
Phone Number:
Note: The field contact will be asked to sign the daily report to verify hours.

Project Information

Item	Response	Item	Response
Lat/Long (Decimal Form)		Number of Tracks	
Method of Installation (HDD, Jack and Bore, Etc.)		Casing Pipe Length	
Depth from top of pipe to base of rail		Casing Pipe Type	
Distance from face of receiving pit to Nearest Track CL		Casing Pipe Diameter	
Distance from face of jacking pit to Nearest Track CL		Casing Pipe Thickness	
Excavation depth of jacking pit from base of rail		Carrier Pipe Type	
Excavation depth of receiving pit from base of rail		Carrier Pipe Diameter	
Will there be hot work within UPRR ROW? (welding, open flame, cutting, etc.)		Carrier Pipe Thickness	
Will there be abandonment work within UPRR ROW?		Is the crossing within a roadway or 50' of a roadway?	

Description of Work: Provide a description of Means and Methods the contractor will use to complete the authorized work on, under, or above UPRR property. Excavation or potholing within 15 feet of track centerline is not acceptable, unless approved by UPRR Engineering.

Equipment:	Machine Make & Model:

Description of Process:

1.
2.
3.
4.
5.
6.
7.

Please review the following link to ensure compliance with all UPRR PPE Requirements.
https://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf

Track Monitoring: Track Monitoring Plan is required in accordance with the UPRR Track Monitoring Guideline (attached). If work is occurring in more than one (1) shift, Track Monitoring is required during all shifts. Send track monitoring data to utilities.office.staff@railpros.com.

Survey Company:	
Name of Surveyor:	Instrument:

Will you be using adhesive targets for the track monitoring? Yes or No

Description of Process:

1.
2.
3.
4.
5.
6.

Please review the following link to ensure compliance with all UPRR PPE Requirements.
https://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf

Reference Drawings

(See Project Plan Sheets RR2-RR7)

Union Pacific Railroad (UPRR)

Final Interconnected Crossing Agreement

(forthcoming)

CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT

THIS AGREEMENT is made and entered into as of the _____ day of _____, 2020, by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation ("Railroad"); and _____ _____, a _____ corporation ("Contractor").

RECITALS:

Contractor has been hired by the "AGENCY" to improve the existing "ROAD NAME". at-grade public road crossing DOT "123456A" at Railroad's Milepost "XX.XX" on Railroad's "SUBDIVISION NAME" Subdivision at or near "CITY, COUNTY, STATE" including "INSERT PROJECT DESCRIPTION" as such location is in the general location shown on the print attached to marked **Exhibit A**, attached hereto and hereby made a part hereof, which is subject of an agreement dated , 2020, between Railroad and the "AGENCY"

Railroad is willing to permit Contractor to perform the work described above at the location described above subject to the terms and conditions contained in this agreement

AGREEMENT:

NOW, THEREFORE, it is mutually agreed by and between Railroad and Contractor, as follows:

ARTICLE 1 - DEFINITION OF CONTRACTOR.

For purposes of this agreement, all references in this agreement to Contractor shall include Contractor's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority. For purposes of clarity, Contractor agrees that any CIC (defined below) hired by Contractor is a subcontractor of Contractor and therefore included in the defined term Contractor pursuant to the foregoing sentence.

ARTICLE 2 - RIGHT GRANTED; PURPOSE.

Railroad hereby grants to Contractor the right, during the term hereinafter stated and upon and subject to each and all of the terms, provisions and conditions herein contained, to enter upon and have ingress to and egress from the property described in the Recitals for the purpose of performing the work described in the Recitals above. The right herein granted to Contractor is limited to those portions of Railroad's property specifically described herein, or as designated by the Railroad Representative named in Article 4.

ARTICLE 3 - TERMS AND CONDITIONS CONTAINED IN EXHIBITS B, C AND D.

The terms and conditions contained in **Exhibit B** and **Exhibit C**, attached hereto, are hereby made a part of this agreement.

ARTICLE 4 - ALL EXPENSES TO BE BORNE BY CONTRACTOR; RAILROAD REPRESENTATIVE.

A. Contractor shall bear any and all costs and expenses associated with any work performed by Contractor (including without limitation any CIC), or any costs or expenses incurred by Railroad relating to this agreement.

B. Contractor shall coordinate all of its work with the following Railroad representative or his or her duly authorized representative (the "Railroad Representative"):

MGR TRACK MNTCE
MTM CONTACT
INFORMATION

C. Contractor, at its own expense, shall adequately police and supervise all work to be performed by Contractor and shall ensure that such work is performed in a safe manner as set forth in Section 7 of **Exhibit B**. The responsibility of Contractor for safe conduct and adequate policing and supervision of Contractor's work shall not be lessened or otherwise affected by Railroad's approval of plans and specifications involving the work, or by Railroad's collaboration in performance of any work, or by the presence at the work site of a Railroad Representative, or by compliance by Contractor with any requests or recommendations made by Railroad Representative.

ARTICLE 5 - SCHEDULE OF WORK ON A MONTHLY BASIS.

The Contractor, at its expense, shall provide on a monthly basis a detailed schedule of work to the Railroad Representative named in Article 4B above. The reports shall start at the execution of this agreement and continue until this agreement is terminated as provided in this agreement or until the Contractor has completed all work on Railroad's property.

ARTICLE 6 - TERM; TERMINATION.

A. The grant of right herein made to Contractor shall commence on the date of this agreement, and continue until _____, unless sooner terminated as herein provided, or at such time as Contractor has completed its work on Railroad's property, whichever is earlier. Contractor agrees to notify the Railroad Representative in writing when it has completed its work on Railroad's property.

B. This agreement may be terminated by either party on ten (10) days written notice to the other party.

ARTICLE 7 - CERTIFICATE OF INSURANCE.

A. Before commencing any work and throughout the entire term of this Agreement, Contractor, at its expense, shall procure and maintain in full force and effect the types and minimum limits of insurance specified in **Exhibit C** of this agreement and require each of its subcontractors to include the insurance endorsements as required under Section 12 of **Exhibit B** of this agreement.

B. Not more frequently than once every two (2) years, Railroad may reasonably modify the required insurance coverage to reflect then-current risk management practices in the railroad industry and underwriting practices in the insurance industry.

C. Upon request of Railroad, Contractor shall provide to Railroad a certificate issued by its insurance carrier evidencing the insurance coverage required under **Exhibit B**.

D. Contractor understands and accepts that the terms of this Article are wholly separate from and independent of the terms of any indemnity provisions contained in this Agreement.

D. Upon request of Railroad, insurance correspondence, binders, policies, certificates and endorsements shall be sent to:

Union Pacific Railroad Company
1400 Douglas St. STOP 1690
Omaha, NE 68179
Attn: Sr. Mgr. Real Estate
Folder No. 3219-43

ARTICLE 8 - PRECONSTRUCTION MEETING.

If the work to be performed by the Contractor will involve the Railroad providing any flagging protection (or if a CIC is approved to provide flagging protection pursuant to the terms set forth herein) and/or there is separate work to be performed by the Railroad, the Contractor confirms that no work shall commence until the Railroad and Contractor participate in a preconstruction meeting involving flagging procedures and coordination of work activities of the Contractor and the Railroad (and any CIC, as applicable.)

ARTICLE 9. DISMISSAL OF CONTRACTOR'S EMPLOYEE.

At the request of Railroad, Contractor shall remove from Railroad's property any employee of Contractor who fails to conform to the instructions of the Railroad Representative in connection with the work on Railroad's property, and any right of Contractor shall be suspended until such removal has occurred. Contractor shall indemnify Railroad against any claims arising from the removal of any such employee from Railroad's property.

ARTICLE 10. ADMINISTRATIVE FEE.

Upon the execution and delivery of this agreement, Contractor shall pay to Railroad **One Thousand Twenty Five Dollars** ($1025.00) as reimbursement for clerical, administrative and handling expenses in connection with the processing of this agreement.

ARTICLE 11. CROSSINGS; COMPLIANCE WITH MUTCD AND FRA GUIDELINES.

A. No additional vehicular crossings (including temporary haul roads) or pedestrian crossings over Railroad's trackage shall be installed or used by Contractor without the prior written permission of Railroad.

B. Any permanent or temporary changes, including temporary traffic control, to crossings must conform to the Manual of Uniform Traffic Control Devices (MUTCD) and any applicable Federal Railroad Administration rules, regulations and guidelines, and must be reviewed by the Railroad prior to any changes being implemented. In the event the Railroad is found to be out of compliance with federal safety regulations due to the Contractor's modifications, negligence, or any other reason arising from the Contractor's presence on the Railroad's property, the Contractor agrees to assume liability for any civil penalties imposed upon the Railroad for such noncompliance.

ARTICLE 12.- EXPLOSIVES.

Explosives or other highly flammable substances shall not be stored or used on Railroad's property without the prior written approval of Railroad.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement in duplicate as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

By: _____
Title: _____

_____
(Name of Contractor)

By: _____
Title: _____

EXHIBIT A
TO
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

Exhibit A will be a print showing the general location of the work site.

EXHIBIT B
TO
CONTRACTOR'S RIGHT OF ENTRY AGREEMENT

Section 1. NOTICE OF COMMENCEMENT OF WORK - RAILROAD FLAGGING - PRIVATE FLAGGING.

A. Contractor agrees to notify the Railroad Representative at least ten (10) working days in advance of Contractor commencing its work and at least thirty (30) working days in advance of proposed performance of any work by Contractor in which any person or equipment will be within twenty-five (25) feet of any track, or will be near enough to any track that any equipment extension (such as, but not limited to, a crane boom) will reach to within twenty-five (25) feet of any track.

B. No work of any kind shall be performed, and no person, equipment, machinery, tool(s), material(s), vehicle(s), or thing(s) shall be located, operated, placed, or stored within twenty-five (25) feet of any of Railroad's track(s) at any time, for any reason, unless and until a Railroad approved flagman is provided to watch for trains. Upon receipt of such thirty (30)-day notice, the Railroad Representative will determine and inform Contractor whether a flagman need be present and whether Contractor needs to implement any special protective or safety measures.

C. Contractor shall be permitted to hire a private contractor to perform flagging or other special protective or safety measures (such private contractor being commonly known in the railroad industry as a contractor-in-charge ("CIC")) in lieu of Railroad providing such services or in concert with Railroad providing such services, subject to prior written approval by Railroad, which approval shall be in Railroad's sole and absolute discretion. If Railroad agrees to permit Contractor to utilize a CIC pursuant to the preceding sentence, Contractor shall obtain Railroad's prior approval in writing for each of the following items, as determined in all respects in Railroad's sole and absolute discretion: (i) the identity of the third-party performing the role of CIC; (ii) the scope of the services to be performed for the project by the approved CIC; and (iii) any other terms and conditions governing such services to be provided by the CIC. If flagging or other special protective or safety measures are performed by an approved CIC, Contractor shall be solely responsible for (and shall timely pay such CIC for) its services. Railroad reserves the right to rescind any approval pursuant to this Section 1, Subsection C., in whole or in part, at any time, as determined in Railroad's sole and absolute discretion.

D. If any flagging or other special protective or safety measures are performed by employees of Railroad and/or any contractor of Railroad, Railroad will bill Contractor for such expenses incurred by Railroad, unless Railroad and a federal, state or local governmental entity have agreed that Railroad is to bill such expenses to the federal, state or local governmental entity. If Railroad will be sending the bills to Contractor, Contractor shall pay such bills within thirty (30) days of Contractor's receipt of billing.

E. If any flagging or other special protective or safety measures are performed by Railroad or a CIC, Contractor agrees that Contractor is not relieved of any of its responsibilities or liabilities set forth in this agreement.

F. The provisions set forth in this subsection are only applicable for Flagging Services performed by employees of Railroad: the rate of pay per hour for each flagman will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with labor agreements and schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Railroad and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Contractor (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges. If flagging is performed by Railroad, reimbursement to Railroad will be required covering the full eight-hour day during which any flagman is furnished, unless the flagman can be assigned to other Railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagman is engaged in other Railroad work.

Reimbursement will also be required for any day not actually worked by the flagman following the flagman's assignment to work on the project for which Railroad is required to pay the flagman and which could not reasonably be avoided by Railroad by assignment of such flagman to other work, even though Contractor may not be working during such time. When it becomes necessary for Railroad to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Contractor must provide Railroad a minimum of five (5) days notice prior to the cessation of the need for a flagman. If five (5) days notice of cessation is not given, Contractor will still be required to pay flagging charges for the five (5) day notice period required by union agreement to be given to the employee, even though flagging is not required for that period. An additional thirty (30) days notice must then be given to Railroad if flagging services are needed again after such five day cessation notice has been given to Railroad.

Section 2. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED

A. The foregoing grant of right is subject and subordinate to the prior and continuing right and obligation of the Railroad to use and maintain its entire property including the right and power of Railroad to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, roadways, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Railroad without liability to Contractor or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (whether recorded or unrecorded and including those in favor of licensees and lessees of Railroad's property, and others) and the right of Railroad to renew and extend the same, and is made without covenant of title or for quiet enjoyment.

Section 3. NO INTERFERENCE WITH OPERATIONS OF RAILROAD AND ITS TENANTS.

A. Contractor shall conduct its operations so as not to interfere with the continuous and uninterrupted use and operation of the railroad tracks and property of Railroad, including without limitation, the operations of Railroad's lessees, licensees or others, unless specifically authorized in advance by the Railroad Representative. Nothing shall be done or permitted to be done by Contractor at any time that would in any manner impair the safety of such operations. When not in use, Contractor's machinery and materials shall be kept at least fifty (50) feet from the centerline of Railroad's nearest track, and there shall be no vehicular crossings of Railroads tracks except at existing open public crossings.

