

Marina Coast Water District - Recycled Water Distribution Pipelines		
Questions and Answers During Bidding - Questions Received through 2019-11-17		
Question Number	Question	Answer
1	Is there a DBE Goal?	No
2	Is a field office required?	No
3	Can native backfill be used for the trench?	See Section 02318 for details of where native backfill is permitted.
4	Questions regarding Section 1600 Source Testing	Source testing is described in Section 01601 and refers to the manufacturer testing a product to confirm it performs per its published performance data, typically performed at the factory where the product is manufactured. Typically these tests in addition and/or complementary to published standards (such as AWWA). Per Section 15110, source testing is required for valves.
5	Does contractor pay for Disinfection and Bacteria Testing Costs?	Per Section 01757-1.01-B, "Contractor shall perform and pay for all disinfection and testing."
6	Is contractor responsible for the cost of Hydrant Meter Water to fill pipes?	An addenda will be issued clarifying Section 01500 that the Contractor is responsible for paying for the cost of water.
7	Is a Pothole Profile Plan Required?	Potholing requirements are specified in Section 01350 and the City of Seaside Draft Encroachment Permit, Exhibit A, A. General, Item 8.
8	Is the Contractor required to hire a biologist for the project?	No, MCWD has hired Denise Duffy & Associates to perform biological monitoring/inspections for the project.
9	Is PVC pipe required to be purple? Is DI pipe required to have polyethylene bags? What about short stub outs of DI pipe?	PVC pipe color shall be per Section 15244-2.01-A.4, "Potable water pipe shall be blue in color and recycled water pipe shall be purple in color." An addenda will be issued to eliminate polyethylene bags for ductile iron pipe, which is an MCWD standard.
10	Clarify compaction testing – is contractor responsible?	An addenda will be issued to clarify that the Contractor is responsible for paying for testing to establishing initial compaction at each project location, and the District (through the Construction Manager) will pay for subsequent compaction testing. Where the Contractor does not meet the required compaction, the Contractor will be responsible for paying costs for subsequent follow-up retesting. The Contractor will be required to provide access for the District's Construction Manager to perform testing.
11	The slurry and paving quantities are much different than our initial takeoff. Suggest checking.	An addenda will be issued with updated quantities.
12	Is 3-inch temporary paving required?	See Section 02742A-1.03-C. for temporary paving requirements.
13	Is slurry backfill required.	See Section 02318 for backfill requirements, which allows CLSM backfill per Section 02312. In Seaside, slurry backfill is not required, but allowed per the City of Seaside Draft Encroachment Permit, D. Excavations in Streets, Item 4.
14	The type of pipe on Bid Items 15, 19, and 40 are not listed.	For clarity, an addenda will be issued with an updated bid schedule identifying the pipe type.
15	Is it OK to use Reservoir 2 site for staging?	Equipment and material storage will not allowed on the Reservoir 2 site, except when the Contractor is actively working within Reservoir 2 site.
16	Detail P030 calls for a 24" casing, and drawings P14 and P15 call for a 24" ID casing. Standard steel casings at 24" come in OD sizes, can an OD casing be used?	An addenda will be issued clarifying that an ID or OD casing is acceptable.

Question Number	Question	Answer
17	The casing spec uses a steel Spec "ASTM A 283 Grade C". This is a Steel Plate Spec and would require the plate steel to be milled cut rolled and welded. Very hard to find and will increase the cost exponentially. I would suggest going with an "A 252 Grade 3" which exceeds the other spec and is much more readily available, especially on the west coast.	An addenda will be issued allowing ASTM A-1097 in addition to ASTM A-283. ASTM A-252 will not be allowed.
18	The casing spec uses a dry powder coat spec. there are no professional companies that still regularly use that method for applying the specified coating and protection. I would suggest the fluid epoxy coating which is going to meet or surpass the minimums required. I have attached some literature on the product I am suggesting.	An addenda will be issued eliminating the requirement to coat the casing.
19	Will Fusible PVC be allowed to be bid as an equivalent or alternate to the specified C900 Eagle Loc and Diamond Lok-21 pipe? If so, can the requirement for casing spacers in the jack/bore casing be removed if FPVC is used? Additionally, can the jack/bore casing size be reduced from 24" to 16" if FPVC is used?	An addenda will be issued allowing Fusible PVC as an acceptable PVC pipe material with requirements for fusible PVC pipe. Casing spacers and the guided auger bore diameter shall remain the same for a fusible PVC carrier pipe.
20	Local Hiring Ordinance provision 2.10.010 states a requirement to include "requesting the assistance of community resources designated by the District". Where can I find the resources designated by the District?	This should be documented advertising through the builders exchanges and the union halls or other employment agencies in Monterey, Santa Cruz and San Benito Counties
21	On Form 00 45 36, there is conflicting information about when this form is to be submitted: "within 3 days of bid opening" vs. "submit this form with your bid." Also, assuming it's within 3 days of the bid opening; are ALL bidder's required to submit this information or does it only apply to the Low Bidder, Low Bidder's 1-3?	The instructions on when to submit the forms are correct. 4500-3 and 4500-4 are attachments to Section 00 45 36. They are labeled in the bottom left corner of the attachments and are to be submitted with the bid. Section 00 45 36 has 3 pages and is to be submitted within 3 days of bid opening. <u>All bidders must submit these forms to be deemed responsive.</u>
22	On Form 00 45 38, there is conflicting information about when this form is to be submitted: "within 3 days of bid opening" vs. "submit this form with your bid."	The instructions on when to submit the form is correct -submit this form within 3 days of bid opening. This form is required for the bid to be considered responsive, but not due at bid time.
23	I see the substantial completion is 300 days, also that there is some work windows for portions of the project. I do not see anything on the guided auger bore and am needing to know if it can be scheduled anytime in that 300 days or if there is a specific window that it must be completed in.	The guided auger bore is located in County of Monterey property. Work restrictions for work within the County of Monterey is listed in Section 01140 and the draft encroachment permit. There is a requirement for timing of the receiving shaft restoration, located in Sections 005200 and 02261.
24	What is the construction estimate with the portion of Reservation Road eliminated from the Contract?	The Engineers estimate for the work is \$7,000,000. Revised estimate includes updated paving quantities.
25	On Drawing P24, key note #1 states "Coordinate with residential contractor for temporary relocation of storm water pollution prevention construction entrance." Please clarify who is required to pay for this work.	An addenda will be issued to clarify to coordinate with the residential contractor and the contractor (not the residential contractor) is responsible for temporary relocation/replacement of the SWPPP facility.
26	On Drawings P32, key note #2 states "Contractor to protect and relocate NG pipeline as necessary." Please clarify that in the event the "NG pipeline" requires relocation who is required to pay for this work.	An addenda with clarification will be issued with a pipeline lowering at this location.
27	Is Detail P342 as shown on Plan TP01 for all restrained D.I.P. wall penetrations for the pressure reducing valve vaults?	Yes. However in some locations, "L" will need to be shorter than shown in Detail P342 because of adjacent vault locations.
28	Please clarify - detail P030 calls out welding casing per detail P622/typ. There is no detail P622. Do they mean P822? & If so this is uncommon to require casing to be welded to this type of detail (Basically water pipe welds)	An addenda will be issued to update Detail P030 to reference detail P822.

Question Number	Question	Answer
29	EPDM is called out for gasket material. The vast majority of gasketed pipe in North America has and is installed with Styrene Butadiene Rubber (SBR) gaskets. Please clarify which is to be used.	An addenda will be issued to update the gasket material to Styrene Butadiene (SBR) rated to not less than the pressure rating to the pipeline pressure rating.
30	Is the Contractor required to pay for and provide surveying and staking.	Yes per Section 01722.

**MARINA COAST WATER DISTRICT
MARINA, CA**

REGIONAL URBAN WATER AUGMENTATION PROJECT

RECYCLED WATER DISTRIBUTION PIPELINES

CIP # RW-0174

**ADDENDUM NO. 1
TO THE
CONTRACT DOCUMENTS**

NOVEMBER 2019

Digitally signed by Jonathan P. Marshall
DN: cn=Jonathan P. Marshall, o=Carollo Engineering, Inc.,
Date: 2019.11.18 16:29:54-0800



Bidders on the above-named project are hereby notified that the Bidding Documents are modified as indicated below. Bidders are required to acknowledge receipt of this Addendum in the space provided on the Document 00 41 00 Bid Form.

This Addendum shall become part of the Contract and provisions of the Contract apply.

SPECIFICATIONS

The following sections are modified as indicated below.

1. SECTION 00 41 00 – Bid Form:
 - a. REPLACE section in its entirety with the attached section.
2. SECTION 00 52 00 – Agreement:
 - a. REPLACE section in its entirety with the attached section.
3. SECTION 01270 – Unit Prices:
 - a. REPLACE section in its entirety with the attached section.
4. SECTION 01500 – Temporary Facilities and Controls:
 - a. REPLACE section in its entirety with the attached section.
5. SECTION 02224 – Guided Boring:
 - a. REPLACE section in its entirety with the attached section.
6. SECTION 02318 - Trenching:
 - a. REPLACE section in its entirety with the attached section.
7. SECTION 02742A – Asphaltic Concrete Paving (CA):
 - a. REPLACE section in its entirety with the attached section.
8. SECTION 15052 – Common Work Results for General Piping:
 - a. REPLACE section in its entirety with the attached section.
9. SECTION 15076 – Pipe Identification:
 - a. REPLACE section in its entirety with the attached section.
10. SECTION 15110 – Common Work Results for Valves
 - a. REPLACE section in its entirety with the attached section.
11. SECTION 15211 – Ductile Iron Pipe: AWWA C151
 - a. REPLACE section in its entirety with the attached section.
12. SECTION 15244 – Polyvinyl Chloride (PVC) Pipe: AWWA C900
 - a. REPLACE section in its entirety with the attached section.

DRAWINGS

The following drawings are modified as indicated below.

1. DRAWING: G02
Narrative of Edit: General Note 27 was updated.

2. DRAWING: G04
Narrative of Edit: Potholing results were added to table.
3. DRAWING: T03
Narrative of Edit: Water main separation requirements were added.
4. DRAWING: TP01
Narrative of Edit: Detail P030 was updated.
5. DRAWING: CD02
Narrative of Edit: Location of 9th Street pressure reducing station shifted.
6. DRAWING: P04-P10, P16, P27, P29
Narrative of Edit: Drawings updated based on potholing results.

7. DRAWING: P14-P15
Narrative of Edit: Casing callout revised.
 - 1) New callout reads "INSTALL 24" STL CASING 418 LF BY GUIDED AUGER BORING".
8. DRAWING: P20-P23
Narrative of Edit: Work from Station 71+65.7 (Inter-Garrison Road) to Station 101+47.83 (East Garrison Drive) removed from project.
 - 1) Connection to existing pipeline at Station 71+65.7 updated.
9. DRAWING: P24
Narrative of Edit: Key note 1 was updated.
10. DRAWING: P25
Narrative of Edit: Location of 9th Street pressure reducing station shifted.
11. DRAWING: P32
Narrative of Edit: Pipe alignment and key note 2 updated to protect NG pipeline in place.
12. DRAWING: C07-C08
Narrative of Edit: Work from Inter-Garrison Road to East Garrison Drive removed from project.

Replacement Section

BID FORM^{AD1}

**CIP # RW-0174, REGIONAL URBAN WATER MANAGEMENT PROJECT
RECYCLED WATER DISTRIBUTION MAINS PROJECT**

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Marina Coast Water District

11 Reservation Road

Marina, CA 93933

ATTN: District Engineer

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 calendar after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization and Demobilization (Shall not exceed 5% of Total of All Unit Price Bid Items)	LS	1		
2	Sheeting, shoring, and bracing, or equivalent method for the protection of life and limb in trenches and open excavation, pursuant to California Labor Code §6707 and Section 02260.	LS	1		
3	Stormwater Pollution Prevention	LS	1		
4	Traffic Management	LS	1		
5	Locating and Verifying Concealed existing Utilities per Section 01350	LS	1		
6	Blow-off Assemblies	EA	216		
7	Combination Air/Vacuum Valves	EA	1821		
8	8" Isolation Valves (Gate)	EA	17		
9	12" Isolation Valves (Gate)	EA	104		
10	Beach Road: 8-inch Pipeline (Ductile Iron)	LF	164		
11	Beach Road: Pressure Reducing Station	LS	1		
12	Beach Road: 8-inch Pipeline (PVC)	LF	3,790		
13	Beach Road: Slurry Seal	SY	11,273 9,600		
14	Beach Road: Pavement Striping	LS	1		
15	Potable Water Pipeline: Beach Road from Del Monte Blvd to De Forest Rd (PVC)	LF	2,748		
16	Potable Water Pipeline: Beach Road Blow-off Assemblies	EA	2		
17	Potable Water Pipeline: Beach Road Combination Air/Vacuum Valves	EA	2		
18	Potable Water Pipeline: Beach Road 12" Isolation Valves (Gate)	EA	5		
19	Potable Water Pipeline: From Reservoir 2 to Crescent Ave (PVC)	LF	518		
20	Potable Water Pipeline: Reservoir 2 to Crescent Ave Blow-off Assemblies	EA	1		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
21	Potable Water Pipeline: Reservoir 2 to Crescent Ave Combination Air/Vacuum Valves	EA	1		
22	Potable Water Pipeline: Reservoir 2 to Crescent Ave 12" Isolation Valves (Gate)	EA	4		
23	Carmel Avenue: 8-inch Pipeline (Ductile Iron)	LF	120		
24	Carmel Avenue: Pressure Reducing Station	LS	1		
25	Carmel Avenue: 8-inch Pipeline (PVC)	LF	2,615		
26	Carmel Avenue: Slurry Seal	SY	13,753,425		
27	Carmel Avenue: Pavement Striping	LS	1		
28	Marina Heights Drive: 16-inch Pipeline (Ductile Iron)	LF	240		
29	Marina Heights Drive: Pressure Reducing Station	LS	1		
30	Marina Heights Drive: Slurry Seal	SY	389,553		
31	Marina Heights Drive: Pavement Striping	LS	1		
32	Abrams Drive North of Imjim Parkway: 12-inch Pipeline (PVC)	LF	953		
33	Abrams Drive North of Imjim Parkway: Slurry Seal	SY	4,469,394		
34	Abrams Drive North of Imjim Parkway: Pavement Striping	LS	1		
35	Pressure Test and Disinfect Existing Pipeline in UCMBEST Property	LS	1		
36	Blanco Road: 12-inch Pipeline (PVC)	LF	584		
37	Allowance for sensitive plant species restoration on Blanco Road	ALW	1	\$20,000.00	\$20,000.00
38	Blanco Road: Launching Shaft for Guided Auger Boring Installation	LS	1		
39	Blanco Road: Guided Auger Boring Casing Pipeline Installation	LF	418		
40	Blanco Road: Guided Auger Boring Carrier Pipeline Installation (PVC)	LF	418		
41	Reservation Road: Receiving Shaft for Guided Auger Boring Installation	LS	1		
42	Reservation Road: 12-inch Pipeline (PVC)	LF	8,147,155		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
43	Reservation Road: 2-inch Grind and Inlay	SY	3,8198,339		
44	Reservation Road: Pavement Striping	LS	1		
45	9th Street: 8-inch Pipeline (Ductile Iron)	LF	78		
46	9th Street: Pressure Reducing Station	LS	1		
47	9th Street: 8-inch Pipeline (PVC)	LF	975		
48	9th Street: Slurry Seal	SY	8003,136		
49	9th Street: Pavement Striping	LS	1		
50	Coe Avenue: 8-inch Pipeline (Ductile Iron)	LF	2,043		
51	Coe Avenue: Pressure Reducing Station	LS	1		
52	Coe Avenue: 8-inch Pipeline (PVC)	LF	1,127		
53	Coe Avenue: Slurry Seal	SY	3,14212,560		
54	Coe Avenue: Pavement Striping	LS	1		
55	Reimbursement Allowance for City of Marina Encroachment Permit Fee	ALW	1	\$2570,000.00	\$2570,000.00
56	Reimbursement Allowance for Monterey County Encroachment Permit Fee	ALW	1	\$20,000.00	\$20,000.00
57	Reimbursement Allowance for City of Seaside Encroachment Permit Fee	ALW	1	\$15,000.00	\$15,000.00
58	Reimbursement Allowance for Business Licenses from Cities and County	ALW	1	\$25,000.00	\$25,000.00
59	Potential Installation of 1-inch Service per Detail W-1	EA	2		
60	Potential Installation of 4-inch Service	EA	2		
61	Contingency Allowance for Unknown Utility Conflicts	ALW	1	\$50,000.00	\$50,000.00
62	All work required to be completed for the project that is not included in the previous bid items	LS	1		
Total of All Unit Price Bid Items (in numbers):				\$	

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
<p>Total of All Unit Price Bid Items (in words):</p>					

ALW = Allowance, LF = Linear Feet, LS = Lump Sum, SY = Square Yards

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.02 Bid Alternatives

- A. Bidder offers to make, at the bid alternate prices following, the changes in the Work covered by the Unit Prices that are specified in the bid alternates priced below.
- B. It is understood that:
 - 1. All bid alternate prices must be filled in.
 - 2. The acceptance or rejection of any or all of these bid alternates is at the option of the Owner.
 - 3. Acceptance or rejection of bid alternates will not necessarily be made on the basis of price alone.
 - 4. The acceptance or rejection of one or more bid alternates will not affect the Lump Sum Bid Price, nor other conditions of this Bid, nor the price of other accepted bid alternates.
 - 5. The addition or deduction shown herein for each bid alternate is the net addition or net deduction that is to be applied to the Lump Sum Bid Price of the undersigned if the bid alternate is accepted by Owner.
 - 6. The Contract Price shall be the net amount determined by applying the bid alternate prices of all accepted bid alternates to the Total Unit Price Bid.
- C. **Bid Alternate A – Perform All Work along Abrams Drive South of Imjin Parkway (add):** Bidder agrees to add to the Total Unit Price Bid the amount shown below for all mobilization and demobilization, sheeting shoring and bracing, stormwater pollution prevention, traffic management, locating and verifying existing underground utilities, labor, equipment, materials, insurance, permits, and all other work necessary to install all pipeline, pipe fittings and couplings, coatings, appurtenances, trench cutoffs, testing, valves, witness markers, backfill, compaction, temporary paving, final trench paving, slurry seal, pavement striping and all other related Work along Abrams Drive, south of Imjin Parkway, as described in the Contract Documents.

Description	Unit	Estimated Quantity	Unit Price	Total Amount
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Bid Alternate A - Perform All Work along Abrams Drive South of Imjin Parkway	LS	1	\$	\$
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ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The items listed in Document 00 43 93, Bid Submittal checklist, are submitted with and made a condition of this Bid.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature]

[Printed name]

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

[Printed name]

Title:

Submittal Date:

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

AD1 Addendum No. 1

AGREEMENT^{AD1}
BETWEEN MARINA COAST WATER DISTRICT
AND _____
FOR THE
REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION PIPELINES
CIP# RW-0174

THIS AGREEMENT is by and between Marina Coast Water District (“Owner”) and _____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The Project consists of constructing approximately 5 miles of 8-inch diameter to 12-inch diameter ductile iron and polyvinyl chloride recycled water and potable water pipeline in paved and non-paved roadways and easements, connecting to existing pipelines, pipeline valves and appurtenances, a guided auger bore trenchless roadway crossing, five pressure reducing stations, and roadway paving for a complete in-place operational system.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: CIP # RW-0174, REGIONAL URBAN WATER AUGMENTATION PROJECT RECYCLED WATER DISTRIBUTION PIPELINES.

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Carollo Engineers, Inc., 2700 Ygnacio Valley Road, Suite 300, Walnut Creek, CA 94598.

3.02 The Owner has retained Carollo Engineers (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

- A. The Work will be substantially completed within 300 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 335 calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Abrams Drive (both north and south of Imjim Road): Contractor shall pay Owner \$1,500 for each calendar day (or partial calendar day) after April 1, 2020 until the Work along Abrams Drive is substantially complete.
 2. Marina Heights Drive: Contractor shall pay Owner \$1,500 for each calendar day (or partial calendar day) after April 1, 2020 until the Work in the road of Marina Heights Drive is substantially complete. Work outside the road (such as the pressure reducing station beyond the road curb) is not subject to this liquidated damage.
 3. Beach Road, Carmel Avenue and Coe Avenue: Contractor shall pay Owner \$1,500 for each calendar day (or partial calendar day) Work is done in Beach Road, Carmel Avenue and Coe Avenue on days outside of the schools summer break dates defined in Section 01140.
 4. Blanco Road and Reservation Road Intersection Receiving Shaft: Contractor shall pay Owner \$500 for each calendar day (or partial calendar day) the receiving shaft is not restored and temporary paved beyond the allowable duration specified in Section 02261.
 5. Trench Plates: Contractor shall pay Owner \$500 per 20 linear feet of steel plating for each night that steel plating, in excess of 20 linear feet, is left in the public right-of-way.
 6. Substantial Completion: Contractor shall pay Owner \$5,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 7. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$5,000 for each day that expires after such time until the Work is completed and ready for final payment.
 8. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price (adjusted for any math errors in the submitted bid form) times the actual quantity of that item):

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Mobilization and Demobilization (Shall not exceed 5% of Total of All Unit Price Bid Items)	LS	1		
2	Sheeting, shoring, and bracing, or equivalent method for the protection of life and limb in trenches and open excavation, pursuant to California Labor Code §6707 and Section 02260.	LS	1		
3	Stormwater Pollution Prevention	LS	1		
4	Traffic Management	LS	1		
5	Locating and Verifying Concealed existing Utilities per Section 01350	LS	1		
6	Blow-off Assemblies	EA	216		
7	Combination Air/Vacuum Valves	EA	1821		
8	8" Isolation Valves (Gate)	EA	17		
9	12" Isolation Valves (Gate)	EA	104		
10	Beach Road: 8-inch Pipeline (Ductile Iron)	LF	164		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
11	Beach Road: Pressure Reducing Station	LS	1		
12	Beach Road: 8-inch Pipeline (PVC)	LF	3,790		
13	Beach Road: Slurry Seal	SY	9,600 <u>11,273</u>		
14	Beach Road: Pavement Striping	LS	1		
15	Potable Water Pipeline: Beach Road from Del Monte Blvd to De Forest Rd (PVC)	LF	2,748		
16	Potable Water Pipeline: Beach Road Blow-off Assemblies	EA	2		
17	Potable Water Pipeline: Beach Road Combination Air/Vacuum Valves	EA	2		
18	Potable Water Pipeline: Beach Road 12" Isolation Valves (Gate)	EA	5		
19	Potable Water Pipeline: From Reservoir 2 to Crescent Ave (PVC)	LF	518		
20	Potable Water Pipeline: Reservoir 2 to Crescent Ave Blow-off Assemblies	EA	1		
21	Potable Water Pipeline: Reservoir 2 to Crescent Ave Combination Air/Vacuum Valves	EA	1		
22	Potable Water Pipeline: Reservoir 2 to Crescent Ave 12" Isolation Valves (Gate)	EA	4		
23	Carmel Avenue: 8-inch Pipeline (Ductile Iron)	LF	120		
24	Carmel Avenue: Pressure Reducing Station	LS	1		
25	Carmel Avenue: 8-inch Pipeline (PVC)	LF	2,615		
26	Carmel Avenue: Slurry Seal	SY	3,425 <u>13,753</u>		
27	Carmel Avenue: Pavement Striping	LS	1		
28	Marina Heights Drive: 16-inch Pipeline (Ductile Iron)	LF	240		
29	Marina Heights Drive: Pressure Reducing Station	LS	1		
30	Marina Heights Drive: Slurry Seal	SY	389 <u>553</u>		
31	Marina Heights Drive: Pavement Striping	LS	1		
32	Abrams Drive North of Imjim Parkway: 12-inch Pipeline (PVC)	LF	953		
33	Abrams Drive North of Imjim Parkway: Slurry Seal	SY	4, 394 <u>694</u>		
34	Abrams Drive North of Imjim Parkway: Pavement Striping	LS	1		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
35	Pressure Test and Disinfect Existing Pipeline in UCMBEST Property	LS	1		
36	Blanco Road: 12-inch Pipeline (PVC)	LF	584		
37	Allowance for sensitive plant species restoration on Blanco Road	ALW	1	\$20,000.00	\$20,000.00
38	Blanco Road: Launching Shaft for Guided Auger Boring Installation	LS	1		
39	Blanco Road: Guided Auger Boring Casing Pipeline Installation	LF	418		
40	Blanco Road: Guided Auger Boring Carrier Pipeline Installation <u>(PVC)</u>	LF	418		
41	Reservation Road: Receiving Shaft for Guided Auger Boring Installation	LS	1		
42	Reservation Road: 12-inch Pipeline (PVC)	LF	8,147,155		
43	Reservation Road: 2-inch Grind and Inlay	SY	3,819,339		
44	Reservation Road: Pavement Striping	LS	1		
45	9th Street: 8-inch Pipeline (Ductile Iron)	LF	78		
46	9th Street: Pressure Reducing Station	LS	1		
47	9th Street: 8-inch Pipeline (PVC)	LF	975		
48	9th Street: Slurry Seal	SY	800,136		
49	9th Street: Pavement Striping	LS	1		
50	Coe Avenue: 8-inch Pipeline (Ductile Iron)	LF	2,043		
51	Coe Avenue: Pressure Reducing Station	LS	1		
52	Coe Avenue: 8-inch Pipeline (PVC)	LF	1,127		
53	Coe Avenue: Slurry Seal	SY	3,142,560		
54	Coe Avenue: Pavement Striping	LS	1		
55	Reimbursement Allowance for City of Marina Encroachment Permit Fee	ALW	1	\$257,000.00	\$257,000.00
56	Reimbursement Allowance for Monterey County Encroachment Permit Fee	ALW	1	\$20,000.00	\$20,000.00
57	Reimbursement Allowance for City of Seaside Encroachment Permit Fee	ALW	1	\$15,000.00	\$15,000.00
58	Reimbursement Allowance for Business Licenses from Cities and County	ALW	1	\$25,000.00	\$25,000.00
59	Potential Installation of 1-inch Service per Detail W-1	EA	2		

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
60	Potential Installation of 4-inch Service	EA	2		
61	Contingency Allowance for Unknown Utility Conflicts	ALW	1	\$50,000.00	\$50,000.00
62	All work required to be completed for the project that is not included in the previous bid items	LS	1		
Total of All Unit Price Bid Items (in numbers): \$					
Total of All Unit Price Bid Items (in words):					

ALW = Allowance, LF = Linear Feet, LS = Lump Sum, SY = Square Yards, EA = Each

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

5.02 Bid Alternatives

- A. Bidder offers to make, at the bid alternate prices following, the changes in the Work covered by the Unit Prices that are specified in the bid alternates priced below.
- B. It is understood that:
1. All bid alternate prices must be filled in.
 2. The acceptance or rejection of any or all of these bid alternates is at the option of the Owner.
 3. Acceptance or rejection of bid alternates will not necessarily be made on the basis of price alone.
 4. The acceptance or rejection of one or more bid alternates will not affect the Lump Sum Bid Price, nor other conditions of this Bid, nor the price of other accepted bid alternates.
 5. The addition or deduction shown herein for each bid alternate is the net addition or net deduction that is to be applied to the Lump Sum Bid Price of the undersigned if the bid alternate is accepted by Owner.
 6. The Contract Price shall be the net amount determined by applying the bid alternate prices of all accepted bid alternates to the Total Unit Price Bid.
- C. **Bid Alternate A – Perform All Work along Abrams Drive South of Imjin Parkway (add):** Bidder agrees to add to the Total Unit Price Bid the amount shown below for all mobilization and demobilization, sheeting shoring and bracing, stormwater pollution prevention, traffic management, locating and verifying existing underground utilities, labor,

equipment, materials, insurance, permits, and all other work necessary to install all pipeline, pipe fittings and couplings, coatings, appurtenances, trench cutoffs, testing, valves, witness markers, backfill, compaction, temporary paving, final trench paving, slurry seal, pavement striping and all other related Work along Abrams Drive, south of Imjin Parkway, as described in the Contract Documents.

Description	Unit	Estimated Quantity	Unit Price	Total Amount
Bid Alternate A - Perform All Work along Abrams Drive South of Imjin Parkway	LS	1	\$	\$

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

- a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- b. 0 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the legal rate unless otherwise specified according to California law.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor’s safety precautions and programs.
 - F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 1. This Agreement.
 2. Performance bond.
 3. Payment bond.
 4. General Conditions.
 5. Supplementary Conditions.
 6. Specifications as listed in the table of contents of the Project Manual.
 7. Drawings (not attached but incorporated by reference) consisting of 66 sheets with each sheet bearing the following general title: Regional Urban Water Augmentation Project Recycled Water Distribution Mains, Capital Improvement Program Potable Water Mains Beach Road, and Capital Improvement Program Potable Water Mains Reservoir 2 to Crescent Ave.
 8. Typical Details listed or incorporated into the Project Manual.
 9. Addenda (numbers 1 to X, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. List of Project References (00 45 12)
 - b. Designation of Subcontractors (00 45 14)
 - c. List of Manufacturers (0045 16)
 - d. Designation of Insurance Agent or Broker (00 45 18)
 - e. Stop Notice Information (00 45 20)
 - f. Non-Collusion Declaration (00 45 22)
 - g. Prevailing Wage (00 45 24)
 - h. Public Works Contractor Registration Certification (00 45 26)
 - i. Local Hiring for Public Works (00 45 28)^{AD1}
 - j. Iran Contracting Act Certification (00 45 30)
 - k. American Iron and Steel Certification (00 45 32)
 - l. Anti-Lobbying Certification (00 45 34)
 - m. DBE Good Faith Efforts Verification (00 45 36)

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- n. Bidder's List (00 45 38)
 - o. State Revolving Fund and Proposition 1 Funding Requirements (00 73 50).
11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
- a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
12. The standard Plans and Specifications of the Marina Coast Water District, dated November 2007 (not attached but incorporated by reference).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.
- 10.06 In accordance with Section 1775, California Labor Code, Contractor shall forfeit to Owner, as a penalty, not more than \$50 for each calendar day, or portion thereof, for each worker paid, either by Contractor or any subcontractor, less than the prevailing rates as determined by the Director of California Department of Industrial Relations for the Work.
- 10.07 In the performance of the Work, a day's work shall be 8 hours of labor in any workday and 40 hours in any work week and any other work as required by Section 510, California Labor Code, and Contractor shall further conform to the requirements of Section 1813, California Labor Code, or forfeit to Owner, as a penalty, the sum of \$25 for each worker employed in the execution of the Work by Contractor or any subcontractor, for each day during which any worker is required or permitted to labor more than 8 hours in any workday or more than 40 hours in any 1 calendar week in violation of Section 510.
- 10.08 Contractor shall carry workers' compensation insurance and require subcontractors to carry workers' compensation insurance as required by Section 3700, California Labor Code.
- 10.09 Pursuant to California Labor Code Section 6705, excavation of any trench or trenches 5 feet or more in depth, involving estimated expenditures in excess of \$25,000 shall require, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping or other provisions to be made for worker protection prepared by a registered civil or structural engineer.
- 10.10 *Contractor registration:*
- A. Project is subject to compliance monitoring and enforcement by the California Department of Industrial Relations (DIR).
- 10.11 Pursuant to Section 1770 et seq., California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of California Department of Industrial Relations. A copy of such prevailing rate is on file at the offices of the Owner, which copy will be made available for examination during business hours to any party on request.

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- 10.12 Contractor, by signing this Agreement, certifies the following: "I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract."
- 10.13 Nothing in this Agreement shall prevent Contractor or any Subcontractor from employing properly registered apprentices in the execution of the Agreement. Contractor shall have responsibility for compliance with California Labor Code Section 1777.5 for all apprenticeable occupations.
- 10.14 *Other Provisions*
- A. Owner stipulates that the General Conditions that are made a part of this Contract are the EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, with modifications made solely in the Supplementary Conditions.
- B. Since this Project is funded in whole or in part with SRF funds, the work must also comply with the minimum rates for wages for laborers and mechanics as determined by the Secretary of Labor in accordance with the provisions of Davis-Bacon. As between the State and Federal rates, the higher of the two rates must be paid. Attention is directed to the SRF Funding Requirements section of the Contract Documents.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: General Manager

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Marina Coast Water District

11 Reservation Road

Marina, CA 93933

License No.: _____

(where applicable)

^{AD1} Addendum No. 1

Replacement Section

SECTION 01270^{AD1}

UNIT PRICES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Procedures for measurement and payment of Work performed on a unit price basis.
- B. Related documents:
 - 1. Document 00 41 00 - Bid Form.

1.02 MEASUREMENT OF QUANTITIES

- A. Work paid at a unit price times number of units measured will be measured by Engineer in accordance with United States Standard Measures:
 - 1. 1 ton shall consist of 2,000 pounds avoirdupois.
- B. Provide and pay for accurate scales:
 - 1. Use platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed.
 - 2. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed.
 - 3. Have scales inspected and certified as often as necessary to ascertain accuracy.
 - 4. Furnish weigh slips and daily summary weigh sheets to Engineer.
- C. When material is shipped by rail, certified car weights will be acceptable, provided that not more than the actual weight of material will be paid, without consideration of minimum car weight used for assessing freight tariff:
 - 1. Car weight will not be acceptable for materials passing through mixing plants.
- D. Daily, or at shorter intervals when necessary to ensure accuracy, weigh empty trucks used to haul material paid by weight:
 - 1. Provide such trucks with plainly, unique, permanent, legible, identification marks.
- E. Reinforcing steel, steel shapes, castings, and similar items paid by weight will be measured by handbook weights for the type and quantity indicated for the Work.

1.03 PAY ITEMS

- A. General: Pay items following are included in Document 00 41 00 - Bid Form.

- B. Schedule of Unit Price Bid Items:
1. Bid Item 1: Mobilization and Demobilization (Shall not exceed 5 percent of the Total of All Unit Price Bid Items):
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required for mobilization and demobilization, complete as specified, including, but not limited to, surveying to establish preconstruction conditions, preconstruction photographs and videos, cost of obtaining and complying with all necessary permits not obtained by the District or in other Bid Items, cost for complying with all conditions set by all of the required permits, move in of equipment, tools, supplies, materials, and manpower to the jobsite, move out and cleanup of job site after the project is complete and accepted by the District.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item. A maximum of 50 percent will be paid after satisfactory mobilization. The balance will be paid after satisfactory demobilization.
 2. Bid Item 2: Sheeting, Shoring, and Bracing:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required for sheeting, shoring, and bracing and all other actives required to provide all temporary sheeting, shoring, and bracing for excavations and grading required per the Contract Documents including, but not limited to, engineering, permits, materials, tools, labor, and equipment necessary to performing the Work.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
 3. Bid Item 3: Stormwater Pollution Prevention:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to comply with all regulatory requirements and install and maintain stormwater pollution prevention facilities, comply with Section 01355A - Stormwater Pollution Prevention and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
 4. Bid Item 4: Traffic Management:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete traffic management system including but not limited to temporary striping, signage, delineators, K-rails, cones, labor, flagmen, temporary fence, and equipment necessary for traffic control and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
 5. Bid Item 5: Locating and Verifying Concealed existing Utilities per Section 01350~~Potholing and Storm Drain CCTV~~:

- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to locate and pothole existing utility crossings and nearby adjacent utilities per Section 01350 - Special Procedures and perform closed circuit television inspection of storm drain crossings per Section 01140 - Work Restrictions and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
6. Bid Item 6: Blow-off Assemblies:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install blow-off valves and assemblies including, but not limited to, trenching, earthwork, valve, piping, fittings, valve boxes, all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
7. Bid Item 7: Combination Air/Vacuum Valves:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install air valve assemblies including, but not limited to, earthwork, valve, piping, fittings, valve boxes, vent risers, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
8. Bid Item 8: 8-inch Isolation Valves (Gate):
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required furnish and installing valves including, but not limited to, earthwork, valve, piping, fittings, valve boxes, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
9. Bid Item 9: 12-inch Isolation Valves (Gate):
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required furnish and installing valves including, but not limited to, earthwork, valve, piping, fittings, valve boxes, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
10. Bid Item 10: Beach Road: 8-inch Pipeline (Ductile Iron):

- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
11. Bid Item 11: Beach Road: Pressure Reducing Station:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete pressure reducing station including the excavation, grading, subgrade installation, mechanical piping, concrete pad, and all work (excluding items included in other bid items) for the pressure reducing station including all civil, structural, mechanical, and other work required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
12. Bid Item 12: Beach Road: 8-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
13. Bid Item 13: Beach Road: Slurry Seal:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
14. Bid Item 14: Beach Road: Pavement Striping:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise

- impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
- b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
15. Bid Item 15: Potable Water Pipeline: Beach Road from Del Monte Blvd to De Forest Rd (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes mobilization / demobilization, excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents. This work is being funded from a separate funding source, so cost for this bid item shall include any mobilization or other costs required to complete this work.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
16. Bid Item 16: Potable Water Pipeline: Beach Road Blow-off Assemblies:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install blow-off valves and assemblies including, but not limited to, trenching, earthwork, valve, piping, fittings, valve boxes, all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
17. Bid Item 17: Potable Water Pipeline: Beach Road Combination Air/Vacuum Valves:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install air valve assemblies including, but not limited to, earthwork, valve, piping, fittings, valve boxes, vent risers, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
18. Bid Item 18: Potable Water Pipeline: Beach Road 12-inch Isolation Valves (Gate):
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required furnish and installing valves including, but not limited to, earthwork, valve, piping, fittings, valve boxes, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.

