



ADDENDUM NO. 2

TO THE CONTRACT DOCUMENTS

Date: April 14, 2021

Bid Number 21-04-20

Jacobs Project No.: D3282100

for the

Antioch Road Elevated Water Storage Tank

To All Plan Holders:

The following changes are hereby made part of the Contract Documents for the Antioch Road Elevated Water Storage Tank Project, dated March 2021, as fully and completely as if the same set forth fully therein:

The following provides a summary of questions/comments and clarifications.

Clarifications

1. The City will allow the construction of a water spheroid tank as an alternate bid item. Technical information for this item has been added in this addendum. The contractor shall be responsible for all design and construction of the tank and foundation system and design shall be signed and sealed by a professional engineer registered in the state of Florida. The electrical and SCADA requirements for the composite tank shall also be applicable to the spheroid style tank. The City will award the bid based on any combination of the base bid and alternates that provides the best value for the water distribution system.
2. The City will allow electronic signatures on documents in the bid package. Hard copies of the bid information must still be provided. Upon request, the contractor shall supply original signatures if needed.
3. There is a typographical error on Section 00300-10, the substitution list of manufacturers. Number 8 was inadvertently deleted.
4. There is a typographical error with the pagination of Section 00700, General Conditions. Page 61 is the last page of the document.
5. This project is located within the City and will not require County permitting. City permit fees will be waived but the contractor shall submit permit applications to the City building department.
6. The contractor shall not be required to provide third party inspection on this project.
7. The inlet/outlet piping for the composite tank shall be welded 304L stainless steel piping.

8. The General Conditions item on the bid form generally includes costs for items such as project setup, bonds, and insurance.
9. The minimum roof plate thickness shall be 1/4" and the underside tank roof seams shall be seal welded.
10. For the area along the waterline route, seed and mulch shall be an acceptable restoration method.
11. The water spheroid tank shall have a slab around the base of the tank. The slab shall extend a minimum of 10' beyond the base of the tank.

Specifications

1. Section 00500, Contract Agreement, is hereby modified without reissuance. The time to reach substantial completion shall be 330 calendar days and the time to reach final completion shall be 360 days.
2. Section 00300 is hereby modified and reissued. Alternate bid item 2 has been added for the water spheroid tank alternative.
3. Section 09 90 60, 3.06B is hereby modified without reissuance to allow a Class 4W containment system. However, water and debris must be contained on the site.
4. Section 33 16 20, Water Spheroid Style Elevated Tank is hereby added to the bid documents.

Drawings

1. Sheet C-03 is hereby modified and reissued. A slot has been added to the stormwater outfall structure and the water line route has been modified near Well 8.
2. Sheet C-04 is hereby modified and reissued. The water line route has been modified near Well 8.
3. Sheet GA-01 is hereby added to the bid documents. This sheet provides the general arrangement information for the water spheroid style tank.

All Bidders shall acknowledge receipt of this Addendum.

JACOBS



Scott L Jernigan, PE
Project Manager

SECTION 00300

BID FORM

SUBMITTED: _____
Date

PROJECT IDENTIFICATION: **CITY OF CRESTVIEW**
Antioch Elevated Storage Tank

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

Phone No.: _____ Fax No.: _____

E-Mail Address: _____

CONTRACTOR'S FLORIDA LICENSE NO.: _____

THIS BID IS SUBMITTED TO: City of Crestview, Florida (hereinafter called Owner) acting through its City Commission.

1. The undersigned Bidder offers and agrees to enter into an Agreement with Owner in the form included in the Bidding Documents, to complete all work for the Contract Price and within the Contract Time, all in accordance with the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Bidding Documents, including without limitation those dealing with the Owner's time for accepting for Bid and the disposition of Bid Bond.
3. In submitting this Bid, Bidder makes all representations required by the Instructions to Bidders and further warrants and represents that:

(a) Bidder has examined copies of all the Bidding Documents and of the following addenda:

No. _____	Dated _____;	No. _____	Dated _____
No. _____	Dated _____;	No. _____	Dated _____
No. _____	Dated _____;	No. _____	Dated _____
No. _____	Dated _____;	No. _____	Dated _____

(Receipt of all which is hereby acknowledged) and also copies of the Advertisement for Bids and the Instructions to Bidders.