B. Operations of Railroad and work performed by Railroad personnel and delays in the work to be performed by Contractor caused by such railroad operations and work are expected by Contractor, and Contractor agrees that Railroad shall have no liability to Contractor, or any other person or entity for any such delays. The Contractor shall coordinate its activities with those of Railroad and third parties so as to avoid interference with railroad operations. The safe operation of Railroad train movements and other activities by Railroad takes precedence over any work to be performed by Contractor.

Section 4. LIENS.

Contractor shall pay in full all persons who perform labor or provide materials for the work to be performed by Contractor. Contractor shall not create, permit or suffer any mechanic's or materialmen's liens of any kind or nature to be created or enforced against any property of Railroad for any such work performed. Contractor shall indemnify and hold harmless Railroad from and against any and all liens, claims, demands, costs or expenses of whatsoever nature in any way connected with or growing out of such work done, labor performed, or materials furnished. If Contractor fails to promptly cause any lien to be released of record, Railroad may, at its election, discharge the lien or claim of lien at Contractor's expense.

Section 5. PROTECTION OF FIBER OPTIC CABLE SYSTEMS.

A. Fiber optic cable systems may be buried on Railroad's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. Contractor shall telephone Railroad during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) to determine if fiber optic cable is buried anywhere on Railroad's property to be used by Contractor. If it is,

Contractor will telephone the telecommunications company(ies) involved, make arrangements for a cable locator and, if applicable, for relocation or other protection of the fiber optic cable. Contractor shall not commence any work until all such protection or relocation (if applicable) has been accomplished.

B. IN ADDITION TO OTHER INDEMNITY PROVISIONS IN THIS AGREEMENT, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD RAILROAD HARMLESS FROM AND AGAINST ALL COSTS, LIABILITY AND EXPENSE WHATSOEVER (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS AND EXPENSES) ARISING OUT OF ANY ACT OR OMISSION OF CONTRACTOR, ITS AGENTS AND/OR EMPLOYEES, THAT CAUSES OR CONTRIBUTES TO (1) ANY DAMAGE TO OR DESTRUCTION OF ANY TELECOMMUNICATIONS SYSTEM ON RAILROAD'S PROPERTY, AND/OR (2) ANY INJURY TO OR DEATH OF ANY PERSON EMPLOYED BY OR ON BEHALF OF ANY TELECOMMUNICATIONS COMPANY, AND/OR ITS CONTRACTOR, AGENTS AND/OR EMPLOYEES, ON RAILROAD'S PROPERTY. CONTRACTOR SHALL NOT HAVE OR SEEK RECOURSE AGAINST RAILROAD FOR ANY CLAIM OR CAUSE OF ACTION FOR ALLEGED LOSS OF PROFITS OR REVENUE OR LOSS OF SERVICE OR OTHER CONSEQUENTIAL DAMAGE TO A TELECOMMUNICATION COMPANY USING RAILROAD'S PROPERTY OR A CUSTOMER OR USER OF SERVICES OF THE FIBER OPTIC CABLE ON RAILROAD'S PROPERTY.

Section 6. PERMITS - COMPLIANCE WITH LAWS.

In the prosecution of the work covered by this agreement, Contractor shall secure any and all necessary permits and shall comply with all applicable federal, state and local laws, regulations and enactments affecting the work including, without limitation, all applicable Federal Railroad Administration regulations.

Section 7. SAFETY.

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of any work on Railroad property performed by Contractor. Contractor shall be responsible for initiating, maintaining and supervising all safety, operations and programs in connection with the work. Contractor shall, at a minimum, comply with Railroad's then current safety standards located at the below web address ("Railroad's Safety Standards") to ensure uniformity with the safety standards followed by Railroad's own forces. As a part of Contractor's safety responsibilities, Contractor shall notify Railroad if Contractor determines that any of Railroad's Safety Standards are contrary to good safety practices. Contractor shall furnish copies of Railroad's Safety Standards to each of its employees before they enter Railroad property.

http://www.up.com/cs/groups/public/@uprr/@suppliers/documents/up_pdf_nativedocs/pdf_up_supplier_safety_req.pdf

B. Without limitation of the provisions of paragraph A above, Contractor shall keep the job site free from safety and health hazards and ensure that its employees are competent and adequately trained in all safety and health aspects of the job.

C. Contractor shall have proper first aid supplies available on the job site so that prompt first aid services may be provided to any person injured on the job site. Contractor shall promptly notify Railroad of any U.S. Occupational Safety and Health Administration reportable injuries. Contractor shall have a nondelegable duty to control its employees while they are on the job site or any other property of Railroad, and to be certain they do not use, be under the influence of, or have in their possession any alcoholic beverage, drug or other substance that may inhibit the safe performance of any work.

D. If and when requested by Railroad, Contractor shall deliver to Railroad a copy of Contractor's safety plan for conducting the work (the "Safety Plan"). Railroad shall have the right, but not the obligation, to require Contractor to correct any deficiencies in the Safety Plan. The terms of this agreement shall control if there are any inconsistencies between this agreement and the Safety Plan.

Section 8. INDEMNITY.

A. TO THE EXTENT NOT PROHIBITED BY APPLICABLE STATUTE, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS RAILROAD, ITS AFFILIATES, AND ITS AND THEIR OFFICERS,

AGENTS AND EMPLOYEES (INDIVIDUALLY AN "INDEMNIFIED PARTY" OR COLLECTIVELY "INDEMNIFIED PARTIES") FROM AND AGAINST ANY AND ALL LOSS, DAMAGE, INJURY, LIABILITY, CLAIM, DEMAND, COST OR EXPENSE (INCLUDING, WITHOUT LIMITATION, ATTORNEY'S, CONSULTANT'S AND EXPERT'S FEES, AND COURT COSTS), FINE OR PENALTY (COLLECTIVELY, "LOSS") INCURRED BY ANY PERSON (INCLUDING, WITHOUT LIMITATION, ANY INDEMNIFIED PARTY, CONTRACTOR, OR ANY EMPLOYEE OF CONTRACTOR OR OF ANY INDEMNIFIED PARTY) ARISING OUT OF OR IN ANY MANNER CONNECTED WITH (I) ANY WORK PERFORMED BY CONTRACTOR, OR (II) ANY ACT OR OMISSION OF CONTRACTOR, ITS OFFICERS, AGENTS OR EMPLOYEES, OR (III) ANY BREACH OF THIS AGREEMENT BY CONTRACTOR.

B. THE RIGHT TO INDEMNITY UNDER THIS SECTION 8 SHALL ACCRUE UPON OCCURRENCE OF THE EVENT GIVING RISE TO THE LOSS, AND SHALL APPLY REGARDLESS OF ANY NEGLIGENCE OR STRICT LIABILITY OF ANY INDEMNIFIED PARTY, EXCEPT WHERE THE LOSS IS CAUSED BY THE SOLE ACTIVE NEGLIGENCE OF AN INDEMNIFIED PARTY AS ESTABLISHED BY THE FINAL JUDGMENT OF A COURT OF COMPETENT JURISDICTION. THE SOLE ACTIVE NEGLIGENCE OF ANY INDEMNIFIED PARTY SHALL NOT BAR THE RECOVERY OF ANY OTHER INDEMNIFIED PARTY.

C. CONTRACTOR EXPRESSLY AND SPECIFICALLY ASSUMES POTENTIAL LIABILITY UNDER THIS SECTION 8 FOR CLAIMS OR ACTIONS BROUGHT BY CONTRACTOR'S OWN EMPLOYEES. CONTRACTOR WAIVES ANY IMMUNITY IT MAY HAVE UNDER WORKER'S COMPENSATION OR INDUSTRIAL INSURANCE ACTS TO INDEMNIFY THE INDEMNIFIED PARTIES UNDER THIS SECTION 8. CONTRACTOR ACKNOWLEDGES THAT THIS WAIVER WAS MUTUALLY NEGOTIATED BY THE PARTIES HERETO.

D. NO COURT OR JURY FINDINGS IN ANY EMPLOYEE'S SUIT PURSUANT TO ANY WORKER'S COMPENSATION ACT OR THE FEDERAL EMPLOYERS' LIABILITY ACT AGAINST A PARTY TO THIS AGREEMENT MAY BE RELIED UPON OR USED BY CONTRACTOR IN ANY ATTEMPT TO ASSERT LIABILITY AGAINST ANY INDEMNIFIED PARTY.

E. THE PROVISIONS OF THIS SECTION 8 SHALL SURVIVE THE COMPLETION OF ANY WORK PERFORMED BY CONTRACTOR OR THE TERMINATION OR EXPIRATION OF THIS AGREEMENT. IN NO EVENT SHALL THIS SECTION 8 OR ANY OTHER PROVISION OF THIS AGREEMENT BE DEEMED TO LIMIT ANY LIABILITY CONTRACTOR MAY HAVE TO ANY INDEMNIFIED PARTY BY STATUTE OR UNDER COMMON LAW.

Section 9. RESTORATION OF PROPERTY.

In the event Railroad authorizes Contractor to take down any fence of Railroad or in any manner move or disturb any of the other property of Railroad in connection with the work to be performed by Contractor, then in that event Contractor shall, as soon as possible and at Contractor's sole expense, restore such fence and other property to the same condition as the same were in before such fence was taken down or such other property was moved or disturbed. Contractor shall remove all of Contractor's tools, equipment, rubbish and other materials from Railroad's property promptly upon completion of the work, restoring Railroad's property to the same state and condition as when Contractor entered thereon.

Section 10. WAIVER OF DEFAULT.

Waiver by Railroad of any breach or default of any condition, covenant or agreement herein contained to be kept, observed and performed by Contractor shall in no way impair the right of Railroad to avail itself of any remedy for any subsequent breach or default.

Section 11. MODIFICATION - ENTIRE AGREEMENT.

No modification of this agreement shall be effective unless made in writing and signed by Contractor and Railroad. This agreement and the exhibits attached hereto and made a part hereof constitute the entire understanding between Contractor and Railroad and cancel and supersede any prior negotiations, understandings or agreements, whether written or oral, with respect to the work to be performed by Contractor.

Section 12. ASSIGNMENT - SUBCONTRACTING.

Contractor shall not assign or subcontract this agreement, or any interest therein, without the written consent of the Railroad. Contractor shall be responsible for the acts and omissions of all subcontractors. Before Contractor commences any work, the Contractor shall, except to the extent prohibited by law; (1) require each of its subcontractors to include the Contractor as "Additional Insured" on the subcontractor's Commercial General Liability policy and Umbrella or Excess policies (if applicable) with respect to all liabilities arising out of the subcontractor's performance of work on behalf of the Contractor by endorsing these policies with ISO Additional Insured Endorsements CG 20 10, and CG 20 37 (or substitute forms providing equivalent coverage; (2) require each of its subcontractors to endorse their Commercial General Liability Policy with "Contractual Liability Railroads" ISO Form CG 24 17 10 01 (or a substitute form providing equivalent coverage) for the job site; and (3) require each of its subcontractors to endorse their Business Automobile Policy with "Coverage For Certain Operations In Connection With Railroads" ISO Form CA 20 70 10 01 (or a substitute form providing equivalent coverage) for the job site.

EXHIBIT C
TO
CONTRACTOR'S
RIGHT OF ENTRY AGREEMENT

Union Pacific Railroad Company
Insurance Requirements For
Contractor's Right of Entry Agreement

During the entire term of this Agreement and course of the Project, and until all Project work on Railroad's property has been completed and all equipment and materials have been removed from Railroad's property and Railroad's property has been clean and restored to Railroad's satisfaction, Contractor shall, at its sole cost and expense, procure and maintain the following insurance coverage:

A. **Commercial General Liability** insurance. Commercial general liability (CGL) with a limit of not less than $5,000,000 each occurrence and an aggregate limit of not less than $10,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, which must be stated on the certificate of insurance:

- Contractual Liability Railroads ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.
- Designated Construction Project(s) General Aggregate Limit ISO Form CG 25 03 03 97 (or a substitute form providing equivalent coverage) showing the project on the form schedule.

B. **Business Automobile Coverage** insurance. Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a combined single limit of not less $5,000,000 for each accident and coverage must include liability arising out of any auto (including owned, hired and non-owned autos).

The policy must contain the following endorsements, which must be stated on the certificate of insurance:

- Coverage For Certain Operations In Connection With Railroads ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site.
- Motor Carrier Act Endorsement - Hazardous materials clean up (MCS-90) if required by law.

C. **Workers' Compensation and Employers' Liability** insurance. Coverage must include but not be limited to:

- Contractor's statutory liability under the workers' compensation laws of the state where the work is being performed.
- Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 disease policy limit $500,000 each employee.

If Contractor is self-insured, evidence of state approval and excess workers compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

D. **Railroad Protective Liability** insurance. Contractor must maintain "Railroad Protective Liability" (RPL) insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Railroad as named insured, with a limit of not less than $2,000,000 per occurrence and an aggregate of $6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this agreement and shall describe all WORK or OPERATIONS performed under this agreement. Contractor shall provide this agreement to Contractor's insurance agent(s) and/or broker(s) and Contractor shall instruct such agent(s) and/or broker(s) to procure the insurance coverage required by this agreement. A BINDER STATING THE POLICY IS IN PLACE MUST BE SUBMITTED TO RAILROAD BEFORE THE WORK MAY COMMENCE AND UNTIL THE ORIGINAL POLICY IS FORWARDED TO UNION PACIFIC RAILROAD.

E. **Umbrella or Excess** insurance. If Contractor utilizes umbrella or excess policies, these policies must "follow form" and afford no less coverage than the primary policy.