- c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
19. Bid Item 19: Potable Water Pipeline: From Reservoir 2 to Crescent Ave (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes all mobilization / demobilization, excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents. This work is being funded from a separate funding source, so cost for this bid item shall include any mobilization or other costs required to complete this work.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
20. Bid Item 20: Potable Water Pipeline: Reservoir 2 to Crescent Ave Blow-off Assemblies:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install blow-off valves and assemblies including, but not limited to, trenching, earthwork, valve, piping, fittings, valve boxes, all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
21. Bid Item 21: Potable Water Pipeline: Reservoir 2 to Crescent Ave Combination Air/Vacuum Valves:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install air valve assemblies including, but not limited to, earthwork, valve, piping, fittings, valve boxes, vent risers, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
22. Bid Item 22: Potable Water Pipeline: Reservoir 2 to Crescent Ave 12-inch Isolation Valves (Gate):
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required furnish and installing valves including, but not limited to, earthwork, valve, piping, fittings, valve boxes, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
23. Bid Item 23: Carmel Avenue: 8-inch Pipeline (Ductile Iron):

- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
24. Bid Item 24: Carmel Avenue: Pressure Reducing Station:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete pressure reducing station including the excavation, grading, subgrade installation, pressure reducing vault, future flow meter vault, above ground air valve, mechanical piping, concrete pad, and all work (excluding items included in other bid items) for the pressure reducing station including all civil, structural, mechanical, and other work required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
25. Bid Item 25: Carmel Avenue: 8-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
26. Bid Item 26: Carmel Avenue: Slurry Seal:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
27. Bid Item 27: Carmel Avenue: Pavement Striping:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise

- impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
- 28. Bid Item 28: Marina Heights Drive: 16-inch Pipeline (Ductile Iron):
 - a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
- 29. Bid Item 29: Marina Heights Drive: Pressure Reducing Station:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete pressure reducing station including the excavation, grading, subgrade installation, pressure reducing vault, future flow meter vault, above ground air valve, mechanical piping, concrete pad, and all work (excluding items included in other bid items) for the pressure reducing station including all civil, structural, mechanical, and other work required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
- 30. Bid Item 30: Marina Heights Drive: Slurry Seal:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
- 31. Bid Item 31: Marina Heights Drive: Pavement Striping:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
- 32. Bid Item 32: Abrams Drive North of Imjim Parkway: 12-inch Pipeline (PVC):

- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
33. Bid Item 33: Abrams Drive North of Imjim Parkway: Slurry Seal:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
34. Bid Item 34: Abrams Drive North of Imjim Parkway: Pavement Striping:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
35. Bid Item 35: Pressure Test and Disinfect Existing Pipeline in UCMBEST Property:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a plan to pressure test and disinfect the existing recycled water facilities in UCMBEST property (as shown in the Appendix) including assuming not less than 5 days for a crew to physically locate and perform general cleaning and routine maintenance on and repair of all appurtenances (air valves, blow-offs, etc.) to ensure they are operational, flushing the entire existing system to remove any sediment buildup with the existing pipelines, pressure testing and disinfecting the system prior to connecting to it at Blanco Road.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
36. Bid Item 36: Blanco Road: 12-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and

- permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
- b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
37. Bid Item 37: Allowance for sensitive plant species restoration on Blanco Road:
- a. Bid Item Description: A preconstruction survey for sensitive plant species identified Monterey Spineflower west of Blanco road, in the pipeline alignment from Research Drive to Reservation Road. MCWD will hire a biologist to develop a Rare Plant Restoration Plan, which is anticipated to generally consist of requirements to separately excavate, store, and replace soil where the Monterey Spineflower was growing and temporarily provide water to help re-establish growth. Since the Restoration Plan has not yet been completed and the requirements defined, this allowance is a placeholder for that work.
 - b. Measurement: Measurement for this bid item is a defined allowance.
 - c. Payment: Payment for this bid item will be made based on actual costs of sensitive plant species restoration. Payment will only be made if specifically authorized in writing by the Construction Manager in advance of the work taking place.
38. Bid Item 38: Blanco Road: Launching Shaft for Guided Auger Boring Installation:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to install the launching shaft, as required, for the guided auger boring installation, including but not limited to designing and installing the shaft, groundwater dewatering, excavation material processing and disposal, restoration of existing improvements such as vegetation, and shaft restoration including, bedding, backfill, disposal of excess soil, specified testing procedures, and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
39. Bid Item 39: Blanco Road: Guided Auger Boring Casing Pipeline Installation:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to set up the guided auger boring installation, boring the casing pipe, grouting the annular space outside the casing pipe, and ancillary operations, including but not limited to obtaining and boring with guided auger boring machine, head recovery, excavation material processing, grouting, and disposal of boring of debris, specified testing procedures, and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
40. Bid Item 40: Blanco Road: Guided Auger Boring Carrier Pipeline Installation (PVC):
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to set up the carrier

- pipeline installation within the bored casing, installing runners on the carrier pipe, installing the carrier pipe, grouting the annular space between the carrier and the casing pipe, installing end seals, and ancillary operations, including but not limited to and disposal of debris, specified testing procedures, and all other associated work (excluding items included in other bid items) per the Contract Documents.
- b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
41. Bid Item 41: Reservation Road: Receiving Shaft for Guided Auger Boring Installation:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to install the receiving shaft, as required, for the guided auger boring installation, including but not limited to designing and installing the shaft, groundwater dewatering, excavation material processing and disposal, restoration of existing improvements such as vegetation, and shaft restoration including bedding, backfill, disposal of excess soil, specified testing procedures, and all other associated work (excluding items included in other bid items) per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
42. Bid Item 42: Reservation Road: 12-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
43. Bid Item 43: Reservation Road: 2-inch Grind and Inlay:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete asphalt pavement grind and inlay where shown on the drawings, including removal of pavement markings, wedge grinds, conform grinds, asphalt concrete, ensuring existing utility valve cans and monuments are flush with grade, all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
44. Bid Item 44: Reservation Road: Pavement Striping:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping

- system on the road where striping was removed, damaged, or otherwise impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
- b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
45. Bid Item 45: 9th Street: 8-inch Pipeline (Ductile Iron):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
46. Bid Item 46: 9th Street: Pressure Reducing Station:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete pressure reducing station including the excavation, grading, subgrade installation, pressure reducing vault, future flow meter vault, above ground air valve, mechanical piping, concrete pad, and all work (excluding items included in other bid items) for the pressure reducing station including all civil, structural, mechanical, and other work required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
47. Bid Item 47: 9th Street: 8-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
48. Bid Item 48: 9th Street: Slurry Seal:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.

- b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
49. Bid Item 49: 9th Street: Pavement Striping:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
50. Bid Item 50: Coe Avenue: 8-inch Pipeline (Ductile Iron):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
51. Bid Item 51: Coe Avenue: Pressure Reducing Station:
- a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete pressure reducing station including the excavation, grading, subgrade installation, pressure reducing vault, future flow meter vault, above ground air valve, mechanical piping, concrete pad, and all work (excluding items included in other bid items) for the pressure reducing station including all civil, structural, mechanical, and other work required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
52. Bid Item 52: Coe Avenue: 8-inch Pipeline (PVC):
- a. Bid Item Description: Work in this bid item generally includes installation of the pipeline and includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install the pipe complete and in place per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Linear Foot.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.

53. Bid Item 53: Coe Avenue: Slurry Seal:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, and other activities required to furnish and install a complete slurry seal pavement treatment where shown on the drawings, including removal of pavement markings all labor, materials, tools and equipment in performing all Work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Square Yard.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
54. Bid Item 54: Coe Avenue: Pavement Striping:
 - a. Bid Item Description: Work in this bid item generally includes all materials, labor, equipment, developing a striping plan and obtaining approval of the plan, and other activities required to furnish and install a complete striping system on the road where striping was removed, damaged, or otherwise impacted by work, and all work (excluding items included in other bid items) required per the Contract Documents.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.
55. Bid Item 55: Reimbursement Allowance for City of Marina Encroachment Permit Fee:
 - a. Bid Item Description: This bid item is an allowance for the encroachment permit fee.
 - b. Measurement: Measurement for this bid item is a defined allowance.
 - c. Payment: Payment for this bid item will be for actual cost paid for the encroachment permit. Markups, contingencies, labor, and/or any other costs shall not be included.
56. Bid Item 56: Reimbursement Allowance for Monterey County Encroachment Permit Fee:
 - a. Bid Item Description: This bid item is an allowance for the encroachment permit fee.
 - b. Measurement: Measurement for this bid item is a defined allowance.
 - c. Payment: Payment for this bid item will be for actual cost paid for the encroachment permit. Markups, contingencies, labor, and/or any other costs shall not be included.
57. Bid Item 57: Reimbursement Allowance for City of Seaside Encroachment Permit Fee:
 - a. Bid Item Description: This bid item is an allowance for the encroachment permit fee.
 - b. Measurement: Measurement for this bid item is a defined allowance.
 - c. Payment: Payment for this bid item will be for actual cost paid for the encroachment permit. Markups, contingencies, labor, and/or any other costs shall not be included.
58. Bid Item 58: Reimbursement Allowance for Business License Fees from Cities and County:
 - a. Bid Item Description: This bid item is an allowance for business license fees from the City of Marina, City of Seaside, and County of Monterey.
 - b. Measurement: Measurement for this bid item is a defined allowance.
 - c. Payment: Payment for this bid item will be for actual cost paid for the business license. Markups, contingencies, labor, and/or any other costs shall not be included.

59. Bid Item 59: Potential Installation of 1-inch Service per Detail W-1:
- a. Bid Item Description: Work in this bid item generally includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install a recycled water service installation per MCWD Detail W-1. MCWD may elect to install 1-inch services that have not yet been identified. For bidding purposes, Contractor shall assume the service is from an 8-inch diameter recycled water main and the back of curb is 40 feet from the recycled water main.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
60. Bid Item 60: Potential Installation of 4-inch Service:
- a. Bid Item Description:: Work in this bid item generally includes excavation, disposal of debris, protection and restoration of existing improvements such as utility crossings, furnishing and installing pipeline, trench bedding, backfill, compaction, disposal of excess soil, compaction, specified testing procedures, temporary and permanent surface restoration and temporary and permanent paving, and all other associated work (excluding items included in other bid items) necessary to install a recycled water service installation per MCWD Detail W-1. MCWD may elect to install 4-inch services that have not yet been identified. For bidding purposes, Contractor shall assume the service includes an 8-inch by 4-inch mechanical joint tee with restrained retainer glands, 4-inch gate valve, 40 feet of 4-inch diameter DR14 C900 PVC pipeline and a 4-inch mechanical joint cap.
 - b. Measurement: Measurement for this bid item is by Each.
 - c. Payment: Payment for this bid item will be made at the Contract unit prices for the quantities determined as specified.
61. Bid Item 61: Contingency Allowance for Unknown Utility Conflicts:
- a. Bid Item Description: This bid item is an allowance for work associated with mitigating the impacts of an unknown utility, such a lowering the pipeline to avoid a conflict with the unknown utility.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made based on actual costs of mitigating the impacts of an unknown utility, and shall be tracked on a time and material basis. Payment will only be made if specifically authorized in writing by the Construction Manager in advance of the work taking place.
62. Bid Item 62: All work required to be completed for the project that is not included in the previous bid items:
- a. Bid Item Description: Work in this bid item generally includes all work needed to complete the project that is not specifically included in other Bid Items. This bid item is intended to provide a location for miscellaneous work required to complete the project that is not covered by any other bid item.
 - b. Measurement: Measurement for this bid item is by Lump Sum.
 - c. Payment: Payment for this bid item will be made for actual work completed in proportion to the total value of work for this bid item.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

^{AD1} Addendum No. 1

SECTION 01500^{AD1}

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Furnishing, maintaining, and removing construction facilities and temporary controls, including temporary utilities, construction aids, barriers and enclosures, security, access roads, temporary controls, project sign, field offices and sheds, and removal after construction.

1.02 REFERENCE

- A. American National Standards Institute (ANSI).
- B. Occupational Safety and Health Administration (OSHA).

1.03 SUBMITTALS

- A. Submit as specified in Section 01330 - Submittal Procedures.

1.04 TEMPORARY UTILITIES

- A. Temporary electrical power:
 - 1. Arrange with local utility to provide adequate temporary electrical service.
 - 2. Provide and maintain adequate jobsite power distribution facilities conforming to applicable Laws and Regulations.
 - 3. Provide, maintain, and pay for electric power for performance of the Work except for power required for the final 7 day operational test:
 - a. When using permanent facilities, provide separate meter and reimburse Owner for power used in connection with performance of the Work.
- B. Temporary electrical lighting:
 - 1. In work areas, provide temporary lighting sufficient to maintain lighting levels during working hours not less than lighting levels required by OSHA and state agency which administers OSHA regulations where Project is located.
 - 2. When available, permanent lighting facilities may be used in lieu of temporary facilities:
 - a. Prior to Substantial Completion of the Work, replace bulbs, lamps, or tubes used by Contractor for lighting.
- C. Temporary heating, cooling, and ventilating:
 - 1. Heat and ventilate work areas to protect the Work from damage by freezing, high temperatures, weather, and to provide safe environment for workers.
 - 2. Permanent heating system may be utilized when sufficiently completed to allow safe operation.

- D. Temporary water:
1. Pay for and construct facilities necessary to furnish potable water for human consumption and non-potable water for use during construction.
 2. Remove temporary piping and connections and restore affected portions of the facility to original condition before Substantial Completion.
 3. ~~Construction water will be provided by the District. The Contractor is responsible for obtaining hydrant meters and, paying applicable fees and deposits, and paying for water.~~
 4. ~~Approximate Fees are listed below. Contractor shall coordinate with the District for actual rates and payment procedure.~~
 - a. ~~Temporary Water Service Fees and Deposits~~
 - 1) ~~Meter Deposit Fee - \$702.00~~
 - 2) ~~Hydrant Meter Fee (Set/Remove Fee) one-time fee - \$152.00~~
 - 3) ~~Hydrant Meter Fee (Relocate Fee) per occurrence - \$152.00~~
 - 4) ~~Minimum Monthly Service Charge per month - \$163.70~~
 - 5) ~~Estimated Water Consumption Deposit minimum - \$1,188.00~~
 - b. ~~Water Consumption Charge (hcf = hundred cubic feet = 748 gallons)~~
 - 1) ~~0-10 hcf~~
 - a) ~~First Tier~~
 - b) ~~\$4.13 per hcf~~
 - 2) ~~10+ hcf~~
 - a) ~~Second Tier~~
 - a)b) ~~\$8.04 per hcf~~
- E. Temporary sanitary facilities:
1. Provide suitable and adequate sanitary facilities that are in compliance with applicable Laws and Regulations.
 2. Existing facility use is not allowed.
 3. At completion of the Work, remove sanitary facilities and leave site in neat and sanitary condition.
- F. Temporary fire protection: Provide sufficient number of fire extinguishers of type and capacity required to protect the Work and ancillary facilities.
- G. First aid: Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.
- H. Utilities in existing facilities: As specified in Section 01140 - Work Restrictions.

1.05 CONSTRUCTION AIDS

- A. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.
- B. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads.
- C. Design temporary supports with adequate safety factor to ensure adequate load bearing capability:
1. When requested, submit design calculations by professional registered engineer prior to application of loads.
 2. Submitted design calculations are for information and record purposes only.

- D. Accident prevention:
 - 1. Exercise precautions throughout construction for protection of persons and property.
 - 2. Observe safety provisions of applicable Laws and Regulations.
 - 3. Guard machinery and equipment, and eliminate other hazards.
 - 4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
 - 5. Before commencing construction work, take necessary action to comply with provisions for safety and accident prevention.

- E. Barricades:
 - 1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
 - 2. Provide barriers with flashing lights after dark.
 - 3. Keep barriers in place until excavations are entirely backfilled and compacted.
 - 4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, treatment plants, or other public or private areas.

- F. Warning devices and barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers:
 - 1. Devices shall conform to minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.

- G. Hazards in public right-of-way:
 - 1. Comply with local jurisdiction standards and requirements for right-of-way barricades and other safety devices.
 - 2. Mark at reasonable intervals, trenches, and other continuous excavations in public right-of-way, running parallel to general flow of traffic, with traffic cones, barricades, or other suitable visual markers during daylight hours:
 - a. During hours of darkness, provide markers with torches, flashers, or other adequate lights.
 - 3. At intersections or for pits and similar excavations, where traffic may reasonably be expected to approach head on, protect excavations by continuous barricades:
 - a. During hours of darkness, provide warning lights at close intervals.

- H. Hazards in protected areas: Mark or guard excavations in areas from which public is excluded, in manner appropriate for hazard.

- I. Above grade protection: On multi-level structures, provide safety protection that meets requirements of OSHA and State agency which administers OSHA regulations where Project is located.

- J. Protect existing structures, trees, shrubs, and other items to be preserved on Project site from injury, damage, or destruction by vehicles, equipment, worker or other agents with substantial barricades or other devices commensurate with hazards.

- K. Fences:
 - 1. Enclose temporary offices and storage areas with fence adequate to protect temporary facilities against acts of theft, violence, and vandalism.

2. When entire or part of site is to be permanently fenced, permanent fence may be built to serve for both permanent and temporary protection of the work site, provided that damaged or defaced fencing is replaced prior to Substantial Completion.
3. Protect temporary and permanent openings and close openings in existing fences to prevent intrusion by unauthorized persons:
 - a. Bear responsibility for protection of plant and material on site of the Work when openings in existing fences are not closed.
4. During night hours, weekends, holidays, and other times when no work is performed at site, provide temporary closures or enlist services of security guards to protect temporary openings.
5. Fence temporary openings when openings are no longer necessary.

1.06 SECURITY

- A. Make adequate provision for protection of the work area against fire, theft, and vandalism, and for protection of public against exposure to injury.

1.07 STAGING AREAS

- A. Contractor must provide, at Contractor's sole expense, a staging area for material, equipment, sanitary facilities, utilities, storage, scaffolds, barricades and any other temporary structure required to safely perform the Work. Contractor shall coordinate with the appropriate agencies having jurisdiction regarding feasible areas for staging prior to mobilization:
 1. Staging area must be safe and adequate for the intended use, and maintained in accordance with all applicable federal, state, and local laws, codes, and regulations.
 2. Contractor must fence and screen the staging area, and its operation must minimize inconvenience to neighboring properties.
 3. Contractor must promptly remove all temporary facilities when they are no longer needed or upon completion of the Work, whichever comes first. Contractor must promptly repair any damage to City's property or to other property caused by the installation, use, or removal of the temporary facilities, and must promptly restore the property to its original or intended condition.

1.08 ACCESS ROADS

- A. General:
 1. Build and maintain access roads to and on site of the Work to provide for delivery of material and for access to existing and operating plant facilities on site.
 2. Build and maintain dust free roads which are suitable for travel at 20 miles per hour.
- B. Off-site access roads:
 1. Build and maintain graded earth roads.
 2. Build roads only in public right-of-way or easements obtained by Owner.
 3. Obtain rights-of-way or easements when electing to build along other alignment.
- C. On-site access roads:

1. Maintain access roads to storage areas and other areas to which frequent access is required.
2. Maintain similar roads to existing facilities on site of the Work to provide access for maintenance and operation.
3. Protect buried vulnerable utilities under temporary roads with steel plates, wood planking, or bridges.
4. Maintain on-site access roads free of mud. Under no circumstances shall vehicles leaving the site track mud off the site onto the public right-of-way.

1.09 TEMPORARY CONTROLS

- A. Dust control:
 1. Prevent dust nuisance caused by operations, unpaved roads, excavation, backfilling, demolition, or other activities.
 2. Control dust by sprinkling with water, use of dust palliatives, modification of operations, or other means acceptable to agencies having jurisdiction.
- B. Noise control:
 1. Comply with noise and work hours regulations by local jurisdiction.
 2. In or near inhabited areas, particularly residential, perform operations in manner to minimize noise.
 3. In residential areas, take special measures to suppress noise during night hours.
- C. Mud control:
 1. Prevent mud nuisance caused by construction operations, unpaved roads, excavation, backfilling, demolition, or other activities.

1.10 PROJECT SIGN

- A. The following requirements are in addition to those listed in Section 00 73 50 - State Revolving Fund and Proposition 1 Funding Requirements.
- B. Provide and maintain Project identification sign consisting of painted 8-foot wide by 4-foot high exterior grade plywood and minimum 10-foot long, 4 by 4 lumber posts, set in ground at least 3 feet, with exhibit lettering by professional sign painter using no more than 5 sign colors:
 1. List at least the title of the Project, and names of the Owner, Engineer, Construction Manager and Contractor.
 2. Contractor's Engineer's and Construction Manager's names shall be identified in upper right hand corner underneath the bid number.
 3. Text of second line: Estimated Completion Date: month and year.
 4. On third line, list the bid price.
 5. On the fourth line, list the state agency administering the state revolving fund loan for the project - coordinate with Owner for this information. Include the EPA and state agency logo on the sign.
- C. Each segment of work shall have 2 project signs installed (one from each major direction of travel to the work area) and maintained in place until work is complete in that segment. Coordinate location of project sign with Construction Manager. Erect signs in each segment at least 14 days before works begins in the respective segment. Project signs may be used in more than one segment if they are in good

condition and work in the prior segment has been completed to the satisfaction of the Construction Manager and Owner.

- D. Replace or repair the project sign if it is damaged or covered with graffiti within 2 working days of observation or notification of damage or graffiti.

1.11 REMOVAL

- A. Remove temporary facilities and controls before inspection for Substantial Completion or when directed.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions.
- D. Restore existing facilities used during construction to specified or original condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

^{AD1} Addendum No. 1

SECTION 02224^{AD1}

GUIDED BORING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. The minimum requirements for installing a casing pipeline by guided boring at the location indicated on the Drawings. Contractor shall furnish all labor, equipment, power, and materials necessary for pipe installation.

- B. Reference codes and standards:
 - 1. The publications listed below form a part of this Specification to the extent referenced. Where conflicts between these Specifications and the referenced specification, code, or standard occur, the more restrictive specification shall govern. The latest edition available on the date of issue of Contract Documents shall be used.
 - 2. ASTM D 1002, Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimen by Tension Loading (Metal-to-Metal).
 - 3. ASTM G 8. Standard Test Methods for Cathodic Disbonding of Pipe Coatings.
 - 4. Occupational Safety and Health Administration (OSHA) Regulations and Standards for Underground Construction, 29 CFR Part 1926, Subpart S, Underground Construction, and Subpart P, Excavations.
 - 5. AREMA "Manual for Railway Engineering" 2018 Edition.

1.02 DEFINITIONS

- A. Guided Boring: a multi-stage method of installing a product pipe to precise line and grade by use of a guided pilot tube, followed by upsizing to install the product pipe. The system uses a theodolite guidance system to ensure accuracy, which is remotely operated and does not require personnel entry to the tunnel for normal operations. Pipe may be installed in a 2-phase operation (1 - pilot tube, 2 - product pipe with augers inside smaller diameter casing for spoil removal during upsizing), or 3-phase operation (1 - pilot tube, 2 - steel casings with augers, 3 - product pipe). Upsizing may be accomplished by a number of different methods such as auger boring or hand mining. The key aspect of a guided boring operation is that the equipment used to upsize the bore is connected to the tail end of the installed pilot tubes such that the jacking pipe is accurately installed along the line and grade established during the pilot step.

- B. Carrier Pipe: Permanent pipe for operational use.

- C. Casing: A pipe used to support a bore that is inserted simultaneously with the boring operation.

- D. Jacking Pipe: Pipe jacked after pilot tubes are installed. The jacking pipe may be the carrier pipe or casing pipe, and must be specifically designed to be installed by pipejacking using guided boring equipment.
- E. Obstruction: Object located wholly or partially within the cross-sectional area excavated that prevents the forward movement of the pipe string.

1.03 DESIGN CRITERIA

- A. Guided boring machine:
 - 1. The boring machine shall be manufactured by a company that specializes in the design and fabrication of this type of equipment and has had at least 5 years of experience manufacturing and marketing guided boring systems.
 - 2. The boring equipment selected for the project shall be suitable for and capable of efficiently advancing through the geologic conditions anticipated by the Contractor and indicated in the Geotechnical Report.
 - 3. The method of guidance shall be electronic theodolite with camera and electronic (LED) target that can continuously monitor line and grade during the pilot bore to ensure accuracy is maintained within the tolerances specified.
 - 4. The guided boring machine shall be monitored continuously by the operator during the pilot bore. A display showing the position of the machine in relation to design line-and-grade shall be provided at the operation console to allow the operator to continuously monitor vertical and horizontal offsets during the pilot bore.
- B. A pipe lubrication injection system shall be provided to inject pipe lubricants as required to minimize torque and jacking forces.
- C. The Contractor shall use manual data acquisition for collecting information for the jacking record. The Engineer and Owner's representative shall have reasonable access to all areas of the work, including the operations control area and shafts, for inspection and collection of data, measurements, and observations.
- D. Due to the sandy nature of the soil and risk of soil running into the cutter head a radial overcut shall not be performed. Contractor shall determine and submit the planned soil plug to be used at the face of the casing and auger.
- E. Methods and equipment shall control surface settlement and heave above the pipeline to prevent damage to existing utilities, facilities, and improvements. Ground movements (settlement/heave) shall be limited to values that do not cause damage or distress to surface features, utilities, or improvements. In no case shall settlements exceed the maximum allowable values listed in Section 02233 - Settlement Monitoring. The Contractor shall be responsible for any damage to existing features, improvements, or utilities, and shall repair any damage to the satisfaction of the Engineer, at no additional cost to the Owner, and without schedule extension.
- F. A thrust block (or similar jacking backboard) shall be used to transfer jacking loads to the soil behind the jacking shaft. The thrust block shall be installed perpendicular to the proposed pipe alignment, and shall be designed to withstand the maximum

jacking pressure anticipated, with a factor of safety of at least 1.5 without excessive deflection or displacement.

- G. Provide portal stabilization/ground improvement as necessary to prevent loss of ground and uncontrolled inflows at entry and exit locations as specified in Section 02261 - Shaft Excavation and Support.

1.04 QUALITY ASSURANCE

- A. Contractor or subcontractor performing the guided boring is required to meet the following qualification requirements:
 - 1. All guided boring work shall be performed by an experienced Contractor or subcontractor who has at least 3 years of experience in performing guided boring installations and has completed a minimum of 5 drives of similar diameter and length in similar ground conditions.
 - 2. The project superintendent shall have at least 3 years of experience involving guided boring construction.
- B. The boring machine operator(s) shall have technical training and experience in the operation of the proposed boring equipment and shall have completed, as a primary operator, at least 5 guided boring drives of similar length to the drive on this project.
- C. The site safety representative and personnel responsible for air quality monitoring shall be experienced in tunnel construction and shall be certified by OSHA.
- D. The surveyor responsible for line-and-grade control shall be a Licensed Surveyor registered in the State of California who has prior experience on trenchless projects.
- E. The Contractor shall provide at least 72 hours advance written notice to Engineer prior to beginning the bore.
- F. All Work by the Contractor shall be done in the presence of the Engineer unless the Engineer grants prior written approval to perform such Work in Engineer's absence.
- G. The Contractor shall immediately notify the Engineer, in writing, when any problems are encountered with equipment or materials, or if the Contractor believes the conditions encountered are materially and significantly different than those represented within the Contract Documents. Notification shall happen as soon as it is safe to do so.
- H. The Contractor shall allow access to the Engineer and shall furnish necessary assistance and cooperation to aid the Engineer in observations, measurements, data, and sample collection, including, but not limited to the following:
 - 1. The Owner and/or Engineer shall have access to the operator control panel prior to, during, and following all guided boring operations. This shall include, but not be limited to, providing visual access to real-time operator control screens, gauges, and indicators.
 - 2. The Owner and/or Engineer shall have access to the jacking and reception shafts prior to, during, and following all boring operations. This shall include, but not be limited to, visual inspection of installed pipe and verification of line and grade. The Contractor shall provide safe access in accordance with all safety regulations.

3. The Owner and/or Engineer shall have access to spoils removed from the tunnel excavation during and following all guided boring operations. The Engineer shall be allowed to collect soil samples from the spoil piles a minimum of once per installed pipe section, or every 10 feet, whichever is more often, and at any time when changes in soil conditions or obstructions are apparent or suspected.

~~1. The Contractor shall coordinate with agents or designated representatives of Union Pacific Railroad (UPRR) as required to complete the work in accordance with UPRR standard guidelines and specifications.~~

1.05 SUBMITTALS

- A. Submittals shall be made in accordance with the requirements of the City Standard Specifications, and shall provide sufficient detail to allow the Engineer to judge whether the proposed equipment, materials, and procedures will meet the City Standard Specifications requirements. All drawings shall be legible with dimensions accurately shown and clearly marked in English. Review of submitted details and data will be based on consideration of requirements for the completed work, protection of existing utilities, and the possibility of unnecessary delays in the execution of the work to be constructed under this Contract. Review and acceptance of the Contractor's Submittals by the Engineer shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.
- B. Qualifications:
 1. The Contractor shall submit the name, description, and current client contact information of at least 5 referenced projects including owner's name and current contact information, project superintendent, and machine operators.
 2. Submit the names of the personnel planned for this project including project superintendent, machine operators, and site safety representative. Submit personnel qualifications in accordance with Quality Assurance requirements of this Section.
 3. Provide evidence of OSHA certification for site safety representative and personnel responsible for air quality monitoring.
- C. Submit the following describing the guided boring equipment and construction methods to be employed:
 1. A detailed description of the guided boring equipment and procedures to be employed.
 2. Manufacturer's literature describing the guided boring system to be used including:
 - a. Machine type.
 - b. Equipment dimensions.
 - c. Spoil removal system.
 3. Provide descriptions of projects on which this system has been successfully used including names, addresses, and telephone numbers of owner's representatives for these projects as well as length, diameter, and pipe material used.
 4. A description of the alignment control and steering systems:
 - a. Provide manufacturer's literature, drawings showing set up and support provisions, and other details for the guidance system.

- b. Submit a description of surveying methods to set reference points and a description of procedures to check the guidance system and reset or realign it during construction.
 - c. Confirm that these systems can achieve the required pipeline line and grade within the specified tolerances.
 - 5. Jacking system details. Provide details of:
 - a. Jacking frame design and thrust ring.
 - b. Jacking controls, and pressure gauges. Provide a conversion factor for hydraulic pressure to force.
 - c. Thrust block details, including dimensions.
 - 6. Provide details of pipe lubrication injection system and pipe lubricants to be used as required during construction. Include a description of proposed lubrication procedures during jacking.
 - 7. Describe spoil handling, transport, disposal equipment and procedures, and spoil disposal sites. Provide written documentation from the disposal site(s) indicating that they will accept the spoil and are in compliance with prevailing (and applicable) regulations.
- D. Work Area Layout Drawings: The Contractor shall submit work area layout drawings detailing dimensions and locations of all equipment, including overall work area boundaries.
- E. Casing pipeline details including diameter, thickness, class of steel, joint type and details, and fabrication drawings from casing supplier.
- F. Calculations by a California licensed professional engineer showing anticipated jacking forces on casing pipeline, and pipe capacity indicating a safety factor of 2.0 or more.
- G. Product data, material safety data sheets, and written manufacturer recommendation for the casing pipeline factory and field coating.
- H. Grouting equipment, procedures, and proposed mixes for grouting the annular space and voids.
- I. Contingency plan for:
 - 1. Surface subsidence or heave.
 - 2. Equipment failure.
 - 3. Encountering obstructions.
 - 4. Tunnel failure.
- J. Schedule:
 - 1. Provide a schedule for guided boring work identifying all major construction activities as independent items:
 - a. The schedule shall include as a minimum the following activities: mobilization; shaft excavation and support; jacking equipment setup; pilot installation, reaming/boring pass, pipe installation pass; site restoration; cleanup; and demobilization.
 - b. The schedule shall also include the planned work hours and work days for each activity.
 - c. Detailed schedule may be included in the overall project schedule. If the overall project schedule does not included the above required details, submit a separate more detailed schedule.

- K. Daily records: The following daily records shall be submitted by noon on the day following the shift for which the data or records were taken:
1. Jacking records:
 - a. The Contractor shall provide complete jacking records to the Engineer. These records shall include, at a minimum: date, time, name of operator, drive identification, installed pilot tube/pipe number and corresponding bore length, jacking forces, use of lubrication, volume of soil removed, line and grade offsets, any movement of the guidance system, problems encountered with the jacking frame or other components or equipment, and durations and reasons for delays.
 - b. Manually recorded observations should be made at intervals of not less than once every 9 feet during the pilot bore and once per pipe during the reaming pass, whenever conditions change, and as directed by the Engineer.
 - c. At least 7 business days prior to beginning the bore, the Contractor shall submit samples of the manual jacking records.
- L. Calculations: Calculations shall be submitted in a neat, legible format. Assumptions used in calculations shall be consistent with information provided in the Geotechnical Report:
1. Provide an estimate of the maximum jacking force expected to complete each drive.
 2. Provide calculations demonstrating that the soils behind the thrust block can transfer the maximum planned jacking forces exerted by the main jacks to the ground during pipe installation with a factor of safety of at least 1.5, without excessive deflection or displacement.
 3. Submit calculations a minimum 60 days before guided boring operations are scheduled.
- M. Submit a safety plan for the guided boring operations.
- N. Submit pilot bore as-built drawing with alignment in plan and profile.

1.06 SAFETY

- A. The Contractor is responsible for safety on the job site. Methods of construction shall ensure the safety of the work, Contractor's and other employees on site, and the public. Perform all work in accordance with the current applicable regulations of the Federal, State, and local agencies. Comply with all applicable provisions of Tunnel Safety Orders of the State of California and 29 CFR Part 1926, Subpart S, Underground Construction and Subpart P, Excavations, by OSHA. In the event of conflict, comply with the more restrictive applicable requirement.
- B. No gasoline powered equipment shall be permitted in jacking and receiving shafts. Diesel, electrical, hydraulic, and air powered equipment is acceptable, subject to applicable local, State, and Federal regulations.
- C. Furnish and operate a temporary ventilation system and air monitoring system conforming to the requirements of OSHA when personnel are in the shaft or underground. Operate and maintain a ventilation system that provides a sufficient supply of fresh air and maintains an atmosphere free of toxic or flammable gasses in all underground work areas.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Casing pipe:
1. Type: Steel conforming to ASTM A 283, Grade C or ASTM A 1097. Shop and field joints shall be butt welded:
 - a. Press-fit interlocking connection system joints (Permalok or equal) are also acceptable in lieu of field welded butt joints. If used, submit joint details for approval.
 2. Diameter: As indicated on the Drawings and be within 1-1/2 percent of being true circle.
 3. Wall Thickness: As indicated on the Drawings, or in accordance with the design calculations in 1.05F, or a minimum of 1/2 inch, whichever is thickest.
 - ~~4. Steel casing pipe shall be factory lined and coated with fusion bonded dry powder epoxy, 100 percent solids with the following performance characteristics when applied:
 - a. Cathodic disbondment resistance: Average maximum 48 millimeters when tested in accordance with ASTM G8.
 - b. Adhesion shear resistance: Minimum 4,700 pounds per square inches when tested in accordance with ASTM D1002.~~
 - ~~5. Field coat field welded joints with a manufacturer recommended compatible high solids epoxy with a thickness similar to the factory applied epoxy.~~
 - ~~6. Lining and coating thicknesses shall be in accordance with the manufacturer's recommendation, but not less than 20 mils.~~
 - ~~7. Manufacturer shall be one of the following or equal:
 - a. 3M.
 - b. Morton Thiokol.~~

PART 3 EXECUTION

3.01 GENERAL

- A. Guided boring shall not begin until the following have been completed:
1. All required submittals have been provided, reviewed, and accepted.
 2. Jacking shaft and receiving shaft excavations and support systems have been completed in accordance with the requirements of 02261 - Shaft Excavation and Support.
 3. If necessary, soil and groundwater control and portal stabilization for breaking out of jacking shafts and into receiving shafts has been established, as specified in 02261 - Shaft Excavation and Support.
 4. All settlement monitoring instruments have been installed, surveyed, and accepted by the Engineer as specified in 02433 - Settlement Monitoring.
 5. Site safety representative has prepared a code of safe practices and an emergency plan in accordance with OSHA and other applicable requirements. Provide the Engineer with a copy of each prior to starting guided boring.
 6. Hold safety meetings and provide safety instruction for new employees as required by Cal/OSHA.
 7. The Contractor shall notify the California One Call system to request marking of utilities by utility owners/operators that subscribe to One Call, and shall individually notify all other known or suspected utilities to request marking of

these utilities. The Contractor shall confirm that all requested locates are made prior to commencing guided boring operations. The Contractor shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within 10 feet laterally of the designed bore.

- B. Furnish all necessary equipment, power, water, and utilities for equipment, pipe lubricant mixing and pumping, removal and disposal of spoil, and other associated work required for the Contractor's methods of construction.
- C. Conduct all operations such that trucks and other vehicles do not create a dust or noise nuisance in the streets and adjacent properties. Promptly clean up, remove, and dispose of any spoil spillage.
- D. All work shall be done so as not to disturb roadways, adjacent structures, landscaped areas, or utilities. Any damage shall be immediately repaired to the satisfaction of the Engineer at no additional cost to the Owner.
- E. Notify the Engineer at least 15 days before beginning any excavation.
- F. Size and locate shafts to minimize interference with vehicular and pedestrian traffic. All equipment and operations must be contained within the allowable construction zones shown on the Drawings.
- G. All Work shall be in accordance with applicable permits.

3.02 INSTALLATION

- A. Pipe installation by guided boring shall be completed in accordance with the shop drawings, reviewed and accepted submittals, and permit conditions.
- B. Guided boring equipment shall meet the specified requirements of this Section.
- C. Provide a suitable jacking frame and thrust block to carry out the work.
- D. Prior to starting guided boring operations, survey the location and orientation of the pilot tube jacking frame to ensure it is on the proper line and grade.
- E. Pilot tubes shall be advanced while continuously monitoring line and grade. Jacking forces shall also be continuously monitored during the pilot tube installation.
- F. The axial forces from the jacking frame shall be distributed to the pipe uniformly through a properly designed thrust adaptor to prevent damage to the ends of the pipe. The jacking system shall be capable of continuously monitoring the jacking pressure.
- G. Pipes shall be jacked into position following the design line and grade of the pipeline without damaging the pipe.
- H. In the event a section of pipe is damaged during the jacking operation, the damaged section of pipe shall be removed. Methods of repairing the damaged pipe may be proposed, subject to approval by the Engineer.

- I. Provide a lubrication system, and inject pipe lubricants through injection ports as necessary to minimize pipe friction.
- J. Ground Movements (Settlement/Heave):
 - 1. The guided boring equipment shall be operated in a manner to prevent both surface heave and loss of ground. Control the advance rate and monitor the volume of material excavated and adjust advance rate, as required, to avoid loss of ground, over-excavation, and surface heave.
 - 2. Methods and equipment shall control surface settlement and heave above the pipeline to prevent damage to existing utilities, facilities, and improvements.
 - 3. Ground movements shall be limited to values that do not cause damage or distress to surface features, utilities, or improvements.
 - 4. In no case shall settlement exceed the maximum allowable values listed in Section 02233 - Settlement Monitoring.
 - 5. The Contractor shall be responsible for any damage to existing features, improvements, or utilities resulting from construction activities, and shall repair any damage to the satisfaction of the Engineer, at no additional cost to the Owner and without extension of schedule for completion.
- K. Transport and dispose of all excavated materials properly away from the construction site. Solids shall be disposed of at acceptable facilities in accordance with current state regulations for disposal of these materials. Only use the disposal sites identified in the submittals for spoil disposal.
- L. Install product pipe in accordance with Section 02349 - Installation of Carrier in Casing.

3.03 CONTROL OF LINE AND GRADE

- A. Establish not less than 3 survey control points in the vicinity of the guided boring operation prior to the start of construction.
- B. Contractor shall use survey control points to furnish and maintain all reference lines and grades for guided boring operations.
- C. The Contractor shall use these lines and grades to establish the location of the pipe using a guidance system. Submit to the Engineer copies of field notes used to establish all lines and grades and allow the Engineer to check guidance set up prior to beginning boring. The Contractor remains fully responsible for the accuracy of the work and the correction of it, as required.
- D. The jacking pipe shall be installed in accordance with the following tolerances:
 - 1. Variations from design line or grade: +/-3 inches maximum.
- E. The guidance system shall be mounted independently from the thrust block and jacking frame to maintain the alignment of the system.
- F. Stop pilot tube operations and reset the guidance system if alignment shifts or is moved off of design alignment and/or grade for any reason.

- G. Guidance system should only be reset by qualified surveying personnel in accordance with approved procedures.
- H. If the pipe installation exceeds the specified tolerances, the Contractor shall correct the installation, including, if necessary, redesign of the pipeline or structures. All corrective work shall be performed as approved by the Engineer at no additional cost to the Owner.

3.04 OBSTRUCTIONS

- A. If the guided boring operations should encounter an object or condition that impedes forward progress, the Contractor shall notify the Engineer immediately. The Contractor shall correct the condition, and remove, clear, or otherwise make it possible for the guided boring equipment and jacking pipe to advance past any objects or obstructions that impede forward progress. The Contractor shall proceed with removal of the object or obstruction by methods submitted by the Contractor and accepted by the Engineer. The Contractor will receive compensation for removal of obstructions, which cannot be broken up by the cutting tools with diligent effort, and that are located partially or wholly within the cross-sectional area of the bore. Payment will be negotiated with the Contractor by the Engineer on a case-by-case basis. The Engineer shall be provided an opportunity to view obstruction prior to removal. Any removal process that does not allow direct inspection of the nature and position of the obstruction will not be considered for payment. The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the guided boring equipment to advance past objects consisting of cobbles, boulders, wood, unreinforced concrete, and other nonmetallic objects or debris with maximum lateral dimensions less than 30 percent of the outer diameter of the casing pipe.

3.05 CLEANUP AND RESTORATION

- A. After completion of the guided boring and pipe installation, all construction debris, slurry, oil, grease, and other materials shall be removed from the installed pipe, jacking and receiving shafts, and all Contractor work areas. Cleaning shall be incidental to the construction.
- B. Restoration shall follow construction as the work progresses and shall be completed as soon as possible. Restore and repair any damage resulting from surface settlement or heave caused by shaft excavation or boring. Any property damaged or destroyed shall be restored to a condition equal to or better than existing prior to construction. Restoration shall be completed no later than 30 days after the pipe is in place along any boring segment.

END OF SECTION

^{AD1} Addendum No. 1

SECTION 02318^{AD1}

TRENCHING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Trench excavation and trench backfill.
- B. Contractor shall not anticipate that trenches will maintain a vertical cut. See available geotechnical investigations and trenching evaluation for more information about the existing soil.

1.02 REFERENCES

- A. ASTM International (ASTM):
 - 1. D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method.
 - 2. D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).