(b) Bidder has examined the site and locality where the Work is to be performed and the legal requirements (Federal, State and local laws, ordinances, rules and regulations) and conditions affecting cost, degree of difficulty, progress or performance of the Work and has made such independent investigations as Bidder deems necessary.

- (c) This Bid is genuine and not made in the interest or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or a corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for himself any advantage over any other Bidder or over Owner.
 - (d) Bidder hereby agrees if this Bid is accepted, to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete all work of the Project within the Contract Time stipulated in the Agreement (Section 00500). Bidder further agrees to pay as liquidated damages the amount stated in the Agreement for each consecutive calendar day completion of the work is delayed.
- 4. Bidder submits the following unit prices to perform all the Work as required by the Drawings and Specifications for the City of Crestview. Bid shall be awarded based on Total Base Bid. Estimated quantities may exceed items listed. Payment based on installed quantities.
 - 5. All Bid Items shall include all materials, equipment, labor, permit fees, taxes, tests, miscellaneous costs of all types, overhead, and profit for the item to be complete, in place, and ready for operation in the manner contemplated by the Contract Documents.
 - 6. The following documents are attached to and made a condition of this Bid:
 - (a) **Bid Security (Section 00410 and surety bond or cashier's check).**
 - (b) **Power of Attorney (for surety bond only).**
 - (c) **Public Entities Crime Form (Section 00470).**
 - (d) **Noncollusion Affidavit (Section 00480).**
 - (e) **Trench Safety Affidavit (Section 00490).**
 - (f) **Corporate authority to execute Bid (for any corporate employee other than president or vice president).**
 - (g) **Questionnaire and Subcontractor Listing (Sections 00301 and 00301-A).**
 - (h) **Evidence of Bidder's Certification and License to perform the work.**
 - (i) **Experience and financial statement demonstrating the Bidder's ability to successfully complete the work.**
 - (j) **References (Section 00302).**
 - (k) **Similar Projects (Section 00303).**
 - (l) **Drug Free Workplace (Section 00310).**
 - 7. The terms used in this Bid, which are defined in Article 1 of the General Conditions shall have the meanings assigned to them in the General Conditions as amended by the Supplementary Conditions.
 - 8. **COMPLIANCE WITH FLORIDA TRENCH SAFETY ACT (90-96, LAWS OF FLORIDA)**

Bidder hereby acknowledges that all costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) are included in the various items of the proposal and in the Total Bid Price. For informational purposes only, the Bidder is required to further identify these costs, to be summarized below:

	Trench Safety Measure Description	Units of Measure (LF, SY)	Unit (Quantity)	Unit Cost	Extended Cost
A	_____	_____	_____	\$ _____	\$ _____
B	_____	_____	_____	\$ _____	\$ _____
C	_____	_____	_____	\$ _____	\$ _____
D	_____	_____	_____	\$ _____	\$ _____
				TOTAL:	\$ _____

THIS IS NOT A PAY ITEM. The purpose of this form is to disclose information on the costs associated with trench safety measures and to insure that the Bidder has considered these costs and included them in the Bid Price. Contractor will not receive additional payment if actual quantities differ from those estimated above or if the Contractor uses a safety measure different than those listed.

Failure to complete the above may result in the Bid being declared non-responsive.

BID SUMMARY

Item No.	Description	Estimated Quantity	Unit	Unit Cost	Item Cost
1	Mobilization/Demobilization	1	LS		
2	General Conditions	1	LS		
3	Site Clearing, Debris Removal/Disposal	1	LS		
4	Elevated Tank, including foundations	1	LS		
5	Water transmission main	1	LS		
6	Electrical Work	1	LS		
7	Site work and restoration	1	LS		

TOTAL BASE BID

(In words)

\$ _____
(In numbers)

Alternate Bid Item 1 – Tank Mural – Contractor shall add the mural as shown in the attachments to these specifications to the northern side of the elevated storage tank. The mural shall encompass approximately 40% of the diameter of the tank. Contractor shall provide a shop drawing mock-up showing proposed dimensions of the mural for review by the Owner and Engineer. The mural shall be applied in accordance with the coating specifications included herein.