F. **Pollution Liability** insurance. Pollution liability coverage must be included when the scope of the work as defined in the agreement includes installation, temporary storage, or disposal of any "hazardous" material that is injurious in or upon land, the atmosphere, or any watercourses; or may cause bodily injury at any time.

If required, coverage may be provided in separate policy form or by endorsement to Contractors CGL or RPL. Any form coverage must be equivalent to that provided in ISO form CG 24 15 "Limited Pollution Liability Extension Endorsement" or CG 28 31 "Pollution Exclusion Amendment" with limits of at least $5,000,000 per occurrence and an aggregate limit of $10,000,000.

If the scope of work as defined in this agreement includes the disposal of any hazardous or non-hazardous materials from the job site, Contractor must furnish to Railroad evidence of pollution legal liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting the materials, with coverage in minimum amounts of $1,000,000 per loss, and an annual aggregate of $2,000,000.

Other Requirements

G. All policy(ies) required above (except business automobile, worker's compensation and employers liability) must include Railroad as "Additional Insured" using ISO Additional Insured Endorsements CG 20 10, and CG 20 37 (or substitute forms providing equivalent coverage). The coverage provided to Railroad as additional insured shall not be limited by Contractor's liability under the indemnity provisions of this agreement. BOTH CONTRACTOR AND RAILROAD EXPECT THAT UNION PACIFIC RAILROAD COMPANY WILL BE PROVIDED WITH THE BROADEST POSSIBLE COVERAGE AVAILABLE BY OPERATION OF LAW UNDER ISO ADDITIONAL INSURED FORMS CG 20 10 AND CG 20 37.

H. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (a) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this agreement, or (b) all punitive damages are prohibited by all states in which this agreement will be performed.

I. Contractor waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Railroad and its agents, officers, directors and employees for damages covered by the workers compensation and employers liability or commercial umbrella or excess liability obtained by Contractor required in this agreement where prohibited by law. This waiver must be stated on the certificate of insurance.

J. Prior to commencing the work, Contractor shall furnish Railroad with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements in this agreement.

K. All insurance policies must be written by a reputable insurance company acceptable to Railroad or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state where the work is being performed.

L. The fact that insurance is obtained by Contractor or by Railroad on behalf of Contractor will not be deemed to release or diminish the liability of Contractor, including, without limitation, liability under the indemnity provisions of this agreement. Damages recoverable by Railroad from Contractor or any third party will not be limited by the amount of the required insurance coverage.

PROPOSAL SECTION

Contractor's Check-Off List:

1. Complete **Bidder's Information** Sheet, Page 1
2. Complete **Bid Proposal** Sheet, Page 4
3. Complete **Acknowledgement of Site Visit Form,** Page 19
4. Check off for **Bidder's Security,** Page 20
   (cash, cashier's check, certified check, or bidder's bond)
5. Complete **Principal(s) and Title(s)** Sheet, Page 22
6. Complete **State Contractor's License No.** and **Department of Industrial Relations Registration No.** Sheet, Page 23
7. Complete **Subcontractor List** Sheets, Pages 24 and 25
8. Complete **Certification of Intent** Sheet, Page 29
9. **Equal Employment Opportunity** Sheets:

i. Complete **Questionnaire for Bidder** Sheet, Pages 30 to 32

ii. Complete **Contractor Report Form,** Page 33

10. Complete **Equal Benefits Compliance Declaration Form**, Page 39
11. Complete **Employee Jury Service Compliance Declaration Form,** Page 43
12. Complete **Non-Collusion Declaration Form,** Page 44
13. Complete **Certification of Bidder's Qualifications and Experience Form,** Pages 45 to 49

PROPOSAL TO THE COUNTY OF SAN MATEO
STATE OF CALIFORNIA

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA

TOTAL PROJECT APPROXIMATELY 0.5 MILE IN LENGTH
WITH APPURTENANT WORK THERETO
IN SAN MATEO COUNTY

COUNTY PROJECT NO. OD420
PROJECT FILE NO. E4931

NAME OF BIDDER: _____

STREET ADDRESS: _____

MAILING ADDRESS: _____

TELEPHONE NUMBER: (_____)_____

FAX NUMBER: (_____)_____

The work for which this proposal is submitted is for construction in accordance with the Special Provisions and Agreement annexed hereto, the project plans described below, and the Department of Transportation Standard Plans, dated May 2006, the Standard Specifications, dated May 2006, the Labor Surcharge and Equipment Rental Rates and the General Prevailing Wage Rates in effect on the date the work is accomplished.

It is the Contractor's obligation and responsibility to ensure that all work associated with this Project complies with all current Orders of the Health Officer of the County of San Mateo related to the Novel Coronavirus Disease 2019 (COVID-19). The County of San Mateo assumes no responsibility for impacts to contractor due to work performed by Contractor that is not in compliance with all current Orders. The Contractor is advised to review the Orders of the Health Officer of the County of San Mateo, which can be found at the following link:

https://www.smchealth.org/post/health-officer-statements-and-orders

LOCATION OF WORK

The work will be done in accordance with the Special Provisions and Agreement annexed hereto, and in accordance with the Standard Specifications of the County of San Mateo.

The location and details of said work are further shown on the Plans titled **"Middlefield Road Improvement Project,"** File E4931 in the Department of Public Works.

TO THE BOARD OF SUPERVISORS
COUNTY OF SAN MATEO
STATE OF CALIFORNIA

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 Agreement, and the Plans and Specifications therein referred to; that he proposes, and agrees if this Proposal is accepted, that he will contract with the County of San Mateo, in the form of the copy of the Agreement annexed hereto, 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 accept in full payment therefore the following unit prices, to wit:

PROPOSAL TO THE COUNTY OF SAN MATEO

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA
IN SAN MATEO COUNTY

A BID IS REQUIRED FOR THE ENTIRE WORK DESCRIBED HEREIN FOR SCHEDULE A AND SCHEDULE B. THE AWARD OF CONTRACT, IF AWARDED, WILL BE MADE ON THE BASIS OF THE LOWEST SUM TOTAL OF BOTH SCHEDULE A AND SCHEDULE B.

SCHEDULE A (EXCLUDES JOINT TRENCH):

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
1	10	1	LS	Construction Waste Management	$	$
2	11	1	LS	Mobilization	$	$
3	11-3	1	LS	Water Pollution Control	$	$
4	12	1	LS	Maintaining Traffic	$	$
5	12-2	1	LS	Temporary Pavement Delineation	$	$
6	15-2	14,810	LF	Sawcut Asphalt Concrete and Portland Cement Concrete	$	$
7A	15-3	6	EA	Adjust Storm Drain Manholes to Grade	$	$
7B	15-3	19	EA	Adjust Telecom Manholes to Grade (not structure)	$	$
8A	15-4	1	EA	Reconstruct Storm Drain Manholes to Grade	$	$
8B	15-4	1	EA	Reconstruct Telecom Manhole to Grade	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
9	15-5	39	EA	Adjust Water Valve Box to Grade (Cal Water)	$	$
10	15-6	48	EA	Adjust Water Meter Box to Grade (Cal Water)	$	$
11	15-7	15	EA	Adjust Monument Box Cover to Grade	$	$
12	15-8	4,000	SY	Remove Portland Cement Concrete Pavement	$	$
13	15-9	50	EA	Pothole and Protect Existing Utilities	$	$
14	15-10	2	EA	Temporary Relocation and Reinstallation of United States Postal Service Mailboxes	$	$
15	15-11	2	EA	Remove Telephones	$	$
16	15-12	110	EA	Adjust Sanitary Sewer Cleanout Box to Grade	$	$
17	15-13	1	EA	Adjust PG&E Utility Vault to Grade	$	$
18	15-14	1	LS	Relocation Of Health Clinic Existing Fire Hydrant, Fire Department Connection And Sign And Regrading And Replanting Of Bioretention Area	$	$
19	15-15	5	EA	Adjust Existing Gas Valve to Grade	$	$
20	15-16	16	EA	Adjust Pull Boxes	$	$
21	15-17	1	EA	Relocate Pull Boxes	$	$
22	15-18	1	EA	Protect Bollard	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
23	15-19	1	EA	Adjust Existing Monitoring Well to Grade	$	$
24	15-20	4	EA	Remove Existing Pedestrian Signals	$	$
25	15-21	1	LS	Remove Concrete Curbs, Gutters, Sidewalks, Driveway Openings, Sidewalk Access Ramps, Valley Gutters and Medians	$	$
26	15-22	18,525	SY	Remove Asphalt Concrete Paving, Pavement Fabric, Aggregate Base	$	$
27	16	1	LS	Clearing and Grubbing	$	$
28	16-1	1	EA	Remove Trees	$	$
29	17	1	LS	Develop and Apply Water	$	$
30	19-1	8,420	CY	Roadway Excavation	$	$
31	20	1	LS	Erosion and Sediment Control	$	$
32	25	60	CY	Aggregate Subbase (Class 4)	$	$
33	26	3,609	CY	Aggregate Base (Class 2) – Open Trench SS	$	$
34	36	34	EA	Drainage Inlet Marker	$	$
35	37-2	1	EA	Relocate Existing Drainage Inlet	$	$
36	37-2	2	EA	Install New Drainage Inlet	$	$
37	37-3	13	EA	Clean and Inspect Existing Drainage Inlet	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
38	39-1	6,945	TON	Asphalt Concrete (Type B, 1/2" Maximum, Medium grading)	$	$
39	39-3	114	SY	Place Asphalt Concrete (Miscellaneous Areas)	$	$
40	39-4	8,449	SY	Plane Asphalt Concrete Pavement (Full Width)	$	$
41	40	3,000	SF	Portland Cement Concrete Pavement (Bus Pads)	$	$
42	51-2	81	CY	Class 2 Concrete (Minor Structures)	$	$
43	51-3	860	CY	Class 3 Concrete	$	$
44	51-4	30	EA	Sidewalk Access Ramps (Case A)	$	$
45	51-4	1	EA	Sidewalk Access Ramps (Case B with Retaining Curb)	$	$
46	51-4	2	EA	Sidewalk Access Ramps (Case C with Retaining Curb)	$	$
47	51-4	6	EA	Sidewalk Access Ramps (Case C without Retaining Curb)	$	$
48	51-4	2	EA	Sidewalk Access Ramps (Case F)	$	$
49	51-6	400	LF	Red Curb Painting at No Parking Zones	$	$
50	56-1	40	EA	Install New Roadside Signs	$	$
51	56-2	75	EA	Remove and Reset Existing Roadside Signs	$	$
52	68-3	160	LF	PVC Underdrains	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
53	68-5	600	LF	Sidewalk Underdrains (Ductile Iron)	$	$
54 (F)	75	2,850	LBS	Miscellaneous Iron and Steel	$	$
55	81	14	EA	Survey Monument	$	$
56	84-3	14,000	SF	Thermoplastic Pavement Marking (Crosswalks and Legends)	$	$
57	84-3	22,000	LF	Thermoplastic Striping (by color)	$	$
58	85	81	EA	Pavement Markers, Type D (Two-way, Yellow, Retroreflective)	$	$
59	85	54	EA	Pavement Markers, Type G (Two-way, Yellow, Retroreflective)	$	$
60	85	8	EA	Pavement Markers, Hydrant Marker (Blue Reflective)	$	$
61	86-2	15	EA	Install New Traffic Signal	$	$
62	86-2A	1	EA	Modify Existing Traffic Signal (at 5th Ave)	$	$
63	86-3	45	EA	Traffic Loop Detectors (Type E)	$	$
64	86-3	14	EA	Traffic Loop Detectors (Type D)	$	$
65	86-26	1	LS	Solar Powered Beacon and Sign Systems	$	$
66	86-27	41	EA	Streetlights – Street	$	$
67	86-27	28	EA	Streetlights – Pedestrian	$	$
68	86-27	65	EA	Streetlight Pull Box	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
69	100	1	LS	Construction Staking	$	$
70	101	1	LS	Temporary Fence	$	$
71	103-1.3	1	LS	Holiday Lights	$	$
72	103-1.3	1	LS	Wifi Systems	$	$
73	103-3.1	1	LS	Closed Circuit Television (CCTV) Inspection of Sanitary Sewer Lines	$	$
74	103-3.3	28	EA	Remove and Replace Existing Sanitary Sewer Manhole	$	$
75	103-3.3	2	EA	Remove and Relocate Sanitary Sewer Manhole	$	$
76	103-3.7	60	LF	Sanitary Sewer Lateral Repair Connection	$	$
77	105-3	1	LS	Trench Safety	$	$
78	106-2	6,155	LF	Pipe Replacement (Open Trench) - 8" PVC Pipeline	$	$
79	106-2	425	LF	Pipe Replacement (Open Trench) - 24" PVC Pipeline	$	$
80	106-3	181	EA	Reconnect Sanitary Sewer Lateral (Open-Trench Method)	$	$
81	108	132	EA	Utility Line Crossings	$	$
82	108-1	1	LS	San Francisco (Hetch Hetchy) Water Transmission Line Crossings	$	$
83 (S)	113	450	LF	Jack and Bore Crossing #1 (Middlefield Road): One 36" and two 24" Steel Casings (150 LF Each)	$	$

PROPOSAL (SCHEDULE A) – Continued on Next Page

PROPOSAL (SCHEDULE A) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
84 (S)	113	150	LF	Jack and Bore Crossing #2 (Redwood Junction): One 24" Steel Casing	$	$
85 (S)	113	150	LF	Jack and Bore Crossing #3 (Sanitary Sewer): One 16" Steel Casing	$	$
86	114-1	1	LS	Irrigation System	$	$
87	114-2.3.7	61	EA	48" Boxed Trees	$	$
88	114-2.3.7	5	EA	36" Boxed Trees	$	$
89	114-2.3.7	820	EA	Canned Shrubs/Vines (1-Gallon)	$	$
90	114-2.3.7	144	EA	Canned Shrubs/Vines (5-Gallon)	$	$
91	114-3.2.1	18	EA	Benches	$	$
92	114-3.2.1	2	EA	Special Bulb-Out Seatwall	$	$
93	114-3.2.2	13	EA	Bike Rack	$	$
94	114-3.2.3	12	EA	Trash and Recycle Receptacle	$	$
95	114-3.2.4	66	EA	Tree Grate (48"x72")	$	$
96	114-3.2.5	300	SF	Special Bulb-Out Paving	$	$
97	114-4	1	LS	Tree Protection	$	$
98	115-2	908	SF	Bioretention Concrete Walls Reinforcing	$	$
99	115-3	1,590	LF	Bioretention Collection and Discharge Piping and Structures	$	$
100	115-4	300	CY	Bioretention Basin Fill Material	$	$
				SCHEDULE A SUB-TOTAL		$

NOTES:

(1) (F) Final Pay Quantities – See Section 9-1.015, "Final Pay Items," of the Standard Specifications.