1.03 SUBMITTALS

- A. As specified in Section 01330 - Submittal Procedures.
- B. Product data on soils and aggregates:
 - 1. Material source.
 - 2. Gradation.
 - 3. Test data to demonstrate compliance with this Section.
- C. Samples:
 - 1. Provide 50-pound sample of materials when requested by the Engineer.
- D. Confirmation testing:
 - 1. Certification of Contractor's testing laboratory.
 - 2. Record copy report for tests performed by Contractor's testing laboratory.

1.04 DEFINITIONS

- A. Backfill: Material placed in trench above the pipe embedment zone.
- B. Bedding: Material placed under, around, and over pipes or ducts in trenches.
- C. Center bedding: Material placed at the bottom of the trench directly under the center of the pipe to provide a malleable resting surface.
- D. Fine grading: Material placed directly below pipes or ducts to provide support at the bottom of the trench and to bring those elements to required grades and elevations.

- E. Flexible pipe: Includes steel, ductile iron, thermoplastics such as polyvinyl chloride (PVC) and high-density polyethylene (HDPE), thermosetting plastics such as fiberglass-reinforced polymer (FRP), bar-wrapped concrete cylinder pipe, and corrugated steel pipes.
- F. Haunch zone: Material placed below and beside the pipe up to the pipe springline.
- G. Lift: A layer of soil or aggregate material, measured before compaction.
- H. Maximum density, laboratory compaction: Soil maximum density and optimum water content when tested in accordance with ASTM D1557.
- I. Maximum density, field compaction: Soil density and water content when tested in accordance with ASTM D1556.
- J. Pavement section: Includes pavement plus underlying courses such as base course and subgrade.
- K. Pipe embedment zone: Includes bedding, fine grading, center bedding, and haunch zone.
- L. Pipe foundation: Material placed at the bottom of trench to provide support.
- M. Pipe springline: A horizontal reference line located at mid-height, or halfway point, of a circular conduit, pipe, or tunnel. It is the maximum horizontal dimension or diameter of a circular conduit, pipe, or tunnel.
- N. Rigid pipe: Includes reinforced non-cylinder concrete, reinforced concrete cylinder, prestressed concrete cylinder, vitrified clay, polymer concrete, cast iron, asbestos cement and cast-in-place pipes.

PART 2 PRODUCTS

2.01 MATERIALS

- A. As specified in Section 02050 - Soils and Aggregates for Earthwork.
- B. Class C concrete: As specified in Section 03300 - Cast-in-Place Concrete.
- C. Controlled low-strength material: As specified in Section 02312 - Controlled Low Strength Material (CLSM).

PART 3 EXECUTION

3.01 PREPARATION

- A. Stabilize excavations as specified in Section 02260 - Excavation Support and Protection.

3.02 DEWATERING

- A. As specified in Section 02240 - Dewatering.

3.03 TRENCH EXCAVATION

- A. Excavate bottom of trench to depth indicated on the Drawings.
- B. Areas of new fill or embankment:
 - 1. Prior to laying pipes or electrical service, place fill and compact as specified to not less than 2 feet above top of pipe, conduit, or duct bank.
 - 2. Excavate through fill for pipe trench.
- C. Trench widths as specified in the following table:

Buried Pipe Or Accessory	Minimum Trench Width	Maximum Trench Width
Nominal Pipe Diameter: 4 inch to 24 inch	OD + 18 inches	OD + 24 inches
Nominal Pipe Diameter: Greater than 24 inch	OD + 24 inches	OD + 36 inches
Manholes, valves, or other accessories	12 inches between outer surface and trench side or shoring	Not applicable

- D. At road crossings or existing driveways:
 - 1. Make provision for channel or trench crossings at these points, either by means of trenchless technologies or temporary bridges.
 - 2. Engineer approval for remedy, without additional cost to Owner, when trench width at top of pipe is increased beyond width specified in this Section because of soil conditions, safety requirements, or other reasons:
 - a. Remedy may include upgrade laying conditions or install stronger pipe designed in accordance with Specifications.

3.04 TRENCH BACKFILL - GENERAL

- A. Place material, except CLSM and concrete, in maximum 6 inch lifts, measured before compaction.
- B. Backfilling of manhole excavation: Conform to backfilling requirements as specified for trenches in this Section.

3.05 PIPE FOUNDATION

- A. Provide trench bottom with firm, dry, uniform bearing surface at the grade indicated on the Drawings:
 - 1. Prepare pipe foundation, with any unauthorized excess excavation below elevation indicated on the Drawings, at no additional cost to Owner.

- B. If bottom of trench excavation consists of soil:
 - 1. Scarify bottom of trench to a depth of 6 inches below the grade indicated on the Drawings.
 - 2. Materials and placement:
 - a. Re-compact scarified native material to 95 percent of maximum density.

- C. If bottom of trench excavation consists of rock or any material that, by reason of its hardness, cannot be excavated to provide uniform bearing surface:
 - 1. Remove such rock or other material to a depth of not less than 4 inches below pipe embedment zone.
 - 2. Materials:
 - a. CLSM.
 - b. Class C concrete.

- D. If bottom of trench excavation consists of unacceptable material:
 - 1. Remove such unacceptable material to a depth of not less than 18 inches below pipe embedment zone.
 - 2. Material and placement:
 - a. Stabilization material compacted to 95 percent of maximum density:
 - 1) Maximum particle size for backfill material limited as specified in the following table:

Buried Pipe	Maximum Particle Size
Nominal Pipe Diameter: 6 inch to 8 inch	3/4 inch
Nominal Pipe Diameter: 10 inch to 16 inch	3/4 inch
Nominal Pipe Diameter: Greater than 18 inch	3/4 inch

3.06 PIPE EMBEDMENT ZONE

- A. General:
 - 1. Pipe displacement:
 - a. Take necessary precautions in placement and compaction of bedding material to prevent displacement of piping.
 - b. In event there is movement or floating of the piping, re-excavate, re-lay, and backfill the pipe.
 - 2. Depressions for joints or couplings:
 - a. Excavate holes in graded trench bottom.
 - b. Provide holes of sufficient width to provide ample room for grouting, banding, or welding as necessary for making joints and to ensure that pipe rests upon prepared trench bottom and not supported by any portion of the joint.

- B. Fine grading:
 - a. Compacted depth below bottom of pipe: 6 inch minimum.
 - b. Materials and placement:
 - 1) Native compacted to 95 percent maximum dry density.

- C. Bedding:
 - a. Compacted depth above top of pipe: 12 inch minimum.
 - b. Materials and placement:
 - 1) Native compacted to 95 percent maximum dry density.

3.07 BACKFILL

- A. All trench backfill above pipe embedment zone:
 - 1. Materials and placement:
 - a. Native soil compacted to 95 percent maximum dry density.
 - b. Aggregate base course compacted to 95 percent maximum dry density.
 - c. CLSM.
- B. Trenches in rock:
 - 1. Backfill to top of rock:
 - a. Materials and placement:
 - 1) CLSM.
 - 2) Class C concrete.
 - 2. Backfill from top of rock to grade, if applicable:
 - a. Materials and placement:
 - 1) Aggregate base course compacted to 95 percent of maximum density.
- C. Trenches below or within 10 feet of the outside perimeter of structures:
 - 1. Backfill to underside of aggregate base course below structure.
 - 2. Materials and placement:
 - a. Aggregate base course compacted to 95 percent of maximum density.
 - b. CLSM.
- D. Trenches in roadways and paved areas:
 - a. Above the trench backfill, the road structural section (asphalt cement above aggregate base course) shall be as specified in Section 01140.
- E. Trenches in areas outside the improved section of roadways or in open country:
 - 1. Backfill to finished grade.
 - 2. Materials and placement:
 - a. Native soil, native soil - select, imported material, or aggregate base course compacted to 95 percent of maximum density.
- F. Trenches under existing intersecting pipes, duct banks, or conduits larger than 3 inches in diameter:
 - 1. Backfill from above top of new pipe embedment zone to springline of intersecting pipe or conduit:
 - a. Extend backfill at least 2 feet on either side of intersecting pipe or conduit to ensure backfill material remains in place while other backfill is being placed.
 - b. Materials and placement:
 - 1) CLSM, unless otherwise indicated on the Drawings.
 - 2. Backfill remainder of trench:
 - a. Materials and placement:
 - 1) CLSM or ABC.

3.08 EXCESS MATERIAL

- A. Remove excess excavated material from the Project site as specified in Section 02300 - Earthwork.

3.09 FIELD QUALITY CONTROL

- A. Provide field quality control for the Work as specified in Section 01450 - Quality Control.
- B. Contractor shall pay for and obtain a qualified testing agency to perform ~~all quality control testing~~ the Initial Compaction Demonstration. The Owner's Construction Manager will pay for and perform
- C. The following confirmation and compliance testing is required at a minimum. Local agencies where work occurs have additional testing requirements, which the Contractor must also comply with.
- D. Initial ~~compaction~~ Compaction demonstration ~~Demonstration~~:
 - 1. An initial compaction demonstration is required at each project location.
 - ~~4.2. Contractor shall pay for and obtain a qualified testing agency to perform~~ Pay for and perform ~~initial compaction testing.~~
 - ~~2.3. Adequacy of compaction equipment and procedures: Demonstrate adequacy of compaction equipment and procedures~~ and provide verified testing results to the Construction Manager before exceeding the following:
 - a. 25 linear feet of pipeline.
 - ~~3.4. Compaction sequence requirements: Until specified degree of compaction on previously specified amounts of~~ earthwork-trenching is achieved, do not perform additional earthwork-trenching of the same kind.
 - ~~4.5. After satisfactory conclusion of~~ the Initial compaction ~~Demonstration~~, immediately submit and at any time during construction, provide confirmation ~~compaction~~ test ~~results as specified under~~ "FIELD QUALITY CONTROL" to both the Owner and agency having jurisdiction."
- E. Confirmation tests:
 - 1. The Construction Manager will pay for and perform all compaction confirming testing after the Initial Compaction Demonstration.
 - ~~4.2. Contractor's responsibilities:~~
 - a. Provide access for the Construction Manager to perform testing.
 - ~~a. Notify the Construction Manager not less than 24 hours before compaction confirmation testing is needed so the Construction Manager can coordinate the testing.~~ Pay for and perform all quality control testing if initial test is failed.
 - b.
 - ~~b. Adequacy of compaction equipment and procedures:~~
 - 1) ~~At each test location include tests for each type or class of backfill from bedding to finish grade.~~
 - ~~c. Compaction sequence requirements:~~
 - ~~4)c. Do not perform additional~~ earthwork of the same kind ~~trenching~~ until specified degree of compaction has been demonstrated ~~achieved~~.
 - ~~d. Cost of confirmation tests: Paid for by the Contractor if initial test is failed.~~
 - ~~e. Qualifications of Contractor's testing laboratory: Acceptable to Engineer.~~

~~f.d. Copies of confirmation test reports: Submit promptly to the Engineer. Where the Contractor does not meet the minimum specified compaction, as tested by the Construction Manager, Contractor shall be responsible for paying the costs of subsequent follow-up retesting.~~

~~2.3. Frequency of confirmation testing:~~

~~a. Contractor shall anticipate compaction confirmation testing up to every 50 linear feet. Maximum dry density versus moisture:~~

~~— 50 linear feet.~~

~~— Compaction testing:~~

~~1)a. 50 linear feet~~

~~F. Compliance tests:~~

~~1. Frequency of testing: Periodic compliance tests will be made by the Construction Manager to verify that compaction is meeting requirements previously specified.~~

~~2. Perform remedial work if compaction test fails to meet specified requirements using one of the following methods:~~

~~a. Remove and replace backfill at the proper density.~~

~~3. Retesting:~~

~~a. Costs of retesting: Contractor is responsible for the costs of retesting required to confirm and verify that remedial work has brought compaction within specified requirements.~~

~~b. Contractor's confirmation tests during performance of remedial work:~~

~~1) Performance: Perform tests in manner acceptable to the Engineer.~~

~~2) Frequency: Double amount specified for initial confirmation tests.~~

~~G.F. Piping system testing:~~

~~1. As specified in Section 15956 - Piping Systems Testing.~~

END OF SECTION

AD1 Addendum No. 1

SECTION 02742A^{AD1}

ASPHALTIC CONCRETE PAVING (CA)

PART 1 GENERAL

1.01 SUMMARY

- A. Paving shall comply with the paving requirements of the local agency having jurisdiction, which shall take precedence over the requirements in this Section.
- B. Where paving is required in other areas, or if the local agency having jurisdiction does not have paving requirements, the requirements of this Section shall govern.
- C. Temporary paving is defined in this Section. If a local agency having jurisdiction has a temporary paving requirement, the local agency requirement shall take precedence over the requirements in this Section.

1.02 REFERENCES

- A. ASTM International (ASTM):
 - 1. D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft. lbf/f₄³)(2,700 kN-m/m²).
 - 2. D1561 - Standard Practice for Preparation of Bituminous Mixture Test Specimens by Means of California Kneading Compactor.
- B. Caltrans Standard Test Methods:
 - 1. Calif Test 202 - Sieve Analysis of Fine and Coarse Aggregates.
 - 2. Calif Test 304 - Preparation of Bituminous Mixtures for Testing.
 - 3. Calif Test 362 - Determining Asphalt Content in Bituminous Mixtures by Vacuum Extraction.
 - 4. Calif Test 375 - Determining the In-Place Density and Relative Compaction of AC Pavement.
 - 5. Calif Test 379 - Determining Asphalt Content in Bituminous Mixtures (Troloxer Nuclear Gauge Model 3241).
- C. State of California Department of Transportation Standard Specifications, latest edition (Caltrans Standard Specifications):
 - 1. Section 37 - Bituminous Seals.
 - 2. Section 39 - Hot Mix Asphalt.
 - 3. Section 88 - Geosynthetics.
 - 4. Section 92 - Asphalts.
 - 5. Section 93 - Liquid Asphalts.
 - 6. Section 94 - Asphaltic Emulsions.

1.03 SYSTEM DESCRIPTION

- A. This Work shall consist of furnishing and mixing aggregate and asphalt binder at a central mixing plant, spreading and compaction of the mixture as specified and as indicated on the Drawings.

- B. In general, asphalt concrete and asphalt concrete base shall conform to Section 39 "Hot Mix Asphalt," and all applicable referenced sections of the Caltrans Standard Specifications:
 - 1. Where conflicts exist, this specification shall govern.
- C. Temporary paving:
 - 1. Trenches shall be paved with temporary Hot Mix Asphalt pavement immediately following the trench backfill.
 - 2. All temporary asphalt shall be a minimum 2 inches thick for roads with a speed limit of 25 miles per hour or less and a minimum 3 inches thick for roads with a speed limit over 25 miles per hour.
 - 3. Temporary asphalt shall be properly compacted flush with existing paving using a vibratory roller or vibratory plate.
 - 4. All temporary paving must be kept up daily at the Contractor's expense.

1.04 DEFINITIONS

- A. "Asphalt Concrete" as used by Caltrans shall be considered the "Surface Course," or the final lift of the pavement section.
- B. "Asphalt Concrete Base" as used by Caltrans shall be the remaining portion of the asphalt pavement section excluding the final lift.
- C. "Asphalt Pavement" shall be the total pavement section of asphalt including Asphalt Concrete and Asphalt Concrete Base.

1.05 SUBMITTALS

- A. Mix design.
- B. Shop drawings.
- C. Product data:
 - 1. Asphalt.
 - 2. Asphalt aggregate.
 - 3. Pavement reinforcing fabric.
- D. Quality control submittals:
 - 1. Test results.
 - 2. Certificate of Compliance.
 - 3. Certificate of Competence.
- E. Equipment list.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Asphalt pavement delivery:
 - 1. Transport the mixture from the mixing plant to the point of use in vehicles having tight bodies previously cleaned of all foreign materials.
 - 2. Treat bodies as necessary to prevent material from sticking to the bodies.
 - 3. Cover each load with canvas or other suitable material of sufficient size and thickness to protect the asphalt mixture from the weather.

1.07 PROJECT CONDITIONS

- A. Environmental requirements:
 - 1. Asphalt concrete:
 - a. Place asphalt concrete only when surface is dry, and when atmospheric temperature in the shade is 40 degrees Fahrenheit and rising, or above 50 degrees Fahrenheit if falling.
 - b. Do not place asphalt concrete when weather is foggy or rainy, when base on which material is to be placed is in wet or frozen conditions, or when, in the opinion of the Engineer, weather conditions will prevent proper handling, finishing, or compaction of the mixtures.
 - 2. Prime coat:
 - a. Do not apply prime coat when atmospheric temperature is below 60 degrees Fahrenheit.
 - b. Apply prime coat only when base course is dry or contains moisture not in excess of that which will permit uniform distribution and desired penetration.

PART 2 PRODUCTS

2.01 ASPHALT PAVEMENT MATERIALS

- A. Asphalts:
 - 1. Asphalt binder: Steam-refined paving asphalt, PG 64-10 conforming to Section 92-1.02C "Grades" of the Caltrans Standard Specifications.
 - 2. Prime coat and tack coat: Grade SC-70 conforming to Section 93 of the Caltrans Standard Specifications.
 - 3. Fog seal: Asphaltic emulsion, Grade SS-1h.
- B. Asphalt aggregate:
 - 1. Aggregate for asphalt concrete shall conform to Section 39-1.02E of the Caltrans Standard Specifications for Type B grading, 1/2-inch maximum, medium.
 - 2. Aggregate for asphalt concrete base shall conform to Section 39-1.02E of the Caltrans Standard Specifications for Type B grading.
- C. Asphalt pavement shall be produced in a batch mixing plant, a continuous pugmill mixing plant, or dryer-drum mixing plant:
 - 1. Proportioning shall conform to Section 39-3.03 of the Caltrans Standard Specifications.
 - 2. Mixing shall conform to Section 39-3.04 of the Caltrans Standard Specifications.

2.02 PAVEMENT-REINFORCING FABRIC

- A. Pavement-reinforcing fabric shall conform to Section 88-1.02 and all applicable referenced sections of the Caltrans Standard Specifications, at the following locations:
 - 1. All asphalt pavement.

2.03 SLURRY SEAL

- A. Slurry seal, Type II, shall be applied in conformance with the provisions in Section 37-2, and all applicable referenced sections of the Caltrans Standard Specifications, at the following locations:
 - 1. At all locations indicated on the Drawings.

2.04 AGGREGATE BASE COURSE

- A. Aggregate base course: As specified in Section 02050 - Soils and Aggregates for Earthwork.
- B. Aggregate base course shall be placed at the following locations:
 - 1. Trench structural section below asphalt pavement.
- C. Compacted thickness of aggregate base course shall be the 12 inches or match existing, whichever is greater, unless otherwise indicated.

2.05 EQUIPMENT

- A. Spreading and compacting equipment:
 - 1. Spreading equipment shall conform to Section 39-1.10 and all applicable referenced sections of the Caltrans Standard Specifications:
 - a. Only in areas inaccessible to the machine, by approval of the Engineer, will hand spreading be permitted.
 - 2. Compaction equipment shall conform to Section 39-1.10 and all applicable referenced sections of the Caltrans Standard Specifications.

2.06 SOURCE QUALITY CONTROL

- A. The Engineer will perform sampling and tests of materials in accordance with California Test Method Number 304 and California Test Method Number 362 or 379, as applicable. Samples will be taken from materials as delivered to the site.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of conditions: Verify surfaces and site conditions are ready to receive work. If unsatisfactory conditions exist, do not commence installation until such conditions have been corrected. Beginning application means acceptance of existing conditions.

3.02 PREPARATION

- A. Protection:
 - 1. Protect concrete pavements and walks, curbs and bases, and other improvements adjacent to the operations with suitable materials.

2. Building and other surfaces shall be covered with paper or other protection, when required.
3. Contractor shall be responsible for any damage caused by Contractor's employees. All damage caused by the Contractor's operations shall be repaired to the satisfaction of the Engineer at no additional cost to Owner.

B. Subgrade preparation:

1. Immediately prior to applying prime coat or tack coat, or immediately prior to placing the asphalt pavement when prime coat or tack coat is not required, the subgrade to receive asphalt pavement shall conform to the compaction requirement and elevation tolerances specified for the material involved and shall be cleaned to remove any loose or extraneous material.
2. If the asphalt pavement is to be placed on an existing base or pavement that was not constructed as part of the contract, the Contractor shall clean the surface by sweeping, flushing, or other means to remove all loose particles of paving, all dirt, and all other extraneous material immediately before applying the prime coat or tack coat.

3.03 PRIME COAT AND TACK COAT

A. Prime coat:

1. A prime coat of liquid asphalt shall be applied on all surfaces of base course material to be paved.
2. Prime coat shall be applied at a rate of 0.25 gallons per square yard and shall conform to Section 93-1.03 of the Caltrans Standard Specifications for the distributor application of the grade of liquid asphalt being used.

B. Tack coat:

1. A tack coat of asphaltic emulsion shall be applied to all vertical surfaces of existing pavement, curbs, gutters, and construction joints in the surfacing against which additional material is to be placed, or as otherwise specified in this Section.
2. Tack coat shall be applied in one application at a rate of 0.1 gallons per square yard of surface covered.

3.04 ASPHALT PAVEMENT

- A. Compacted thickness of asphalt pavement shall be the 4 inches or match existing, whichever is greater, unless otherwise indicated.
- B. Placing materials in a windrow, then picking it up and placing it in the asphalt paver with loading equipment, will be permitted provided that:
 1. The asphalt paver is of such design that the material will fall into a hopper that has a movable bottom conveyor to feed and screed.
 2. The loader is constructed and operated so that substantially all of the material deposited into windrows is picked up and deposited into the paving machine.
 3. The windrow is deposited only so far in advance of the paver to provide for continuous operation of the paver and not so far as to allow the temperature of the asphalt pavement in the windrow to fall below 260 degrees Fahrenheit.
- C. Unless lower temperatures are directed by the Engineer, asphalt concrete shall be spread, and the first coverage of initial or breakdown compaction shall be performed when the temperature of the mixture is not less than 250 degrees Fahrenheit, and

all breakdown compaction shall be completed before the temperature of the mixture drops below 205 degrees Fahrenheit.

- D. Asphalt pavement shall be spread and compacted in not more than 2 inch layers and of the thicknesses indicated in the following table:
 - 1. A thickness tolerance of within 0.1 inches is allowed for asphalt concrete.
 - 2. A total thickness tolerance of within 0.2 inches is allowed for asphalt concrete base.

- E. A layer shall not be placed over another layer until the temperature of the layer is less than 160 degrees Fahrenheit at mid depth:
 - 1. If the temperature of any layer drops below 140 degrees Fahrenheit, or if directed by the Engineer, apply tack coat before placing next layer.

- F. Unless otherwise indicated on the Drawings, asphalt mixtures shall not be handled, spread, or windrowed in a manner that will stain the finished surface of any pavement or other improvements.

- G. The completed mixture shall be deposited on the prepared subgrade at a uniform quantity per linear foot, as necessary to provide the required compacted thickness without resorting to spotting, picking up, or otherwise shifting the mixture.

- H. Spreading:
 - 1. All layers of asphalt pavement shall be spread with an asphalt paver and shall conform to Section 39-1.11 and all applicable referenced sections of the Caltrans Standard Specifications.
 - 2. At locations where the asphalt pavement is to be placed over areas inaccessible to spreading and rolling equipment, all layers of asphalt pavement shall be distributed directly out of the back of the dump truck and spread by hand:
 - a. Asphalt pavement spread by hand shall be compacted thoroughly to the required lines, grades, and cross-sections by means of pneumatic tampers, or by other methods that will produce the same degree of compaction as pneumatic tampers.

- I. Compaction:
 - 1. Compaction of asphalt pavement shall conform to Sections 39-1.11, 39-3.03, 39-3.04, and all applicable referenced sections of the Caltrans Standard Specifications.
 - 2. Minimum required density for each layer of asphalt pavement shall be 95 percent of that obtained in the laboratory in accordance with ASTM Test Method D1561.

- J. Segregation shall be avoided, and the surfacing shall be free of pockets of coarse or fine material. Asphalt pavement containing hardened lumps shall not be used:
 - 1. In areas inaccessible to paving and compacting equipment where spreading is done by hand, minimize the amount of segregation.

- K. Location of longitudinal joints in the top layer will be determined by the Engineer and shall not adversely affect the quality of the finished product.
- L. At all locations, or as directed by the Engineer, the asphalt concrete shall be square and at least 1-inch thick when conforming to existing surfacing. Tapering or feathering is not allowed.

3.05 FIELD QUALITY CONTROL

~~A.~~ Contractor-Construction Manager shall pay for and perform all asphalt testing.

~~A-B.~~ Contractor shall control the quality of Work. Contractor shall anticipate the following testing will be performed:

~~B.~~ Contractor shall control the quality of Work and shall provide adequate testing to ensure compliance with these Specifications:

1. The type and size of the samples shall be suitable to determine conformance with stability, density, thickness, and other specified requirements. Use an approved power saw or core drill for cutting samples. Furnish all tools, labor, and materials for cutting samples, testing, and replacing the pavement where samples were removed. Take a minimum of 1 sample for every 4,000 square feet of asphalt pavement placed.

~~C.~~ All asphalt pavement shall match the grades indicated on the Drawings and shall be completely free from unintended hollows and high spots:

1. After completion of paving work, all paving shall be flooded with water. Any ponding that results in standing water greater than 3/4 inch in depth shall be ringed with chalk. Such hollows shall be corrected by removing and replacing the asphalt concrete. The asphalt concrete patch shall be square and at least 1-inch thick when conforming to existing surfacing. Tapering or feathering is not allowed.

~~D-2.~~ Contractor shall perform in-place density and compaction tests of the completed pavement in accordance with California Test Method Number 375, to determine compliance with the specified requirements. Submit test results to Engineer for approval.

~~E-C.~~ Cracks, settling of surface, improper drainage, improper compaction, and sloppy connection to previously laid surfaces will be construed as improper workmanship and will not be accepted.

3.06 REQUIREMENTS OF AGENCIES HAVING JURISDICTION

A. City of Marina:

1. Per the City's Encroachment Permit Requirements.

~~4-2.~~ Final paving should occur after each segment of pipe is installed.

~~2-3.~~ Compaction testing results shall be provided to the City for review no later than the day after compaction testing takes place:

- a. Compaction testing shall occur per ASTM (not Caltrans)

B. City of Seaside:

1. Per the City's Encroachment Permit Requirements.

~~4-2.~~ Temporary paving shall be flush with the existing street.

~~2-3.~~ Minimum of 2 inches of temporary paving shall be provided.

C. Monterey County:

~~C-1. Per the County's Encroachment Permit Requirements.~~

D. California State University, Monterey Bay (CSUMB):

~~D-1. Per CSUMB's Encroachment Permit Requirements.~~

3.07 MAINTENANCE OF PAVEMENT

- A. Upon completion of final rolling, traffic shall not be permitted on the finished pavement for at least 6 hours, or until the asphalt pavement has cooled sufficiently to withstand traffic without being deformed.

3.08 WORKMANSHIP AND WARRANTY

- A. Contractor shall provide written warranty against defects in materials or workmanship for a period of not less than 1 year upon completion of Work.

END OF SECTION

^{AD1} Addendum No. 1

SECTION 15052^{AD1}

COMMON WORK RESULTS FOR GENERAL PIPING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Basic materials and methods for metallic and plastic piping systems.

1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24.
 - 2. B16.47 - Large Diameter Steel Flanges: NPS 26 Through NPS 60 Metric/Inch Standard.
- B. American Water Work Association (AWWA):
 - ~~1. C105 - Standard for Polyethylene Encasement for Ductile Iron Pipe Systems.~~
 - 2.1. C207 - Standard for Steel Pipe Flanges for Waterworks Services-Size 4 In. Through 144 In.
- C. ASTM International (ASTM):
 - 1. A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
 - 2. A194 - Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
 - 3. A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
 - 4. A563 - Standard Specification for Carbon and Alloy Steel Nuts.
 - 5. F37 - Standard Test Methods for Sealability of Gasket Materials.
 - 6. F2329 - Standard Specification for Zinc Coating, Hot-Dip, Requirements of Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners.
- D. California Health and Safety Code.
- E. NSF International (NSF).

1.03 DEFINITIONS

- A. Buried pipes: Pipes that are buried in the soil with or without a concrete pipe encasement.
- B. Exposed pipe: Pipes that are located above ground, or located inside a structure, supported by a structure, or cast into a concrete structure.
- C. Underground pipes: Buried pipes - see A. above.

- D. Underwater pipes: Pipes below the top of walls in basins or tanks containing water.
- E. Wet wall: A wall with water on at least 1 side.

PART 2 PRODUCTS

2.01 GENERAL

- A. Materials as specified in Section 01601 - Product Requirements including special requirements for materials in contact with drinking water.

2.02 ESCUTCHEONS

- A. Material: Chrome-plated steel plate.
- B. Manufacturers: One of the following or equal:
 - 1. Dearborn Brass Co., Model Number 5358.
 - 2. Keeney Manufacturing Co., Model Number 102 or Number 105.

2.03 LINK TYPE SEALS

- A. Characteristics:
 - 1. Modular mechanical type, consisting of interlocking neoprene or synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening.
 - 2. Links to form a continuous rubber belt around the pipe.
 - 3. Provide a nylon polymer pressure plate with Type 316 stainless steel hardware. Isolate pressure plate from contact with wall sleeve.
 - 4. Hardware to be Type 316 stainless steel:
 - a. Provide anti-galling lubricant for threads.
- B. One of the following or equal:
 - 1. Link-Seal.
 - 2. Pipe Linx.

2.04 BOLTS AND NUTS

- A. General:
 - 1. Washer:
 - a. Provide a washer for each nut.
 - b. Washer shall be of the same material as the nut.
 - 2. Nuts: Heavy hex-head.
 - 3. Cut and finish flange bolts to project a maximum of 1/4-inch beyond outside face of nut after assembly.
 - 4. Tap holes for cap screws or stud bolts when used.
 - 5. Lubricant for stainless steel bolts and nuts:
 - a. Chloride-free.
 - b. Manufacturers: One of the following or equal:
 - 1) Huskey FG-1800 Anti-Seize.
 - 2) Weicon Anti-Seize High-Tech.

- B. For ductile iron pipe:
 - 1. On exposed pipes:
 - a. Bolts: ASTM A193, Grade 7 with a petroleum wax tape coating
 - b. Nuts: ASTM A194, Grade 2H.
 - c. Bolts and nuts: Hot-dip galvanized in accordance with ASTM F2329.
 - 2. On underwater pipes and pipes adjacent to wet walls:
 - a. Bolts: ASTM A193, Grade B7 with a petroleum wax tape coating.
 - b. Nuts: ASTM A194, Grade 2H. with a petroleum wax tape coating
 - 3. On buried pipes:
 - a. Bolts: ASTM A193, Grade 7 with a petroleum wax tape coating.
 - b. Nuts: ASTM A194, Grade 2h for nuts with a petroleum wax tape coating
 - c. ~~Encase in V-Bio polyethylene wrap in accordance with AWWA C105.~~
- C. Plastic pipe:
 - 1. On exposed pipes:
 - a. Bolts: ASTM A307, Grade B.
 - b. Nuts: ASTM A563, Grade A.
 - c. Bolts and Nuts: Hot-dip galvanized in accordance with ASTM F2329.
 - 2. On underwater pipes and pipes adjacent to wet walls:
 - a. Bolts: ASTM A193, Grade B8M.
 - b. Nuts: ASTM A194, Grade 8M.

2.05 GASKETS

- A. General.
 - 1. Gaskets shall be suitable for the specific fluids, pressure, and temperature conditions.
- B. Gaskets for ductile iron piping:
 - 1. Suitable for pressures equal to and less than 350 pounds per square inch gauge, temperatures equal to and less than 100 degrees Fahrenheit, and raw sewage service.
 - 2. Gasket material:
 - a. ~~EPDM with minimum Shore A hardness value of 70. Styrene Butadiene (SBR) rated to not less than the pressure rating of the pipeline pressure rating~~
 - b. Reinforcement: Cloth or synthetic fiber.
 - c. Thickness: Minimum 3/32-inch thick for less than 10-inch pipe; minimum 1/8-inch thick for 10-inch and larger pipe.
 - 3. Manufacturers: One of the following or equal:
 - a. Pipe less than 48 inches in diameter:
 - 1) Toruseal Flange Gaskets.
 - 2) Or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Piping drawings:
 - a. Except in details, piping is indicated diagrammatically. Not every offset and fitting, or structural difficulty that may be encountered has been

- indicated on the Drawings. Sizes and locations are indicated on the Drawings.
- b. Perform minor modifications to piping alignment where necessary to avoid structural, mechanical, or other type of obstructions that cannot be removed or changed:
 - 1) Modifications are intended to be of minor scope, not involving a change to the design concept or a change to the Contract Price or Contract Times.
2. Piping alternatives:
- a. Provide piping as specified in this Section, unless indicated on the Drawings or specified otherwise.
 - b. Alternative pipe ratings:
 - 1) Piping with greater pressure rating than specified may be substituted in lieu of specified piping without changes to the Contract Price.
 - 2) Piping of different material may not be substituted in lieu of specified piping.
 - c. Valves in piping sections: Capable of withstanding specified test pressures for piping sections and fabricated with ends to fit piping.
 - d. Grooved joints: Use couplings, flange adapters, and fittings of the same manufacturer:
 - 1) Manufacturer's factory trained representative:
 - a) Provide on-site training for Contractor's field personnel.
 - b) Periodically visit the jobsite to verify Contractor is following best recommended practices.
 - 2) Distributor's representative is not considered qualified to conduct the training or jobsite visits.
 - e. Flanged joints: where 1 of the joining flanges is raised face type, provide a matching raised face type flange for the other joining flange.
3. Unless otherwise indicated on the Drawings, piping at pipe joints, fittings, couplings, and equipment shall be installed without rotation, angular deflection, vertical offset, or horizontal offset.
- B. Wall and slab penetrations:
1. Provide flexibility in piping connecting to structures to accommodate movement due to soil settlement and earthquakes. Provide flexibility using details indicated on the Drawings.
- C. Exposed piping:
1. Install exposed piping in straight runs parallel to the axes of structures, unless otherwise indicated on the Drawings:
 - a. Install piping runs plumb and level, unless otherwise indicated on the Drawings:
 - 1) Slope plumbing drain piping with a minimum of 1/4-inch per foot downward in the direction of flow.
 2. Install exposed piping after installing equipment and after piping and fitting locations have been determined.
 3. Support piping: As specified in Sections 15061 - Pipe Supports:
 - a. Do not transfer pipe loads and strain to equipment.
 4. In addition to the joints indicated on the Drawings, provide unions, flexible couplings, flanged joints, flanged coupling adapters, and other types of joints or means which are compatible with and suitable for the piping system, and necessary to allow ready assembly and disassembly of the piping.

5. Assemble piping without distortion or stresses caused by misalignment:
 - a. Match and properly orient flanges, unions, flexible couplings, and other connections.
 - b. Do not subject piping to bending or other undue stresses when fitting piping.
 - c. Do not correct defective orientation or alignment by distorting flanged joints or subjecting flange bolts to bending or other undue stresses.
 - d. Flange bolts, union halves, flexible connectors, and other connection elements shall slip freely into place.
 - e. Alter piping assembly to fit, when proper fit is not obtained.
 - f. Install eccentric reducers or increasers with the top horizontal for pump suction piping.

- D. Buried piping:
 1. Bury piping with minimum 4-foot cover without air traps, unless otherwise indicated on the Drawings.
 2. Where 2 similar services run parallel to each other, piping for such services may be laid in the same trench:
 - a. Lay piping with sufficient room for assembly and disassembly of joints, for thrust blocks, for other structures, and to meet separation requirements of public health authorities having jurisdiction.
 3. Laying piping:
 - a. Lay piping in finished trenches free from water or debris. Begin at the lowest point with bell ends up slope.
 - b. Place piping with top or bottom markings with markings in proper position.
 - c. Lay piping on an unyielding foundation with uniform bearing under the full length of barrels.
 - d. Where joints require external grouting, banding, or pointing, provide space under and immediately in front of the bell end of each section laid with sufficient shape and size for grouting, banding, or pointing of joints.
 - e. At the end of each day's construction, plug open ends of piping temporarily to prevent entrance of debris or animals.

- E. Venting piping under pressure:
 1. Lay piping under pressure flat or at a continuous slope without air traps, unless otherwise indicated on the Drawings.
 2. Install plug valves as air bleeder cocks at high points in piping:
 - a. Provide 1-inch plug valves for water lines, and 2-inch plug valves for sewage and sludge lines, unless otherwise indicated on the Drawings.
 3. Provide additional pipe taps with plug cocks and riser pipes along piping as required for venting during initial filling, disinfecting, and sampling.
 4. Before piping is placed into service, close plug valves and install plugs. Protect plugs and plug valves from corrosion in as specified in Section 09960 - High-Performance Coatings.

- A. Restraining buried piping:
 1. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
 - a. When piping is underground, use concrete thrust blocks, mechanical restraints, or push-on restraints.
 - b. Determine thrust forces by multiplying the nominal cross-sectional area of the piping by design test pressure of the piping.

2. Provide restraints with ample size to withstand thrust forces resulting from test pressures:
 - a. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
 3. Place concrete thrust blocks against undisturbed soil.
 4. Place concrete so piping joints, fittings, and other appurtenances are accessible for assembly and disassembly.
 5. Provide underground mechanical restraints where specified in the Piping Schedule.
- B. Restraining above ground piping:
1. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
 - a. When piping is aboveground or underwater, use mechanical or structural restraints.
 - b. Determine thrust forces by multiplying the nominal cross-sectional area of the piping by design test pressure of the piping.
 2. Provide restraints with ample size to withstand thrust forces resulting from test pressures:
 - a. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
- C. Connections to existing piping:
1. Expose existing piping to which connections are to be made with sufficient time to permit, where necessary, field adjustments in line, grade, or fittings:
 - a. Protect domestic water/potable water supplies from contamination:
 - 1) Make connections between domestic water supply and other water systems in accordance with requirements of public health authorities.
 - 2) Provide devices approved by Owner of domestic water supply system to prevent flow from other sources into the domestic supply system.
 2. Make connections to existing piping and valves after sections of new piping to be connected have been tested and found satisfactory.
 3. Provide sleeves, flanges, nipples, couplings, adapters, and other fittings needed to install or attach new fittings to existing piping and to make connections to existing piping.
 4. For flanged connections, provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.
- D. Connections to in-service piping:
1. As specified in Section 01140 - Work Restrictions.
- E. Connections between ferrous and nonferrous metals:
1. Connect ferrous and nonferrous metal piping, tubing, and fittings with dielectric couplings especially designed for the prevention of chemical reactions between dissimilar metals.
 2. Nonferrous metals include aluminum, copper, and copper alloys.
- F. Flanged connections between dissimilar metals such as ductile iron pipe and steel pipe:
1. Provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.

3.02 CLEANING

- A. Piping cleaning:
 - 1. Upon completion of installation, clean piping interior of foreign matter and debris.
 - 2. Perform special cleaning when required by the Contract Documents.

- B. Cleaning potable water piping:
 - 1. Flush and disinfect potable water piping as specified in Section 01757 - Disinfection.

- C. Conduct pressure and leak test, as specified.

3.03 PIPING SCHEDULE

PIPING SCHEDULE

Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
3W	Reclaimed Water										
	Underground	4-16	PVC	C900 DR-14	15244 - Polyvinyl Chloride Pipe: AWWA C900	IRJ	200 v/HH	None	None		
		4-16	DIP	Class 350	15211 - Ductile Iron Pipe: AWWA C151	IRJ	Upstream of PRV 250 psig/HH	CM	NoneV-Bio PolywrapZ inc		
	Aboveground or in Vault	3-16	DIP	CL 53	15211 - Ductile Iron Pipe: AWWA C151	FL	Downstream of PRV 200 psig/HH 175 psig /HH	CM	EPP		
	Aboveground or in Vault	2	Brass	ASTM B43 extra strong wall thickness		Conform to ANSI B2.1 w/ teflon tape		None	None		

PIPING SCHEDULE

Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
Abbreviations: 1. The following abbreviations used in the column of test method refer to the respective methods as specified in Section 15956 - Piping Systems Testing. AM Air method GR Gravity method HH High head method LH Low head method SC Special case 2. Abbreviations to designate piping include the following: B&SP Bell and spigot CI Cast iron CISP Cast iron soil pipe CL Class, followed by the designation CM Cement mortar CTP Coal tar pitch DIP Ductile iron piping EPP Epoxy polyurethane coating FLFlange GA Gauge, preceded by the designation											
						GE GL GSP IRJ MJ NPS psi psig PE PEE PTW PVC SCH SCRD SST SW VCP WLD	Grooved end joint Glass lined Galvanized steel pipe Integrally restrained joint Mechanical joint Nominal pipe size, followed by the number in inches pounds per square inch pounds per square inch gauge Polyethylene Polyethylene encasement Polyethylene tape wrap Polyvinyl Chloride Schedule, followed by the designation Screwed-On Stainless steel Solvent welded Vitrified clay piping Weld				

END OF SECTION

AD1 Addendum No. 1

Replacement Section

SECTION 15076^{AD1}

PIPE IDENTIFICATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Pipe identification including the following:
 - 1. Pipe identification by color and legend.
 - 2. Underground warning tape.
 - 3. Tracer wire.
 - 4. Witness markers.
 - 5. Valve identification.