(ADD/DEDUCT)

Alternate Bid Item 2 – Water Spheroid Style Tank – Contractor shall design and construct a water spheroid style tank in lieu of the composite style elevated tank shown in the base bid. The contractor shall provide design and construction for a fully functioning 500,000 gallon water storage tank.

(ADD/DEDUCT)

NAME OF BIDDER: _____

If Bidder is: (ALL SIGNATORIES MUST HAVE THEIR NAME PRINTED OR TYPED
BELOW THEIR SIGNATURE)

SOLE PROPRIETORSHIP

(Individual's Signature) (SEAL)

(Individual's Name) (SEAL)

Doing Business as: _____

Business Address: _____

Phone No.: _____

Fax No.: _____

E-Mail Address: _____

Florida License No.: _____

A PARTNERSHIP

(Partnership Name) (SEAL)

(General Partner's Signature) (SEAL)

(General Partner's Name) (SEAL)

Business Address: _____

Phone No.: _____

Fax No.: _____

E-Mail Address: _____

Florida License No.: _____

NAME OF BIDDER: _____

A CORPORATION

(Corporation Name)

(State of Incorporation)

By _____
(Name of Person Authorized to Sign)

(Title)

(Authorized Signature)

(Corporate Seal)

Attest _____
(Secretary)

Business Address: _____

Phone No.: _____

Fax No.: _____

E-Mail Address: _____

Corporation President: _____

Florida License No.: _____

NAME OF BIDDER: _____

A JOINT VENTURE

By _____ (SEAL)

(Name)

(Address)

By _____ (SEAL)

(Name)

(Address)

Business Address: _____

Phone No.: _____

Fax No.: _____

E-Mail Address: _____

Florida License No.: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above).

8. List the following in connection with the Surety which is providing the Bid Bond.

Surety's Name: _____

Surety's Address: _____

Name and address of Surety's resident agent for service of process in Florida:

SCHEDULE OF MANUFACTURERS/SUPPLIERS

The Contract Documents are based upon the equipment or products available from the manufacturers/suppliers denoted as "A", "B", etc. However, the Bidder must indicate in his Bid which Base Bid manufacturer/supplier he intends to use for each item of equipment listed by circling one (1) of the listed manufacturers/suppliers. Should the Bidder fail to circle a named supplier, he hereby agrees to provide the item listed as "A". After receipt of bids, the Bidder may not substitute for any manufacturer or supplier circled.

If the Bidder desires to propose one (1) or more substitution or "or equal" manufacturers/suppliers, he may write in the name of such substitution or "or equal" in the spaces provided on the pages following the lists, but he must, nevertheless, also circle one of the listed manufacturers/suppliers. All substitutions or "or equal" items must be identified at the time of Bid (see Paragraph 6.05 of the General Conditions as amended by the Supplementary Conditions). Substitutions or "or equal" items will **not** be considered when determining the Apparent Low Bidder. Substitutions or "or equal" items will **not** be evaluated or considered until after the "Effective Date" of the Agreement. The Bidder shall base his Bid on providing one of the listed manufacturers and shall assume for bidding purposes that all substitutions or "or equal" items will not be accepted.

If the proposed substitution or "or equal" manufacturer/supplier is determined "not equivalent" by the Engineer, the Bidder must use the circled manufacturer/supplier. If the Bidder fails to indicate which listed manufacturer/supplier he intends to use or if a substitution or "or equal" is rejected, he must use the supplier listed as "A". Also, if the Bidder circles more than one listed manufacturer/supplier, he must use the first manufacturer/supplier circled (unless a substitution or "or equal" is approved).

Each proposed substitution or "or equal" will be evaluated in accordance with Paragraph 6.05 of the General Conditions following the Effective Date of the Agreement.

In addition to the reimbursement required under Paragraph 6.05 of the General Conditions, the Contractor shall also reimburse the Owner for any engineering costs directly attributable to the change in manufacturers/suppliers, caused by the acceptance of proposed substitutions or "or equal" items, such as; additional field trips for the Engineer, additional redesign costs, and additional review costs, etc. Other costs directly attributable to the change in manufacturers/suppliers caused by the acceptance of proposed substitutions or "or equal" items such as increased electrical requirements, larger buildings, modifications to structures, additional pumps, piping or tankage, etc., shall be borne by the Contractor and not by the Owner. Bidder further agrees that the use of substitute equipment offered will not affect the completion date.