(2) (S) Specialty Items – As defined in Section 8-1.01, "Subcontracting," of the Standard Specifications.

(3) Gaps in section numbering, above, indicate the Section is blank or does not apply.

SCHEDULE B (JOINT TRENCH):

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
1	10	1	LS	Construction Waste Management	$	$
2	11	1	LS	Mobilization	$	$
3	11-3	1	LS	Water Pollution Control	$	$
4	12	1	LS	Maintaining Traffic	$	$
5	15-2	26,675	LF	Sawcut Asphalt Concrete and Portland Cement Concrete	$	$
6	103-1	5	EA	Electric Utility box - 4'6" x 8'6" x 6' #7-Box	$	$
7	103-1	8	EA	Electric Utility box - 54" x 102" x 72" #7TR Box	$	$
8	103-1	1	EA	Electric Utility box - 54" x 102" x 72" #7S Box	$	$
9	103-1	6	EA	Electric Utility box - 54" x 78" x 60" #6S Box	$	$
10	103-1	1	EA	Electric Utility box - 54" x 78" x 60" #6J Box	$	$
11	103-1	2	EA	Electric Utility box - 54" x 78" x 60" #6I Box	$	$
12	103-1	19	EA	Electric Utility box - 24" x 36" x 18" #3F Splice Box Full Traffic	$	$
13	103-1	15	EA	Electric Utility box - 24" x 36" x 18" #3 Splice Box	$	$
14	103-1	4	EA	Electric Utility box - 17" x 30" x 18" #2-Box	$	$
15	103-1	7	EA	Telephone Utility box - 48" x 78" x 48" T8-Box	$	$

PROPOSAL (SCHEDULE B) – Continued on Next Page

PROPOSAL (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
16	103-1	7	EA	Telephone Utility box - 30" x 48" x 36" T4-Box	$	$
17	103-1	9	EA	Telephone Utility box - 17" x 30" x 24" T3-Box	$	$
18	103-1	13	EA	Fiber Utility box - 30" x 48" x 24" B-48 Box	$	$
19	103-1	21	EA	Fiber Utility box - 24" x 36" x 14" B-40 Box	$	$
20	103-1	33	EA	CATV Utility Box - 20" x 42" x 24" B-44 Box	$	$
21	103-1	2	EA	Telephone Utility box - 30" x 60" x 36" T2-Box	$	$
22	103-1	392	LF	Utility Trench Section D - 24x60	$	$
23	103-1	25	LF	Utility Trench Section D1 - 36x60	$	$
24	103-1	90	LF	Utility Trench Section D2 - 24x53	$	$
25	103-1	46	LF	Utility Trench Section D3 - 42x63	$	$
26	103-1	19	LF	Utility Trench Section D4 - 42x63	$	$
27	103-1	332	LF	Utility Trench Section D5 - 24x58	$	$
28	103-1	45	LF	Utility Trench Section D6 - 36x58	$	$
29	103-1	30	LF	Utility Trench Section D7 - 36x64	$	$
30	103-1	22	LF	Utility Trench Section D8 - 42x62	$	$
31	103-1	17	LF	Utility Trench Section D9 - 36x65	$	$
32	103-1	133	LF	Utility Trench Section D10 - 18x56	$	$

PROPOSAL (SCHEDULE B) – Continued on Next Page

PROPOSAL (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
33	103-1	15	LF	Utility Trench Section D11 - 36x65	$	$
34	103-1	58	LF	Utility Trench Section D14 - 42x62	$	$
35	103-1	116	LF	Utility Trench Section D15 - 42x62	$	$
36	103-1	24	LF	Utility Trench Section D16 - 18x52	$	$
37	103-1	93	LF	Utility Trench Section D17 - 30x65	$	$
38	103-1	230	LF	Utility Trench Section D18 - 36x60	$	$
39	103-1	67	LF	Utility Trench Section D19 42x62	$	$
40	103-1	95	LF	Utility Trench Section D20 - 24x60	$	$
41	103-1	35	LF	Utility Trench Section D21 - 30x58	$	$
42	103-1	16	LF	Utility Trench Section D22 - 30x60	$	$
43	103-1	67	LF	Utility Trench Section D23 - 30x63	$	$
44	103-1	431	LF	Utility Trench Section D24 - 24x56	$	$
45	103-1	198	LF	Utility Trench Section D25 - 36x64	$	$
46	103-1	14	LF	Utility Trench Section D26 - 30x60	$	$
47	103-1	32	LF	Utility Trench Section D28 - 30x58	$	$
48	103-1	63	LF	Utility Trench Section D29 - 42x63	$	$
49	103-1	32	LF	Utility Trench Section D30 - 30x58	$	$

PROPOSAL (SCHEDULE B) – Continued on Next Page

PROPOSAL (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
50	103-1	83	LF	Utility Trench Section D31 - 24x55	$	$
51	103-1	135	LF	Utility Trench Section D32 - 30x60	$	$
52	103-1	67	LF	Utility Trench Section D33 - 30x60	$	$
53	103-1	72	LF	Utility Trench Section D34 - 30x54	$	$
54	103-1	203	LF	Utility Trench Section D35 - 24x58	$	$
55	103-1	40	LF	Utility Trench Section D36 - 36x70	$	$
56	103-1	60	LF	Utility Trench Section D37 - 36x65	$	$
57	103-1	21	LF	Utility Trench Section D38 - 24x58	$	$
58	103-1	36	LF	Utility Trench Section D39 - 18x58	$	$
59	103-1	33	LF	Utility Trench Section D40 - 24x53	$	$
60	103-1	10	LF	Utility Trench Section D41 - 36x70	$	$
61	103-1	55	LF	Utility Trench Section D42 - 36x65	$	$
62	103-1	42	LF	Utility Trench Section D43 - 36x64	$	$
63	103-1	66	LF	Utility Trench Section D44 - 36x65	$	$
64	103-1	23	LF	Utility Trench Section D45 - 42x55	$	$
65	103-1	17	LF	Utility Trench Section D46 - 30x65	$	$
66	103-1	25	LF	Utility Trench Section D48 - 30x58	$	$

PROPOSAL (SCHEDULE B) – Continued on Next Page

PROPOSAL (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
67	103-1	36	LF	Utility Trench Section D49 - 24x58	$	$
68	103-1	18	LF	Utility Trench Section D50 - 18x58	$	$
69	103-1	60	LF	Utility Trench Section D51 - 42x63	$	$
70	103-1	31	LF	Utility Trench Section D52 - 42x63	$	$
71	103-1	31	LF	Utility Trench Section D53 - 42x54	$	$
72	103-1	28	LF	Utility Trench Section D54 - 24x62	$	$
73	103-1	46	LF	Utility Trench Section D55 - 30x53	$	$
74	103-1	19	LF	Utility Trench Section D56 - 30x55	$	$
75	103-1	17	LF	Utility Trench Section D57 - 30x61	$	$
76	103-1	39	LF	Utility Trench Section D58 - 36x65	$	$
77	103-1	74	LF	Utility Trench Section D59 - 18x56	$	$
78	103-1	64	LF	Utility Trench Section D60 - 30x64	$	$
79	103-1	17	LF	Utility Trench Section D61 - 36x60	$	$
80	103-1	7	LF	Utility Trench Section D63 - 24x58	$	$
81	103-1	39	LF	Utility Trench Section D64 - 42x54	$	$
82	103-1	7	LF	Utility Trench Section D65 - 24x57	$	$
83	103-1	32	LF	Utility Trench Section D66 - 30x56	$	$

PROPOSAL (SCHEDULE B) – Continued on Next Page

PROPOSAL (SCHEDULE B) – Continued from Previous Page

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
84	103-1	62	LF	Utility Trench Section F - 24x59	$	$
85	103-1	32	LF	Utility Trench Section D67 - 42x63	$	$
86	103-1	26	LF	Utility Trench Section D68 - 30x60	$	$
87	103-1	64	LF	Utility Trench Section D69 - 18x53	$	$
88	103-1	57	LF	Utility Trench Section F1 - 42x54	$	$
89	103-1	11	LF	Utility Trench Section F2 - 42x54	$	$
90	103-1	25	LF	Utility Trench Section F5 - 30x59	$	$
91	103-1	51	LF	Utility Trench Section F6 - 18x52	$	$
92	103-1	58	LF	Utility Trench Section F7 - 12x52	$	$
93	103-1	181	LF	Utility Trench Section G - 36x59	$	$
94	103-1	28	LF	Utility Trench Section G1 - 24x50	$	$
95	103-1	45	LF	Utility Trench Section G2 - 24x56	$	$
96	103-1	59	LF	Utility Trench Section G3 - 30x58	$	$
97	103-1	30	LF	Utility Trench Section G4 - 12x50	$	$
98	103-1	56	LF	Utility Trench Section G7 - 30x60	$	$
99	103-1	130	LF	Utility Trench Section H - 12x43	$	$
100	103-1	106	LF	Utility Trench Section H1 - 18x43	$	$
				SCHEDULE B SUB-TOTAL		$

NOTE: Gaps in section numbering, above, indicate the Section is blank or does not apply.

PROPOSAL SUMMARY	
A BID IS REQUIRED FOR THE ENTIRE WORK DESCRIBED HEREIN FOR SCHEDULE A AND SCHEDULE B. THE AWARD OF CONTRACT, IF AWARDED, WILL BE MADE ON THE BASIS OF THE LOWEST SUM TOTAL OF BOTH SCHEDULE A AND SCHEDULE B.	
SCHEDULE A SUB-TOTAL	**$**
SCHEDULE B SUB-TOTAL	**$**
TOTAL BASE BID (SCHEDULE A + B)	**$**

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ACKNOWLEDGEMENT OF SITE VISIT

I hereby acknowledge that a representative or representatives from our firm has/have visited the site as required for acceptance of bid for the project **"Middlefield Road Improvement Project."** Proposal packages from contractors who do not return this form, fully executed, will not be accepted.

_____

Name of Firm

Name(s) of Representative(s) Who Visited (Please Print)	Job Title	Date Visited

Acknowledged by,

Name (Please Print)	Job Title
Signature	Date Signed

Bids are required for the entire work. The amount of the bid for comparison purposes will be the total of all items. The total of unit basis items will be determined by extension of the item price bid on the basis of the estimated quantity set forth for the item.

The Bidder shall set forth for each item of work, in clearly legible figures, an item price and a total for the item in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Total" column shall be the extension of the item price bid on the basis of the estimated quantity for the item.

In case of discrepancy between the item price and the total set forth for the item, the item price shall prevail, provided however, if the amount set forth as an item price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or in the case of unit basis items, is the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1. As to lump sum items, the amount set forth in the "Total" column shall be the item price.

2. As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the item price.

After acceptance of this Proposal and award of the Contract, if the undersigned should fail to contract as aforesaid or should fail to give the "Performance" Surety Bond in the sum of 100 percent of the Contract bid, the "Payment" Surety Bond in the sum of 100 percent of the Contract bid, the Certificate of Insurance covering public liability and property damage in the amounts specified in the Agreement portion of these Contract documents, and the Certificate of Insurance covering Workmen's Compensation Insurance, within **TEN (10) WORKING DAYS** after award of the Contract, the County may, at its option, determine that the bidder has abandoned the Contract, 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 become the property of the County of San Mateo, State of California.

Accompanying this Proposal is:

- ☐ Cash
- ☐ A Cashier's Check (made payable to the "County of San Mateo")
- ☐ A Certified Check (made payable to the "County of San Mateo")
- ☐ A Bidder's Bond executed by an admitted surety insurer (made payable to the "County of San Mateo")

in the amount equal to at least ten percent (10 percent) of the total bid.

Bidders must, upon request, furnish evidence of their financial responsibility and ability to perform the work herein described.

PROVISIONS OF LABOR CODE

The Contractor shall be required to comply with all the payroll and apprenticeship provisions of Chapter 1, Division 2, Section 1776 and 1777.5 of the California Labor Code.

BIDDER'S FINANCIAL RESPONSIBILITY TECHNICAL ABILITY and EXPERIENCE

THE LOW BIDDER MUST, UPON REQUEST, FURNISH EVIDENCE OF FINANCIAL RESPONSIBILITY AND ABILITY TO PERFORM THE WORK INCLUDED IN THIS PROPOSED CONTRACT. SUCH EVIDENCE MAY INCLUDE, BUT NOT BE LIMITED TO, A FINANCIAL STATEMENT AS OF THE DATE OF BID; A STATEMENT, WITH REFERENCES, OF COMPLETED WORK OF A SIMILAR CHARACTER TO THAT INCLUDED HEREIN; A STATEMENT OF THE LAST TWO PROJECTS PERFORMED REGARDLESS OF THEIR CHARACTER; AND SUCH OTHER INFORMATION WHICH WILL ENABLE THE DIRECTOR OF PUBLIC WORKS TO JUDGE THE BIDDER'S RESPONSIBILITY, EXPERIENCE, SKILL AND BUSINESS STANDING.