1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. A13.1 - Scheme for the Identification of Piping Systems.

1.03 SUBMITTALS

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Submit following:
 - 1. Product data.
 - 2. Samples.
 - 3. Manufacturer's installation instructions.
 - 4. Submit following as specified in Section 01770 - Closeout Procedures:
 - a. Operation and maintenance data.
 - b. Warranty.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with OSHA.

PART 2 PRODUCTS

2.01 RECYCLED WATER FACILITIES IDENTIFICATION

- A. Manufacturers:
 - 1. Warning Tape and Pipe Sleeves:
 - a. Terra Tape, Division of Reef Industries.
 - b. T. Christy Enterprises, Inc.
 - c. Seaton Name Plate Co.
 - 2. Warning Labels and Signs: In all cases the warning labels or signs must be approved prior to installation. Failure to receive prior approval may result in the owner, applicant, or customer removing such sign(s) and providing approved replacement(s). All costs will be at the applicant's, owner's or customer's expense. Failure to comply with these requirements, as set forth herein will

result in termination of service as provided for in the District's Rules and Regulations, Section 600.

3. Witness Markers:

- a. Carsonite Water line Markers - Carsonite International.

B. Identification:

1. The use of stenciled pipe will be accepted as an alternative to the use of warning tape.
- ~~2. Buried DIP carrying recycled water shall be encased within a purple 8-mil polyethylene sleeve, per the requirements of Section 15211, with the words "RECYCLED WATER" stenciled with 2-inch black letters.~~
- ~~3.2.~~ Exposed DIP carrying recycled water shall have purple coatings with the words "RECYCLED WATER" stenciled with 2-inch black letters. Lettering shall be on both sides of the pipe each section of pipe.
- ~~4.3.~~ Exposed PVC or DIP carrying potable water, and located in the vicinity of recycled water piping, shall have the words "POTABLE WATER" stenciled with 2-inch blue letters. Lettering shall be on both sides of the pipe in at least three places in an 18-foot section of pipe (total six places per section of pipe).
- ~~5.4.~~ PVC pipe carrying recycled water shall be purple in color with black letters. The stenciling shall appear on both sides of the pipe with the marking "RECYCLED WATER" in 5/8-inch letters repeated every 12 inches. PVC pipe carrying potable water shall be blue in color with black letters. The stenciling shall appear on both sides of the pipe with the marking "POTABLE WATER" in 5/8-inch letters repeated every 12 inches.
- ~~6. All service lines shall be encased with a color-coded 8-mil polyethylene sleeve. Sleeve shall be blue in color for all potable water services and purple in color for all recycled water services.~~

C. Valve boxes:

1. All valve boxes shall be traffic rated.
2. Boxes for potable water and recycled water facilities are shown in MCWD Detail W-7.
3. Potable water boxes shall be Christy G05T or equal.
4. Recycled water boxes shall be Christy G04T or equal.
5. Blow-off Valve Boxes shall be Christy B1730 or similar.
6. All valve boxes installed in unpaved areas (open space areas) shall be marked with a witness pole; in addition to the above referenced markings.

D. Color and painting schedule:

1. Recycled water facilities shall be painted purple.
2. Domestic water facilities shall be blue.
3. Witness poles for recycled water lines, valves and appurtenances shall be purple.
4. Witness poles for domestic water lines, valves and appurtenances shall be blue.

E. Warning signs and labels:

1. Recycled water warning signs shall read "CAUTION: RECYCLED WATER, DO NOT DRINK" in both English and Spanish shall be installed on recycled water facilities. The sign size and wording shall be submitted and approved by the Engineer. Signs shall be 1/8" thick, approximately 12" x 12", purple in

- color, and designed not to fade, degrade, or crack and intended for outdoor exposure.
2. Recycled water warning signs shall be epoxy glued to all recycled water vault access hatches and hung on chains on all recycled water above ground piping and backflow devices.
 3. Warning labels to be installed on all appurtenances in vaults, such as, but not limited to, air release valves, blow offs, and meters.
 4. Each pump and every pipe shall be identified with a painted label. In the fenced pump station area, at least one sign shall be posted on the fence that can be readily seen by all operations personnel utilizing the facilities.

F. Materials:

1. Buried piping warning tape:
 - a. The plastic warning tape shall be an inert plastic film specifically formulated for prolonged underground use and shall be prepared with black printing on a purple field having the words, "CAUTION: RECYCLED WATER-LINE". Warning tape for domestic water pipeline shall be blue with black printing having the words, "CAUTION: DOMESTIC WATERLINE BURIED BELOW". The minimum thickness shall be 4 mils and the overall width of the tape shall be 6 inches for 8-inch pipe and larger, and 3 inches for 6-inch and smaller pipe.
2. Warning labels:
 - a. Labels shall be inert plastic film specifically formulated for prolonged exposure and shall be prepared with black printing on a purple field having the words: "CAUTION: RECYCLED WATER FACILITY". The minimum thickness shall be 4 mils for adhesive backed labels and 10 mils for tag type labels. Tag type labels shall have reinforced tie holes and shall be attached with heavy-duty nylon fasteners. The size, type of label, and location will be dictated by each individual application, and subject to acceptance by the District's representative. The minimum size shall be 1/2-inch letters.

2.02 EQUIPMENT NAMEPLATES

A. Material and fabrication:

1. Stainless steel sheet engraved or stamped with text, holes drilled, or punch for fasteners.

B. Fasteners:

1. Number 4 or larger oval head stainless steel screws or drive pins.

C. Text:

1. Manufacturers name, equipment model number and serial number, identification tag number, and when appropriate, drive speed, motor horsepower with rated capacity, pump rated total dynamic head and impeller size.

2.03 SPECIAL ITEMS

A. In addition, special coating of following items will be required:

Item	Color
Valve handwheels and levers	Red
Hoist hooks and blocks	Yellow and black stripes
Steel guard posts	In accordance with standard details

B. Paint minimum 2 inches high numbers on or adjacent to accessible valves, pumps, flowmeters, and other items of equipment which are identified on Drawings or in Specifications by number.

C. Tracer wire:

1. Manufacturers: One of the following or equal:
 - a. Kris-Tech Wire.
 - b. Corpro.
2. Materials: One of the following or equal:
 - a. Solid copper conductor.
 - b. Thickness minimum: 10 gauge.
 - c. Insulation:
 - 1) Match insulation color to the color of the pipe being installed.
 - 2) UF type, direct bury.
 - 3) 30 mil HMWPE.
3. Splicing kit:
 - a. Manufacturers: One of the following or equal:
 - 1) Ryall Electric Co., 3M Kit#82-A1.
4. Station box:
 - a. Lid and collar materials: Cast iron.
 - b. Able to withstand heavy traffic loading.
 - c. Manufacturers: One of the following or equal:
 - 1) Farwest Corrosion Control Co, Glenn 4 Test Station.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify satisfactory conditions of substrate for applying identification.
- B. Verify that conditions are satisfactory for installation and application of products as specified in Section 01601 - Product Requirements.

3.02 PREPARATION

- A. Prepare and coat surfaces as specified in Section 09960 - High-Performance Coatings.
- B. Prepare surface in accordance with product manufacturer's instructions.

3.03 ABOVE GROUND AND IN-CHASE PIPING IDENTIFICATION

- A. Identify exposed piping, valves, and accessories, and piping, in accessible chases with lettering or tags designating service of each piping system with flow directional arrows and color code.
- B. Color code:
 - 1. Paint piping with colors as selected by Owner.
- C. Lettering and flow direction arrows:
 - 1. Stencil lettering on painted bands or use Snap-On markers on pipe to identify pipe. When stenciling, stencil 3/4-inch high letters on 3/4 through 4-inch pipe or coverings, or 5-inch high letters on 5-inch and larger pipe or coverings.
 - 2. Provide lettering and flow direction arrows near equipment served, adjacent to valves, both sides of walls and floors where pipe passes through, at each branch or tee, and at intervals of not more than 50 feet in straight runs of pipe.
- D. Where scheduled, space 6-inch wide bands along stainless steel pipe at 10-foot intervals and other pipe at 5-foot intervals.
- E. Label chemical tank fill pipelines at locations which are visible from chemical fill stations.
- F. Metal tags:
 - 1. Where outside diameter of pipe or pipe covering is 5/8-inch or smaller, provide metal pipe identification tags instead of lettering.
 - 2. Fasten pipe identification tags to pipe with chain.
 - 3. Where tags are used, color code pipe as scheduled.

3.04 BURIED PIPING IDENTIFICATION

- A. Underground warning tape:
 - 1. Place continuous run of warning tape in pipe trench, 12 inches above the pipe.
- B. Tracer wire:
 - 1. Install on all non-metallic pipe.
 - 2. Install an electrically continuous run of tracer wire along the entire length of the pipe with wire terminations in valve boxes, vaults, or structures.
 - 3. Install tracer wire on top of the pipe and secure to pipe with tape a minimum of every 10 feet.
 - 4. Where approved by the Engineer, splice sections of wire together using approved direct bury wire nuts:
 - a. Twisting the wires together is not acceptable.
- C. Witness markers:
 - 1. Install over pipe in unpaved open-space areas at intervals not greater than 200 feet.
 - 2. Place markers at appurtenances located in unpaved areas.
 - 3. Embed markers at least 18 inches into the soil.

3.05 APPLICATION

- A. Identify piping with legend markers, directional arrow markers, and number markers; use self-adhesive arrow roll tape to secure ends of piping markers and indicate flow direction.
- B. Provide legend markers, directional arrow markers, and number markers where piping passes through walls or floors, at piping intersections and at maximum 15-foot spacing on piping runs.
- C. Provide piping marker letters and colors as scheduled.
- D. Place markers on piping so they are visible from operator's position in walkway or working platform near piping. Locate markers along horizontal centerline of pipe, unless better visibility is achieved elsewhere.

END OF SECTION

^{AD1} Addendum No. 1

Replacement Section

SECTION 15110^{AD1}

COMMON WORK RESULTS FOR VALVES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Basic requirements for valves.

1.02 REFERENCES

- A. American Water Works Association (AWWA):
 - 1. C111/A21.11 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe Fittings.
- B. ASTM International (ASTM):
 - 1. A126 - Standard Specification for Gray Iron Casting for Valves, Flanges, and Pipe Fittings.
 - 2. A167 - Standard Specification for Stainless and Heat-Resisting Chromium- Nickel Steel Plate, Sheet, and Strip.
 - 3. A536 - Standard Specification for Ductile Iron Castings.
- C. NSF International (NSF):
 - 1. 61 - Drinking Water System Components - Health Effects.
- D. Society for Protective Coatings (SSPC):
 - 1. SP7 - Brush-Off Blast Cleaning.
 - 2. SP10 - Near-White Blast Cleaning.

1.03 DESIGN REQUIREMENTS

- A. Pressure rating:
 - 1. Everything upstream and including the pressure reducing vaults is designed for a minimum working pressure of 300 pounds per square inch gauge. Everything downstream of the pressure reducing vault is designed for a minimum working pressure of 200 pounds per square inch gauge.
- B. Valve to piping connections:
 - 1. Valves 3 inches nominal size and larger: Flanged ends.
 - 2. Valves less than 3 inches nominal size: Screwed ends.
 - 3. Plastic valves in plastic piping:
 - a. Up to 2.5 inches: Provide solvent or heat welded unions.
 - b. 3 inches and above: Provide solvent or heat-welded flanges.

1.04 SUBMITTALS

- A. Submit as specified in Section 01330 - Submittal Procedures.

- B. Product data:
 - 1. Submit the following information for each valve:
 - a. Valve type, size, pressure rating, Cv factor.
 - b. Coatings.
 - c. Manual valve actuators:
 - 1) Information on valve actuator including size, manufacturer, model number.
 - d. Certified drawings with description of component parts, dimensions, weights, and materials of construction.
 - e. Certifications of reference standard compliance:
 - 1) Submit certification that the valves and coatings are suitable in potable water applications in accordance with NSF 61.
 - f. Clearly mark submittal information to show specific items, materials, and accessories or options being furnished.
- C. Provide vendor operation and maintenance manual as specified in Section 01782 - Operation and Maintenance Data:
 - 1. Furnish bound sets of installation, operation, and maintenance instructions for each type of manual valve 4 inches in nominal size and larger, and all non-manual valves. Include information on valve operators.
- D. Provide Manufacturer's Certificate of Source Testing.
- E. Provide Manufacturer's Certificate of Installation and Functionality Compliance.

1.05 QUALITY ASSURANCE

- A. Manufacturer qualifications:
 - 1. Valves manufactured by manufacturers whose valves have had successful operational experience in comparable service.

1.06 DELIVERY STORAGE AND HANDLING

- A. Protect valves and protective coatings from damage during handling and installation; repair coating where damaged.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Stainless steel: In accordance with ASTM A167, Type 316, or Type 304, UNS Alloy S31600 or S30400.
- B. Valve and operator bolts and nuts:
 - 1. Fabricated of stainless steel for the following installation conditions:
 - a. Submerged in sewage or water.
 - b. In an enclosed space above sewage or water.
 - c. In structures containing sewage or water, below top of walls.
 - d. At openings in concrete or metal decks.
 - 2. Where dissimilar metals are being bolted, use stainless steel bolts with isolation bushings and washers.
 - 3. Underground bolts: Low-alloy steel in accordance with AWWA C111/A21.11.

- C. Bronze and brass alloys: Use bronze and brass alloys with not more than 6 percent zinc and not more than 2 percent aluminum in the manufacture of valve parts; UNS Alloy C83600 or C92200 unless specified otherwise.
- D. Valve bodies: Cast iron in accordance with ASTM A126, Class 30 minimum or ductile iron in accordance with ASTM A536, Grade 65-45-12 minimum unless specified otherwise.

2.02 INTERIOR PROTECTIVE LINING

- A. When specified in the particular valve specification, provide valves with type of protective lining specified in the particular valve Specification.
- B. Apply protective lining to interior, non-working surfaces, except stainless steel surfaces.
- C. Lining types:
 - 1. Fusion bonded epoxy:
 - a. Manufacturers: The following or equal:
 - 1) 3-M Company, ScotchKote 134; certified to NSF 61 for drinking water use.
 - b. Clean surfaces in accordance with SSPC SP 7 or SP 10, as recommended by epoxy manufacturer.
 - c. Apply in accordance with manufacturer's published instructions.
 - d. Lining thickness: 0.010 to 0.012-inch, except that:
 - 1) Lining thickness in grooves for gaskets: 0.005-inch.
 - 2) Do not coat seat grooves in valves with bonded seat.
 - e. Quality control:
 - 1) Lining thickness: Measured with a non-destructive magnetic type thickness gauge.
 - 2) Verify lining integrity with a wet sponge-testing unit operating at approximately 60 volts, or as recommended by the lining manufacturer.
 - 3) Consider tests successful when lining thickness meets specified requirements and when no pinholes are found.
 - 4) Correct defective lining disclosed by unsuccessful tests, and repeat test.
 - 5) Repair pinholes with liquid epoxy recommended by manufacturer of the epoxy used for lining.
 - 2. High solids epoxy:
 - a. Product equivalent to high solids epoxy specified in Section 09960 - High- Performance Coatings:
 - 1) Certified in accordance with NSF 61 for drinking water use.
 - 2) Interior: Coat valve interior with manufacturer's equivalent high performance high solids epoxy coating system with a certifiable performance history for the service conditions and as approved by the Engineer. Manufacturer shall provide for approval, coating information sufficient to allow Engineer to assess equivalence to the specified high solids epoxy coating specified in Section 09960 - High- Performance Coatings.
 - b. Clean surfaces to meet SP-7 or SP-10, or as recommended by coating manufacturer.

- c. Quality control: After coating is cured, check coated surface for porosity with a holiday detector set at 1,800 volts, or as recommended by coating manufacturer:
 - 1) Repair holidays and other irregularities and retest coating.
 - 2) Repeat procedure until holidays and other irregularities are corrected.

2.03 UNDERGROUND VALVES

- A. Provide underground valves with flanged, mechanical, or other type of joint required for the type of pipe to which the valve is to be connected.
- B. Coating and wrapping:
 - ~~1. After installation, encase valves in polyethylene wrap as specified for ductile iron piping in Section 15211 – Ductile Iron Pipe: AWWA C151:~~
 - ~~a.1. Ascertain that polyethylene wrapping does not affect operation of valve field repair any damage to the valve exterior coating per manufacturer's recommendations.~~

2.04 VALVE BOXES

- A. Provide cast-iron valve boxes at each buried valve to access valve and valve operators.
- B. Do not support boxes on valve, valve operator, or pipe.
- C. Boxes:
 1. 2-piece, fabricated of cast iron; provide cover, with asphalt varnish or enamel protective coating.
 2. Adjustable to grade, install centered around the upper portions of the valve and valve operator.
- D. Manufacturers: One of the following or equal:
 1. Tyler Pipe Industries, Inc.
 2. Neenah Foundry Co.

2.05 VALVE OPERATORS

- A. Valve operator "Open" direction: Open counterclockwise.
- B. Provide valves located below operating level or deck with extensions for key operation or floor stands and handwheels.
- C. Provide manually operated valves located not more than 6 feet above the operating level with tee handles, wrenches, or handwheels:
 1. Make the valve operator more conveniently accessible by rolling valves, located more than 5 feet but less than 6 feet above the operating level, toward the operating side.
 2. Secure tee handles and wrenches to the valve head or stem, except where a handle or wrench so secured constitutes a hazard to personnel; in which case, stow handle or wrench immediately adjacent to the valve on or in a suitable hanger, bracket, or receptacle.

- D. Fit valves located more than 6 feet above operating level with chain operated handles or valve wheels:
 - 1. Chains: Sufficient length to reach approximately 4 feet above the operating level.
 - 2. Where chains constitute a nuisance or hazard to operating personnel, provide holdbacks or other means for keeping the chains out of the way.
- E. Provide an operator shaft extension from valve or valve operator to finished grade or deck level when buried valves, and other valves located below the operating deck or level, are specified or indicated on the Drawings to be key operated; provide 2 inches square AWWA operating nut, and box and cover as specified, or a cover where a box is not required.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Preparation prior to installation:
 - 1. Install valves after the required submittal on installation has been accepted.
 - 2. Determine after flanged valves and flanged check valves are selected, the face-to-face dimensions of flanged valves and flanged check valves.
- B. Fabricate piping to lengths taking into account the dimensions of flanged valves and flanged check valves.

3.02 INSTALLATION

- A. Provide incidental work and materials necessary for installation of valves including flange gaskets, flange bolts and nuts, valve boxes and covers, concrete bases, blocking, and protective coating.
- B. Where needed, furnish and install additional valves for proper operation and maintenance of equipment and plant facilities under the following circumstances:
 - 1. Where such additional valves are required for operation and maintenance of the particular equipment furnished by Contractor.
 - 2. Where such additional valves are required as a result of a substitution or change initiated by Contractor.
- C. Install valves with their stems in vertical position above the pipe, except as follows:
 - 1. Butterfly valves, gate valves aboveground, globe valves, ball valves, and angle valves may be installed with their stems in the horizontal position.
 - 2. Install buried plug valves with geared operators with their stems in a horizontal position.
- D. Install valves so that handles clear obstructions when the valves are operated from fully open to fully closed.
- E. Place top of valve boxes flush with finished grade or as otherwise indicated on the Drawings.

- F. Valves with threaded connections:
 - 1. Install valves by applying wrench on end of valve nearest the joint to prevent distortion of the valve body.
 - 2. Apply pipe joint compound or Teflon tape on external (male) threads to prevent forcing compound into valve seat area.

- G. Valves with flanged connections:
 - 1. Align flanges and gasket carefully before tightening flange bolts.
 - 2. When flanges are aligned, install bolts and hand tighten.
 - 3. Tighten nuts opposite each other with equal tension before moving to next pair of nuts.

- H. Valves with soldered connections:
 - 1. Do not overheat connection to prevent damage to resilient seats and metal seat rings.
 - 2. Position valves in full open position before starting soldering procedure.
 - 3. Apply heat to piping rather than to valve body.

3.03 FIELD APPLIED COATING OF VALVE EXTERIOR

- A. Match color and be compatible with manufacturer's coating system and as specified in Section 09960 - High-Performance Coatings:
 - 1. When shop applied finish coating matches field applied coating on adjacent piping, touch up shop coating in damaged areas in accordance with instructions recommended by the paint manufacturer.
 - 2. When shop applied coating does not match field coating on adjacent piping, or when damage has occurred to the shop applied coating that requires more than touchup, blast clean valve surfaces or utilize other surface preparation recommended by the manufacturer of the coating material and apply the coating system used for coating adjacent piping.

3.04 COMMISSIONING

- A. Manufacturer services from each manufacturer for all valves supplied:
 - 1. Provide Manufacturer's Certificate of Source Testing.
 - 2. Provide Manufacturer's Certificate of Installation and Functionality Compliance.

- B. As specified elsewhere for specific valve types, sizes or actuators:
 - 1. Source testing.
 - 2. Manufacturers on site services for Owner Training, Installation Testing, Functional Testing, and during the Process Operational Period.

END OF SECTION

AD1 Addendum No. 1

Replacement Section

SECTION 15211^{AD1}

DUCTILE IRON PIPE: AWWA C151

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Ductile iron pipe, joints, fittings, gaskets, and pipe linings and coatings.

1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
- B. American Water Works Association (AWWA):
 - 1. C104 - Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
 - ~~2. C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.~~
 - ~~3-2.~~ C110 - Standard for Ductile-Iron and Gray-Iron Fittings.
 - ~~4-3.~~ C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - ~~5-4.~~ C115 - Flanged Ductile Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - ~~6-5.~~ C150 - Standard for Thickness Design of Ductile-Iron Pipe.
 - ~~7-6.~~ C151 - Standard for Ductile-Iron Pipe, Centrifugally Cast.
 - ~~8-7.~~ C153 - Standard for Ductile-Iron Compact Fittings for Water Service.
 - ~~9-8.~~ C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
 - ~~10-9.~~ C606 - Standard for Grooved and Shouldered Joints.
- C. American Welding Society (AWS):
 - 1. D11.2 - Guide for Welding Iron Castings.
- D. ASTM International (ASTM):
 - 1. A47 - Standard Specifications for Ferritic Malleable Iron Castings.
 - 2. A183 - Standard Specifications for Carbon Steel Track Bolts and Nuts.
 - 3. A536 - Standard Specifications for Ductile Iron Castings.
 - 4. C283 - Standard Test Methods for Resistance of Porcelain Enamelled Utensils to Boiling Acid.
 - 5. D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- E. Ductile Iron Pipe Research Association (DIPRA):
 - 1. Thrust Restraint Design Manual.
- F. NACE International (NACE):
 - 1. SP0188 - Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.

- G. National Association of Pipe Fabricators, Inc. (NAPF):
 - 1. 500-03 - Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings.
- H. Society for Protective Coatings (SSPC):
 - 1. PA-2 - Measurement of Dry Coating Thickness With Magnetic Gages.

1.03 SYSTEM DESCRIPTION

- A. Thrust restraint system design:
 - 1. The pipe shall be restrained at all locations.

1.04 SUBMITTALS

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Product data: As specified in Section 15052 - Common Work Results for General Piping.
- C. Shop drawings:
 - 1. Photographs, drawings, and descriptions of fittings, gaskets, couplings, grooving of pipe and fittings, pipe linings, and coatings.
- D. Manufacturer's statement:
 - 1. Manufacturer shall provide a sworn statement that the materials provided complies with the requirements and standards of these specifications. The statement shall also confirm that the inspection and specified tests have been made and that the results thereof comply with the requirements and standards of this specification.
- E. Manufacturer's test reports:
 - 1. On regular measurements of zinc coating masses that are required by ISO 8179 Part 4.4.
 - 2. Include Coating Manufacturer's Technical Representative's reports.

1.05 QUALITY ASSURANCE

- A. Pre-installation meeting:
 - 1. Arrange for pipeline manufacturer's representative to provide instruction to pipeline installation crew members who have not previously installed integrally restrained push-on joints.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Block piping and associated fittings for shipment to prevent damage to coatings and linings.
- B. Carefully handle piping and associated fittings during loading, unloading, and installation:
 - 1. Do not drop piping material from cars or trucks.
 - 2. Lower piping by mechanical means.
 - 3. Do not drop or pound pipe to fit grade.

- C. Protect gaskets ~~and polyethylene encasement~~ from long-term exposure to sunlight.
- D. Store piping, fittings, and other accessories such that they do not accumulate and hold rainwater, dirt, and debris.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Ductile iron piping:
 - 1. Manufacturers meeting qualifications as specified in this Section.
 - 2. Typical type:
 - a. In accordance with AWWA C150 and AWWA C151.
 - b. Pressure class 350 pounds per square inch.
 - c. Manufactured from greater than 90 percent recycled material.
 - 3. Type with screw-on flanges:
 - a. In accordance with AWWA C115 with minimum special thickness Class 53 wall thickness as required for screw-on flanges.
- B. Joints:
 - 1. Flanged joints:
 - a. Screw-on flanges: Comply with the diameter, thickness, drilling, and other characteristics in accordance with ASME B16.1. In addition, comply with the following requirements:
 - 1) Ductile iron.
 - 2) Long hub, threaded, and specially designed for ductile iron pipe.
 - 3) After attaching to pipe, machine flange face to make pipe end and flange even and perpendicular to the axis of the pipe.
 - b. Bolt holes on flanges: 2-holed and aligned at both ends of pipe.
 - c. Cap screw or stud bolt holes: Tapped.
 - d. Bolts and nuts: As specified in Section 15052 - Common Work Results for General Piping.
 - e. Gaskets: Standard styrene butadiene copolymer (SBR) rated to 350 pounds per square inch.
 - f. Flanged unit connections: Flanged to grooved joint adapters or a long enough spool with one end flanged and the other end grooved to prevent interference with the operation of adjacent valves, pumps, or other items.
 - 2. Mechanical joints: In accordance with AWWA C111.
 - 3. Push-on rubber gasket joints: In accordance with AWWA C111.
 - 4. Mechanical wedge action joint restraints:
 - a. Manufacturers, one of the following, or equal rated at least 350 pounds per square inch working pressure:
 - 1) EBAA Iron, Inc., Megalug Series 1100TDM.
 - 2) Star Pipe Products, Tandem Stargrip Series 3000T.
 - b. Materials:
 - 1) Gland body: Ductile iron in accordance with ASTM A536.
 - 2) Wedges and wedge actuating components: Ductile iron in accordance with ASTM A536.
 - a) Wedges shall be heat treated to a minimum of 370 BHN.

- 3) Actuating bolts and nuts: Ductile iron in accordance with ASTM A536:
 - a) Provide torque-limiting twist off components to ensure proper installation.
- c. Coatings:
 - 1) Provide manufacturer applied coating system.
 - 2) Manufacturers: One of the following or equal:
 - a) EBAA Iron Inc., Mega-Bond.
 - b) Star Pipe Products, Star-Bond.
 - c) Sigma Corp., Corrsafe™ Electro-deposition coating.
- d. Working pressure:
 - 1) Shall include a minimum safety factor of 2:1.
 - 2) 350 pounds per square inch.
- e. Restraint shall consist of multiple gripping wedges incorporated into a follower gland meeting the requirements of AWWA C111.
- f. Restraint shall allow post assembly angular deflection that is a minimum of 50 percent of the angular deflection allowed by the mechanical joint.
- g. Restraint must be in accordance with applicable requirements of AWWA C110 and AWWA C111 for mechanical joints.
5. Integrally restrained push-on joints:
 - a. Application:
 - 1) Where designation restrained push-on is specified in the Piping Schedule provided in Section 15052 - Common Work Results for General Piping, supply a restrained push-on joint piping system, which includes restrained push-on joints where necessary based upon thrust calculations.
 - 2) Standard push-on rubber gasket joints as specified above can be used where thrust calculations demonstrate restraint is not required.
 - b. Design:
 - 1) Restrained push-on joints of the configuration which utilizes a gripping or friction force for restraint will not be acceptable.
 - 2) Suitable for the following working pressures:
 - a) 350 pounds per square inch gauge.
 - c. Manufacturers: One of the following or equal:
 - 1) U.S. Pipe, TR Flex:
 - a) Local Representative: Collin Bryant (530) 521-8081.
 - 2) McWane Ductile, TR Flex:
 - a) Local Representative: John Johnson (951)813-9589.
 - 3) American Cast Iron Pipe Co., Flex Ring or Lok-Ring:
 - a) Local Representative: Rosemary Smud (678) 770-6575.
 - d. Limit buried joints to the manufacturer's published allowable angular joint deflection for purposes of pipeline alignment and elimination of fittings.

C. Fittings:

1. Ductile iron in accordance with AWWA C110.
2. Joint type: Same as that of the associated piping as specified in Section 15052 - Common Work Results for General Piping.
3. Plain end-to-flanged joint connectors using setscrews are not acceptable.
4. Where fittings are located adjacent to other fittings or valves, the connection shall be a flange by flange connection.

D. Pipe and Fitting linings:

1. Cement-mortar lining:
 - a. In accordance with AWWA C104, apply cement-mortar on clean bare metal surfaces. Extend to faces of flanges, ends of spigots, and shoulders of hubs.
 - b. Minimum lining thickness: Standard in accordance with AWWA C104.
 - c. Type of cement: Type II.
2. Asphaltic seal coat:
 - a. Apply over cement mortar linings and to outside surface of pipes that will not receive another coating. Apply in accordance with AWWA C151.

E. Pipe coatings:

1. Zinc coating:
 - a. The exterior shall be coated with a layer of arc-sprayed zinc per ISO 8179.
 - b. The mean mass of zinc based coating measured in accordance with ISO 8179 shall not be less than 200g/m² of pipe surface area with a local minimum of 180 g/m².
 - c. Manufacturer shall carry out regular measurements of zinc coating masses in accordance with ISO 8179.
 - d. Pipe markings shall include the word "zinc" or a similar designation clearly identifying the pipe has a zinc coating.
2. Topcoat:
 - a. The finishing layer shall be bituminous paint compatible with the zinc based layer. The mean dry film thickness shall be per AWWA C151.

F. Fitting coatings:

1. Zinc coating:
 - a. The exterior shall be coated with a zinc rich paint conforming to 8179- 2. Dry film thickness shall be as recommended by the paint manufacturer, but not less than 2.0 mils.
 - b. Fitting markings shall include the word "zinc".
2. Topcoat: Same as Pipe coatings.

D. Pipe and fitting linings:

1. Cement-mortar lining:
 - a. In accordance with AWWA C104, apply cement-mortar on clean bare metal surfaces. Extend to faces of flanges, ends of spigots, and shoulders of hubs.
 - b. Minimum lining thickness: Standard in accordance with AWWA C104.
 - c. Type of cement: Type II.
2. Asphaltic seal coat:
 - a. Apply over cement mortar linings and to outside surface of pipes that will not receive another coating. Apply in accordance with AWWA C151.
3. Elastomeric polyurethane (100-percent solids) lining:
 - a. As specified in Section 09960 – High-Performance Coatings.

E. Coatings:

1. Asphalt varnish: Factory applied.
2. Primer:
 - a. Factory applied for field coating.
 - b. Compatible with materials as specified in Section 09960 – High-Performance Coatings.

2.02 POLYETHYLENE ENCASUREMENT

~~A. Do not encase in polyethylene. General:~~

~~1. Polyethylene encasement shall be supplied by the pipe manufacturer.~~

~~B. Materials: Supply the following polyethylene encasement:~~

~~1.A. Single layer of V-Bio®-enhanced polyethylene encasement (3 layers of co-extruded LLDPE film with anti-microbial additive and volatile corrosion inhibitor infused on the inside surface), meeting all requirements of AWWA C105.~~

PART 3 EXECUTION

3.01 INSTALLATION

A. General:

1. Install ductile iron piping in accordance with AWWA C600, modified as specified in Section 15052 - Common Work Results for General Piping.
2. For underground piping, the trenching, backfill, and compaction: As specified in Section 02318 - Trenching.

~~B. Polyethylene encasement:~~

- ~~1. Wrap all buried ductile iron pipe and fittings in polyethylene encasement in accordance with AWWA C105.~~
- ~~2. Polyethylene encasement shall be continuous and terminated neatly at connections to below grade equipment or structures.~~
- ~~3. At wall penetrations, extend encasement to the wall and neatly terminate.~~
- ~~4. At slab penetrations, extend encasement to 2 inches below the top of slab and neatly terminate.~~
- ~~5. When rising vertically in unimproved areas, extend encasement 6 inches above existing grade and neatly terminate.~~
- ~~6. Repair tears and make joints with 2 layers of plastic tape.~~
- ~~7. All work shall be inspected prior to backfilling of pipe and associated items.~~

~~C.B. Joints:~~

1. Install types of joints as specified in the piping schedule provided in Section 15052 - Common Work Results for General Piping.
2. Mechanical joints are not acceptable in above ground applications.

3.02 FIELD QUALITY CONTROL

A. Testing ductile iron piping:

1. Test as specified in Section 15052 and Section 15956.
2. Do not test sections longer than 1/2 mile in total pipe length.

B. Repair damaged pipe and fitting coating in accordance with ISO 8179:

1. Zinc rich paint shall conform to ISO 8179 - 2, or per Manufacturer's recommended zinc rich paint if the Contractor can demonstrate a field applied coating that conform to ISO 8179 - 2 is not available.

C. Repair damaged cement mortar lining to match quality, thickness, and bonding of original lining in accordance with AWWA C104:

1. When lining cannot be repaired or repairs are defective, replace defective piping with undamaged piping.

3.03 SPARE PARTS

A. Spare Pipe:

1. Supply and deliver one (1) standard length piece of ductile iron pipe with associated gasket materials of each diameter used on the project to the Owner's corporation yard. Coordinate delivery time and location with Owner.

~~3.02 FIELD QUALITY CONTROL~~

~~A. Testing ductile iron piping:~~

- ~~1. Test as specified in Section 15052 – Common Work Results for General Piping and Section 15056 – Piping Systems Testing.~~
- ~~2. Do not test sections longer than 1/2 mile in total pipe length.~~

~~B. Repair damaged cement mortar lining to match quality, thickness, and bonding of original lining in accordance with AWWA C104:~~

- ~~1. When lining cannot be repaired or repairs are defective, replace defective piping with undamaged piping.~~

END OF SECTION

AD1 Addendum No. 1

Replacement Section

SECTION 15244^{AD1}

POLYVINYL CHLORIDE (PVC) PIPE: AWWA C900

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. AWWA C900 PVC pipe and fittings.
- 1.2. AWWA C900 compliant fusible PVC (FPVC).

1.02 REFERENCES

A. American Water Works Association (AWWA):

1. C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
2. C605 - Standard for Underground Installation of PVC and PVCO Pressure Pipe and Fittings for Water.
3. C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 Inches to 12 Inches, for Water Transmission Distribution.
4. C905 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In.
5. M23 - PVC Pipe - Design and Installation Manual.

B. ASTM International (ASTM):

1. A536 - Standard Specification for Ductile Iron Castings.
2. D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
3. D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
4. F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
5. F645 - Standard Guide for Selection, Design and Installation of Thermoplastic Water-Pressure Piping Systems.

C. NSF International (NSF):

1. 61 - Drinking Water System Components - Health Effects.

1.03 ABBREVIATIONS

A. DR: Dimension ratio.

B. NPS: Nominal pipe size followed by the size designation.

1.04 SUBMITTALS

A. Submit as specified in Section 01330 - Submittal Procedures.

B. Product data: As specified in Section 15052 - Common Work Results for General Piping.

- C. Shop drawings: As specified in Section 15052 - Common Work Results for General Piping:
 - 1. Describe materials, pipe, fittings, and gaskets.
 - 2. Manufacturer's product handling and installation instructions.

- D. If FPVC is used for this project, submittals shall also include:
 - 1. Fusion technician qualifications
 - 2. The following AS-RECORDED DATA is required from the Contractor and/or fusion provider:
 - a. Fusion report for each fusion joint performed on the project, including joints that were rejected and the following information:
 - 1) Pipe size and dimensions.
 - 2) Machine size.
 - 3) Fusion technician identification.
 - 4) Job identification.
 - 5) Fusion joint identification.
 - 6) Fusion, heating and drag pressure settings.
 - 7) Heat plate temperature.
 - 8) Pipe extrusion time stamp.
 - 9) Heating and cool down time of fusion.
 - 2-10) Ambient temperature.

1.05 QUALITY ASSURANCE

- A. Mark plastic pipe with date of extrusion, nominal size, class, manufacturer and all markings required in accordance with ASTM and AWWA standards.

- B. Pre-installation meeting:
 - a. Arrange for pipeline manufacturer's representative to provide instruction to pipeline installation crew members who have not previously installed integrally restrained push-on joints or fusible PVC pipe.

- C. Fusion technician requirements:
 - 1. If FPVC is used for this project:
 - a. Fusion technician shall be qualified by the pipe supplier to fuse FPVC of the type(s) and size(s) being used.
 - b. Current qualification as of the actual date of fusion performance on the project.
 - 4-c. Training records for qualified fusion technicians available to Owner or Engineer upon request.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect from sunlight, scoring, and distortion.

- B. Do not allow surface temperatures to exceed 120 degrees Fahrenheit.

- C. Deliver, offload, handle, and store pipe in accordance with manufacturer's or pipe supplier's recommendations and best practices provided by AWWA M23 and AWWA C605, including compliance with minimum recommended bending radius and maximum safe pulling forces for each specific pipe.

PART 2 PRODUCTS

2.01 PIPE

A. General:

1. Extruding and molding material: 100 percent virgin material containing no scrap, regrind, or rework material except where permitted in the referenced standards.
2. In accordance with AWWA C900.
3. Pipe for use in potable water systems shall also bear the NSF 61 mark.
4. Potable water pipe shall be blue in color and recycled water pipe shall be purple in color.

2.024.Pipe

A.B. AWWA C900:

1. Meets or exceeds AWWA C900.
2. Dimension ratio of 14 respectively as scheduled in Section 15052 - Common Work Results for General Piping.

C. Fusible:

1. Extruded with plain ends square to the pipe and free of any bevel or chamfer
2. Pressure class as scheduled in Section 15052 – Common Work Results for General Piping
3. Manufacturers: One of the following or equal:
 - a. Underground Solutions, Inc. Fusible C-900
4. Extruder Manufacturers: One of the following or equal:
 - a. Northern Pipe Products
 - b. CertainTeed
 - 2-c. North America Pipe Co.

2.032.02FITTINGS

A. Material:

1. Cast or ductile iron fittings as specified in Section 15211 - Ductile Iron Pipe: AWWA C151, sized for the dimensions of the pipe being used.

B. Equal to or greater pressure rating than the pipe.

C. If FPVC is used for this project, fusible sweeps may be used. Fusible sweeps:

1. Conform to the same sizing convention, diameter, dimensional tolerances and pressure class of the pipe being jointed by the fitting.
2. Manufactured from the same FPVC being used for the installation.
- ~~B.3.~~ 3. Include sufficient length of straight pipe on either side of the sweep to allow for fusion of the sweep to the pipe and/or other sweeps when thermal fusion jointing is used.