The Owner may request, and the Bidder shall supply any additional information on proposed substitutes or "or equal" items prior to Notice of Award.

SCHEDULE OF BASE BID MANUFACTURERS/SUPPLIERS

Item No.	Equipment Item or Material	Specification Section No.	Base Bid Manufacturer/Supplier
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

SUBSTITUTIONS AND "OR EQUAL"

The undersigned as Bidder agrees that substitutions, or "or equal" items will not be considered until after the "Effective Date of the Agreement" and will be evaluated in accordance with Paragraph 6.05, of the General Conditions as amended by the Supplementary Conditions. If Bidder intends to propose substitutions or "or equal" items after the "Effective Date of the Agreement", it is agreed that these items will be listed on the Substitution List that must be included with the Bid (form provided herein). Only the proposed substitutions or "or equal" items listed on the Substitution List and submitted at the time of Bid will be evaluated by the Engineer in accordance with the General Conditions.

SUBSTITUTION LIST OF
MANUFACTURERS/SUPPLIERS

Bidder proposes the following substitutions and "or equal" items of alternate manufacturers/suppliers for the equipment of material categories so identified:

	<u>Equipment Item Material</u>	<u>Drawing No.</u>	<u>Spec. Section</u>	<u>Substitute/"or equal" Manufacturer/Supplier (List One Only)</u>	<u>Proposed Price Deduct</u>
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	_____

END OF SECTION

SECTION 33 16 20
WATER SPHEROID STYLE ELEVATED TANK

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The Work to be performed under these specifications includes furnishing all labor, materials, tools and equipment necessary to design, fabricate, construct, inspect and test a single pedestal spheroidal welded steel elevated water storage tank, including the design and construction of the foundation and accessories as shown on the drawings and specified herein.
2. The Work shall also include all labor, new materials and equipment necessary to clean, paint and disinfect the water storage tank as specified herein.

1.02 RELATED WORK:

- A. The Work shall also include all labor, materials and equipment necessary to construct the Site improvements and site piping as shown on the Drawings.

1.03 DESCRIPTION

- A. The tank and support structure shall be of the single pedestal spheroidal style. The tank and support structure shall be of all welded steel design.
- B. The tank shall consist of a dome roof, toroidal upper shell, conical lower shell and spherical bottom diaphragm plate or conical bottom plate. The support structure shall be a butt-welded single pedestal consisting of a cylindrical shaft and a conical base "bell".
- C. Transition sections between the tank and shaft, and between the shaft and "bell" shall be smooth, doubly curved, continuous "knuckle" sections. Discontinuous transitions and intersections through compression rings are not acceptable for these transition sections.

ANTIOCH ELEVATED STORAGE TANK

- D. To ensure an aesthetically pleasing tank the design of the cone and ball plate(s) shall minimize the number and total length of visible weld seams (shop and field). A scaled plate layout sketch must be provided with the bid, or be cause for rejection, noting that the use of any ball plate (excluding roof closure plates) with widths and/or lengths equal to or less than 72 inch is unacceptable. In addition, both knuckles on the lower and upper shaft junctions shall be double curvature pressed formed with a maximum of eight vertical weld joints.

1.04 PRE-QUALIFICATION OF CONTRACTOR

- A. Bids will only be accepted from experienced Contractors who have successfully completed, with in-house capabilities, at least ten new spheroidal single pedestal elevated tanks of equal or greater capacity in the last five years. Each bidder shall provide a list of at such projects stating location, completion date, contact names and telephone numbers.
- B. The spheroidal single pedestal style tank and foundation design, welded steel tank fabrication and construction shall be performed by the Contractor's own direct hire employees and shall not be subcontracted in any way. The tank's foundation may be supervised and installed by the Contractor or a qualified local foundation subcontractor.