The names of all persons interested in the foregoing Proposal as principals are as follows:

_____

(Name of Corporation, Co-partnership, Individual)

_____	_____
(Name and Title)	(Name and Title)
_____	_____
(Name and Title)	(Name and Title)
_____	_____
(Authorized Signature of Bidder)	(Authorized Signature of Bidder)

*(**NOTICE:** If the Bidder is a corporation, the legal name of the corporation and the names of the president, secretary, treasurer, and manager thereof shall be set forth together with the signature of the officer or officers authorized to sign Contracts in behalf of the corporation; if the Bidder is a co-partnership, the true name of the firm and the names of the principal partners shall be set forth together with the signature of the partner or partners authorized to sign Contracts in behalf of the co-partnership; and, if the Bidder is an individual, his full name shall be set forth and his signature shall be as the authorized officer. If the signature is by an agent, other than by an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the County prior to opening of bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.)

Corporations must, upon request, furnish certification attesting to corporate existence and authority of officers to sign contracts and other documents.

The undersigned is licensed by the Contractor's State License Board of the State of California to perform the work hereinafter described, which State Contractor's License No. is:

State Contractor's License No.: _____
(Expires: _____**)**

Pursuant to State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015, 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.

Department of Industrial Relations Registration No.: _____
(Expires: _____**)**

LICENSEE: _____
(Please print)

ADDRESS: _____

CITY AND STATE: _____

_____ _____
Date of Proposal Signature

SUBCONTRACTORS

DESIGNATION OF SUBCONTRACTORS: Each Bidder shall set forth below the name, business address and telephone number of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement to be performed under these Contract Documents. The Bidder shall also list the proposal item number(s) to be done, in whole or in part, by each subcontractor and the total amount of each subcontractor's work in dollars and as a percentage of the total bid amount. The Bidder's attention is directed to Section 8-1.01, "Subcontracting," of the Standard Specifications.

SUBCONTRACTORS

1. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

2. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

3. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

4. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

SUBCONTRACTORS
(Continued)

6. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

7. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

8. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

9. Name: _____ Item No(s). _____
   Address: _____ Dollar Amount: $_____
   Tel: (____) _____ Percent of Total Bid: _____%
   License No.: _____
   Department of Industrial Relations Registration No.: _____

10. Name: _____ Item No(s). _____
    Address: _____ Dollar Amount: $_____
    Tel: (____) _____ Percent of Total Bid: _____%
    License No.: _____
    Department of Industrial Relations Registration No.: _____

SAN MATEO COUNTY
EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

CONTRACT COMPLIANCE PROGRAM

The purpose of the **Contract Compliance Program** is two-fold:

1. **To prohibit and eliminate employment discrimination; and**

2. **To further the opportunities for minority persons to be gainfully employed in County construction contracts.**

The program requires equal employment opportunity efforts by Contractors to employ minority workers on the County's construction projects. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, national origin, age, disability, ancestry, sexual orientation, or sex. The Contractor will take equal employment opportunity actions to ensure that applicants are employed, and that employees are treated, during employment, without regard to their race, religion, color, national origin, age, disability, ancestry, sexual orientation, or sex; with the goal that the ethnic composition of the Contractor's work force will approximate the ethnic composition of the population of San Mateo County. Such action shall include, but not be limited to, employment, upgrading, demotion or transfer; recruitment; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship training and on-the-job training.

The **San Mateo County Equal Employment Opportunity Program** requires the Contractor to make two certifications. The first assures compliance with laws prohibiting discrimination. The second concerns the intent to develop and implement an equal employment opportunity program.

The Contractor is further required to:

1. Post **"EQUAL EMPLOYMENT OPPORTUNITY NOTICE(S),"** including the statement: **"AN EQUAL OPPORTUNITY EMPLOYER,"** in all announcements of job openings;

2. Permit access by County and State compliance officials to his employment records; and

3. File monthly reports on prescribed forms:

   A. **Monthly Manpower-Utilization Report**

   B. **Weekly payroll Form WH-347** (which form can be found on the U.S. Department of Labor, Wage and Hour Division website, which website is addressed as http://www.dir.ca.gov/dlsr/PWD/Northern.html)

   C. **Statement of Compliance** (which form is on the back of payroll form WH-347 or separate form WH 348, as requested by the County's contract compliance representative)

   D. Assign an equal opportunity officer full time or as additional duty.

Union employees are to be recruited according to applicable labor agreements. If non-union employees are recruited for the project, the Contractor shall make use of minority-oriented news media and referral sources. The Contractor shall inform all subcontractors hired by him on the project(s) of their obligations under this program; and Contractor **will be responsible for the compliance with these regulations by his subcontractors**.

For failure to comply with the non-discrimination section, the Contractor is subject to a penalty of **two percent (2 percent) of the total amount payable for each working day during which he was found to be in non-compliance, or the cancellation of the contract in part or whole.**

The County's Contract Compliance Program is monitored by the San Mateo County Department of Public Works, 555 County Center, 5th Floor, Redwood City, California, 94063-1665, telephone (650) 363-4100.

Information and necessary forms are available at the **Department of Public Works**. In addition to evaluating Contractors' and subcontractors' equal opportunity efforts, the **Department of Public Works** will assist Contractors and subcontractors toward meeting these obligations.

CERTIFICATION OF COMPLIANCE WITH LAWS PROHIBITING DISCRIMINATION

We are in compliance with the **EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENT OF THE EXECUTIVE ORDER 11246, TITLE VII OF THE CIVIL RIGHTS ACT OF 1964, THE CALIFORNIA FAIR EMPLOYMENT AND HOUSING ACT**, any other Federal or State laws relating to equal employment opportunity and the provisions of **Title 2, Chapter 2.50 of the San Mateo County Ordinance Code** and the Board established guidelines implementing them.

We will not discriminate against any employee or applicant for employment based on **race, religion, color, national origin, age, disability, ancestry, sexual orientation, or sex**. This pertains to the areas of **recruitment, hiring, training, upgrading, transfer, compensation and termination**.

CERTIFICATION OF INTENT

We will maintain or develop and implement, during the course of the work concerned, an **Equal Employment Opportunity Program** of hiring and employment conducted without regard to **race, religion, color, national origin, age, disability, ancestry, sexual orientation, or sex** of the applicants. With this Certification we shall submit any and all information that may be required by the County in connection with this program.

We certify that we have read and understood the County of San Mateo's **GENERAL EQUAL EMPLOYMENT OPPORTUNITY STATEMENT SECTION III-A**, which is included in the proposal section of the Specifications.

As a private Contractor, working under contracts with the County of San Mateo, we understand that these policies are the requirements of said County employment and we will, in our recruitment, training and staffing, work to implement this section as applicable.

_____

Signature and Title of Authorized Representative or Bidder

_____

Date

SAN MATEO COUNTY
EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

QUESTIONNAIRE FOR BIDDER

THIS REPORT MUST BE COMPLETED IN FULL BY AN OFFICIAL OF THE COMPANY AND SUBMITTED WITH THE BID.

PROJECT: _____

NAME OF FIRM: _____

ADDRESS: _____

CITY/ZIP: _____

TELEPHONE: (____)_____ DATE OF SUBMITTAL: _____

OFFICIAL FOR COMPANY: _____

---

1. _____ Yes _____ No — Have you read and are you acquainted with the **Equal Employment Opportunity Requirement** of the Executive Order 11246, Title VII of the **Civil Rights Act of 1964**, the California Fair Employment Practices Act and **Title 2, Chapter 2.50** of the San Mateo County Ordinance Code?

2. _____ Yes _____ No — Does your employment advertising state that you are an Equal Opportunity Employer?

3. _____ Yes _____ No — Have all recruitment sources been advised that all qualified applicants will be considered for employment without regard to race, religion, color, national origin, age, disability, ancestry, sexual orientation, or sex?

4. _____ Yes _____ No — Were any employees hired by means other than the union hiring hall in the past year?

   How many? _____

   What positions? _____

   _____

   _____

5. If non-union personnel are employed by the company, or if a position cannot be filled by the union hall, specify the advertisement and recruitment sources that are used. (For example, State HRD, newspapers, high schools, vocational schools, referral agencies/organizations, community groups.)

_____

_____

_____

6. How many apprentices do you employ? _____

How many of these are minorities? _____

7. _____ Yes _____ No Do you have a program for upgrading and counseling present employees?

Describe: _____

_____

_____

_____

_____

_____

_____

_____

8. _____ Yes _____ No Do you have a collective bargaining agreement with a labor union or other organization?

Please list these groups_____

_____

_____

_____

_____

_____

9. What percentage of your work force is covered by union agreement? _____

10. _____ Yes _____ No Have you advised the labor union and/or worker organizations of your company's responsibility under the Equal Employment Opportunity Program?

11. _____ Yes _____ No Does your company's collective bargaining agreement include a provision for non-discrimination in employment?

12. Describe any previous experience with Equal Employment Opportunity Programs:

_____

_____

_____

_____

_____

_____

_____

_____

_____

If your company has a written Equal Employment Opportunity Program now in effect, please attach a copy.

COUNTY OF SAN MATEO
EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

CONTRACTOR REPORT FORM
(To Be Submitted with Original Bid)

PROJECT: _____ DATE: _____

NAME OF BIDDER: _____

NAME OF PERSON SUBMITTING REPORT: _____

RACIAL/ETHNIC MAKEUP OF THE COMPANY

Be sure to include the total of all employees in each classification in the first column. Report the number of employees enrolled in formal on-the-job (apprenticeship) training programs in parenthesis () for each classification.

Minority Employees										
Job Classification	Total (All Employees)	Ethnicity								
		American-Indian or Native Alaskan	Asian	Native Hawaiian or Pacific Islander	Black American or African American	Caucasian	Filipino	Hispanic or Latino (1)	Other (2)	Unidentified (3)
Total (s)										

Notes: (1) "Hispanic" includes all persons of Mexican, South and Central American, Puerto Rican, Cuban or Spanish ancestry.
(2) "Other" includes all others whose origin consists of two or more races other than Hispanic or Latino.
(3) Use this category for employees who have chosen not to identify any race or ethnicity, including "Other."

SECTION III-A. GENERAL EQUAL EMPLOYMENT OPPORTUNITY POLICY STATEMENT

The Board of Supervisors of the County of San Mateo takes this opportunity to express its commitment to one of its highest priorities in the area of employment. This priority is assuring that all employees and applicants for employment are provided equal access to, and enjoyment of employment opportunities, and that they are not subjected to discrimination because of age (over 40), ancestry, creed, color, disability, marital status, medical condition, national origin, political or religious affiliation, race, sex, or sexual orientation.

The Board of Supervisors is committed to ensuring compliance with all applicable non-discrimination laws and regulations in order to attain a work environment that is free of discrimination so all County employees can provide quality public service.

The County will take positive measures toward eliminating artificial barriers to employment and achieving equal opportunity through its continued implementation and coordination of the County's Equal Employment Opportunity Program and through its review and evaluation of hiring and promotional policies and procedures.

It is the belief of the Board of Supervisors that equal employment opportunity is consistent with the basic merit system principle that all persons be afforded equal access to positions in public service based on their ability to do the job. Employment decisions shall be made on the basis of merit and in conformity with the principles of equal opportunity action.

Through adoption of the Equal Employment Opportunity Program, the Board of Supervisors commits the County, the operating departments, the Equal Employment Opportunity Coordinator, and all employees to a results-oriented Equal Employment Opportunity Program aimed at attaining a balanced workforce at all levels of County employment and achieving equal opportunity in County service.

EQUAL BENEFITS COMPLIANCE ORDINANCE NO. 04026

CHAPTER 2.84

ORDINANCE NO 04026

AN ORDINANCE OF THE SAN MATEO COUNTY ORDINANCE CODE (TITLE 2, ADMINISTRATION), REQUIRING SPECIFIED COUNTY CONTRACTORS TO PROVIDE FOR NON-DISCRIMINATION BY COUNTY CONTRACTORS IN THE PROVISION OF EMPLOYEE BENEFITS

WHEREAS, employee benefits routinely comprise a significant proportion of total employee compensation; and

WHEREAS, discrimination in the provision of employee benefits between employees with domestic partners and employees with spouses results in unequal pay for equal work; and

WHEREAS, County of San Mateo law prohibits discrimination based on marital status and/or sexual orientation; and

WHEREAS, it is the County's intent, through the contracting practices outlined herein, to equalize the total compensation between similarly situated employees with spouses and employees with domestic partners;

Section 1. The Board of Supervisors of the County of San Mateo, State of California, **ORDAINS** as follows:

Chapter 2.84 CONTRACTS – EQUAL BENEFITS

2.84.010 Definitions.

For the purposes of this chapter,

A. "Contract" means a legal agreement between the County and a contractor for public works, consulting, or other services, or for purchase of supplies, material or equipment for which the consideration is in excess of $5,000.

B. "Contractor" means a party who enters into a contract with the County.

C. "Contract Awarding Authority" means the Board of Supervisors or the individual authorized by the Board of Supervisors to enter into contracts on behalf of the County.

D. "Domestic Partner" means any person who is registered as a domestic partner with the Secretary of State, State of California registry or the registry of the state in which the employee is a resident.