2.042.03JOINTS

A. Integrally restrained push-on joints:

1. Application:
 - a. All pipe shall be supplied with self-restrained push-on joint piping system.
2. Design:

- a. Restrained push-on Rieber style joints meeting the requirements of ASTM D3139 with gaskets meeting the requirements of ASTM F477.
- b. Suitable for the following working pressures:
 - 1) 305 pounds per square inch gauge
3. Manufacturers: One of the following or equal:
 - a. JM Eagle, Eagle Loc900.
 - b. Diamond Plastics, Lok-21.
4. Limit buried joints to half the manufacturer's published allowable angular joint deflection for purposes of pipeline alignment and elimination of fittings.
5. Factory installed gaskets: EPDM in accordance with ASTM F477 Styrene Butadiene (SBR) rated to not less than the pressure rating of the pipeline pressure rating.
6. Mechanical thrust restraint:
 - a. The restraint system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11.
 - b. The restraining system for PVC shall be rated at a 2:1 safety factor.
 - c. Manufacturers: The following or approved equal:

2.05 EBAA IRON: 2000PV MEGALUG MECHANICAL JOINT RESTRAINT.

d.

B. Fusion joints

1. Unless otherwise specified, assemble FPV lengths in the field using butt-fusion joining methodology as recommended by the pipe supplier.

2.062.04 TRACER WIRE

- A. All piping shall be installed with a continuous insulated tracer wire.

2.072.05 SOURCE QUALITY CONTROL

- A. Bell and spigot piping:
 1. Hydrostatic proof testing in accordance with AWWA C900: Test pipe and integral bell to withstand, without failure, 2 times the pressure class of the pipe for a minimum of 5 seconds.
 2. Hydrostatic proof testing in accordance with AWWA C905: Test pipe and integral bell to withstand, without failure, 2 times the pressure class of the pipe for a minimum of 5 seconds.

B. Fusible:

1. Test at the extrusion facility for properties required to meet applicable parameters as outlined in AWWA C900.
2. Conduct hydrostatic proof testing in accordance with the provisions of AWWA C900 for pipes manufactured to non-standard lengths (i.e., lengths other than 20-foot)

PART 3 EXECUTION

3.01 INSTALLATION

- A. General:

1. Install piping in accordance with ASTM F645, AWWA C605, the Appendix of AWWA C900 and AWWA C905 and manufacturer's or pipe supplier's published installation instructions.
2. For open cut installations, install underground warning tape as specified in Section 15076 - Pipe Identification.
3. Install pipe with tracer wire as specified in Section 15076 - Pipe Identification.

B. Pipe Deflections:

1. Deflecting the joint shall not exceed half the manufacturers recommended deflection, or 0.5%, whichever is more restrictive. Pipe bends and deflections greater than this shall be made by bending one or more adjacent pipe barrels. The pipeline may be assembled above ground, in a straight line, and then curved at the barrel when laid in the trench. The trench may be curved to change direction or avoid obstructions within the limits of the curvature of the pipe as published by the pipeline manufacturer. Mechanical means should not be employed to accomplish bending the pipe barrel. It is the intent that the workers should accomplish this manually in the trench as recommended by the manufacturer.

C. Tapping Pipe:

1. Tapping shall be performed per AWWA recommendations.
2. Tapping shall not be performed on deflected pipe barrels. Where the drawings call for a tap at a location that had a deflected pipe barrel, Contractor shall locate tap on adjacent pipe barrel that is not deflected and adjust piping from tap to appurtenance at no additional cost.

D. Fusible PVC

1. Layout:

a. Perform fusion of the pipe at surface level.

- 1) No fusion will be completed in the excavated area or trench without prior special approval.**

b. Fuse pipe lengths in their entirety and stage prior to installation in the trench.

c. Handle and install the FPVC pipe in a manner so as not to exceed the recommended bend radius.

2. Installation:

a. Install fused lengths of pipe by lowering into the trench or excavation using manufacturer approved methods.

- 1) Once the lowering operation is initiated, proceed until the entire length of the fused section of pipe is installed.**

b. Coordinate lifting equipment to ensure the fused pipe does not exceed the bending and buckling limitations of the pipe, in accordance with manufacturer's or pipe supplier's recommendations.

- 1) Do not "drop" or "roll" pipe into the trench or excavation.**

- 2) Support pipe at all times, including placement in final alignment.**

c. Bed and remove lengths of FPVC from direct sunlight for a period of at least 2 minutes per inch-diameter before any connections are made.

d. Do not exceed the manufacturer's recommended safe pulling force for the specific pipe size and DR being installed by pulling in tension.

3. Fusion process:

a. FPVC will be fused by qualified fusion technicians certified and experienced in the type and size of FPVC pipe being used.

- 1) Pipe supplier submit technician's documented qualifications valid for date of project welding.
 - b. Use only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier for the fusion process.
 - c. Fusion machines must meet the following requirements:
 - 1) Heat plates:
 - a) Appropriately sized.
 - b) In good condition with no deep gouges or scratches within the pipe circle being fused.
 - c) Clean and free of any contamination.
 - d) Capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused in accordance with pipe manufacturer's recommendations.
 - 2) Verify heater controls properly function.
 - 3) Smooth traveling carriage with no binding at less than 50 pounds per square inch.
 - 4) Jaws: Good condition with proper inserts for the pipe size being fused.
 - 5) Install insert pins with no interference to carriage travel.
 - 6) Machine body: No obvious defects, missing parts, or potential safety issues during fusion.
 - d. Use pipe rollers for support of pipe on either side of the machine.
 - e. Provide a weather protection canopy that allows full machine motion of the heat plate, fusion assembly, and carriage for fusion in inclement and/or windy weather.
 - f. Use facing blades specifically designed for cutting FPVC.
 - g. Record and log each fusion joint using an electronic monitoring device (data logger) connected to the fusion machine.
 - 1) Generate the fusion data logging and joint report using software developed specifically for the fusion of FPVC.
 - 2) Use the current version of the pipe manufacturer's recommended data logger software.
 - Manually log data not logged by the data logger and include in the fusion technician's joint report.
 - 3) _____
4. Tapping FPVC:
- a. Direct tapping of FPVC is not allowed
 - b. Saddle tapping:
 - 1) Saddle taps are allowable on all sizes and classes of AWWA C900 FPVCP.
 - c. Tapping sleeves:
 - 1) Tapping sleeves are allowable on all sizes and classes of AWWA C900 FPVC.
 - d. Use only allowable tap sizing and recommended tapping procedures provided by the pipe supplier for all tapping operations on FPVC.

3.02 FIELD QUALITY CONTROL

A. Leakage test for piping:

- 1. **Subject to visible leak test and pressure test with maximum leakage allowance, as specified in Section 15956 - Piping Systems Testing.**

2. Pressure test with maximum leakage allowance:
 - a. Perform test after placing sufficient backfill.
 - b. In areas requiring immediate backfill, test prior to placement of permanent surfacing.
 - c. Test pressure: As specified in the Piping Schedule in Section 15052 - Common Work Results for General Piping.
 - e.d. FPVC fusion joints: No leakage allowed.
 - d.e. Maximum leakage allowance for bell and spigot pipe is as follows, where the value for leakage is in gallons per 50 joints per hour.

Test Pressure (psi)	Nominal Pipe Size (inches)									
	4	6	8	10	12	14	16	18	20	24
50	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.96	1.15
75	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17	1.40
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62
125	0.3	0.45	0.6	0.76	0.91	1.06	1.21	1.36	1.51	1.81
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56
275	0.45	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.24	2.69
300	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.34	2.81

END OF SECTION

AD1 Addendum No. 1

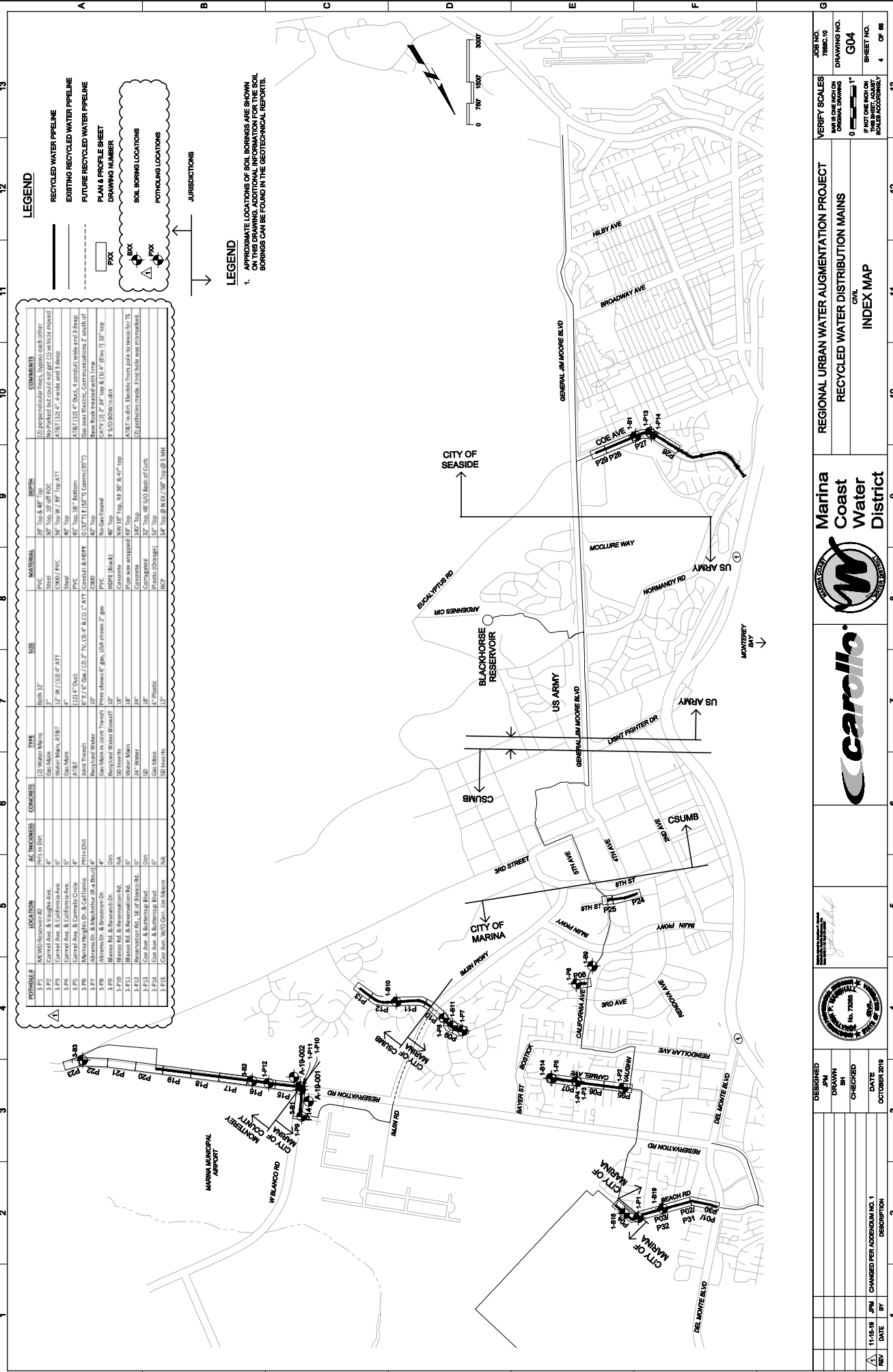
POT HOLE #	LOCATION	AC THICKNESS	CONCRETE	TRENCH	PIPE	DIAMETER	MATERIAL	DEPTH	COMMENTS
P-10	18150/18200/18200	6"	12' W x 12' D	6"	8"	30"	PVC	30"	(1) PROPOSED TRUNK MAIN UNDER STREET NO PARKING IN FRONT OF LOT (1) WHICH FRONTS A 18' x 112' 6" x 4' wide and 8' deep
P-11	Central Ave. & Vaughn Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-12	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-13	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-14	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-15	Main St. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-16	Main St. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-17	Main St. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-18	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-19	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-20	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-21	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-22	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-23	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-24	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-25	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-26	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-27	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-28	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-29	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	
P-30	Central Ave. & California Ave.	6"	12' W x 12' D	6"	8"	30"	PVC	30"	

LEGEND

- RECYCLED WATER PIPELINE
- EXISTING RECYCLED WATER PIPELINE
- FUTURE RECYCLED WATER PIPELINE
- PLAN & PROFILE SHEET DRAWING NUMBER
- SOIL BORING LOCATIONS
- POT HOLE LOCATIONS
- JURISDICTIONS

LEGEND

1. APPROXIMATE LOCATIONS OF SOIL BORINGS ARE SHOWN ON THIS DRAWING. ADDITIONAL INFORMATION FOR THE SOIL BORINGS CAN BE FOUND IN THE GEOTECHNICAL REPORTS.



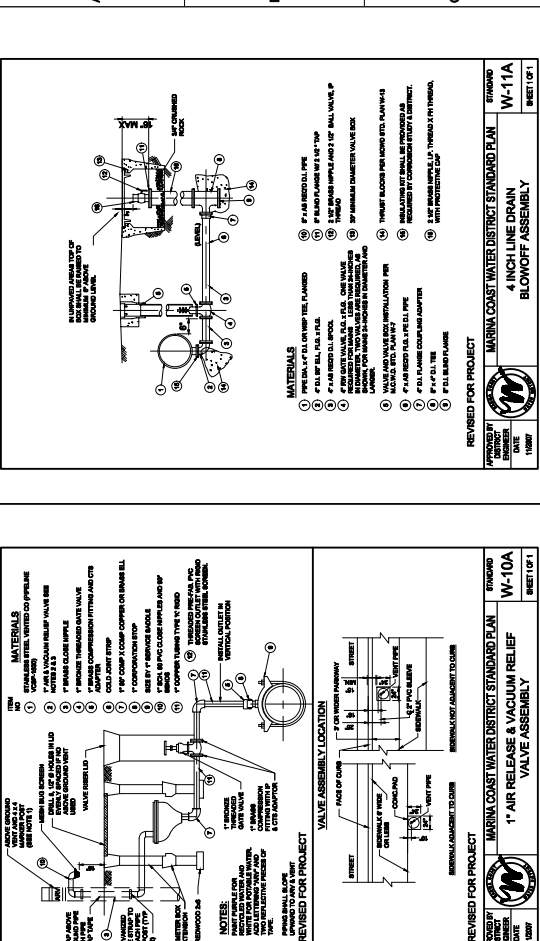
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DRAWN	BH
CHECKED	
DATE	OCTOBER 2019
REV	
11-15-19	JPM
CHANGED PER ADDRESS MAP NO. 1	

REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION MAINS
CIVIL
INDEX MAP

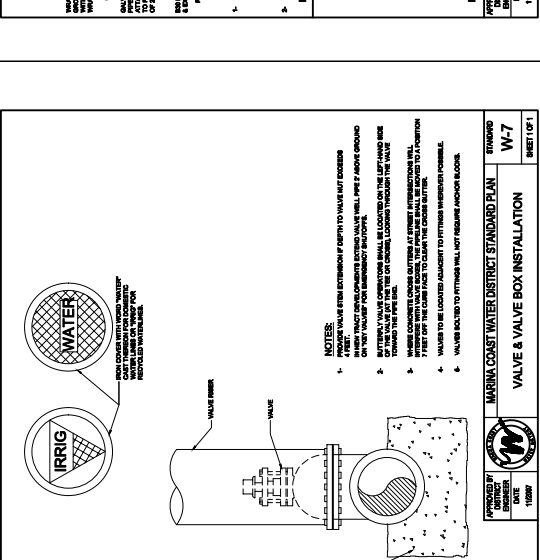
Carollo

Marina Coast Water District

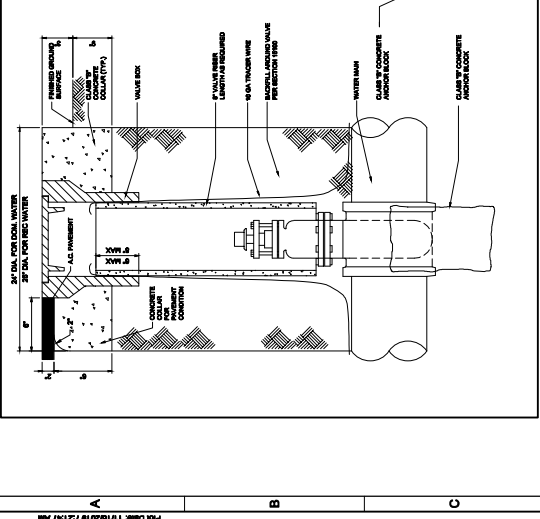
JOB NO. 7886C-10
DRAWING NO. G04
SHEET NO. 4 OF 88



REVISED FOR PROJECT
WATER DISTRICT STANDARD PLAN W-10A
 1" AIR RELEASE & VACUUM RELIEF VALVE ASSEMBLY
 SHEET OF 1
 15007



REVISED FOR PROJECT
WATER DISTRICT STANDARD PLAN W-7
 VALVE & VALVE BOX INSTALLATION
 SHEET OF 1
 15007



REVISED FOR PROJECT
WATER DISTRICT STANDARD PLAN W-11A
 4 INCH LINE DRAIN BLOWOFF ASSEMBLY
 SHEET OF 1
 15007

(A) NEW WATER MAINS AND NEW SUPPLY LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH AS PARALLEL PIPELINE CONVEYING:

- (1) DISINFECTED SECONDARY TREATED WATER (DEFINED IN SECTION 05007.22B)
- (2) HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE
- (3) HAZARDOUS SOLIDS SUCH AS HAZARDOUS WASTE MATERIALS
- (4) HAZARDOUS LIQUIDS SUCH AS HAZARDOUS WASTE MATERIALS
- (5) HAZARDOUS GASES SUCH AS HAZARDOUS WASTE MATERIALS
- (6) HAZARDOUS POWDERS SUCH AS HAZARDOUS WASTE MATERIALS
- (7) HAZARDOUS OILS SUCH AS HAZARDOUS WASTE MATERIALS
- (8) HAZARDOUS CHEMICALS SUCH AS HAZARDOUS WASTE MATERIALS
- (9) HAZARDOUS METALS SUCH AS HAZARDOUS WASTE MATERIALS
- (10) HAZARDOUS ORGANICS SUCH AS HAZARDOUS WASTE MATERIALS
- (11) HAZARDOUS INORGANICS SUCH AS HAZARDOUS WASTE MATERIALS
- (12) HAZARDOUS OTHERS SUCH AS HAZARDOUS WASTE MATERIALS

(B) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 10 FEET HORIZONTALLY FROM THE FLUID BEING CONVEYED.

(C) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING WATER MAINS.

(D) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING SEWER MAINS.

(E) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(F) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(G) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(H) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(I) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(J) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(K) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(L) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(M) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(N) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(O) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(P) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(Q) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

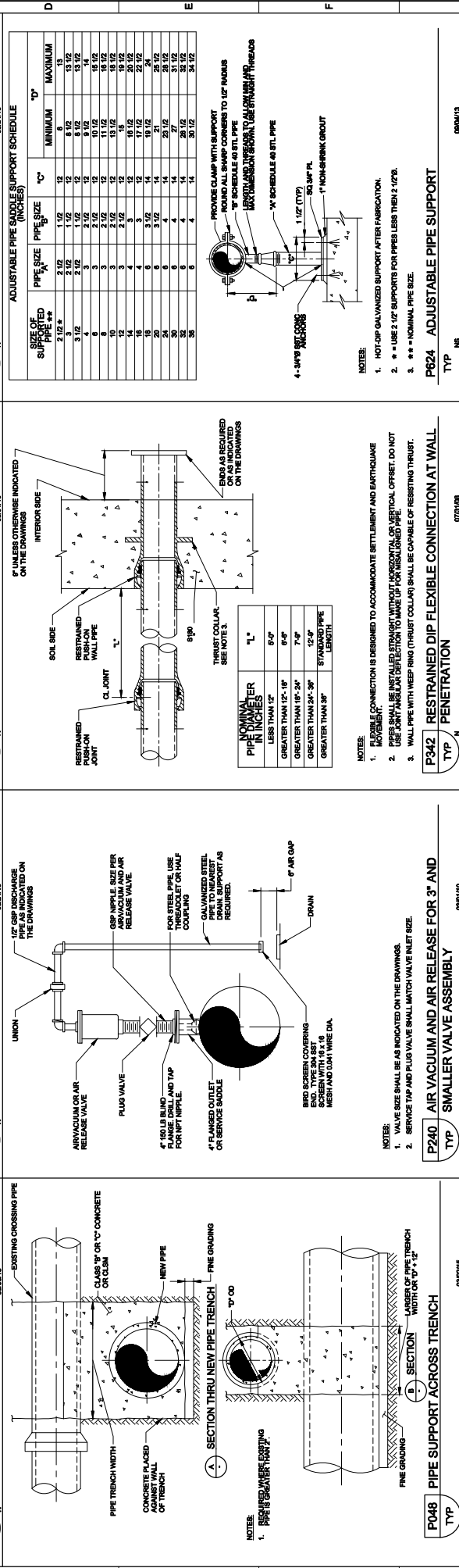
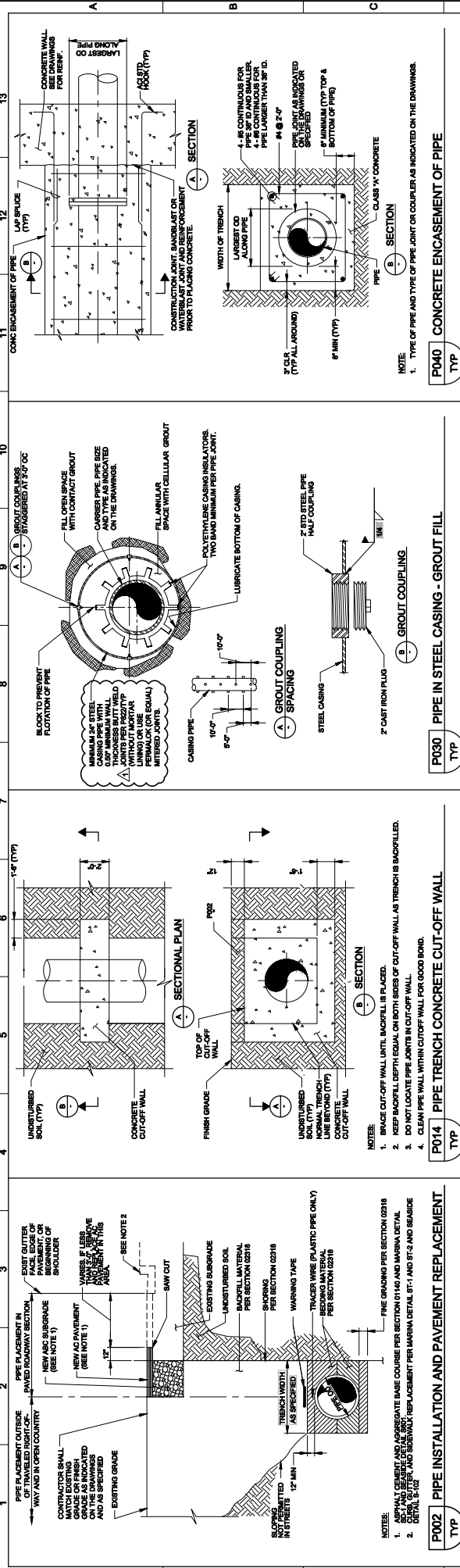
(R) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

(S) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING GROUNDWATER RECHARGE PROJECT SITES.

(T) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM ANY EXISTING UNDERGROUND HAZARDOUS MATERIAL STORAGE TANKS OR HAZARDOUS WASTE DISPOSAL SITES.

DESIGNED: JPM
 DRAWN: TUR
 CHECKED: JPM
 DATE: OCTOBER 2018

REVISED PER ADDENDUM NO. 1
 DATE: 11-15-19 JPM
 DESCRIPTION: CHANGED PER ADDENDUM NO. 1



REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 TYPICAL
 PIPING TYPICAL DETAILS - 1

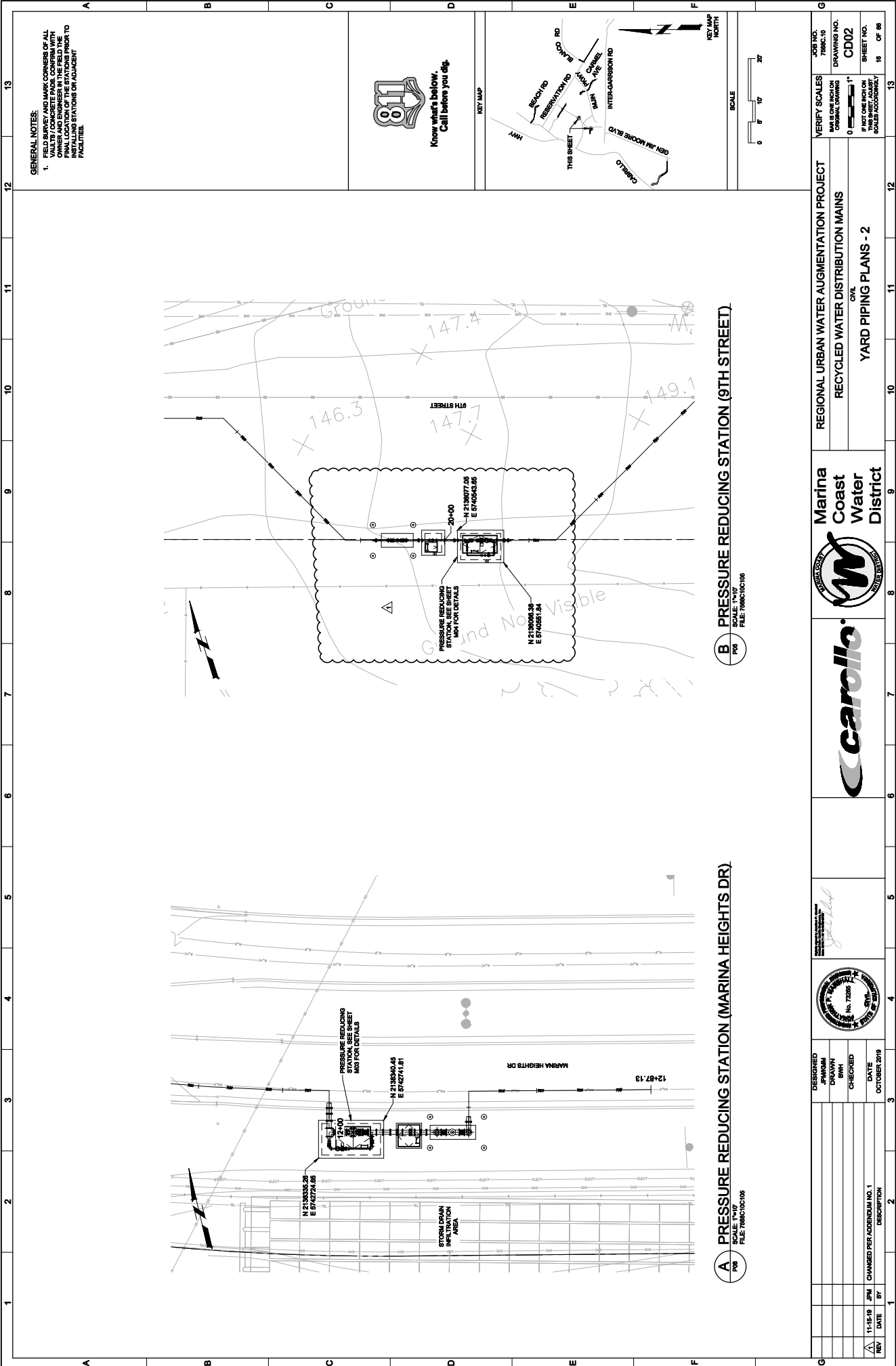
Marina Coast Water District

carollo

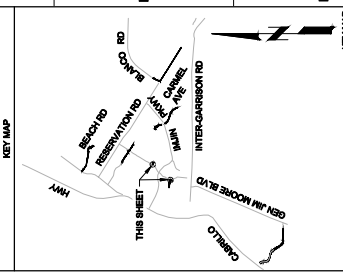
DESIGNED: JPM
 DRAWN: TUR
 CHECKED: JPM
 DATE: OCTOBER 2018

11-15-19 JPM CHANGED PER ADDENDUM NO. 1
 DATE BY DESCRIPTION

JOB NO. 7886C-10
 DRAWING NO. TP01
 SHEET NO. 11 OF 86



GENERAL NOTES:
 1. FIELD SURVEY AND MARK CORNERS OF ALL VAULTS / CONCRETE PANS. CONFIRM WITH THE FIELD SURVEYOR THE EXACT FINAL LOCATION OF THE STATIONS PRIOR TO INSTALLING STATIONS OR ADJACENT FACILITIES.



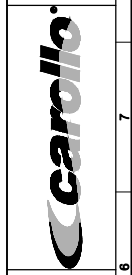
A PRESSURE REDUCING STATION (MARINA HEIGHTS DR)
 SCALE: 1"=10'
 FILE: 7886C10C16

B PRESSURE REDUCING STATION (9TH STREET)
 SCALE: 1"=10'
 FILE: 7886C10C16

REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1
2			
3			



DESIGNED: JPM/KAM
 DRAWN: BNH
 CHECKED: BNH
 DATE: OCTOBER 2019



REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL
 YARD PIPING PLANS - 2

VERIFY SCALES	JOB NO. 7886C-10
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SCALE: 0"=10'	SHEET NO. 16 OF 86

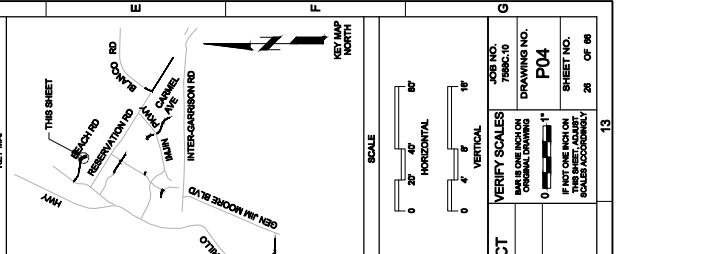
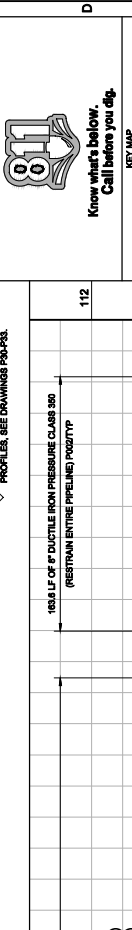
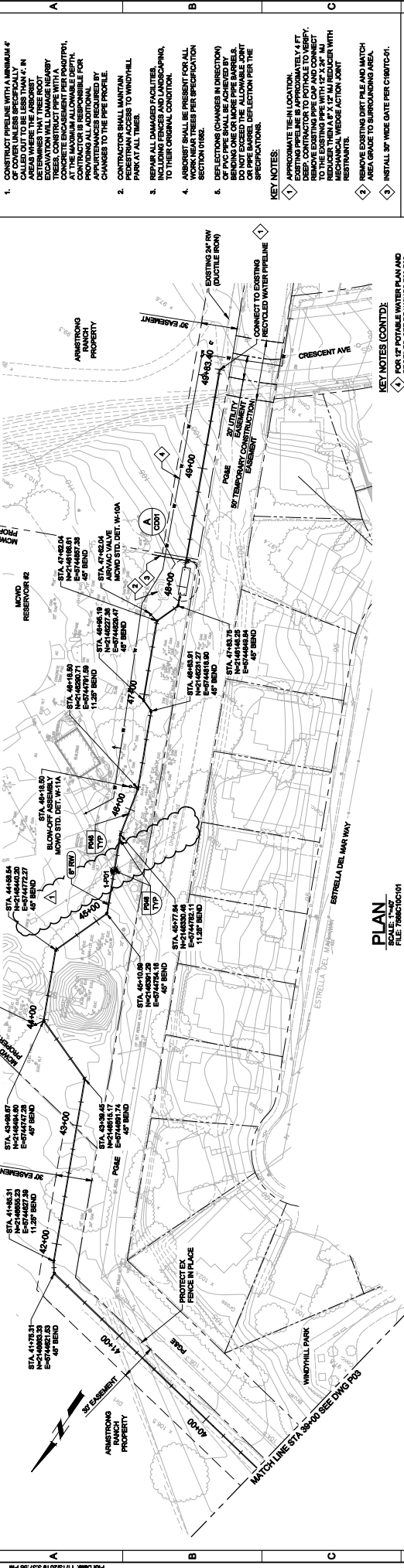
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GENERAL NOTES:

- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY NOTED OTHERWISE. MINIMUM # IN AREAS WHERE THE ASSURANCE DETERMINES THAT TREE ROOTS ARE PRESENT SHALL BE 18" MINIMUM. CONCRETE ENCASEMENT PER PARADISE, DETAIL P-014. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL ADDITIONAL CHANGES TO THE PIPE PROFILE.
- CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO WINDYHILL PARK AT ALL TIMES.
- REPAIR ALL DAMAGED FACILITIES, INCLUDING FENCES AND LANDSCAPING, TO THEIR ORIGINAL CONDITION.
- WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PRESENT SECTION AND THE PREVIOUS SECTION OF THIS SPECIFICATION.
- DEFLECTIONS (CHANGES IN DIRECTION) OF PVC PIPE SHALL BE ACHIEVED BY USING 30' TEMPORARY CONSTRUCTION EASEMENTS. DEFLECTIONS SHALL NOT EXCEED THE ALLOWABLE JOINT OR PIPE BARREL DEFLECTION PER THE SPECIFICATIONS.

KEY NOTES:

- APPROXIMATE TIE-IN LOCATION. EXISTING PIPELINE IS APPROXIMATELY 4 FT TO THE EAST OF THE PROPOSED PIPE AND CONNECT TO THE EXISTING PIPE WITH 12" x 24" ALUMINUM MECHANICAL WEDGE ACTION JOINT RESTRAINTS.
- REMOVE EXISTING DIRT AND MATCH AREA GRADE TO SURROUNDING AREA.
- INSTALL 30" WIDE DATE PER C18070-1.



DESIGNED BY: JPM
 DRAWN BY: ALBWH
 CHECKED BY: [Signature]
 DATE: OCTOBER 2019

REVISIONS:

REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1

PLAN

SCALE: 1"=40'

FILE: 7896C10.P01

PROFILE

HORIZ SCALE: 1"=40'

VERT SCALE: 1"=4'

FILE: 7896C10.P01

Marina Coast Water District

REGIONAL URBAN WATER AUGMENTATION PROJECT

RECYCLED WATER DISTRIBUTION MAINS

CIVIL DISTRIBUTION MAIN

BEACH ROAD

STA 39+60 TO 49+83.40

JOB NO. 7896C-10
 DRAWING NO. P04
 SHEET NO. 28 OF 86

LAST SAVED BY: JPM
 PROJECT NO: 7896C10
 FILE NAME: 7896C10P05.dwg
 FILE Dk: 11/20/19 11:50:51 AM

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

REVISIONS:
 11-15-19 JPM CHANGED PER ADDENDUM NO. 1
 DATE BY DESCRIPTION

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
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 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

DESIGNED: JPM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 CARMEL AVENUE
 STA 10+00 TO 19+00

VERIFY SCALES
 JOB NO. 7896C-10
 DRAWING NO. P05
 SHEET NO. 27 OF 86

SCALE
 HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 20'

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM #
 OF COVER UNLESS SPECIFICALLY
 CALLED OUT TO BE LESS THAN #.
 2. DEFLECTIONS (CHANGES IN DIRECTION)
 BENDING ONE OR MORE PIPE BARRELS
 DO NOT EXCEED THE ALLOWABLE JOINT
 DEFLECTION PER THE
 SPECIFICATIONS.

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

KEY NOTES:
 APPROXIMATE TIE-IN LOCATION.
 VERIFY CONTRACTOR TO POTENTIALLY
 VERIFY REMOVAL OF EXISTING PIPE CAP AND
 8"x12" MECHANICAL JOINT ACTION
 RESTRAINTS.

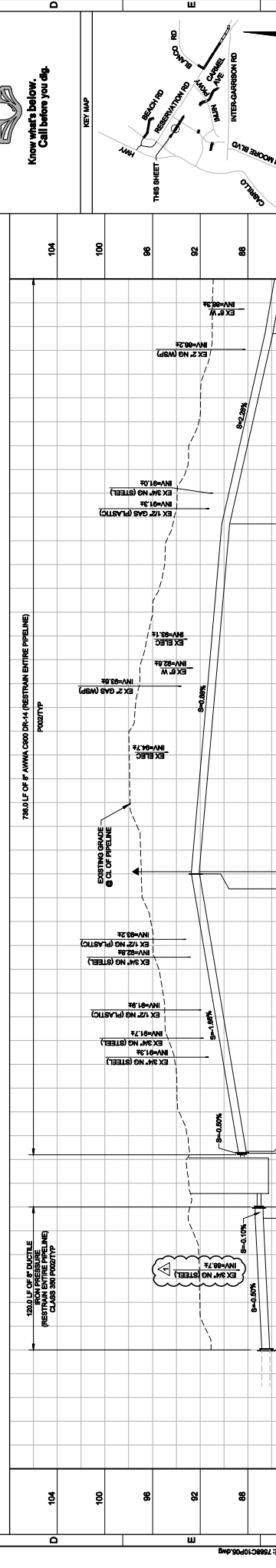
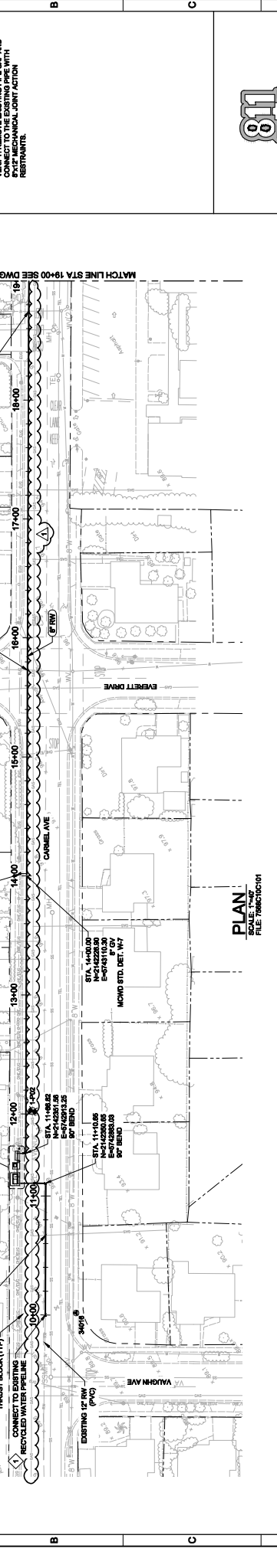


TABLE OF # 4" DIA. C900 DR-44 (RESTRAIN ENTIRE PIPELINE)

STA	DESCRIPTION	VERTICAL ELEVATION
104	EXISTING DUCTILE IRON PIPE (RESTRAIN ENTIRE PIPELINE) CLASS 500 (RST-11P)	104
100	EX 3/4" NG (STEL)	100
88	EX 1/2" NG (PLASTO)	88
92	EX 3/4" NG (STEL)	92
88	EX 1/2" NG (PLASTO)	88
84	EX 3/4" NG (STEL)	84
80	EX 1/2" NG (PLASTO)	80
76	EX 3/4" NG (STEL)	76

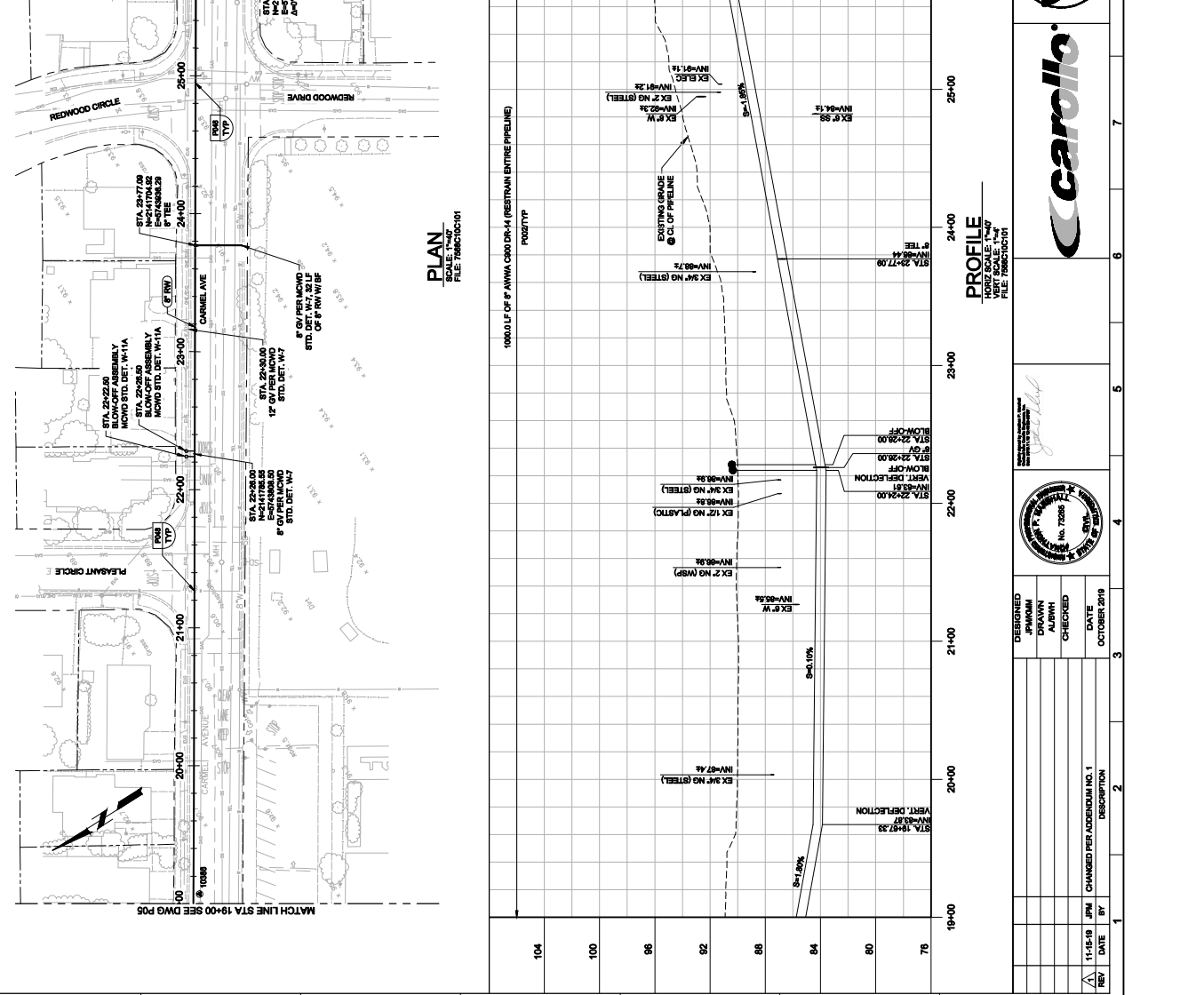
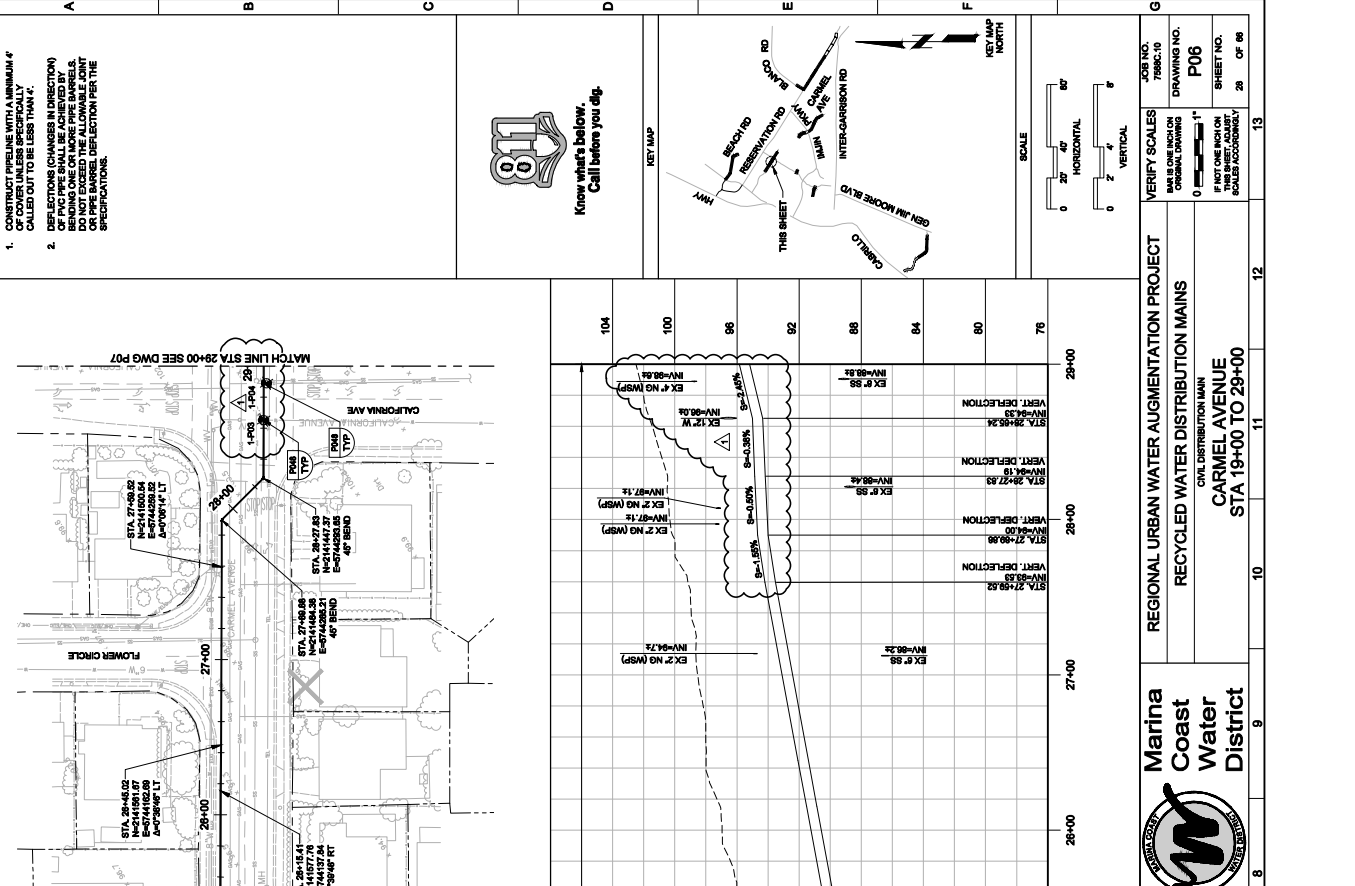
811
 Know what's below.
 Call before you dig.

GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
 2. DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/4" PER FOOT BEYOND ONE OR MORE PIPE BARRELS. DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.

104
100
96
92
88
84
80
76

104
100
96
92
88
84
80
76

104
100
96
92
88
84
80
76



LAST SAVED BY: jpm
 PROJECT NO: 7586C10
 FILE NAME: 7586C10P06.DWG
 FILE DTM: 11/15/19 12:10:04 PM

DESIGNED: JPM/AM
 DRAWN: ALBH
 CHECKED: ALBH
 DATE: OCTOBER 2019

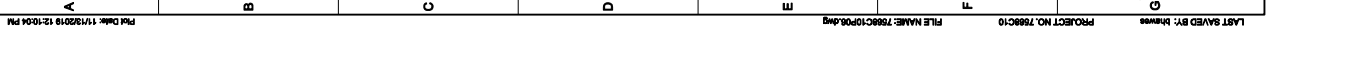
11-15-19 JPM CHANGED PER ADDENDUM NO. 1
 28 OF 86

REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 CARMEL AVENUE
 STA 19+00 TO 29+00

Marina Coast Water District
 carollo

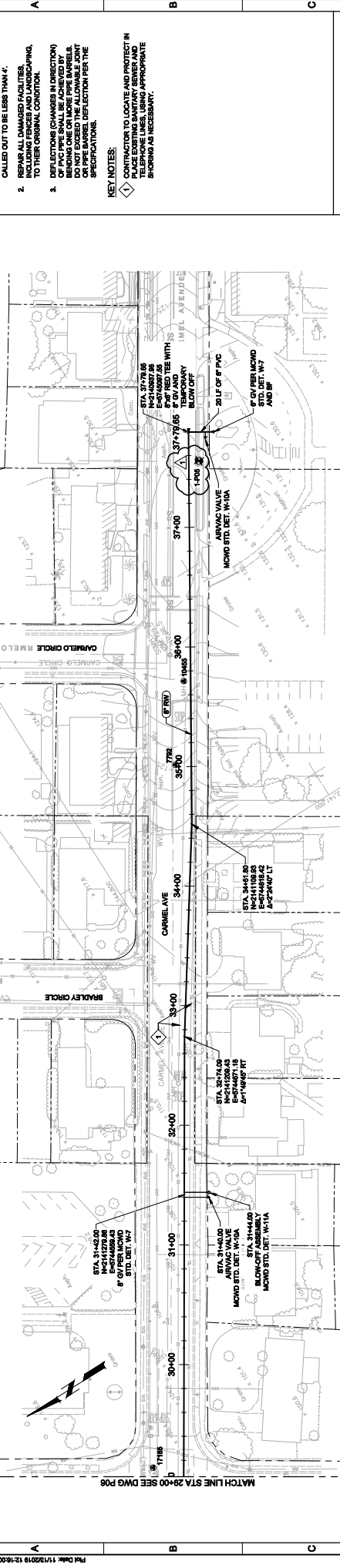
VERIFY SCALES:
 HORIZONTAL: 1"=40'
 VERTICAL: 1"=4'

JOB NO: 7586C10
 DRAWING NO: P06
 SHEET NO: 28 OF 86

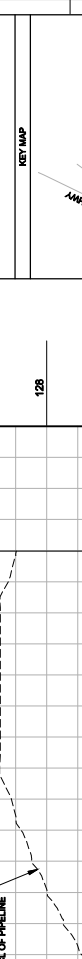


811
 Know what's below.
 Call before you dig.

GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
 2. REPAIR ALL DAMAGED FACILITIES, UTILITIES, AND ADJACENT PROPERTY TO THEIR ORIGINAL CONDITION.
 3. ANY CHANGES (CHANGES IN DIRECTION) OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE PIPE BARRELS. ALL CHANGES IN DIRECTION OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE PIPE BARRELS. ALL CHANGES IN DIRECTION OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE PIPE BARRELS. ALL CHANGES IN DIRECTION OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE PIPE BARRELS. ALL CHANGES IN DIRECTION OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE PIPE BARRELS.
 KEY NOTES:
 1. CONTRACTOR TO LOCATE AND PROTECT IN PLACE EXISTING SANITARY SEWER AND TELEPHONE LINES, USING APPROPRIATE SHIELDING AS NECESSARY.

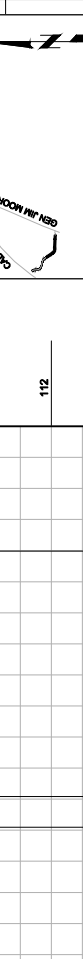


Know what's below.
 Call before you dig.



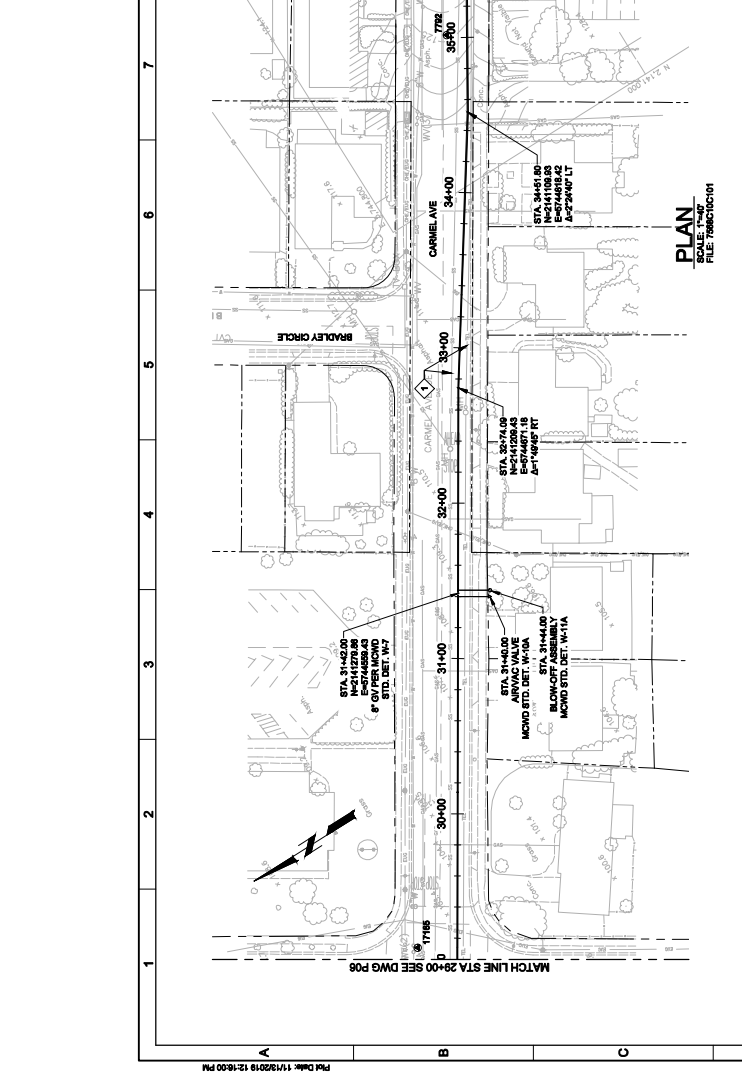
VERIFY SCALES
 JOB NO. 7898C-10
 DRAWING NO. P07
 SHEET NO. 29 OF 86

REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 CARMEL AVENUE
 STA 28+00 TO 37+79.65



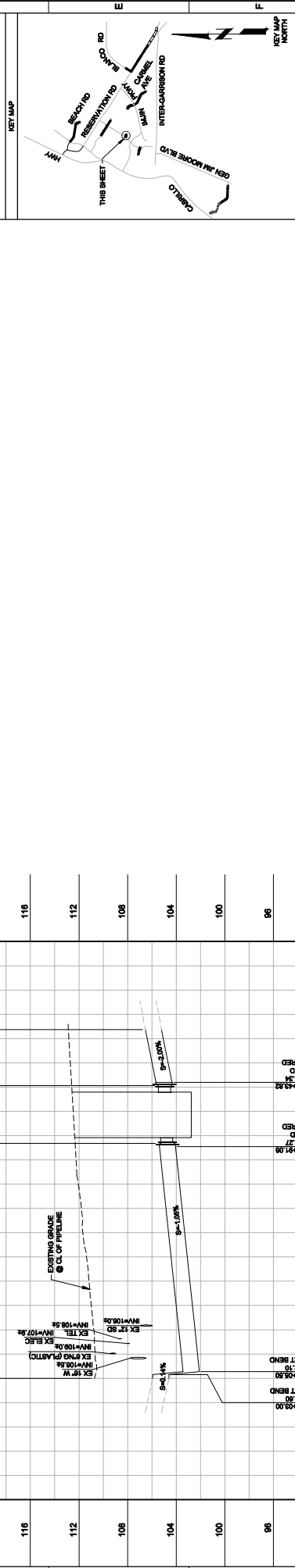
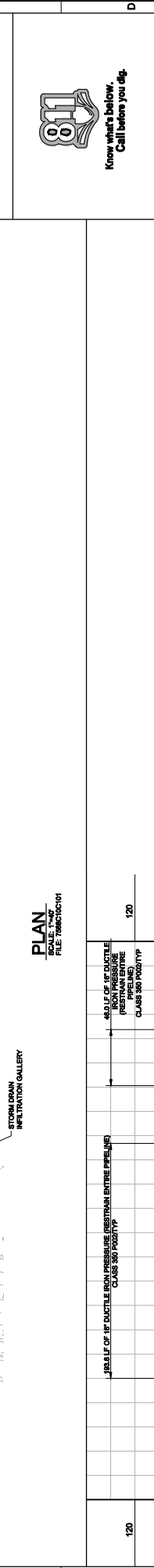
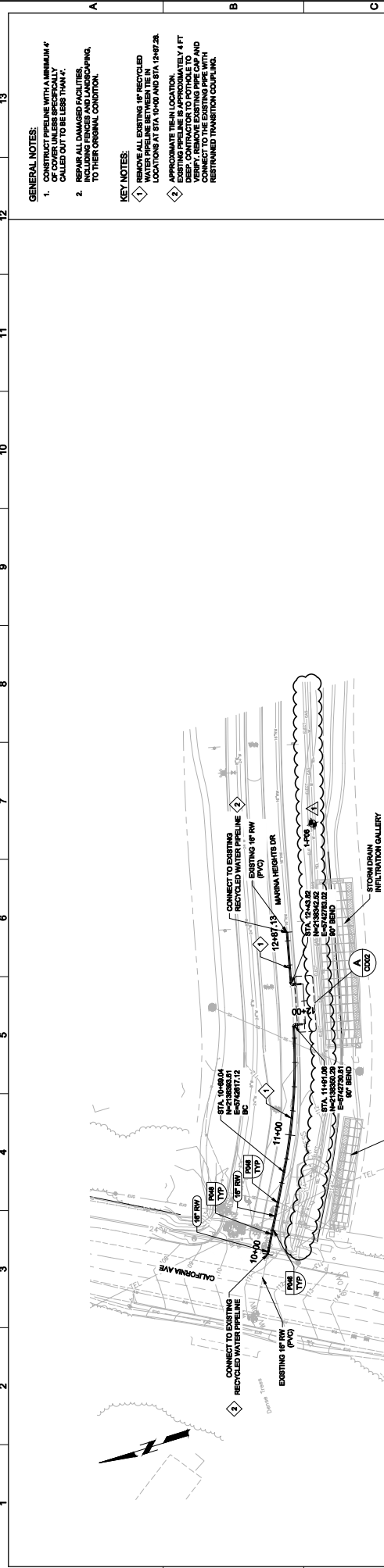
DESIGNED BY: JPM
 DRAWN BY: ALBH
 CHECKED BY: ALBH
 DATE: OCTOBER 2018

REV	DATE	BY	DESCRIPTION
11-15-18	JPM	CHANGED PER ADDENDUM NO. 1	



PLAN
 SCALE: 1"=40'
 FILE: 7898C10P07.dwg

PROFILE
 HORIZ SCALE: 1"=40'
 VERT SCALE: 1"=4'
 FILE: 7898C10P07.dwg



DESIGNED JPM
DRAWN ALBH
CHECKED ALBH
DATE OCTOBER 2019

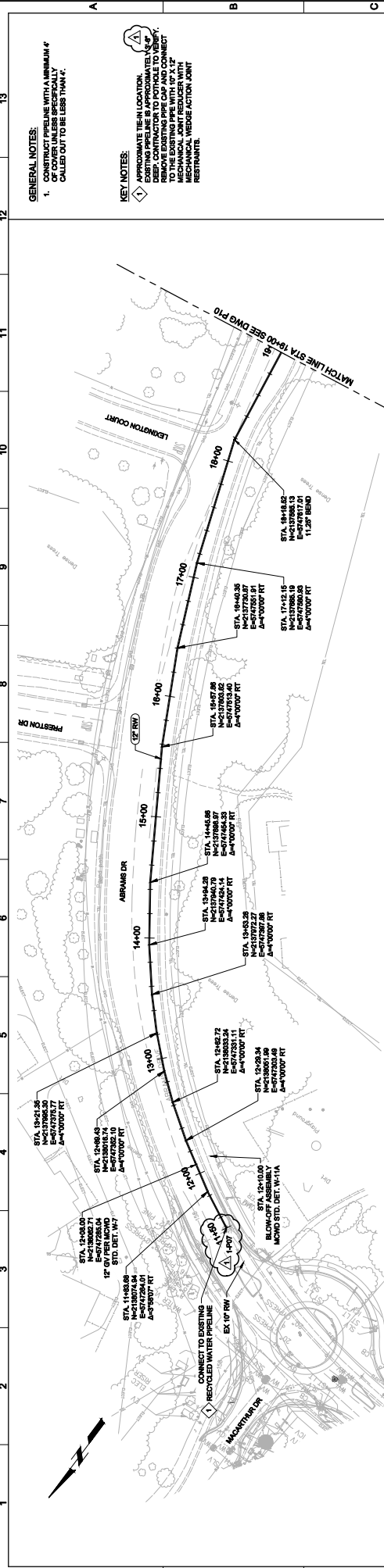
REVISIONS:

NO.	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1

Carollo
CONSULTING ENGINEERS

Marina Coast Water District

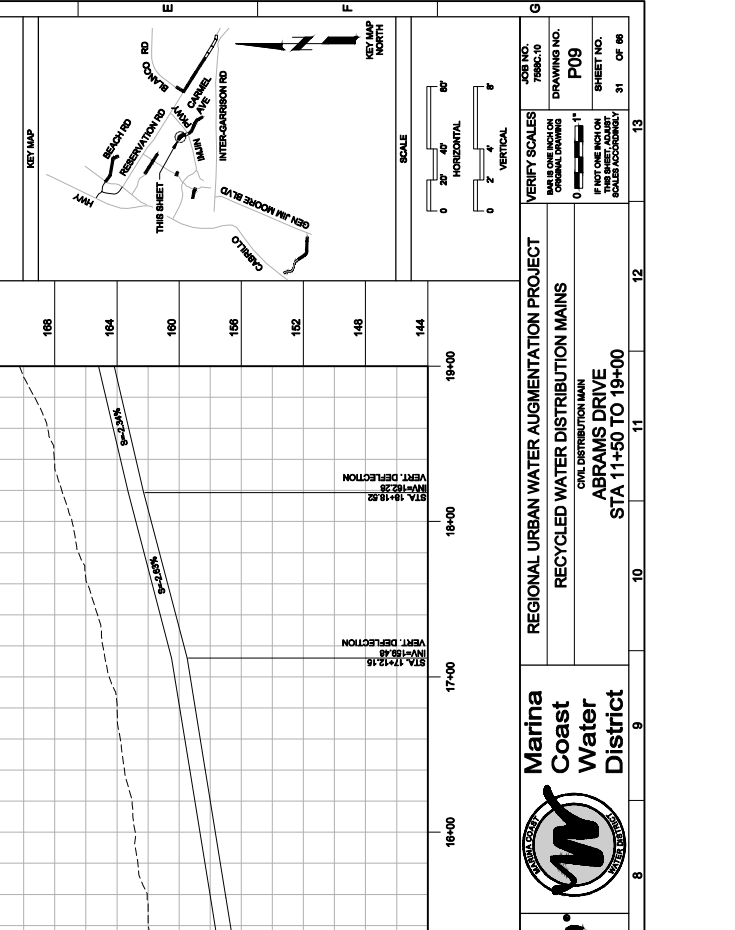
VERIFY SCALES:
JOB NO. 7586C-10
DRAWING NO. P08
SHEET NO. 30 OF 86



GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".

KEY NOTES:
 APPROXIMATE THE IN LOCATION. DEEP. CONTRACTOR TO FORTUNE TO VERIFY TO MAKE SURE THE PIPE CAP AND TO CONNECT MECHANICAL JOINT REDUCER WITH MECHANICAL WEDGE ACTION JOINT RESTRAINTS.

PLANNING
 SCALE: 1"=40'
 FILE: 7666C10P09.DWG



PROFILE
 VERT SCALE: 1"=4'
 HORIZ SCALE: 1"=40'
 FILE: 7666C10P09.DWG

REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1
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13			

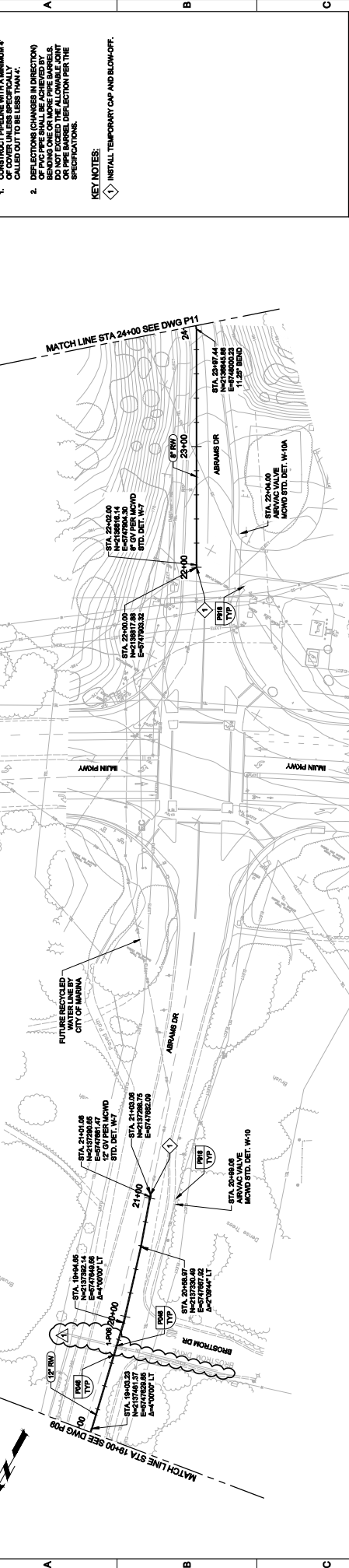
DESIGNED: JPM/KAM
 DRAWN: ALB/WH
 CHECKED: [Signature]
 DATE: OCTOBER 2019

carollo
 MARINA COAST WATER DISTRICT

VERIFY SCALES:
 HORIZONTAL: 1"=40'
 VERTICAL: 1"=4'

JOB NO.: 7666C-10
 DRAWING NO.: P09
 SHEET NO.: 31 OF 86

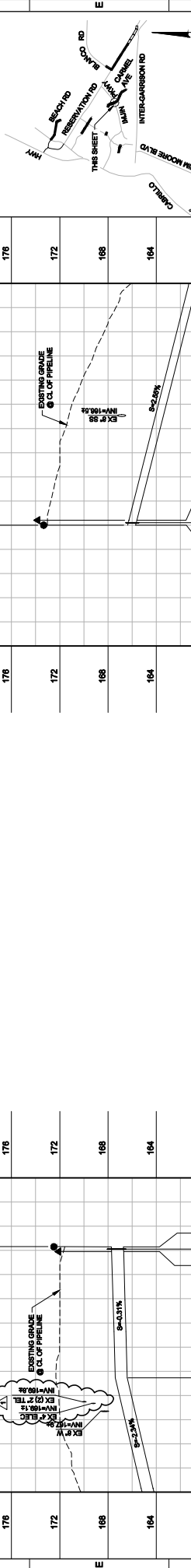
13
12
11
10
9
8
7
6
5
4
3
2
1



GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
 2. DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/8" PER FOOT OF PIPE. BENDING ONE OR MORE PIPE BARRELS DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.
KEY NOTES:
 1. INSTALL TEMPORARY CAP AND BLOW-OFF.

PLAN
 SCALE: 1"=40'
 FILE: 7888C10P10.dwg

Know what's below. Call before you dig.



PROFILE
 VERT SCALE: 1"=4'
 HORIZ SCALE: 1"=40'
 FILE: 7888C10P10.dwg

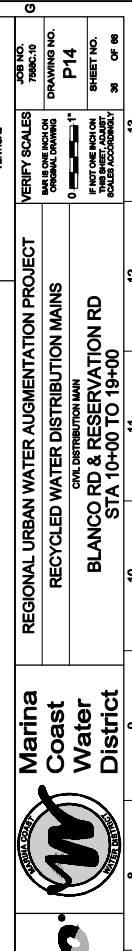
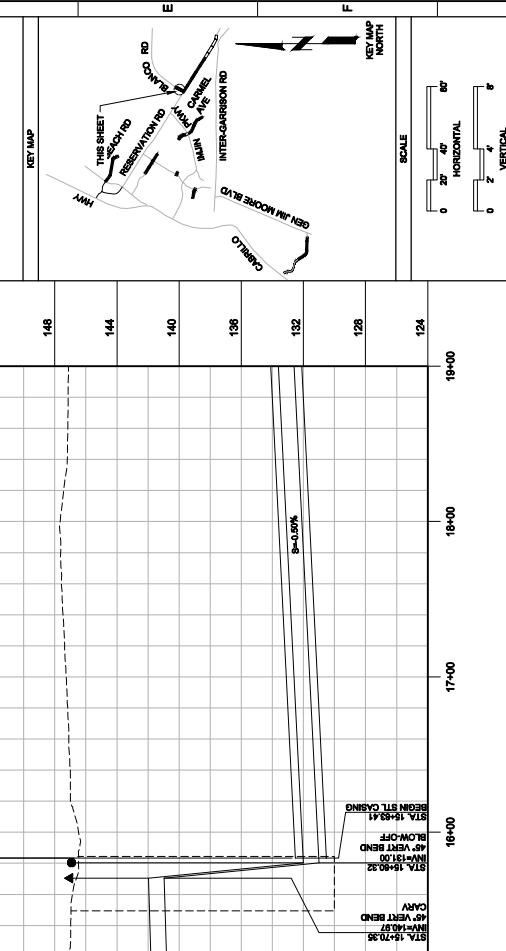
REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1

DESIGNED JPM/AMM	DRAWN ALB/HH	CHECKED	DATE OCTOBER 2019
<p>REGIONAL URBAN WATER AUGMENTATION PROJECT RECYCLED WATER DISTRIBUTION MAINS CHW DISTRIBUTION MAIN ABRAMS DRIVE STA 19+00 TO 21+03.06 AND STA 22+00 TO 24+00</p>			
<p>VERIFY SCALES HORIZONTAL: 1"=40' VERTICAL: 1"=4'</p>		<p>JOB NO. 7888C-10 DRAWING NO. P10 SHEET NO. 32 OF 86</p>	

- GENERAL NOTES:**
1. EXACT LOCATIONS AND DIMENSIONS OF JACKING PIT TO BE DETERMINED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR REVIEW
 2. CONSTRUCT PIPELINE WITH A MINIMUM OF 4' COVER UNLESS OTHERWISE SPECIFIED
 3. CLEAR AND GRUB AS REQUIRED TO FACILITATE INSTALLATION OF PIPE AND APPURTENANCES
 4. ASBESTOS SHALL BE PRESENT FOR ALL TREE PRUNING PER SPECIFICATION SECTION 0782.
 5. SEE BID ITEM FOR PUMP PLANT RESTORATION.
 6. DEFLECTIONS (CHANGES IN DIRECTION) OF PVC BLOW-OFF ASSEMBLY SHALL BE LIMITED TO 4" PER MORE PIPE BARRELS. DO NOT EXCEED THE ALLOWABLE JOINT OR PIPE BARREL DEFLECTION PER THE SPECIFICATION.
- KEY NOTES:**
1. APPROXIMATE TRENCH LOCATION, EXISTING CONTRACTOR TO NOTIFY TO REMOVE EXISTING PIPE CAP AND BLOW-OFF ASSEMBLY TO BE REPLACED WITH 12" MECHANICAL JOINT REDUCER WITH MECHANICAL WEDGE ACTION JOINT RESTRAINT.
 2. SETTLEMENT MONITORING LOCATION. SEE SETTLEMENT MONITORING REQUIREMENTS.
 3. INSTALL TEMPORARY TYPE K TRAFFIC GUARDRAIL BEYOND EDGE OF PAVEMENT.
 4. WORK AREA LIMITED TO IMPAVED AREA IN MONTEREY COUNTY AND 47' STRIP OF MARINA AREA.



PLAN
SCALE: 1"=40'
FILE: 7898C10P1



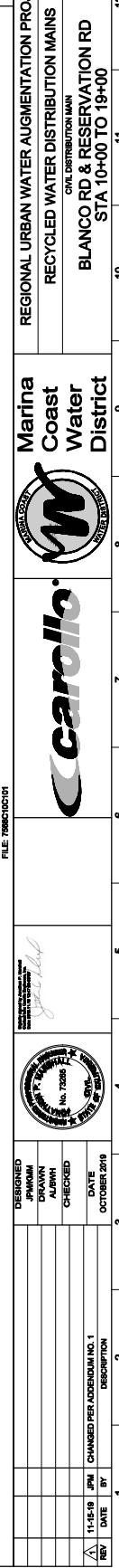
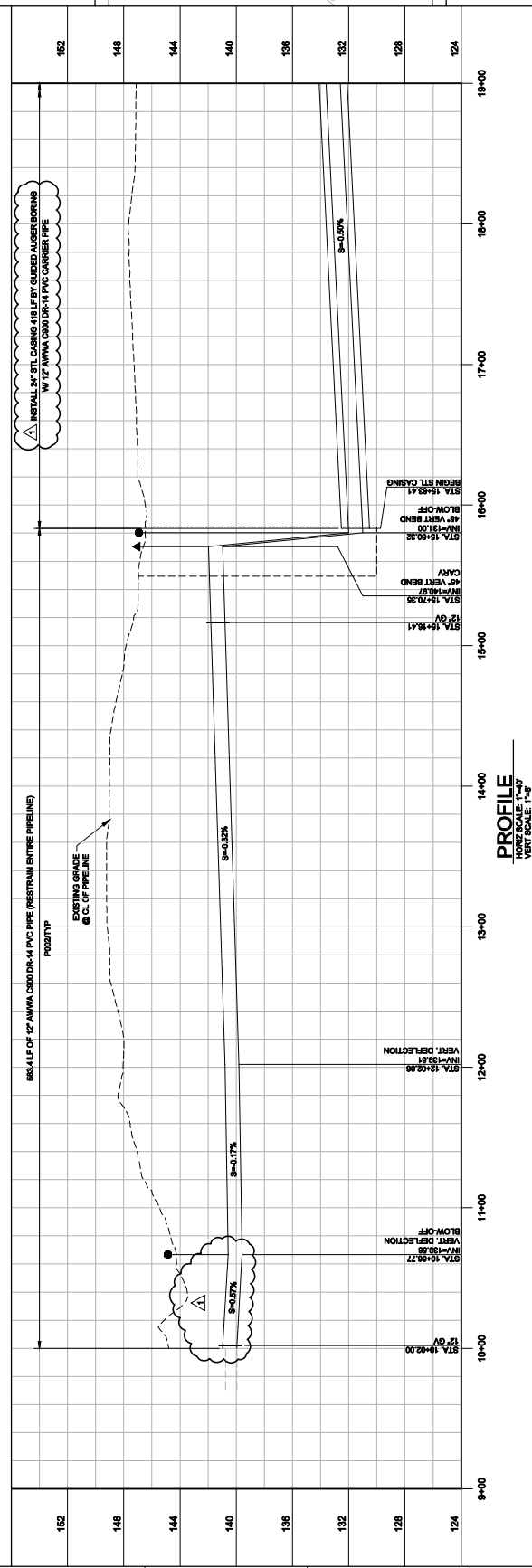
GENERAL NOTES:

1. EXACT LOCATIONS AND DIMENSIONS OF JACKING PIT TO BE DETERMINED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR REVIEW
2. CONSTRUCT PIPELINE WITH A MINIMUM OF 4' COVER UNLESS OTHERWISE SPECIFIED
3. CLEAR AND GRUB AS REQUIRED TO FACILITATE INSTALLATION OF PIPE AND APPURTENANCES
4. ASBESTOS SHALL BE PRESENT FOR ALL TREE PRUNING PER SPECIFICATION SECTION 0782.
5. SEE BID ITEM FOR PUMP PLANT RESTORATION.
6. DEFLECTIONS (CHANGES IN DIRECTION) OF PVC BLOW-OFF ASSEMBLY SHALL BE LIMITED TO 4" PER MORE PIPE BARRELS. DO NOT EXCEED THE ALLOWABLE JOINT OR PIPE BARREL DEFLECTION PER THE SPECIFICATION.

KEY NOTES:

1. APPROXIMATE TRENCH LOCATION, EXISTING CONTRACTOR TO NOTIFY TO REMOVE EXISTING PIPE CAP AND BLOW-OFF ASSEMBLY TO BE REPLACED WITH 12" MECHANICAL JOINT REDUCER WITH MECHANICAL WEDGE ACTION JOINT RESTRAINT.
2. SETTLEMENT MONITORING LOCATION. SEE SETTLEMENT MONITORING REQUIREMENTS.
3. INSTALL TEMPORARY TYPE K TRAFFIC GUARDRAIL BEYOND EDGE OF PAVEMENT.
4. WORK AREA LIMITED TO IMPAVED AREA IN MONTEREY COUNTY AND 47' STRIP OF MARINA AREA.

PLAN
SCALE: 1"=40'
FILE: 7898C10P1





LAST SAVED BY: *hms* PROJECT NO: 7898C10 FILE NAME: 7898C10P15.dwg

DESIGNED: JPM/AM DRAWN: ALBH/AM CHECKED: DATE: OCTOBER 2018

REVISIONS:

NO.	DATE	BY	DESCRIPTION
1	11-15-18	JPM	CHANGED PER ADDENDUM NO. 1

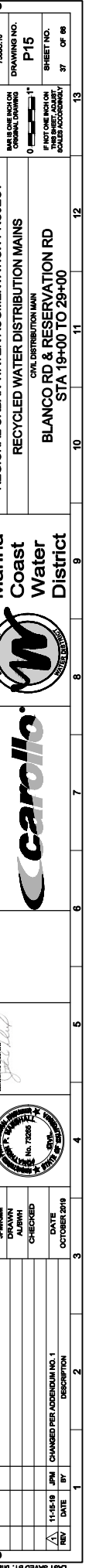
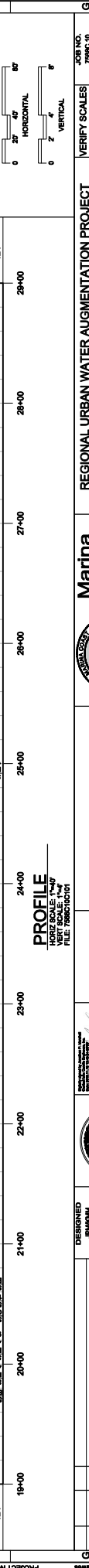
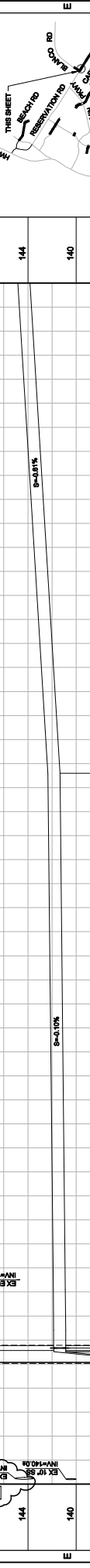
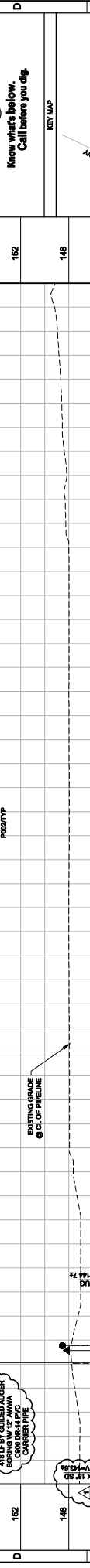
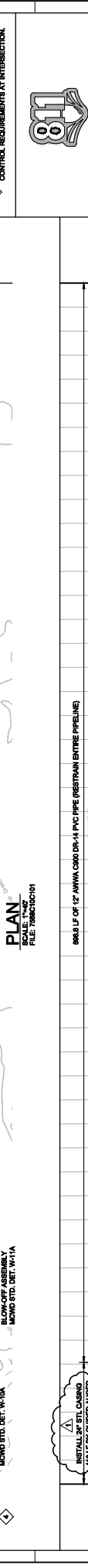
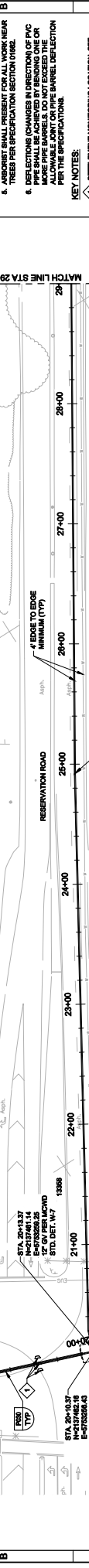
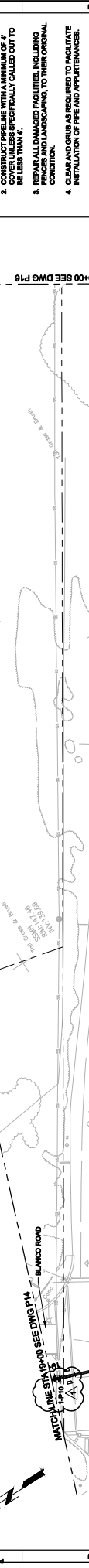




carollo
 ENGINEERS & ARCHITECTS
 10000 WEST 10TH AVENUE, SUITE 100
 DENVER, COLORADO 80241
 PHONE: 303.751.1000
 FAX: 303.751.1001
 WWW.CAROLLO.COM

Marina Coast Water District
 REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 BLANCO RD & RESERVATION RD
 STA 19+00 TO 29+00

JOB NO. 7898C-10
 DRAWING NO. P15
 SHEET NO. 37 OF 86



GENERAL NOTES:

- EXACT LOCATIONS AND DIMENSIONS OF RECEIVING PIT TO BE DETERMINED BY CONTRACTOR. THE CONTRACTOR AND ENGINEER WILL CONSIDER, AT NO COST TO THE CONTRACTOR, THE LOCATION OF THE RECEIVING PIT SOUTH BEYOND THE PAVEMENT, TO MINIMIZE THE EXTENT OF WORK AND TO AVOID ANY INTERFERENCE WITH EXISTING UTILITY LINES. THE CONTRACTOR SHALL RELAY A COUNTY ELECTRICAL CABLE AND COUNTY APPROVAL.
- CONSTRUCT PRELINE WITH A MINIMUM OF 4\"/>

- REPAIR ALL DAMAGED FACILITIES, INCLUDING CURBS, SIDEWALKS, AND DRIVEWAYS, TO THEIR ORIGINAL CONDITION.
- CLEAR AND GRUB AS REQUIRED TO FACILITATE INSTALLATION OF PIPE AND APPURTENANCES.
- ADSORBENT SHALL BE PRESENT FOR ALL WORK NEAR TREES PER SPECIFICATION SECTION 0182.
- DEFLECTIONS (CHANGES IN DIRECTION) OF PVC PIPE SHALL BE ACHIEVED BY BENDING ONE OR MORE MANHOLES TO THE REQUIRED DEFLECTION ALLOWABLE JOINT ON PIPE MANHOLE DEFLECTION PER THE SPECIFICATIONS.