E. "Employee Benefits" means the provision of any benefit other than pension and retirement benefits provided to spouses of employees or provided to an employee on account of the employee's having a spouse, including but not limited to bereavement leave; disability, life, and other types of insurance; family medical leave; health benefits; membership or membership discounts; moving expenses; vacation; travel benefits; and any other benefits given to employees, provided that it does not include benefits to the extent that the application of the requirements of this chapter to such benefits may be preempted by federal or state law.
(Ord. 4324, 08/15/06)

2.84.020 Discrimination in the provision of benefits prohibited.

(a) No contractor on a County contract shall discriminate in the provision of employee benefits between an employee with a domestic partner and an employee with a spouse, subject to the following conditions:

1. In the event that the contractor's actual cost of providing a particular benefit for the domestic partner of an employee exceeds that of providing it for the spouse of an employee, or the contractor's actual cost of providing a particular benefit to the spouse of an employee exceeds that of providing it for the domestic partner of an employee, the contractor shall not be deemed to discriminate in the provision of employee benefits if the contractor conditions providing such benefit upon the employee's agreement to pay the excess costs.

2. The contractor shall not be deemed to discriminate in the provision of employee benefits if, despite taking reasonable measures to do so, the contractor is unable to extend a particular employee benefit to domestic partners, so long as the contractor provides the employee with a cash payment equal to the contractor's cost of providing the benefit to an employee's spouse.

(b) The Board of Supervisors may waive the requirements of this chapter when it determines that it is in the best interests of the County. The County Manager may waive the requirements of this chapter for contracts not needing the approval of the Board of Supervisors where waiver would be in the best interests of the County for such reasons as follows:

1. Award of a contract or amendment is necessary to respond to an emergency;

2. The contractor is a sole source;

3. No compliant contractors are capable of providing goods or services that respond to the County's requirements;

4. The requirements are inconsistent with a grant, subvention or agreement with a public agency;

5. The County is purchasing through a cooperative or joint purchasing agreement;

(c) Contractors should submit requests for waivers of the terms of this chapter to the Contract Awarding Authority for that contract, or in the case of Contracts approved by the Board, the County Manager.

(d) The Contract Awarding Authority, or in the case of contracts approved by the Board, the County Manager, may reject an entity's bid or proposals, or terminate a contract, if the Contract Awarding Authority determines that the entity was set up, or is being used, for the purpose of evading the intent of this chapter.

(e) No Contract Awarding Authority shall execute a contract with a contractor unless such contractor has agreed that the contractor will not discriminate in the provision of employee benefits as provided for in this chapter. (Ord. 4324, 08/15/06)

2.84.030 Application of Chapter.

The requirements of this chapter shall only apply to those portions of a contractor's operations that occur (i) within the County; (ii) on real property outside of the County if the property is owned by the County or if the County has a right to occupy the property, and if the contractor's presence at that location is connected to a Contract with the County; and (iii) elsewhere in the United States where work related to a County Contract is being performed. The requirements of this Chapter shall not apply to subcontracts or subcontractors of any contract or contractor. (Ord. 4324, 08/15/06)

2.84.040 Powers and duties of the County Manager.

The County Manager's office shall have the authority to:

(a) Adopt rules and regulations, in accordance with this chapter and the Ordinance Code of the County of San Mateo, establishing standards and procedures for effectively carrying out this chapter.

(b) Receive notification from employees of contractors regarding violations of this chapter.

(c) Determine and recommend to the Board of Supervisors for final decision the imposition of appropriate sanctions for violation of this chapter by contractors including, but not limited to:

1. Disqualification of the contractor from bidding on or being awarded a County contract for a period of up to 5 years; and

2. Contractual remedies, including, but not limited to termination of contract.

3. Liquidated damages in the amount of $2,500.

(d) Examine contractors' benefit programs covered by this chapter;

(e) Impose other appropriate contractual and civil remedies and sanctions for violations of this chapter;

(f) Allow for remedial action after a finding of non-compliance, as specified by rule;

(g) Perform such other duties as may be required or which are necessary to implement the purposes of this chapter. (Ord. 4324, 08/15/06)

2.84.050 Date of Application.

The provisions of this chapter shall apply to any contract awarded or amended on or after July 01, 2001, provided that if the contractor is then signatory to a collective bargaining agreement, this chapter shall only apply to any contract with that contractor which is awarded or amended after the effective date of the next collective bargaining agreement. (Ord. 4324, 08/15/06)

Section 2. **Severability** – The provisions of this ordinance are declared to be separate and severable. If a court of competent jurisdiction, all appeals having been exhausted or all appeal periods having run, finds any provision of this ordinance to be invalid or unenforceable as to any person or circumstance, such offending provision shall, if feasible, be deemed to be modified to be within the limits of enforceability or validity. However, if the offending provision cannot be so modified, it shall be null and void with respect to the particular person or circumstance, and all other provisions of this ordinance in all other respects, and the offending provision with respect to all other persons and all other circumstances, shall remain valid and enforceable.

COUNTY OF SAN MATEO
Equal Benefits Compliance Declaration Form
(To Be Submitted with Proposal)

I Vendor Identification

Name of Contractor: _____

Contact Person: _____

Address: _____

Phone Number: _____ Fax Number: _____

II Employees

Does the Contractor have any employees? _____ Yes _____ No

Does the Contractor provide benefits to spouses of employees? _____ Yes _____ No

*If the answer to one or both of the above is no, please skip to Section IV. *

III Equal Benefits Compliance (Check One)

☐ Yes, the Contractor complies by offering equal benefits, as defined by Chapter 2.84, to its employees with spouses and its employees with domestic partners.

☐ Yes, the Contractor complies by offering a cash equivalent payment to eligible employees in lieu of equal benefits.

☐ No, the Contractor does not comply.

☐ *(NOTE: **DO NOT CHECK THIS BOX** unless the said agreement was executed/renewed on or before July 1, 2001. If checked, a copy of the collective bargaining agreement shall be submitted with Proposal.)*
The Contractor is under a collective bargaining agreement which began ***on or before July 1, 2001*** and expires on _____ (date). (Section 2.84.050)

IV Declaration

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind this entity contractually.

Executed this _____ day of _____, 20___ at _____ (City), _____ (State).

_____ Signature

_____ Name (Please Print)

_____ Title

_____ Contractor Tax Identification Number

CONTRACTOR EMPLOYEE JURY SERVICE ORDINANCE NO. 04269

CHAPTER 2.85

ORDINANCE NO 04269

AN ORDINANCE OF THE SAN MATEO COUNTY ORDINANCE CODE (TITLE 2, ADMINISTRATION), REQUIRING SPECIFIED COUNTY CONTRACTORS TO PROVIDE PAID JURY SERVICE TO FULL-TIME EMPLOYEES

The Board of Supervisors of the County of San Mateo, State of California, **ORDAINS** as follows:

Chapter 2.85 CONTRACTOR EMPLOYEE JURY SERVICE

2.85.010 Definitions

For the purposes of this chapter,

(a) "Contract" means a legal agreement between the County and a contractor for public works, consulting, or other services, or for purchase of supplies, material or equipment.

(b) "Contractor" means a party who enters into a contract with the County for which the contractor receives consideration of $100,000 or more.

(c) "Contract Authority" means the Board of Supervisors or the head of the department or agency presenting the proposed contract to the Board of Supervisors.

(d) "Employee " means any California resident who is a full-time employee of a contractor under the laws of California.

(e) "Full time " means 40 hours or more worked per week, or a lesser number of hours if (1) the lesser number is a recognized industry standard as determined by the County Manager, or (2) the contractor has a long standing practice that defines the lesser number of hours as full time. (Ord. 4324, 08/15/06)

2.85.020 Contractor jury service policy

(a) A contractor shall have and adhere to a written policy that provides that its employees shall receive from the contractor, on an annual basis, no less than five days of regular pay for actual jury service in San Mateo County. The policy may provide that employees deposit any fees received for such jury service with the contractor or that the contractor deduct from the employees' regular pay the fees received for jury service.

(b) At the time of seeking a contract, a contractor shall certify to the County that it has and adheres to a policy consistent with this chapter or will have and adhere to such a policy prior to award of the contract.

(c) The Board of Supervisors may waive the requirements of this chapter when it determines that it is in the best interests of the County for such reasons as follows:

(1) Award of a contract or amendment is necessary to respond to an emergency;

(2) The contractor is a sole source;

(3) No compliant contractors are capable of providing goods or services that respond to the County's requirements;

(4) The requirements are inconsistent with a grant, subvention or agreement with a public agency;

(5) The County is purchasing through a cooperative or joint purchasing agreement.

(d) Contractors should submit requests for waivers of the terms of this chapter to the Contract Authority or the County Manager.

(e) The County Manager may reject a contractor's bid or proposal, or terminate a contract, if he determines that the contractor is in violation of the requirements of this chapter or was established, or is being used, for the purpose of evading the intent of this chapter.

(f) No contract shall be executed with a contractor unless such contractor is in compliance with this chapter. (Ord. 4324, 08/15/06)

2.85.030 Powers and duties of the County Manager

The County Manager's office shall have the authority to:

(a) Adopt rules and regulations, in accordance with this chapter and the Ordinance Code of the County of San Mateo, establishing standards and procedures for effectively carrying out this chapter.

(b) Receive notification from employees of contractors regarding violations of this chapter.

(c) Determine and recommend to the Board of Supervisors for final decision the imposition of appropriate sanctions for violation of this chapter by contractors including, but not limited to:

(1) Disqualification of the contractor from bidding on or being awarded a County contract for a period of up to 5 years; and

(2) Contractual remedies, including, but not limited to termination of contract.

(d) Impose other appropriate contractual sanctions for violations of this chapter;

(e) Allow for remedial action after a finding of non-compliance;

(f) Perform such other duties as may be required or which are necessary to implement the purposes of this chapter. (Ord. 4324, 08/15/06)

2.85.040 Date of Application

The provisions of this chapter shall apply to any contract awarded or amended on or after September 01, 2005, provided that if the contractor is then signatory to a collective bargaining agreement, this chapter shall only apply to any contract with that contractor which is awarded or amended after the effective date of the next collective bargaining agreement. (Ord. 4324, 08/15/06)

COUNTY OF SAN MATEO
Employee Jury Service Compliance Declaration Form
(To Be Submitted with Proposal)

I Vendor Identification

Name of Contractor: _____

Contact Person: _____

Address: _____

Phone Number: _____ Fax Number: _____

II Employees

Does the Contractor have any employees? Yes No

*If the answer to the above is no, please skip to Section IV. *

III Contractor Employee Jury Service Compliance (Check One)

☐ Yes, the Contractor complies by offering paid employee jury service, as defined by Chapter 2.85, to its employees.

☐ The Contractor will have and adhere to, prior to award of the Contract, a policy that complies by offering paid employee jury service, as defined by Chapter 2.85, to its employees.

☐ No, the Contractor does not comply.

☐ *(NOTE: **DO NOT CHECK THIS BOX** unless the said agreement was executed/renewed on or before September 1, 2005. If checked, a copy of the collective bargaining agreement shall be submitted with Proposal.)*

The Contractor is under a collective bargaining agreement which began ***on or before September 1, 2005*** and expires on _____ (date). (Section 2.85.040)

IV Declaration

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind this entity contractually.

Executed this _____ day of _____, 20___ at _____ (City), _____ (State).

_____ Signature

_____ Name (Please Print)

_____ Title

_____ Contractor Tax Identification Number

NON-COLLUSION DECLARATION FORM

THIS FORM SHALL BE EXECUTED BY BIDDER AND SUBMITTED WITH BID.

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____ [Date], at _____ [City], _____ [State].

"Contractor"

_____

(Print)

_____

(Signature)

CERTIFICATION OF BIDDER'S QUALIFICATIONS AND EXPERIENCE

(To Be Submitted With Proposal)

The undersigned Bidder certifies that it is, at the time of bidding, and shall be, throughout the period of the contract, licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California, to do the type of work contemplated in the Contract Documents. Bidder further certifies that it is skilled and regularly engaged in the general class and type of work called for in the Contract Documents.

The Bidder represents that it is competent, knowledgeable, and has special skills concerning the nature, extent, and inherent conditions concerning the work to be performed. Bidder further acknowledges that there are certain inherent conditions existent in the construction of the project which may create, during the construction program, unsafe conditions hazardous to persons and property. Bidder expressly acknowledges that it is aware of such risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the construction work with respect to such hazards.

A. ESSENTIAL REQUIREMENTS FOR QUALIFICATION

If the answer to any of questions 1 through 4 is "yes," or if the answer to question 5 is "no," the Bidder will be deemed ineligible or not responsible for purposes of the Contract.

1. Has your contractor's license been revoked at any time in the last 5 years?
   □ Yes □ No

2. Has a surety firm completed a contract on your behalf, or paid for completion because your firm was default terminated by the project owner within the last 5 years?
   □ Yes □ No

3. At the time of submitting this qualification form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code Section 1777.1 or Labor Code section 1777.7?
   □ Yes □ No

4. At any time during the last 5 years, has your firm or any of its owners or officers been convicted of a crime involving the awarding of a contract of a government construction project, or the bidding or performance of a government contract?
   □ Yes □ No

5. The Bidder has been engaged in the contracting business, under the present business name for at least 5 years and has experience in work of a nature similar to this project?
   □ Yes □ No

B. COMPANY EXPERIENCE

The Bidder, as a Contractor, has never failed to satisfactorily complete a contract awarded to it, except as follows:

_____

_____

For the County of San Mateo to consider the Bidder properly experienced in work of similar nature to this project, the Bidder must list at least one project that involved construction of underground utility joint trench, construction of green infrastructure features such as bioretention facilities, and work under or around active railroad tracks within the last 10 years.

Any projects listed below which are not as defined above will not be considered by the County of San Mateo in meeting this experience requirement.

Bidder also certifies that Bidder self-performed at least 50 percent of the Work when acting as a general contractor or ten percent (10 percent) of the Work when acting as a subcontractor on each of the projects listed below. The County of San Mateo considers this level of past self-performance demonstrates a benefit to a Project in terms of better control of cost, schedule and safety.

If the Bidder is a Joint Venture of two or more companies, each participant in the Joint Venture shall meet this prior project experience requirement and provide project information for each Joint Venture participant in the format below.

1. **Project Name and Description:**_____

_____

_____

Owner:_____

General Contractor or Subcontractor for Project:_____

Work Performed:_____

Total Construction Cost: $_____

Dollar Amount of Bidder's Work: $_____

Construction Time:_____ **Calendar Days**

Owner's Representative:_____

Owner's Telephone No.:_____

Date of Substantial Completion:_____

2. **Project Name and Description:**_____

_____

_____

Owner:_____

General Contractor or Subcontractor for Project:_____

Work Performed:_____

Total Construction Cost: $_____

Dollar Amount of Bidder's Work: $_____

Construction Time:_____ **Calendar Days**

Owner's Representative:_____

Owner's Telephone No.:_____

Date of Substantial Completion:_____

3. **Project Name and Description:**_____

_____

_____

Owner:_____

General Contractor or Subcontractor for Project:_____

Work Performed:_____

Total Construction Cost: $_____

Dollar Amount of Bidder's Work: $_____

Construction Time:_____ **Calendar Days**

Owner's Representative:_____

Owner's Telephone No.:_____

Date of Substantial Completion:_____

4. **Project Name and Description:**_____

_____

_____

Owner:_____

General Contractor or Subcontractor for Project:_____

Work Performed:_____

Total Construction Cost: $_____

Dollar Amount of Bidder's Work: $_____

Construction Time:_____ **Calendar Days**

Owner's Representative:_____

Owner's Telephone No.:_____

Date of Substantial Completion:_____

5. **Project Name and Description:**_____

_____

_____

Owner:_____

General Contractor or Subcontractor for Project:_____

Work Performed:_____

Total Construction Cost: $_____

Dollar Amount of Bidder's Work: $_____

Construction Time:_____ **Calendar Days**

Owner's Representative:_____

Owner's Telephone No.:_____

Date of Substantial Completion:_____

The undersigned hereby states that all representations regarding the Bidder's Company Experience are correct and true.

Signed this _____ day of _____, 20____

_____
Bidder's Company Name

_____ _____
Authorized Signature Date

_____
Name and Title of Signatory

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 2021, by and between the COUNTY OF SAN MATEO, State of California, hereinafter called the "County" and _____, hereinafter called the "Contractor,"

W I T N E S S E T H:

THAT, for and in consideration of the mutual covenants and agreements hereinafter contained, the parties hereto agree as follows:

I. **Services to be performed by Contractor:** The Contractor will at his own proper cost and expense, do all the work and furnish all the labor, materials, equipment and utilities necessary to perform and complete in good workmanlike and substantial manner, and to the satisfaction of the Director of Public Works of the County of San Mateo, hereinafter called "Engineer," for the project

MIDDLEFIELD ROAD IMPROVEMENT PROJECT
IN THE NORTH FAIR OAKS AREA

TOTAL PROJECT APPROXIMATELY 0.5 MILES IN LENGTH
WITH APPURTENANT WORK THERETO
IN SAN MATEO COUNTY

COUNTY PROJECT NO. OD420
PROJECT FILE NO. E4931

and all in strict accordance with the Plans, Specifications, Notice to Contractors, Special Provisions and Proposal on file in the office of the Director of Public Works, which said Plans, Specifications, Notice to Contractors, Special Provisions and Proposal are hereby specifically referred to and by such reference made a part thereto.

II. **Payments:** The Contractor will receive and accept and the County will pay the prices specified in the Contractor's Proposal, dated _____, 2020, on file in the office of the Director of Public Works of the County of San Mateo and by reference made a part of this Agreement, as full compensation for furnishing all labor, materials and equipment for doing all the work contemplated and embraced in this Agreement; the Contractor assumes any and all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the County, and for all risks of every description connected with the work, and also assumes any and all expenses incurred by or in consequence of the suspension or discontinuance of work and for well and faithfully completing the work, and the whole thereof, in the manner and to the Plans, Specifications and Special Provisions and requirements of the Engineer hereunder. The Contractor shall guarantee all materials and workmanship for a period of 1 year from date of acceptance of the project by the Director of Public Works. Any defects due to faulty materials, method of installation or workmanship within that period shall be repaired by the Contractor promptly upon notice by the Engineer, at the expense of the Contractor.

It is distinctly understood that the estimate set forth in the Notice to Contractors is only an approximation of the amount of work to be done and the County does not expressly or by implication agree that the actual amount of work will correspond with the amount set forth therein, and payment shall be made to the Contractor as above set forth.

Payment to the Contractor shall be made progressively by the County for the work and materials furnished under this Agreement in accordance with the provisions of Section 9 of the Special Provisions portion of these Contract documents.

III. **Term:** Time is of the essence in the Agreement, and the work to be performed hereunder shall be completed within

THREE HUNDRED AND FORTY (340) WORKING DAYS

from the date of commencement of the work, which commencement shall be within **TEN (10) CALENDAR DAYS** after receiving Notice to Proceed from the Engineer.

IV. Termination: This Contract is subject to termination as provided by Section 4410 and Section 4411 of the Government Code of the State of California, being portions of the Emergency Termination of Public Contracts Act of 1949. In the event that the Contract is terminated pursuant to said sections, compensation to the Contractor shall be determined on the basis of the reasonable value of the work done, including preparatory work. As an exception to the foregoing, in the case of any fully completed separate item or portion of the work for which there is a separate Contract price, the Contract price shall control.

V. Relationship of Parties: Contractor agrees and understands that the work/services performed under this Agreement are performed as independent contractor and not as an employee of the County and that Contractor acquires none of the rights, privileges, powers, or advantages of County employees.

VI. Merger Clause: This Agreement, together with the Notice to Contractors, the Contractor's Proposal, the Plans, Specifications and Special Provisions and the Payment and Performance Bonds form the Contract, and said documents incorporated herein by reference become as fully a part of the Contract as if hereto attached or herein set forth in full. The Standard Specifications of the County of San Mateo, State of California, which, except as specifically noted in the County Contract documents and specifications, are identical with the Standard Specifications of the State of California, Department of Transportation, dated May 2006, and are on file with the County Manager/Clerk of the Board of Supervisors, County of San Mateo, are incorporated herein by reference as a part of the Contract documents and shall apply to this project except where the terms of this Agreement or other Contract documents are inconsistent therewith, in which case the provisions of this Contract shall prevail.

This Agreement constitutes the sole Agreement of the parties hereto and correctly states the rights, duties, and obligations of each party as of this document's date. Any prior agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications shall be in writing and signed by the parties.

VII. Surety Bonds: The performance of this Contract is secured by a "Payment" Surety Bond in the sum of 100 percent of the Contract bid, and a "Performance" Surety Bond in

the sum of 100 percent of the Contract bid. "Payment" and "Performance" Surety Bonds have been approved as to form by County Counsel, of which samples of same are attached as Appendix C in the Special Provisions.

VIII. Insurance: The Contractor shall not commence work under this Contract until he has obtained all insurance required under this paragraph and such insurance has been approved by the County, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained. The Contractor shall furnish County with certificates of insurance evidencing the required coverage, and there shall be a specific contractual liability endorsement extending the Contractor's coverage to include the contractual liability assumed by the Contractor pursuant to this Contract. Certificates of Insurance shall be filed with the County within **TEN (10) WORKING DAYS** after award of the contract. These certificates shall specify or be endorsed to provide that **THIRTY (30) CALENDAR DAYS'** notice must be given, in writing, to County of any pending change in the limits of liability or of any cancellation or modifications of the policy.

A. Worker's Compensation and Employer's Liability Insurance

The Contractor shall have in effect during the entire life of this Contract, Worker's Compensation and Employer's Liability Insurance providing full statutory coverage; and in case any work is sublet, the Contractor shall require all subcontractors similarly to provide Worker's Compensation and Employer's Liability Insurance to full statutory limits. In signing this Contract, the Contractor makes the following certifications, required by Section 1861 of the Labor Code:

> "I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of the code, and I will comply with such provisions before commencing the performance of the work of this Contract."

B. Liability Insurance

The Contractor shall take out and maintain during the life of this Contract such Bodily Injury Liability and Property Damage Liability Insurance as shall comply with Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications and

protect him/her and any subcontractor performing work covered by this Contract, from claims for damages for bodily injury, including accidental death, as well as from claims for property damage including third party property damage, to include coverage on property in the care, custody and control of the Contractor, and also including coverage for what are commonly known as the "X, C and U" exclusions (having to do with blasting, collapse and underground property damage), which may arise from the Contractor's operations under this Contract, whether such operations be by himself/herself or by any subcontractor or by anyone directly or indirectly employed by either of them and the amounts of such insurance shall be **FIVE MILLION DOLLARS ($5,000,000)** combined single bodily injury and property damage for each occurrence. The County of San Mateo, San Francisco Public Utilities Commission, San Mateo County Transit District, Peninsula Corridor Joint Powers Board, Union Pacific Railroad, Pacific Gas and Electric Company, AT&T, Comcast, Verizon, Wave Broadband, Menlo Park Highway Lighting District, Fair Oaks Sewer Maintenance District, County of San Mateo Information Services Department, CalWater, and its/their officers, agents, servants and employees, shall be named as additional insureds on any such policies of insurance, which shall also contain a provision stating that the insurance afforded thereby to the County of San Mateo, San Francisco Public Utilities Commission, San Mateo County Transit District, Peninsula Corridor Joint Powers Board, Union Pacific Railroad, Pacific Gas and Electric Company, AT&T, Comcast, Verizon, Wave Broadband, Menlo Park Highway Lighting District, Fair Oaks Sewer Maintenance District, County of San Mateo Information Services Department, CalWater, and its/their officers, agents, servants and employees, shall be primary insurance to the full limits of liability of the policy, and that if the County of San Mateo, San Francisco Public Utilities Commission, San Mateo County Transit District, Peninsula Corridor Joint Powers Board, Union Pacific Railroad, Pacific Gas and Electric Company, AT&T, Comcast, Verizon, Wave Broadband, Menlo Park Highway Lighting District, Fair Oaks Sewer Maintenance District, County of San Mateo Information Services Department, CalWater, or its/their officers and employees, have other insurance against a loss covered by such policy, such other insurance shall be excess insurance only.

Such statements, mentioned above, shall be included on a separate endorsement to be submitted to the County with the Certificate of Insurance.

Such insurance shall include:

1) **Comprehensive General Liability..... $5,000,000**
2) **Motor Vehicle Liability Insurance..... $5,000,000**

C. In case of the breach of any provision of this Article, the County, at its option, may take out and maintain at the expense of the Contractor, or subcontractor, such insurance as the County may deem proper and may deduct the cost of taking out and maintaining such insurance from any sums which may be due, or become due, to the Contractor, under this Contract.

D. Hold Harmless

The Contractor's attention is directed to Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

The provisions contained in Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications of the State of California, Department of Transportation, shall be applicable with the understanding that where said provisions specifically refer to the State of California, a department or division of the State or an official, officer or employee of the State, said provision shall be interpreted to refer to the County of San Mateo, San Francisco Public Utilities Commission, San Mateo County Transit District, Peninsula Corridor Joint Powers Board, Union Pacific Railroad, Pacific Gas and Electric Company, AT&T, Comcast, Verizon, Wave Broadband, Menlo Park Highway Lighting District, Fair Oaks Sewer Maintenance District, County of San Mateo Information Services Department, CalWater, and all officers, agents, servants and employees thereof connected with the work, including but not limited to the Director of Public Works, their duly authorized representatives, other appropriate department, division, official, officer or employee of the County of San Mateo, San Francisco Public Utilities Commission, San Mateo County Transit District, Peninsula Corridor Joint Powers Board, Union Pacific Railroad, Pacific Gas and Electric Company, AT&T, Comcast, Verizon, Wave Broadband, Menlo Park Highway Lighting District, Fair Oaks Sewer Maintenance District, County of San Mateo Information Services Department, and CalWater.

The provisions of Section 7-1.12A, "Indemnification," of the Standard Specifications are superseded by the following:

"To the full extent permitted by law, Contractor shall indemnify and save harmless the County, its officers, employees, and servants from all claims, suits, or actions of every name, kind, and description, brought for, or on account of:

1. Injuries to or death of any person, including Contractor, its officers, employees and servants, or

2. Damage to any property of any kind whatsoever and to whomsoever belonging, or

3. Any sanctions, penalties or claims of damages resulting from Contractor's failure to comply with applicable laws, or

4. Any other loss or cost resulting from the contractor's negligent or reckless acts or omissions or willful misconduct in connection with the performance of any work required of Contractor or payments made pursuant to this Agreement, provided that this shall not apply to injuries or damages for which the County has been found in a court of competent jurisdiction to be liable by reason of its own negligence or willful misconduct.

The duty of Contractor to indemnify and save harmless, as set forth herein, shall include the duty to defend, as set forth In Section 2778 of the California Civil Code.

The obligations set forth in this section shall continue beyond the term of this Agreement as to any act or omission which occurred during or under this Agreement."

E. Compensation

All insurance required by the paragraphs of this section shall be obtained and maintained by the Contractor at Contractor's own expense and County shall not compensate Contractor for said insurance expenses other than as they are included in the Contract prices the County pays for the various items of work.

F. Nothing herein contained shall be construed as limiting in anyway the extent to which the Contractor may be held responsible for payments of damages resulting from his operation.