KEY NOTES:

- SETTLEMENT MONITORING LOCATION. SEE SPECIFICATION FOR MONITORING REQUIREMENTS.
- INSTALL TEMPORARY TYPE X TRAFFIC GUARDRAIL AROUND RECEIVING PIT.
- SEE SECTION 0202 FOR TIME RESTRICTIONS ON RECEIVING SHAFT CONSTRUCTION.
- SEE SECTION 0186 FOR SPECIAL TRAFFIC CONTROL REQUIREMENTS AT INTERSECTION.



VERIFY SCALES:
 0 20 40 60 80
 HORIZONTAL
 0 2 4
 VERTICAL

THIS SHEET
 BLANCO RD
 RESERVATION RD
 INTER-GARRISON RD
 GEN AM MOORE BLVD
 CARRIELLO

11-15-18 JPM
 DATE BY

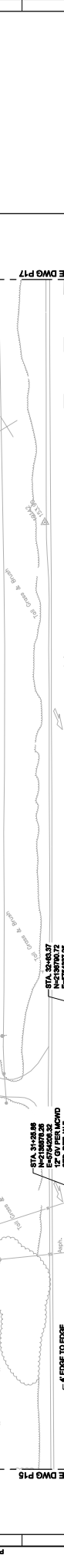
11-15-18 JPM
 DATE BY

11-15-18 JPM
 DATE BY

11-15-18 JPM
 DATE BY

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 PROJECT NO: 788C-10
 FILE NAME: 788C10P18.dwg
 PLOT DATE: 11/15/19
 CHANGED PER: JPM
 DESCRIPTION: CHANGED PER ADDENDUM NO. 1

DESIGNED: JPM/KAM
 DRAWN: ALB/HH
 CHECKED: []
 DATE: OCTOBER 2019



REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 BLANCO RD & RESERVATION RD
 STA 29+00 TO 39+00

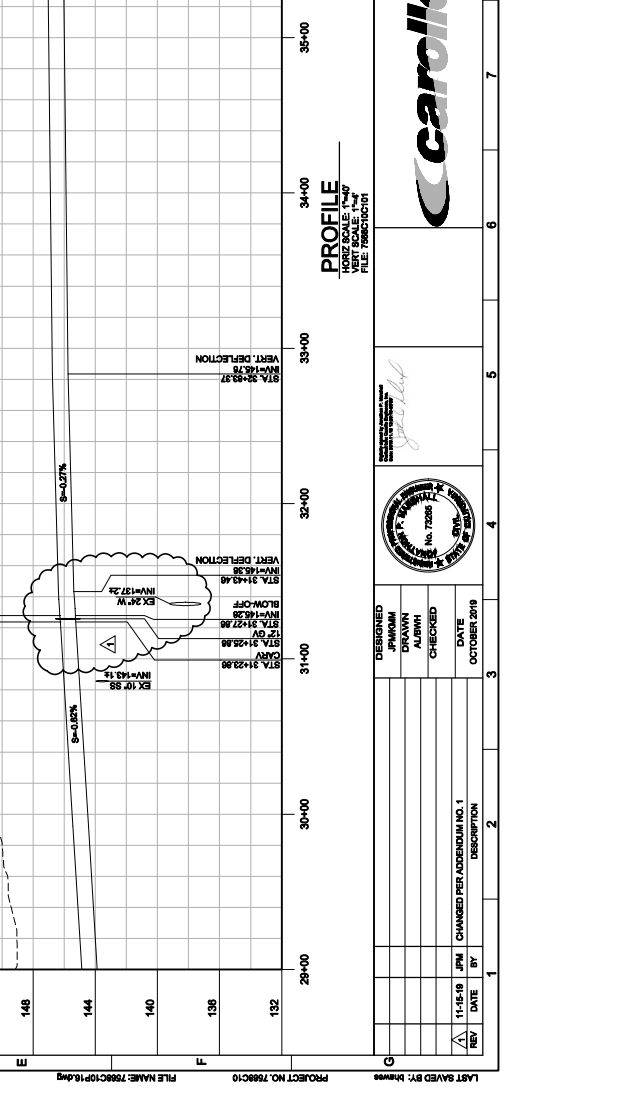
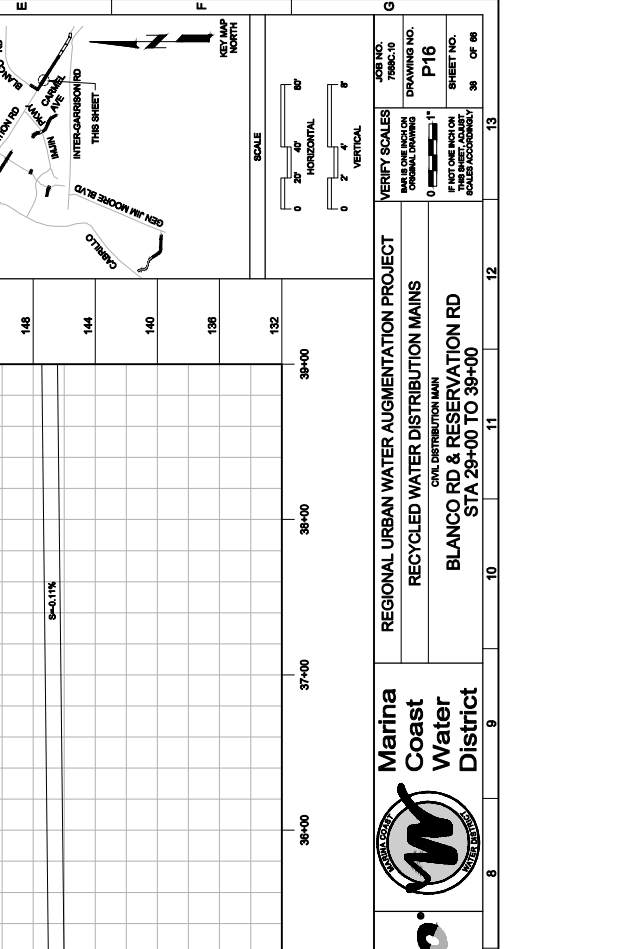
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 JOB NO. 788C-10
 DRAWING NO. P16
 SHEET NO. 36 OF 86

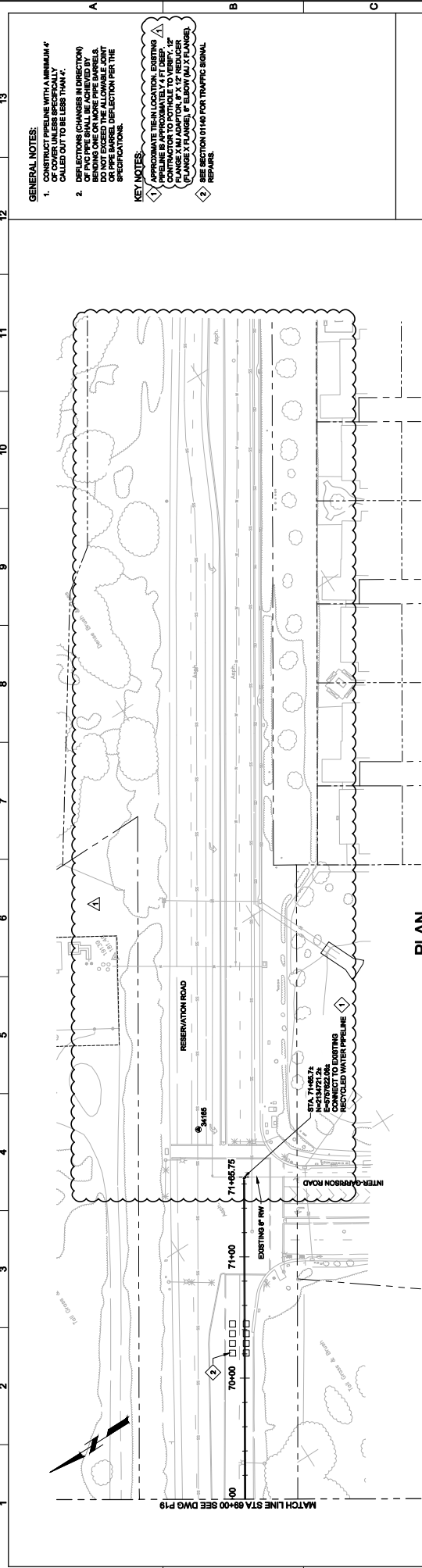
SCALE
 HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 4'

NET MAP
 THIS SHEET
 INTER-CARBON RD
 BLANCO RD
 RESERVATION RD
 GEN AM MOORE BLDG
 CRISTO
 N
 EAST-NORTH
 EAST-NORTH

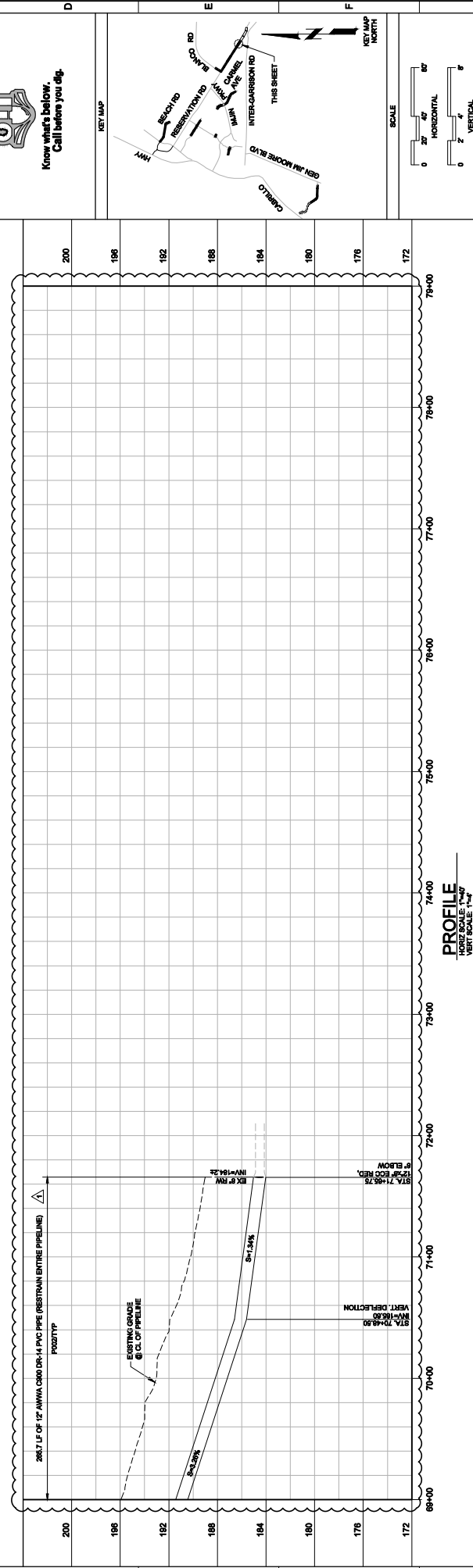
GENERAL NOTES:
 1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
 2. DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/8" PER FOOT OF PIPE. DEFLECTIONS SHALL NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.

Know what's below.
 Call before you dig.





PLAN
SCALE: 1"=40'
FILE: 7868C10P1



PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=4'
FILE: 7868C10P1

GENERAL NOTES:

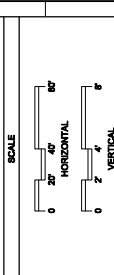
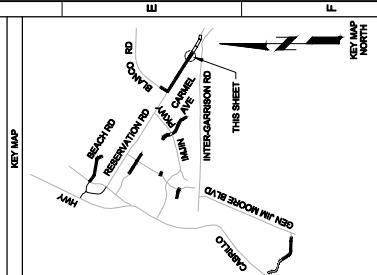
1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
2. DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/8" PER FOOT BEYOND ONE OR MORE PIPE BARRELS. DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.

KEY NOTES:

- 1. APPROXIMATE TREN LOCATION. EXISTING TREN LOCATIONS SHALL BE IDENTIFIED BY CONTRACTOR TO CONTROL TO VERIFY. 12" FLANGE X 1/4" ADAPTOR, 8" X 8" REDUCER SHALL BE USED TO CONNECT TO EXISTING TREN. SEE SECTION 01160 FOR TRAFFIC SIGNAL REPAIRS.

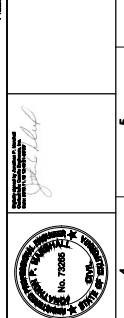


Know what's below.
Call before you dig.



VERIFY SCALES	JOB NO.
SCALE ONE INCH ON DRAWING EQUALS 40 FEET HORIZONTAL	7868C-10
SCALE ONE INCH ON DRAWING EQUALS 4 FEET VERTICAL	DRAWING NO.
	P20
	SHEET NO.
	42 OF 86

REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION MAINS
CIVIL DISTRIBUTION MAIN
BLANCO RD & RESERVATION RD
STA 68+00 TO 79+00

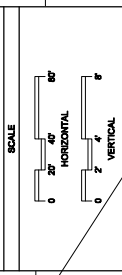
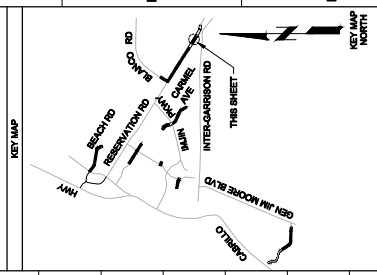


DESIGNED	JPM		
DRAWN	JPM		
CHECKED	JPM		
DATE	OCTOBER 2018		
REV	DATE	BY	DESCRIPTION
1	11-15-18	JPM	CHANGED PER ADDENDUM NO. 1

- GENERAL NOTES:**
- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4.
 - DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/8" PER FOOT OF BENDING LINE OR MAKE PIPE BARRELS DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.

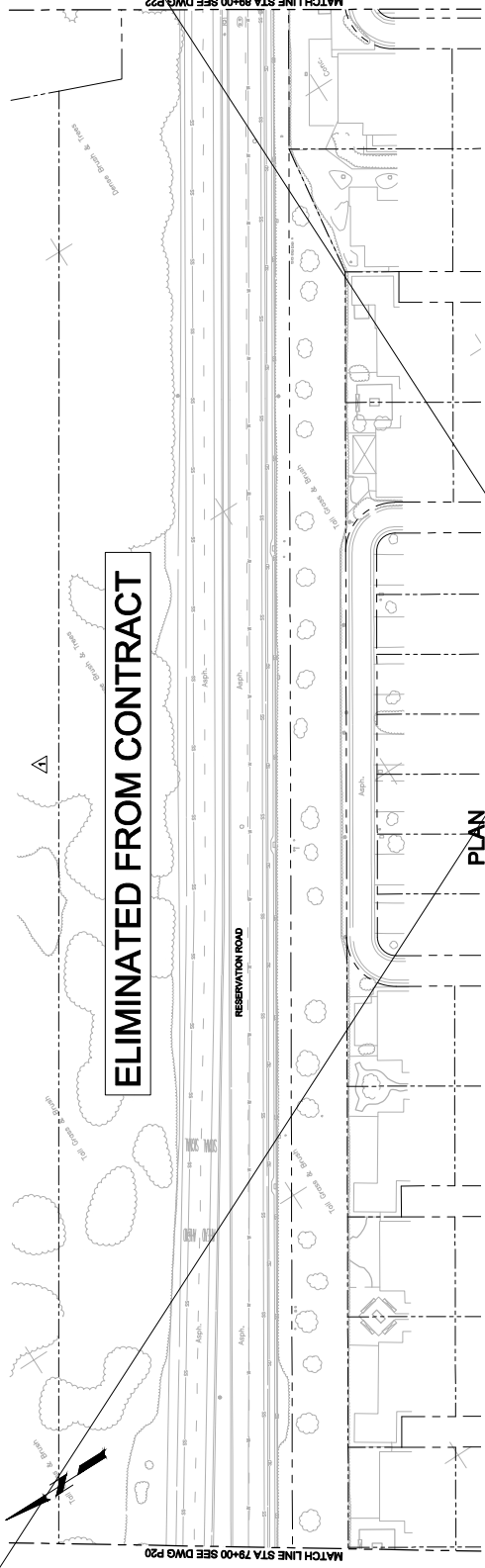


Know what's below.
Call before you dig.

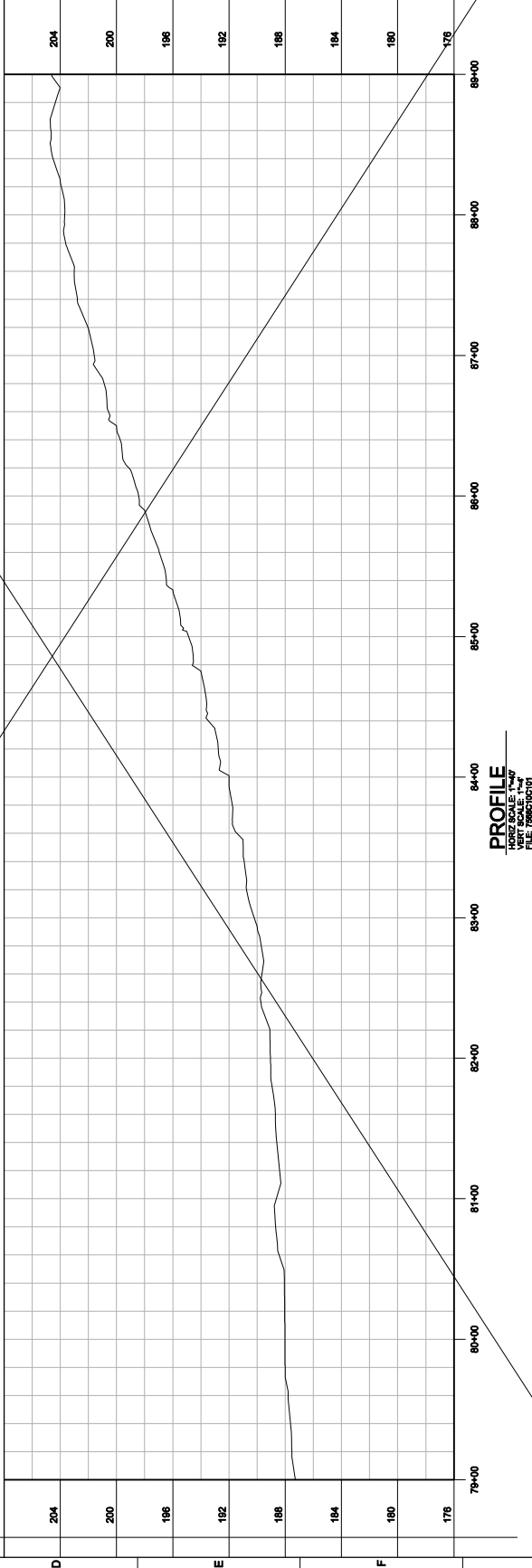


VERIFY SCALES	JOB NO. 7898C-10
SCALE FOR ONE INCH EQUAL TO 40 FEET	DRAWING NO. P21
SCALE FOR ONE INCH EQUAL TO 4 FEET	SHEET NO. 43 OF 88

ELIMINATED FROM CONTRACT



PLAN
SCALE: 1"=40'
FILE: 7898C10P21.dwg



PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=4'
FILE: 7898C10P21.dwg

REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION MAINS
CIVIL DISTRIBUTION MAIN
BLANCO RD & RESERVATION RD
STA 78+00 TO 89+00

Marina Coast Water District



DESIGNED BY: JPM/KAM
DRAWN BY: ALBH/H
CHECKED BY: [Signature]
DATE: OCTOBER 2018



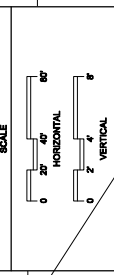
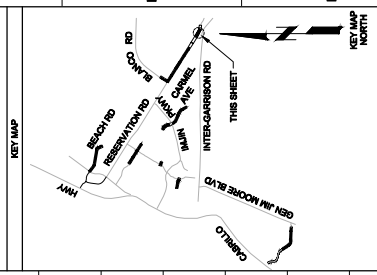
REV	DATE	BY	DESCRIPTION
1	11-15-18	JPM	CHANGED PER ADDENDUM NO. 1
2			
3			
4			

GENERAL NOTES:

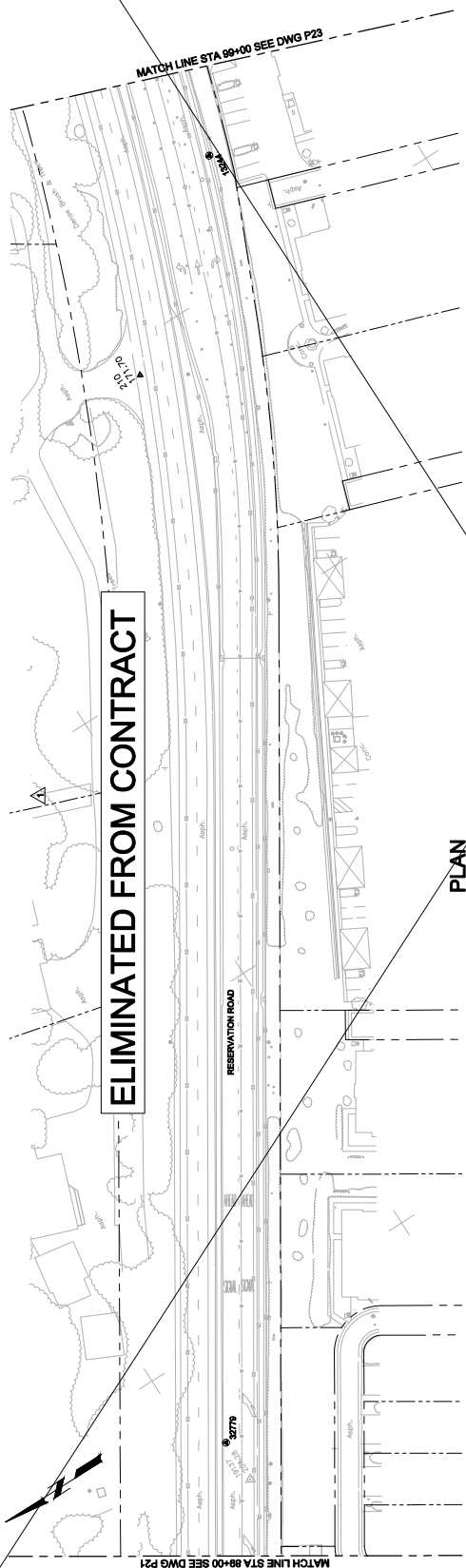
- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
- DEFLECTIONS (CHANGES IN DIRECTION) BENDING LINE OR MAKE PIPE BARRELS DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.



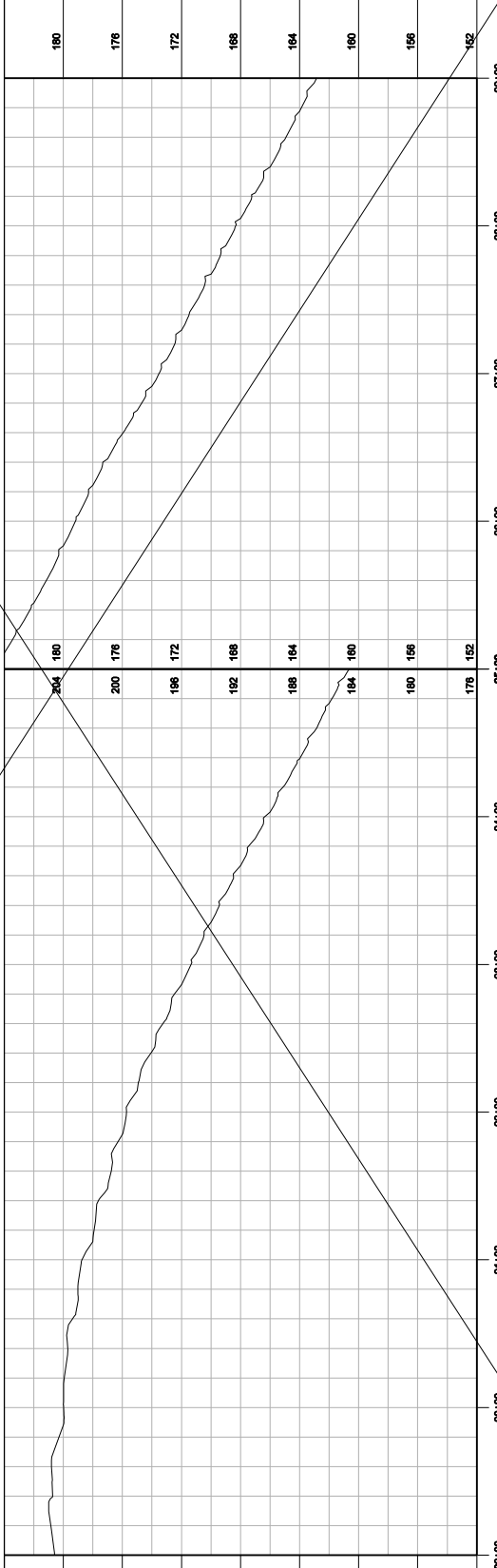
Know what's below.
Call before you dig.



JOB NO.	7898C-10
DRAWING NO.	P22
SHEET NO.	44 OF 88

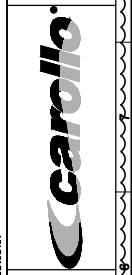


PLAN
SCALE: 1"=40'
FILE: 7898C10P22.dwg

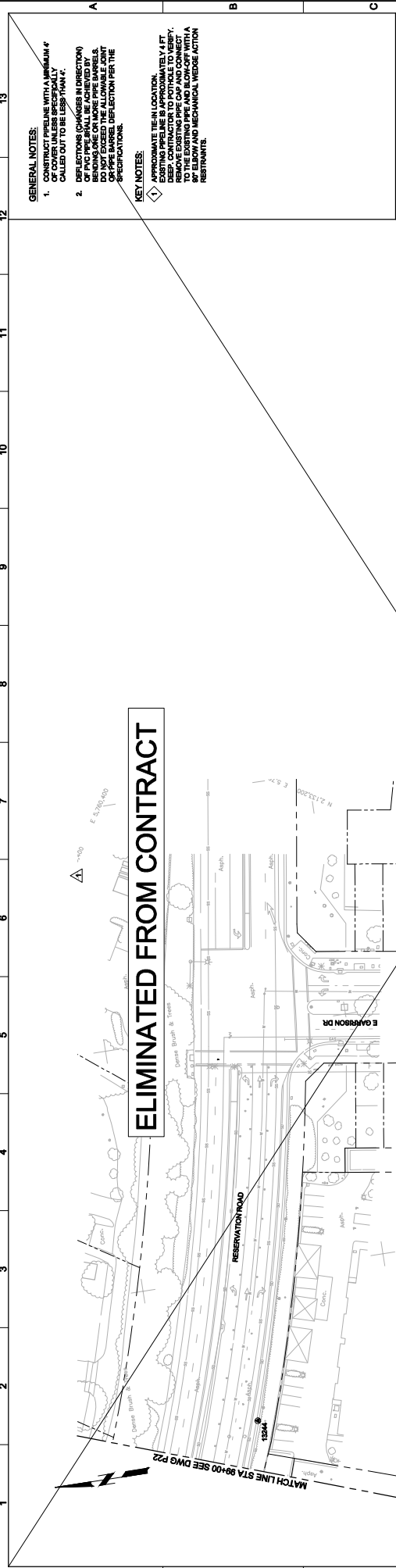


PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=4'
FILE: 7898C10P22.dwg

REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION MAINS
CIVIL DISTRIBUTION MAIN
BLANCO RD & RESERVATION RD
STA 88+00 TO 99+00

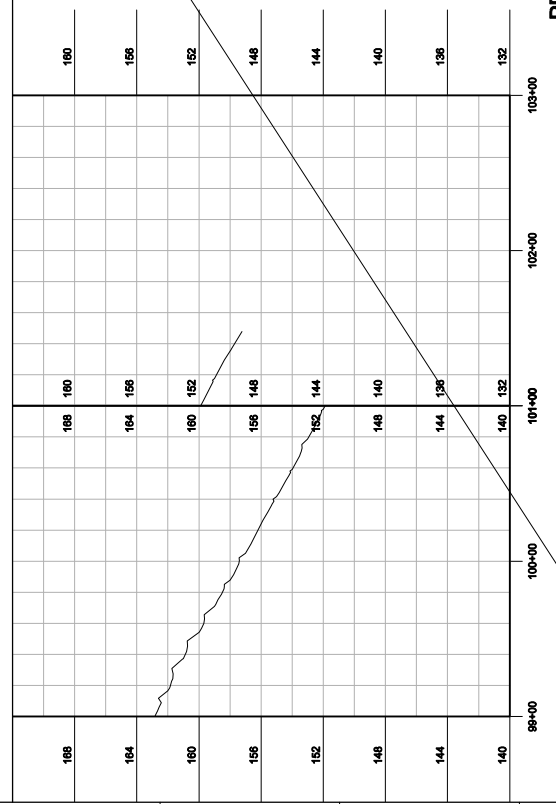


DESIGNED	JPMAM
DRAWN	ALBHH
CHECKED	
DATE	OCTOBER 2018
REVISION	NO. 1
DATE	11-15-18
BY	JPM
DESCRIPTION	CHANGED PER ADDENDUM NO. 1



ELIMINATED FROM CONTRACT

PLAN
SCALE: 1"=40'
FILE: 7989C10P23.DWG



PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=4'
FILE: 7989C10P23.DWG

GENERAL NOTES:

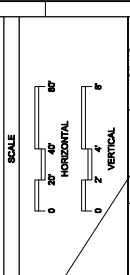
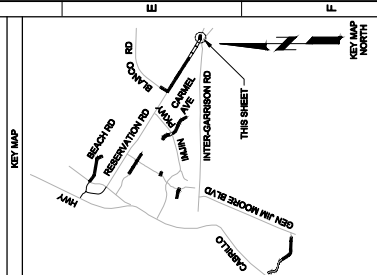
- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLESS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
- DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/8" PER FOOT. BENDING SHALL BE MADE BY USING BENDING MALES OR MAKE PIPE BARELS. DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE MANUFACTURER'S SPECIFICATIONS.

KEY NOTES:

- APPROXIMATE TIE-IN LOCATION. CONTRACTOR SHALL VERIFY, CUT, AND REMOVE EXISTING PIPE CAP AND CONNECT TO EXISTING MAIN WITH A MINIMUM OF ELBOW AND MECHANICAL WEDGE ACTION RESTRAINTS.



Know what's below.
Call before you dig.



VERIFY SCALES	JOB NO. 7989C-10
DATE: 10/15/19	DRAWING NO. P23
BY: JPM	SHEET NO. 45 OF 88
CHANGED PER ADDENDUM NO. 1	
DESCRIPTION	

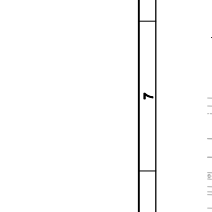
REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 BLANCO RD & RESERVATION RD
 STA 99+00 TO 101+47.83



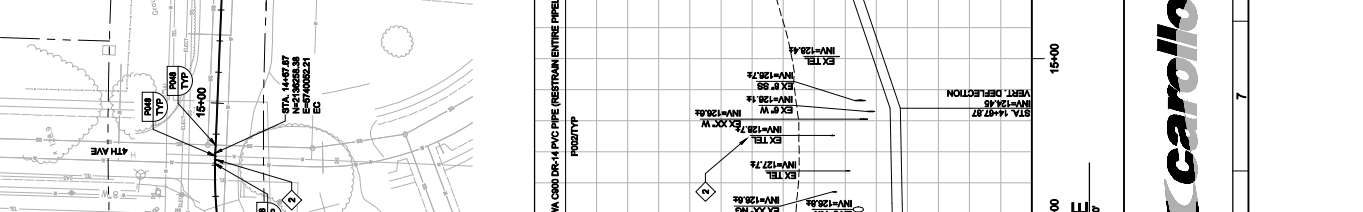
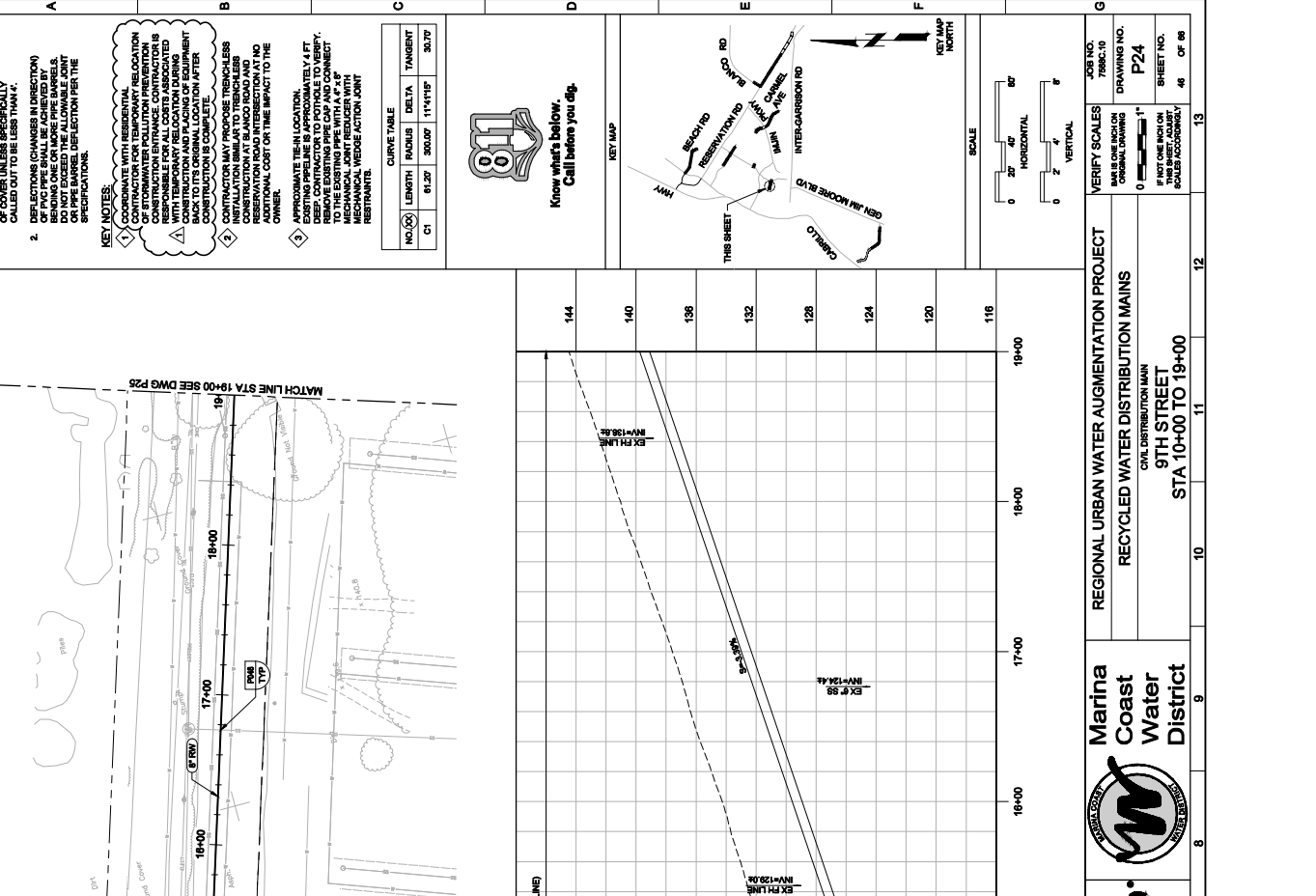
DESIGNED	JPM
DRAWN	JPM
CHECKED	JPM
DATE	OCTOBER 2019

LAST SAVED BY: *hmm* PROJECT NO: 7898C10 DRAWING NO: 7898C10-10 FILE NAME: 7898C10P24.dwg

DESIGNED: *JPM* DATE: OCTOBER 2018
 DRAWN: *ALBH*
 CHECKED: *ALBH*
 DATE: OCTOBER 2018



REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 9TH STREET
 STA 10+00 TO 19+00



9000 LF OF 8" ANKAL COB DR-14 PVC PIPE (RESTRAIN ENTIRE PIPELINE)

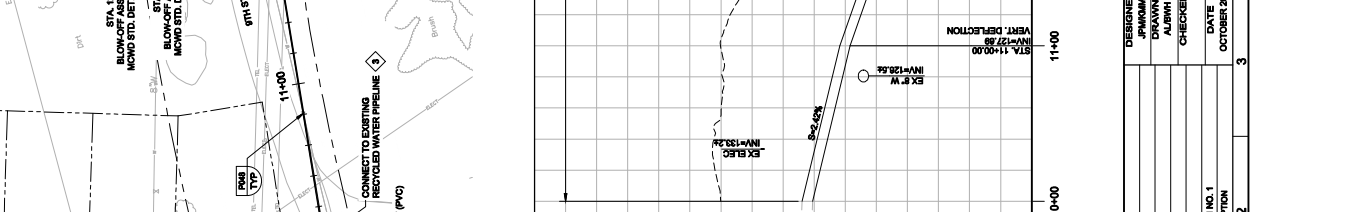
NO.	LENGTH	RADIUS	DELTA	TANGENT
CT	81.227	30.007	11°14'12"	30.772

GENERAL NOTES:

- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN #.
- DEFLECTIONS (CHANGES IN DIRECTION) SHALL BE LIMITED TO 1/4" PER 100' OF PIPE. BENDING ONE OR MORE PIPE BARRELS DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.

KEY NOTES:

- COORDINATE WITH RESIDENTIAL CONSTRUCTION ENTRANCE CONTRACTOR IS TO BE DETERMINED PRIOR TO CONSTRUCTION AND PLACING OF EQUIPMENT WITH TEMPORARY RELOCATION DURING CONSTRUCTION IS COMPLETE.
- CONTRACTOR MAY PROPOSE TRENCHLESS INSTALLATION SIMILAR TO TRENCHLESS INSTALLATION BUT MUST OBTAIN APPROVAL AND ADDITIONAL COST OR TIME IMPACT TO THE OWNER.
- APPROXIMATE TIE-IN LOCATION. CONTRACTOR TO REMOVE EXISTING PIPE CAP AND CONNECT DEEP. CONTRACTOR TO REMOVE EXISTING MECHANICAL JOINT REDUCER WITH MECHANICAL WEDGE ACTION JOINT RESTRAINT.



GENERAL NOTES:

- APPROXIMATE TIE-IN LOCATION. CONTRACTOR TO REMOVE EXISTING PIPE CAP AND CONNECT DEEP. CONTRACTOR TO REMOVE EXISTING MECHANICAL JOINT REDUCER WITH MECHANICAL WEDGE ACTION JOINT RESTRAINT.

KEY NOTES:

- COORDINATE WITH RESIDENTIAL CONSTRUCTION ENTRANCE CONTRACTOR IS TO BE DETERMINED PRIOR TO CONSTRUCTION AND PLACING OF EQUIPMENT WITH TEMPORARY RELOCATION DURING CONSTRUCTION IS COMPLETE.
- CONTRACTOR MAY PROPOSE TRENCHLESS INSTALLATION SIMILAR TO TRENCHLESS INSTALLATION BUT MUST OBTAIN APPROVAL AND ADDITIONAL COST OR TIME IMPACT TO THE OWNER.

CURVE TABLE

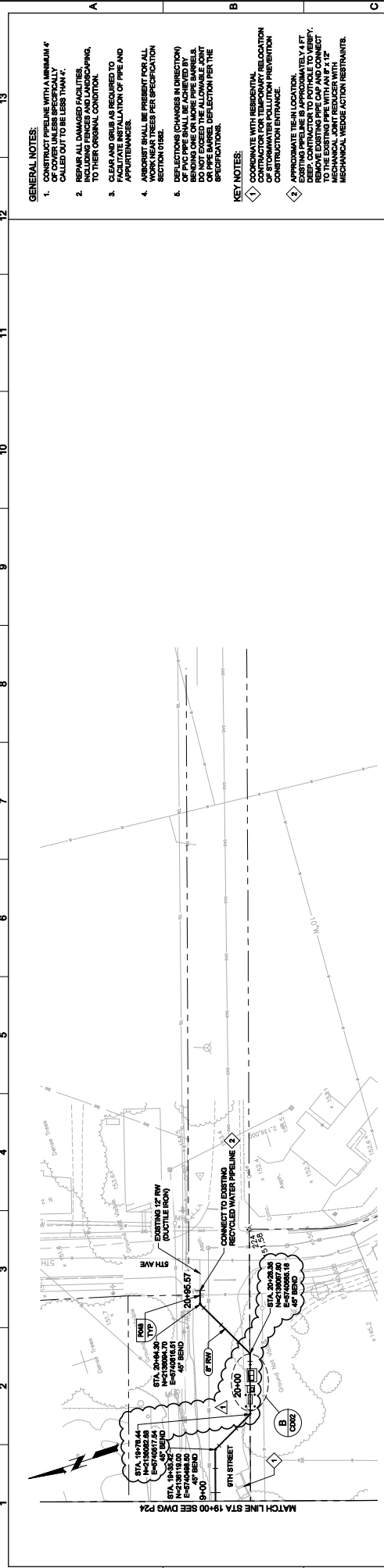
NO.	LENGTH	RADIUS	DELTA	TANGENT
CT	81.227	30.007	11°14'12"	30.772

PLANNING
 SCALE: 1"=40'
 FILE: 7898C10P01

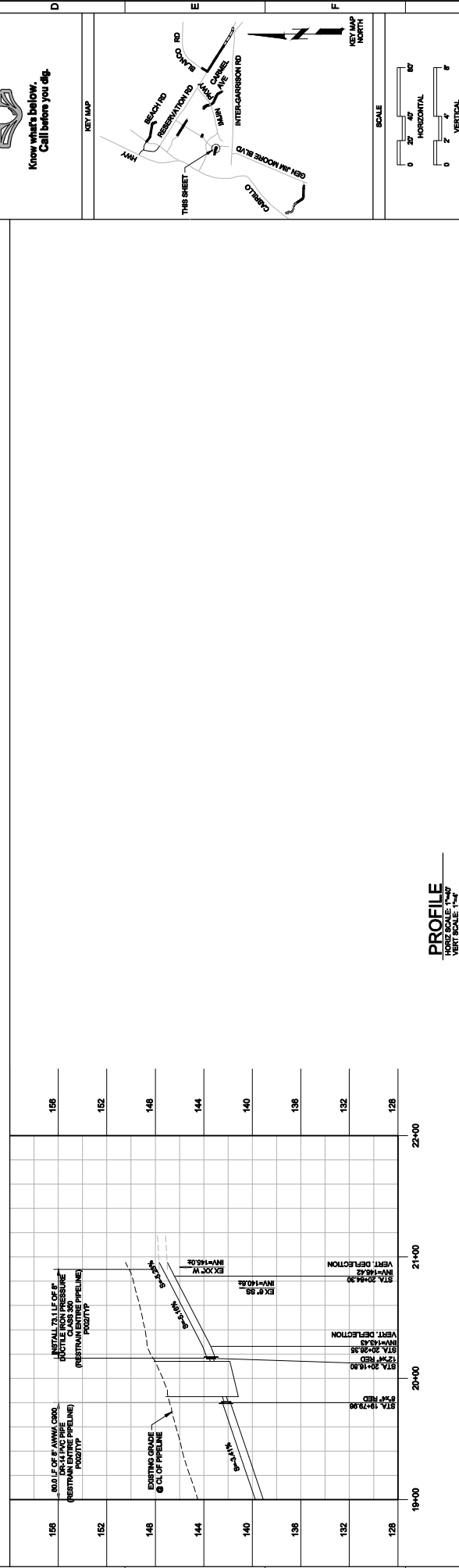
PROFILE
 HORIZ SCALE: 1"=40'
 VERT SCALE: 1"=4'
 FILE: 7898C10P01

REVISIONS:

NO.	DATE	BY	DESCRIPTION
1	11-15-18	JPM	CHANGED PER ADDENDUM NO. 1

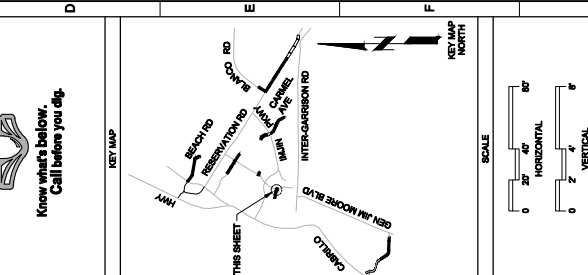


PLAN
SCALE: 1"=40'
FILE: 7898C10P01



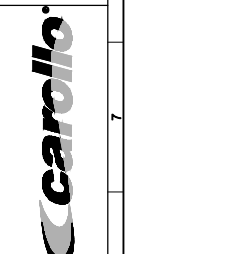
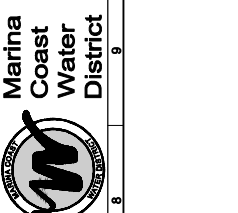
PROFILE
SCALE: 1"=40'
FILE: 7898C10P01

- GENERAL NOTES:**
1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
 2. REPAIR ALL DAMAGED FACILITIES, UTILITIES, OR STRUCTURES TO THEIR ORIGINAL CONDITION.
 3. CEAS AND CRUS AS REQUIRED TO FACILITATE INSTALLATION OF PIPE AND APPURTENANCES.
 4. ARBORIST SHALL BE PRESENT FOR ALL WORK NEAR TREES PER SPECIFICATION SECTION 7106.
 5. DEFLECTIONS (CHANGES IN DIRECTION) BENDING ONE OR MORE PIPE BARRELS OR PIPE BARRELS THROUGH ALLOWABLE JOINT DO NOT EXCEED THE ALLOWABLE JOINT DEFLECTION PER THE SPECIFICATIONS.
- KEY NOTES:**
1. COORDINATE WITH RESIDENTIAL DEVELOPER FOR RELOCATION OF STORMWATER POLLUTION PREVENTION CONSTRUCTION ENTRANCE.
 2. APPROXIMATE TIE-IN LOCATION. EXISTING PIPE IS APPROXIMATELY 4 FT DEEP. REMOVE EXISTING PIPE CAP AND CONNECT TO NEW PIPE WITH A 12" MECHANICAL WEDGE ACTION RESTRAINTS.



VERIFY SCALES	JOB NO. 7898C-10
DATE ONE INCH ON DRAWING	DRAWING NO. P25
DATE ONE INCH ON SHEET	SHEET NO. 47 OF 86

REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 9TH STREET
 STA 19+00 TO 20+89.77



DESIGNED BY: JPM
 DRAWN BY: ALBH
 CHECKED BY: ALBH
 DATE: OCTOBER 2019



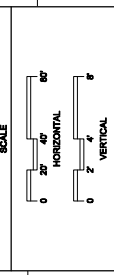
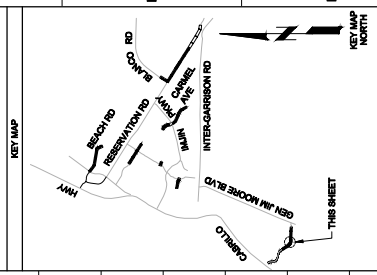
REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1

GENERAL NOTES:

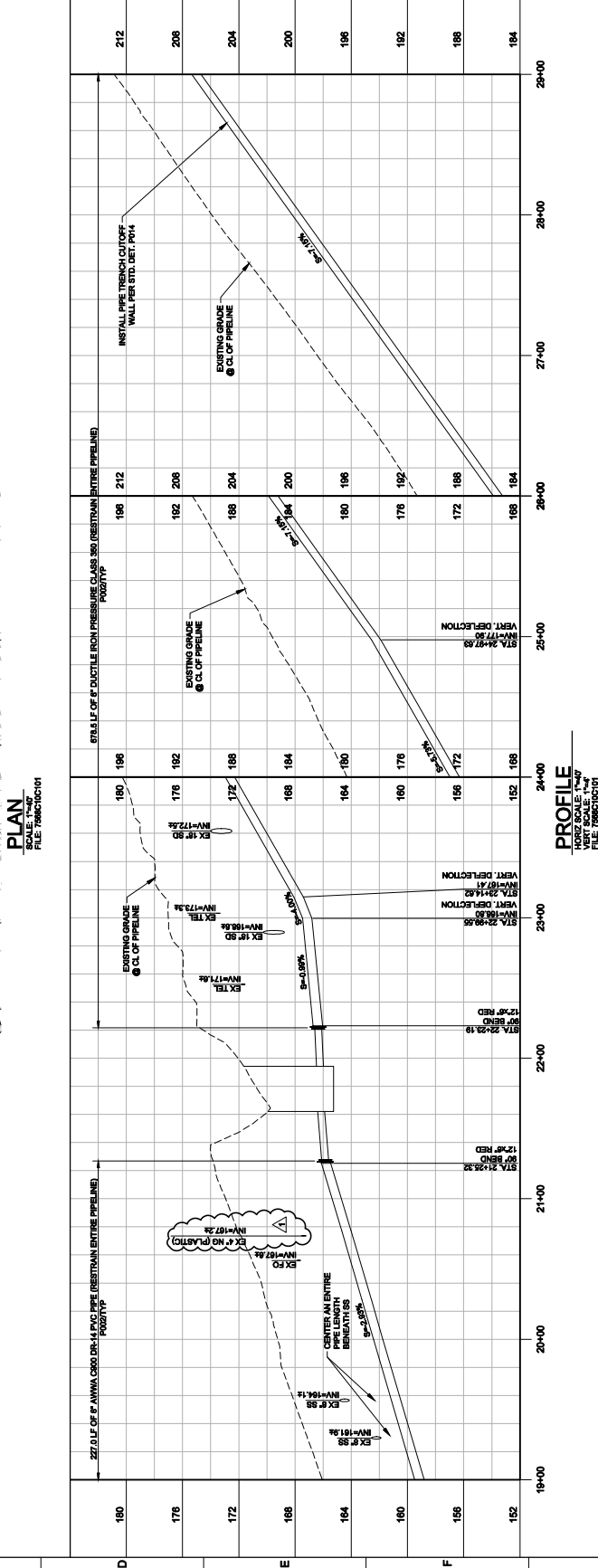
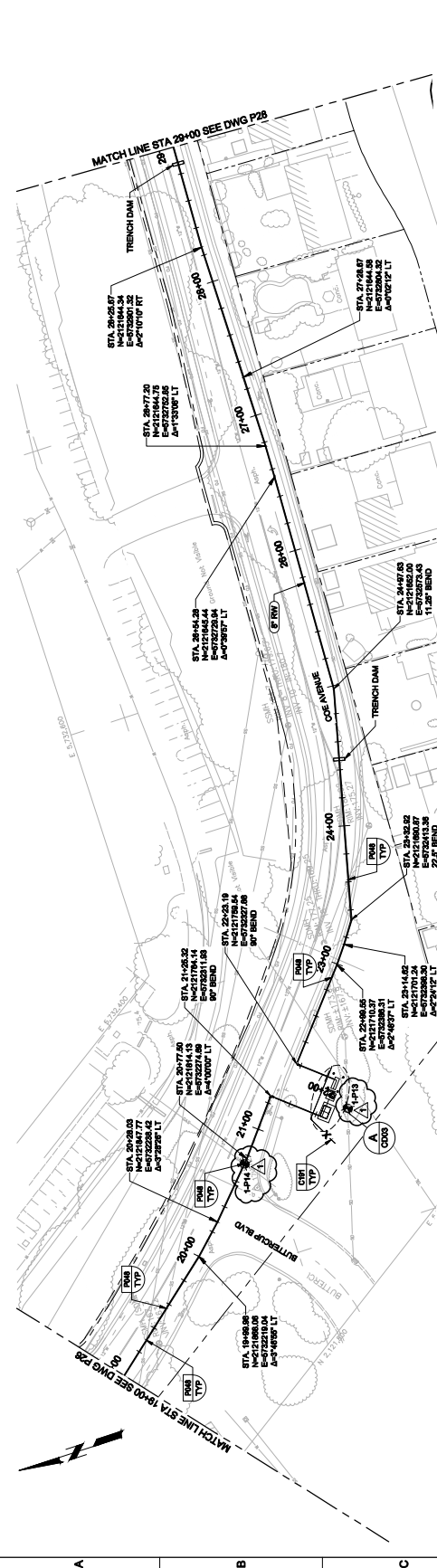
1. CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
2. CONTRACTOR SHALL NOTIFY ALL STORM DRAINAGE AGENCIES AND THE DISTRICT ENGINEER OF THE LOCATION OF ALL STORM DRAINAGE FACILITIES FROM THE DATE OF THE FINAL PAVING. CONTRACTOR IS RESPONSIBLE FOR THE STORM DRAIN PIPE AND APPURTENANCES AS DETERMINED BY THE DISTRICT.
3. REPAIR ALL DAMAGED FACILITIES TO THEIR ORIGINAL CONDITION.
4. DEFLECTIONS (CHANGES IN DIRECTION) OF PVC PIPE SHALL BE ASHERED BY THE CONTRACTOR. ALL DEFLECTIONS DO NOT EXCEED THE ALLOWED MAXIMUM ON PIPE BARREL DEFLECTION PER THE SPECIFICATIONS.



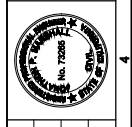
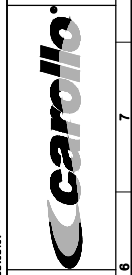
Know what's below.
Call before you dig.



VERIFY SCALES	JOB NO.
SCALE ONE INCH EQUALS FORTY FEET	7898C-10
SCALE TWO INCH EQUALS EIGHTY FEET	DRAWING NO.
SCALE ONE INCH EQUALS FIFTY FEET	P27
SCALE ONE INCH EQUALS FORTY FEET	SHEET NO.
SCALE ONE INCH EQUALS FORTY FEET	49 OF 86



REGIONAL URBAN WATER AUGMENTATION PROJECT		
RECYCLED WATER DISTRIBUTION MAINS		
CIVIL DISTRIBUTION MAIN		
COE AVENUE		
STA 19+00 TO 29+00		
DESIGNED	JPM/AM	
DRAWN	ALM/H	
CHECKED		
DATE	OCTOBER 2019	
REV	DATE	DESCRIPTION
1	11-15-19	JPM CHANGED PER ADDENDUM NO. 1



GENERAL NOTES:

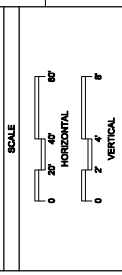
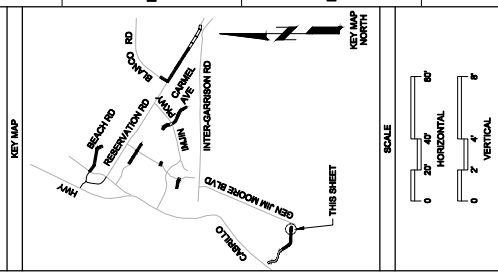
- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
- CONTRACTOR SHALL NOTIFY ALL STORM DRAINAGE AGENCIES AND AGENCIES WITH JURISDICTION OVER ANY OTHER CONSTRUCTION CITY INFORMATION SHALL BE PROVIDED TO THE DISTRICT ENGINEER WITHIN 10 BUSINESS DAYS FROM THE DATE OF THE FINAL PAYROLL. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STORM DRAIN PIPE AND APPURTENANCES AS DETERMINED BY THE DISTRICT.

KEY NOTES:

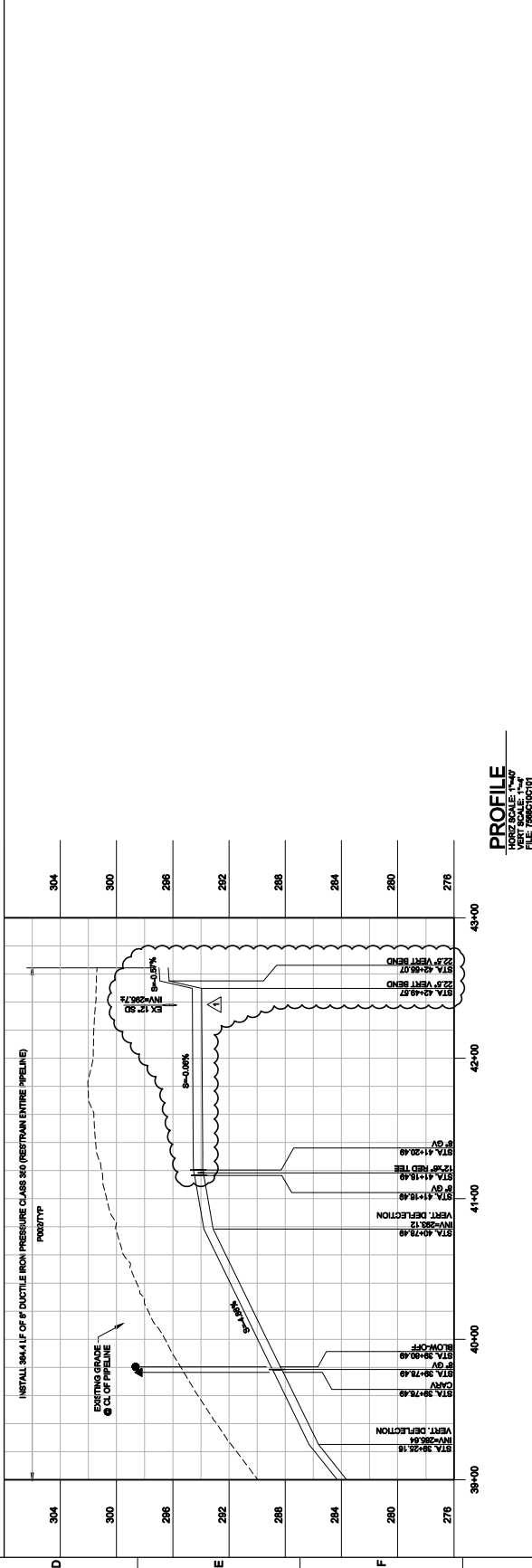
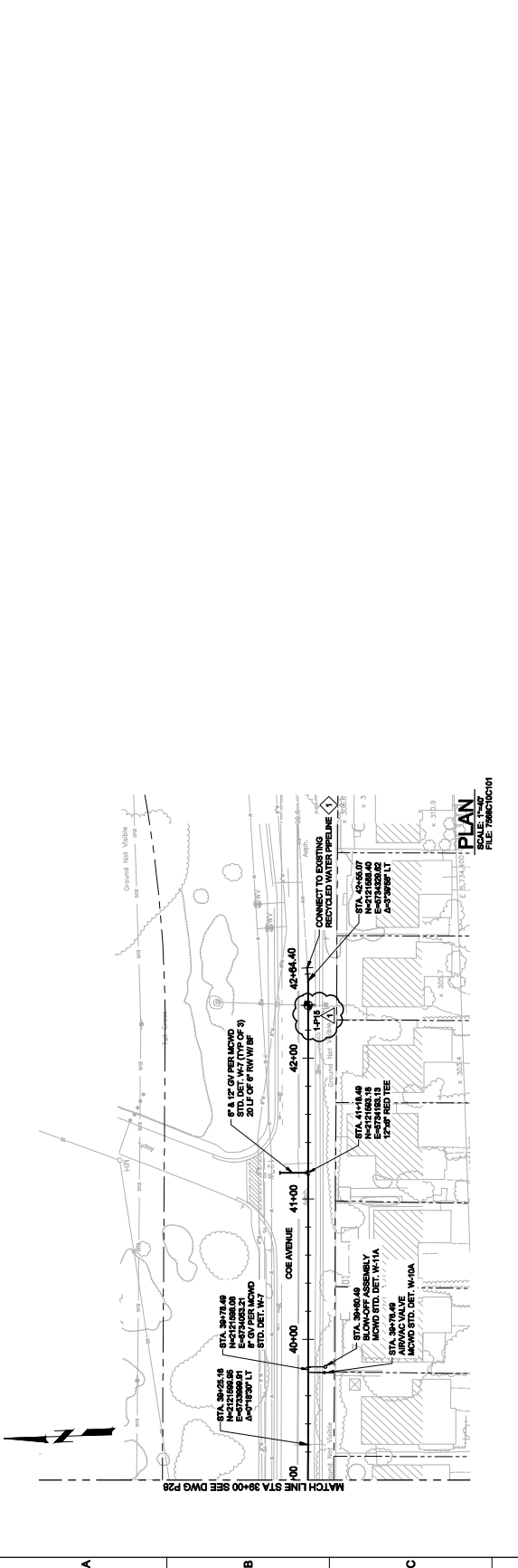
- APPROXIMATE TECH LOCATION. EXISTING UTILITIES SHOWN FOR INFORMATION. CONTRACTOR TO POT-HOLE TO VERIFY.
- REMOVE EXISTING PIPE, CAP AND CONNECT TO NEW PIPE WITH MECHANICAL JOINT RESTRAINER WITH MECHANICAL JOINT RESTRAINER.



Know what's below.
Call before you dig.



VERIFY SCALES
 JOB NO. 7898C-10
 DRAWING NO. P29
 SHEET NO. 81 OF 88



REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL DISTRIBUTION MAIN
 COE AVENUE
 STA 38+00 TO 42+64.40

Marina Coast Water District

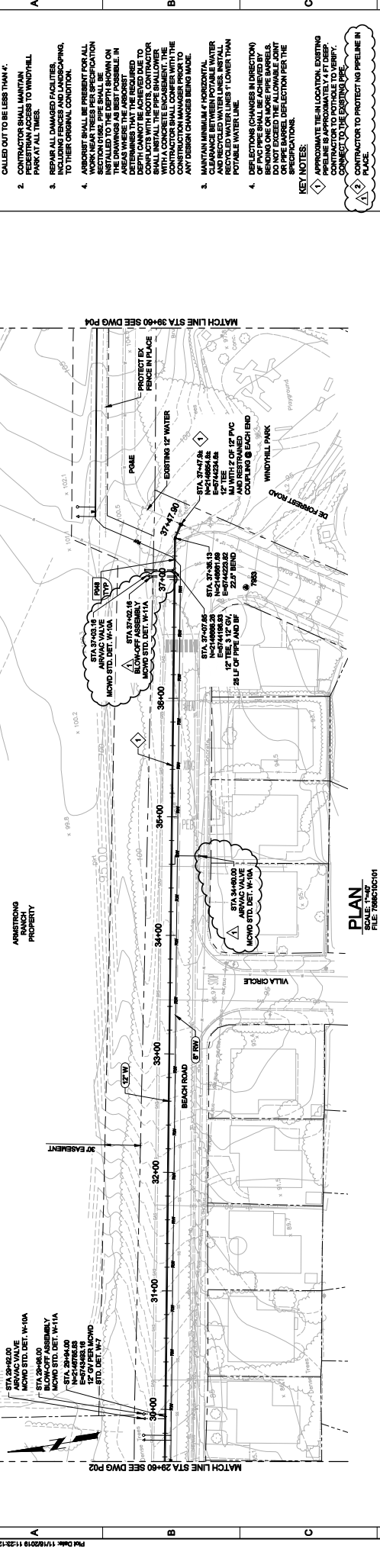
DESIGNED BY: JPM/KAM
 DRAWN BY: JPM
 CHECKED BY: JPM
 DATE: OCTOBER 2018

11-15-18 JPM CHANGED PER ADDENDUM NO. 1
 DATE BY DESCRIPTION

LAST SAVED BY: JPM
 PROJECT NO: 7898C-10
 FILE NAME: 7898C10P29.dwg
 Pld Date: 11/15/2018 8:56:17 PM

FILE NAME: 7986C10P22.dwg PROJECT NO: 7986C10 LAST SAVED BY: jpm

FILE Dk: 11/16/2019 11:23:13 AM



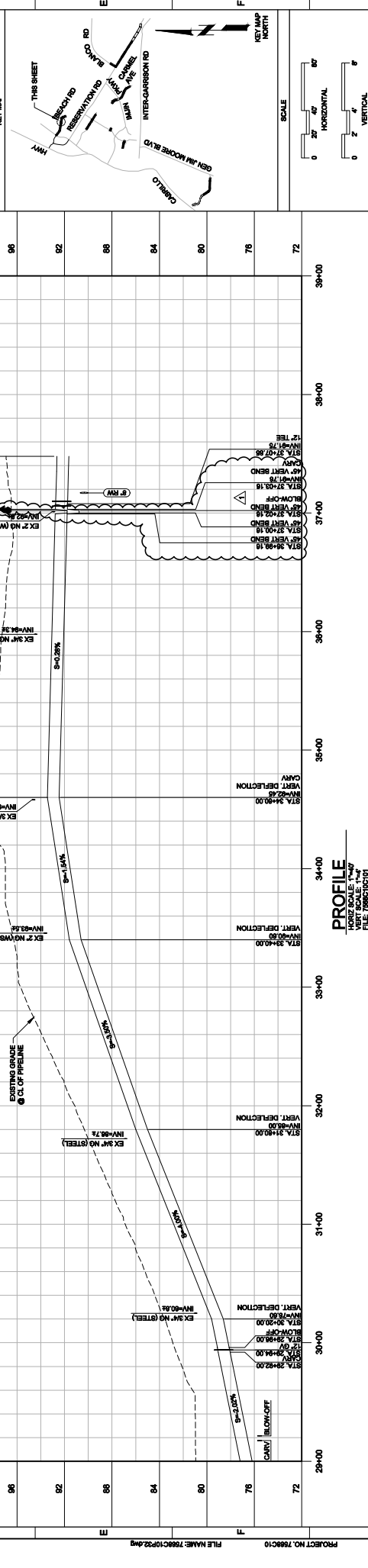
GENERAL NOTES:

- CONSTRUCT PIPELINE WITH A MINIMUM # OF COVER UNLERS SPECIFICALLY CALLED OUT TO BE LESS THAN 4".
- CONTRACTOR SHALL MAINTAIN ACCESS TO WINDMILL PARK AT ALL TIMES.
- REPAIR ALL DAMAGED FENCES, INCLUDING FENCES AND LANDSCAPING, TO THEIR ORIGINAL CONDITION.
- ARBORIST SHALL BE PRESENT FOR ALL WORK NEAR TREES PER SPECIFICATION AND SHALL BE RESPONSIBLE FOR INSTALLING THE DEPTH SHOWN ON THE DRAWINGS AS BEST POSSIBLE. DETERMINES THAT THE REQUIRED DEPTH CANNOT BE ACHIEVED DUE TO OBSTACLES, THE CONTRACTOR SHALL INSTALL THE PIPE SHALLOWER. CONTRACTOR SHALL CONSENT WITH THE CONSTRUCTION MANAGER PRIOR TO ANY DESIGN CHANGES BEING MADE.
- MAINTAIN MINIMUM 4" HORIZONTAL CLEARANCE FROM EXISTING WATER AND RECYCLED WATER LINES, INITIAL AND RECYCLED WATER LINES, LOWER THAN DEFLECTIONS (CHANGES IN DIRECTION) DO NOT EXCEED THE ALLOWABLE JOINT BENDING ONE OR MORE PIPE BARRELS PER JOINT. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEFLECTION PER THE SPECIFICATIONS.

KEY NOTES:

- APPROXIMATE THE IN LOCATION, EXISTING PIPELINE IS APPROXIMATELY 4 FT DEEP. CONTRACTOR SHALL VERIFY DEPTH, CONNECT TO THE EXISTING PIPE.
- CONTRACTOR TO PROTECT AND PIPELINE IN PLACE.

**Know what's below
Call before you dig.
811
NET MAP**



VERIFY SCALES
JOB NO. 7986C-10
DRAWING NO. P32
SHEET NO. 84 OF 88

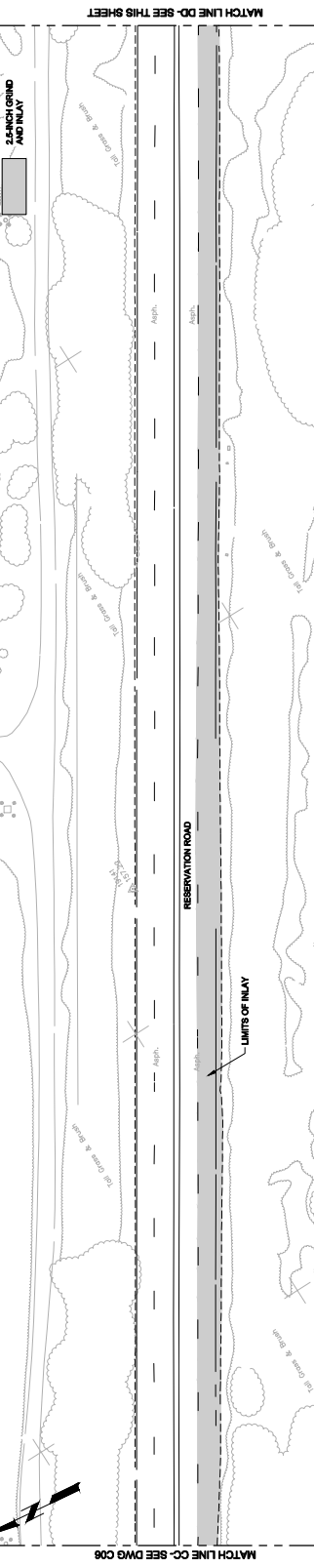
Marina Coast Water District

carollo

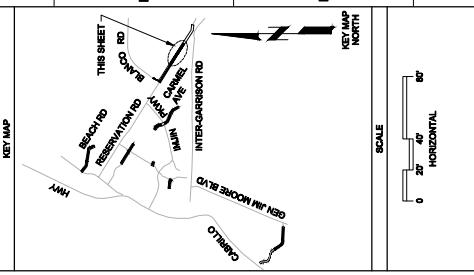
CAPITAL IMPROVEMENT PROGRAM
POTABLE WATER MAINS
CIVIL WL DISTRIBUTION MAIN
BEACH ROAD
STA 29+00 TO 37+47.90

DESIGNED	DRAWN	CHECKED	DATE
JPM	ALBH		OCTOBER 2019

REV	DATE	BY	DESCRIPTION
1	11-15-19	JPM	CHANGED PER ADDENDUM NO. 1

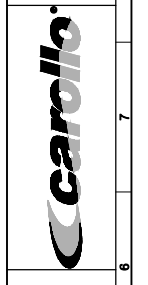


- GENERAL NOTES:**
- INSTALL 2-4 INCH GRID AND INLAY IN LOCATIONS SHOWN AND IN ACCORDANCE WITH SPECIFICATIONS AND PLANS.
 - PRIOR TO REMOVAL OF REBAR/GRIDS, ALL CITY MONUMENT LOCATIONS SHALL BE RECORDED AND AFTER REBAR/GRIDS ARE REMOVED, THE CONTRACTOR SHALL BE RESPONSIBLE BY A LAND SURVEYOR LICENSED IN THE STATE OF CALIFORNIA.
 - PRIOR TO REMOVING ANY STRIPING, CONTRACTOR SHALL RECORD ALL EXISTING STRIPING AND MARKINGS PLAN TO MATCH EXISTING STRIPING. SUBMIT THE PLAN TO THE CITY ENGINEER FOR REVIEW AND APPROVAL. REMOVE ALL EXISTING STRIPING AND MARKINGS PRIOR TO INSTALLING NEW STRIPING. NECESSARY TO CONVEY TRAFFIC IN A SAFE MANNER. IN PLACE ALL EXISTING AND NEW HYDRANT MARKERS IN KIND AFTER WORK IS COMPLETE.
 - ANY DAMAGE TO CONCRETE SUCH AS CURBS, SIDEWALKS, DRIVEWAYS, SHALL BE REPAIRED IN ACCORDANCE WITH MONTEREY COUNTY STANDARDS, WHERE DAMAGED BY WORK, PER CALTRANS STANDARDS.

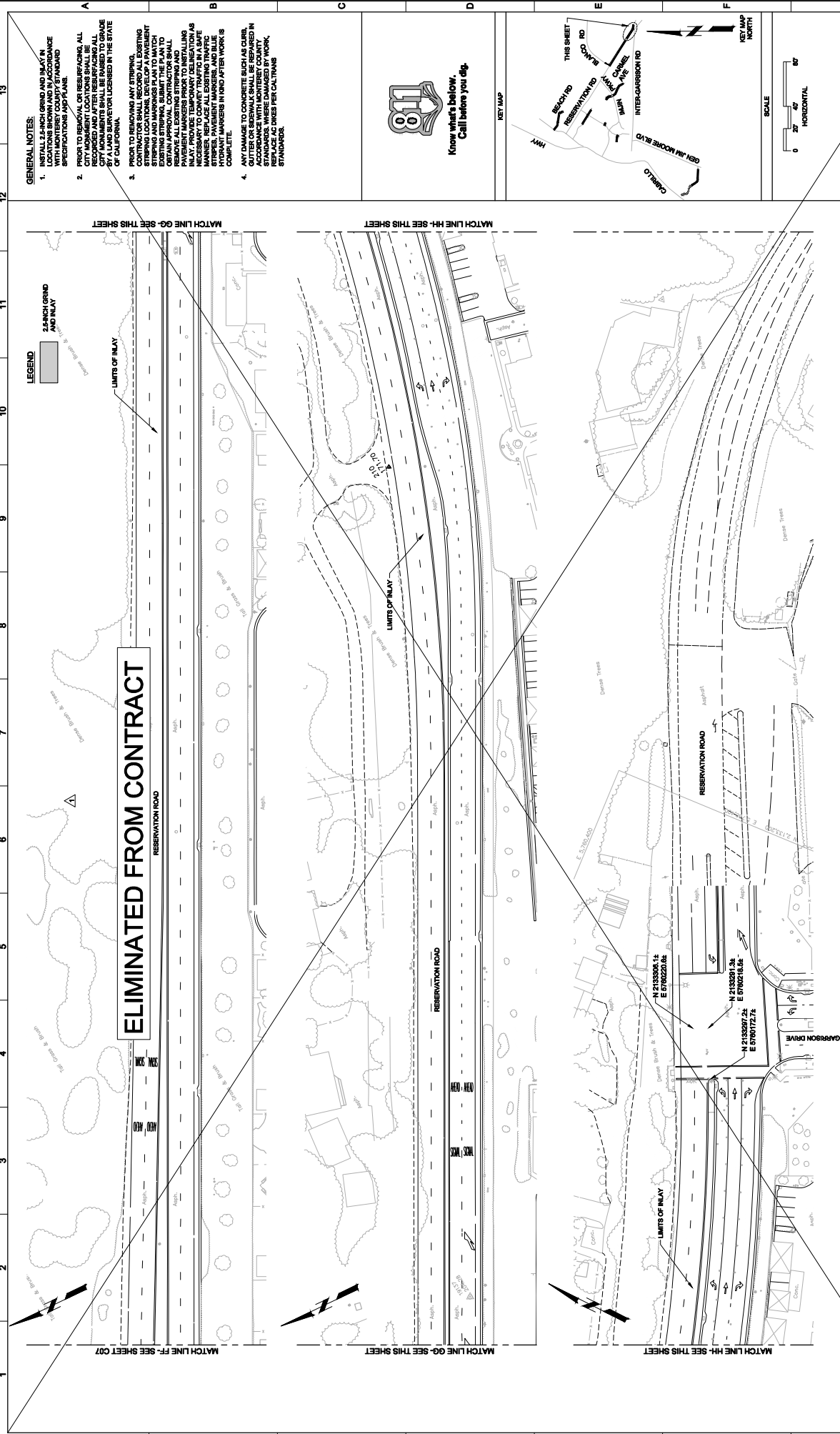


VERIFY SCALES	JOB NO. 7898C-10
DATE ONE INCH ON DRAWING EQUALS 1" ON SITE	DRAWING NO. C07
DATE ONE INCH ON SCALES ACCORDINGLY	SHEET NO. 82 OF 86

REGIONAL URBAN WATER AUGMENTATION PROJECT
RECYCLED WATER DISTRIBUTION MAINS
CIVIL
PAVING PLAN - RESERVATION ROAD 2

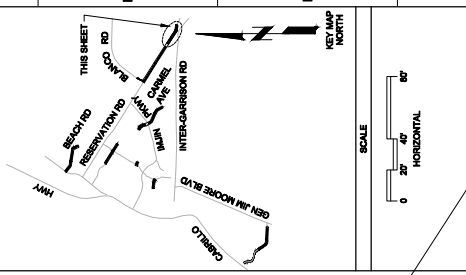


DESIGNED	JPM		
DRAWN	BH		
CHECKED	DATE		
FILED	OCTOBER 2018		
REV	DATE	BY	DESCRIPTION
11-15-18	JPM	CHANGED PER ADDENDUM NO. 1	



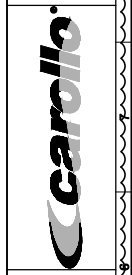
ELIMINATED FROM CONTRACT

- GENERAL NOTES:**
1. INSTALL 24-INCH GRIND AND INLAY IN LOCATIONS SHOWN AND IN ACCORDANCE WITH THE SPECIFICATIONS AND PLANS.
 2. PRIOR TO REMOVAL OF REBAR/GRIDS, ALL CITY MONUMENT LOCATIONS SHALL BE RECORDED AND AFTER REBAR/GRIDS ARE REMOVED, ALL MONUMENTS SHALL BE RECORDED BY A LAND SURVEYOR LICENSED IN THE STATE OF CALIFORNIA.
 3. PRIOR TO REMOVING ANY STRIPING, CONTRACTOR SHALL RECORD ALL EXISTING STRIPING AND HARDWARES PLAN TO MATCH EXISTING STRIPING. SUBMIT THE PLAN TO THE CITY ENGINEER FOR REVIEW AND APPROVAL. REMOVE ALL EXISTING STRIPING AND HARDWARES PRIOR TO INSTALLING NEW STRIPING. INCREASE THE SPACING BETWEEN HYDRANT MARKERS IN AND AFTER WORK IS COMPLETE.
 4. ANY DAMAGE TO CONCRETE SUCH AS CURBS, SIDEWALKS, DRIVEWAYS, DRIVEWAYS SHALL BE REPAIRED IN ACCORDANCE WITH MONTEREY COUNTY STANDARDS, WHERE DAMAGED BY WORK, PRIOR TO THE START OF THE WORK. SEE PER CALTRANS STANDARDS.



VERIFY SCALES	JOB NO. 7898C-10
DATE OF LAST REVISION	DRAWING NO. C08
0	1
IF NOT ONE IN ONE ON	SHEET NO. 63 OF 68
IF NOT ONE IN ONE ON	BOULEVARD

REGIONAL URBAN WATER AUGMENTATION PROJECT
 RECYCLED WATER DISTRIBUTION MAINS
 CIVIL
 PAVING PLAN - RESERVATION ROAD 3



DESIGNED	JPM
DRAWN	BH
CHECKED	
DATE	OCTOBER 2018

REV	DATE	BY	DESCRIPTION
1	11-15-18	JPM	CHANGED PER ADDENDUM NO. 1