IX. Prevailing Wages: Contractor hereby agrees to pay not less than prevailing rates of wages, which are effective on the date the Notice to Contractors is issued for each craft or type of workman or mechanic needed to execute the Contract as provided for by the County for the performance of public work, and be responsible for compliance with all the provisions of the California Labor Code, Article 2-Wages, Chapter 1, Part 7, Division 2, Section 1770 et seq. and Section 1810 et seq., and particularly Section 1775 and 1776(a) thereof. A copy of the prevailing wage scale established by the Department of Industrial Relations is on file in the office of the Director of Public Works, and available at www.dir.ca.gov/DLSR or by phone at 415-703-4774. California Labor Code Section 1776(a) requires each contractor and subcontractor keep accurate payroll records of trades workers on all public works projects and to submit copies of certified payroll records upon request.

Additionally, pursuant to State Senate Bill SB 854 (Stat. 2014, chapter 28), effective January 1, 2015:

- No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) 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 (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5.
- This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

X. California Labor Code: The Contractor expressly covenants and agrees to comply with all the provisions of the Labor Code of the State of California limiting the hours of labor on public works to 8 hours during any one calendar day, and forty (40) hours in any one calendar week, requiring the payment of not less than the prevailing wage rates, and further agrees to the forfeitures provided for in said Labor Code and as set forth in Section 7, "Legal Relations and Responsibility," of the Standard Specifications and all amendments thereto, in the

event of a violation of any of the provisions thereof during the course of execution of this Contract.

The Contractor expressly agrees to be responsible for compliance with all the provisions of Sections 1776 and 1777.5 of the California Labor Code.

XI. Non-Discrimination and Other Requirements:

a. General Non-discrimination:

No person shall be excluded from participation in, denied benefits of, or be subject to discrimination under this Agreement on the basis of their race, color, religion, national origin, ancestry, age, disability (physical or mental), sex, sexual orientation, gender identity, marital or domestic partner status, religion, political beliefs or affiliation, familial or parental status (including pregnancy, childbirth or related conditions), medical condition (including cancer-related), military service, or genetic information. Contractor shall ensure full compliance with Federal, state and local laws, directives and executive orders regarding non-discrimination for all employees and Subcontractors under this Agreement.

b. Equal Employment Opportunity:

Contractor shall ensure equal employment opportunity based on objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement. Contractor's equal employment policies shall be made available to County upon request.

c. Section 504 of the Rehabilitation Act of 1973:

Contractor shall comply with Section 504 of the Rehabilitation Act of 1973, as amended, which provides that no otherwise qualified individual with a disability shall, solely by reason of a disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination in the performance of any services this Agreement. This section applies only to contractors who are providing services to members of the public under this Agreement.

d. Compliance with County's Equal Benefits Ordinance:

Contractor shall comply with all laws relating to the provision of benefits to its employees and their spouses or domestic partners, including, but not limited to, such laws

prohibiting discrimination in the provision of such benefits on the basis that the spouse or domestic partner of the Contractor's employee is of the same or opposite sex as the employee.

e. Discrimination Against Individuals with Disabilities:

The nondiscrimination requirements of 41 C.F.R. 60-741.5(a) are incorporated into this Agreement as if fully set forth here, and Contractor and any subcontractor shall abide by the requirements of 41 C.F.R. 60–741.5(a). This regulation prohibits discrimination against qualified individuals on the basis of disability and requires affirmative action by covered prime contractors and subcontractors to employ and advance in employment qualified individuals with disabilities.

f. History of Discrimination:

Contractor certifies that no finding of discrimination has been issued in the past 365 days against Contractor by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other investigative entity. If any finding(s) of discrimination have been issued against Contractor within the past 365 days by the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or other investigative entity, Contractor shall provide County with a written explanation of the outcome(s) or remedy for the discrimination prior to execution of this Agreement. Failure to comply with this section shall constitute a material breach of this Agreement and subjects the Agreement to immediate termination at the sole option of the County.

g. Reporting; Violation of Non-discrimination Provisions:

Contractor shall report to the County Manager the filing in any court or with any administrative agency of any complaint or allegation of discrimination on any of the bases prohibited by this section of the Agreement or the Section titled "Compliance with Laws." Such duty shall include reporting of the filing of any and all charges with the Equal Employment Opportunity Commission, the California Department of Fair Employment and Housing, or any other entity charged with the investigation or adjudication of allegations covered by this subsection within 30 days of such filing, provided that within such 30 days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include a general

description of the circumstances involved and a general description of the kind of discrimination alleged (for example, gender-, sexual orientation-, religion-, or race-based discrimination).

Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties, to be determined by the County Manager, including but not limited to:

i) Termination of this Agreement;

ii) Disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 3 years;

iii) Liquidated damages of $2,500 per violation; and/or

iv) Imposition of other appropriate contractual and civil remedies and sanctions, as determined by the County Manager.

To effectuate the provisions of this paragraph, the County Manager shall have the authority to:

i) Examine Contractor's employment records with respect to compliance with this paragraph;

ii) Offset all or any portion of the amount described in this paragraph against amounts due to Contractor under the Contract or any other Contract between Contractor and County.

Contractor shall report to the County Manager the filing by any person in any court of any complaint of discrimination or the filing by any person of any and all charges with the Equal Employment Opportunity Commission, the Fair Employment and Housing Commission or any other entity charged with the investigation of allegations within 30 days of such filing, provided that within such 30 days such entity has not notified Contractor that such charges are dismissed or otherwise unfounded. Such notification shall include the name of the complainant, a copy of such complaint and a description of the circumstance. Contractor shall provide County with a copy of its response to the Complaint when filed.

Compliance with Equal Benefits Ordinance. With respect to the provisions of employee benefits, Contractor shall comply with the County Ordinance which prohibits contractors from

discriminating in the provision of employee benefits between an employee with a domestic partner and an employee with a spouse.

XII. Compliance with County Employee Jury Service Ordinance: Contractor shall comply with Chapter 2.85 of the County's Ordinance Code, which states that Contractor shall have and adhere to a written policy providing that its employees, to the extent they are full-time employees and live in San Mateo County, shall receive from the Contractor, on an annual basis, no fewer than five days of regular pay for jury service in San Mateo County, with jury pay being provided only for each day of actual jury service. The policy may provide that such employees deposit any fees received for such jury service with Contractor or that the Contractor may deduct from an employee's regular pay the fees received for jury service in San Mateo County. By signing this Agreement, Contractor certifies that it has and adheres to a policy consistent with Chapter 2.85. For purposes of this section, if Contractor has no employees in San Mateo County, it is sufficient for Contractor to provide the following written statement to County: "For purposes of San Mateo County's jury service ordinance, Contractor certifies that it has no full-time employees who live in San Mateo County. To the extent that it hires any such employees during the term of its Agreement with San Mateo County, Contractor shall adopt a policy that complies with Chapter 2.85 of the County's Ordinance Code." The requirements of Chapter 2.85 do not apply if this Agreement's total value listed in the Section 16 is less than one-hundred thousand dollars ($100,000), but Contractor acknowledges that Chapter 2.85's requirements will apply if this Agreement is amended such that its total value meets or exceeds that threshold amount.

XIII. Termination of Agreement: The Contract may be terminated by the County in the event the Contractor should be adjudged 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 violate any of the provisions of the Contract, or if he should persistently or repeatedly refuse, or should fail, except in cases where extension of time is provided, to furnish enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors, or for materials or labor, or persistently disregard laws, ordinances, or the instructions of the Engineer. In the event of any of the foregoing conditions, the Engineer is authorized and directed to serve written notice upon the Contractor and his Surety of its intention to terminate the Contract, such notice to contain the reasons for action and

unless within **TWO (2) CALENDAR DAYS** after serving of such notice such conditions shall be remedied and satisfactory arrangements for continuation be made, the Contract shall, upon expiration of **TWO (2) CALENDAR DAYS**, cease and terminate. In the event of any such termination, the Engineer may take over the work and prosecute the same to completion by Contract or by any other method he may deem advisable, and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the County for any excess cost occasioned thereby, and in such event, the County may without liability to so doing take possession of and utilize such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the work, and necessary therefore. In such cases, the Contractor shall not be entitled to receive any further payment until the work is completed.

XIV. Compliance with Laws: The Contractor shall comply with all existing and future State and Federal and regulating laws and all ordinances and regulations of the County of San Mateo which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.

Controlling Law: The validity of this Agreement and of its terms or provisions, as well as the rights and duties of the parties hereunder, the interpretation, and performance of this Agreement shall be governed by the laws of the State of California.

XV. Contract Assignability: Neither party to the Contract shall assign the Contract or sublet it as a whole without written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder without the previous written consent of the County. The Contractor shall neither mortgage nor convey title to equipment or material to be used in this work, without the written permission of the County.

XVI. COVID-19: This Provision relates to issues associated with the Novel Coronavirus Disease 2019 (COVID-19) and shall supersede any other conflicting sections or provisions of this Contract and its attachments. The ongoing COVID-19 pandemic may impact the County's ability to proceed with this Project.

Although this Project is proceeding as an Essential Infrastructure Project as determined by the County Board of Supervisors/County Manager, this determination could change in the future based on Health Orders issued by the San Mateo County Health Officer or State of

California, or future determinations of the County Board of Supervisors/County Manager. Should future Health Orders or the County Board of Supervisors/County Manager directives preclude the Project from proceeding as scheduled, the County reserves the right to:

- Cancel the Project, terminate the Contractor's work once the Contractor has safely secured the work area, and compensate the Contractor for work completed and materials purchased prior to cancellation of the Project and labor and materials, as approved by the Engineer, required to safely secure the work area such that work can be discontinued on the Project; **or**
- The County and Contractor may reach a mutually agreeable extension for completion of the Project such that the work can resume after being halted provided it complies with all Health Orders issued by the Health Officer of the County of San Mateo or the State of California and as approved by the County Board of Supervisors/County Manager.

It is the Contractor's obligation and responsibility to ensure that all work associated with this Project complies with all current Orders of the Health Officer of the County of San Mateo related to the Novel Coronavirus Disease 2019 (COVID-19). The County of San Mateo assumes no responsibility for work performed by Contractor that is not in compliance with all current Orders. The Contractor is advised to review the Orders of the Health Officer of the County of San Mateo, which can be found at the following link:

https://www.smchealth.org/post/health-officer-statements-and-orders

XVII. Contract Materials: The County hereby promises and agrees with the said Contractor to employ and does hereby employ the said Contractor to provide the materials, unless otherwise specified, and to do the work according to the terms and conditions herein contained and referred to, for the prices aforesaid and hereby contracts to pay the same at the time, in the manner and upon the conditions above set forth, and the said parties for themselves, their heirs, executors, administrators, successors, and assigns, do hereby agree to the full performance of the covenants herein contained.

XVIII. Retention of Records, Right to Monitor and Audit:

A. CONTRACTOR shall maintain all required records for 3 years after the COUNTY makes final payment and all other pending matters are closed, and shall be

subject to the examination and/or audit of the County, a Federal grantor agency, and the State of California.

B. Reporting and Record Keeping: CONTRACTOR shall comply with all program and fiscal reporting requirements set forth by appropriate Federal, State and local agencies and as required by the COUNTY.

C. CONTRACTOR agrees upon reasonable notice to provide to COUNTY, to any Federal or State department having monitoring or review authority, to COUNTY's authorized representatives, and/or their appropriate audit agencies upon reasonable notice, access to and the right to examine all records and documents necessary to determine compliance with relevant Federal, State, and local statutes, rules and regulations, and this Agreement, and to evaluate the quality, appropriateness and timeliness of services performed.

XIX. Notices: Any notice, request, demand or other communication required or permitted hereunder shall be deemed to be properly given when both: (1) transmitted via facsimile to the number listed below or transmitted via email to the email address listed below; and (2) sent to the physical address listed below by either being deposited in the United States mail, postage prepaid, or deposited for overnight delivery, charges prepaid, with an established overnight courier that provides a tracking number showing confirmation of receipt.

In the case of County, to:

James C. Porter, Director of Public Works
County of San Mateo
555 County Center, 5th Floor
Redwood City, CA 94063-1665
Facsimile: 650-361-8220
Email: jporter@smcgov.org

In the case of Contractor, to:

(Contractor Name)
(Contractor Address)
(City, State Zip)

XX. Contract Amount and Change Orders:

A. Contract Amount

The amount payable to Contractor under the terms of this agreement is _____ DOLLARS ($_____).

B. Change Orders

The Board of Supervisors has authorized the Director of Public Works to execute change orders to modify the scope of work provided under this agreement, and to increase the County's maximum fiscal obligation to correspond to those changes. The Board of Supervisors has directed that in the event of change orders, the County's maximum fiscal obligation shall not exceed _____DOLLARS ($_____). Any payments in excess of the amount authorized by the Board of Supervisors will require additional approval of the Board of Supervisors.

XXI. Proprietary Rights and Confidentiality: The requirements of this Agreement pertaining to the protection of proprietary rights and confidentiality shall survive termination of this Agreement.

XXII. Electronic Signature: Both County and Contractor wish to permit this Agreement and future documents relating to this Agreement to be digitally signed in accordance with California law and County's Electronic and Facsimile Signatures Administrative Memo (B-29). Any party to this Agreement may revoke such agreement to permit electronic signatures at any time in relation to all future documents by providing notice pursuant to this Agreement.

IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands the year and date first above written.

"County"

COUNTY OF SAN MATEO
State of California

BY: _____
President, Board of Supervisors
County of San Mateo

ATTEST:

_____
Michael Callagy, County Manager/
Clerk of the Board of Supervisors

"Contractor"

_____
Name of Contractor

BY: _____
(Authorized Signature and Seal of Bidder)