1.05 STANDARDS, CODES AND GUIDES

- A. The following standards and specifications are referenced. The latest edition shall be used if the edition is not specified.
 - 1. AWWA D100, Standard for Welded Carbon Steel Tanks for Water Storage
 - 2. AWWA D102, Standard for Painting Steel Water Storage Tanks
 - 3. AWWA C652, Standard for Disinfection of Water Storage Facilities
 - 4. ACI 301, Specifications for Structural Concrete for Buildings
 - 5. ACI 318, Building Code Requirements for Structural Concrete
 - 6. NSF 61, Drinking Water System Components
 - 7. OSHA, Occupational Safety and Health Standards
 - 8. SSPC-PA1, Paint Application Specification

1.06 OWNER OR ENGINEER SUPPLIED INFORMATION

- A. The Owner or Engineer shall provide the following information with the bid documents:
 - 1. Geotechnical investigation report that is specific to the site and prepared by a qualified Geotechnical Engineer. The geotechnical investigation report shall include a determination of the Site Class that is to be used for the seismic design of the structure. The determination of the Site Class shall be in accordance with AWWA D100.
 - 2. Summary of FAA requirements such as height restrictions, obstruction marking or obstruction lighting. The elevated water storage tank may affect navigable airspace. The Owner or Engineer shall file Form 7460-1 with the FAA (<http://forms.faa.gov/>) to determine requirements.

1.07 SUBMITTALS

- A. Each Bidder shall submit with its proposal a sketch of the spheroidal tank showing major dimensions and plate thicknesses. A sketch of the foundation showing preliminary dimensions and approximate quantities of concrete and reinforcing steel shall also be provided with the bid. Failure to provide either of these sketches shall be cause for rejection of the bid.
- B. Prior to construction, the Contractor shall furnish construction drawings of the tank, support structure and foundation sealed by a Professional Engineer licensed in the State of Florida. Construction drawings for the foundation shall show applicable design and construction standards, materials of construction, design loads and allowable soil bearing or pile capacity.
- C. A summary of the design for the foundation, support structure and the tank, shall be provided prior to construction. The design summary shall show applicable design and construction standards, materials of construction, design loads and results showing conformance with the specifications. The design shall be sealed by a Professional Engineer licensed in the State of Florida.
- D. Welder's certifications shall be submitted in accordance with AWWA D100.
- E. Provide an operating and maintenance manual containing operating instructions, maintenance instructions, as-built construction drawings, cleaning and painting instructions, a gage table and catalog cuts of equipment supplied.

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PART 2 PRODUCTS

2.01 GENERAL

- A. Furnish an elevated water storage tank as shown on the drawings and as specified in this section. The design, materials, fabrication, construction, testing and inspection of the tank, support structure and foundation shall comply with AWWA D100, except as modified herein. Tank capacity, head range, height to TCL and top of foundation elevation shall be as shown on the drawings. Tank net capacity shall be 500,000 gallons.

2.02 DESIGN CRITERIA

A. GENERAL

1. Dead load shall be the estimated weight of all permanent construction and fittings. The unit weight of steel shall be considered as 490 pounds per cubic foot and the unit weight of concrete shall be taken as 144 pounds per cubic foot.
2. Water load shall be the weight of the water when the tank is filled to the overflow. The unit weight of water shall be 62.4 pounds per cubic foot.
3. The roof snow load shall be in accordance with AWWA D100.
4. Wind loads shall be based on AWWA D100 for a basic wind speed, V, of 155 mph and Exposure Category C in accordance with ASCE 7 for Category IV (essential facility) structures.
5. Horizontal and vertical seismic loads shall be based on AWWA D100 for Category IV (essential facility) structures, using tank center coordinates as shown on the Drawings. The Site Class shall be as specified in the geotechnical report.
6. The structural effects of the applied loads shall be considered with the loads defined according to ASCE 7. Load combinations used for allowable stress design and strength design shall conform to AWWA D100.
7. The design for all sections of the steel tank shall be per the classes of materials and unit tension/compression stresses specified in AWWA D100. A design per Section 14 of AWWA D100 shall not be permitted.
8. Shells designed by Method 2 or Method 3 of Sec. 3.4.3 of AWWA D100 shall be measured in accordance with Sec. 11.4.3.2.2 of AWWA D100. Documentation of the measurements and a certificate of compliance shall be provided.

9. All openings in the support structure shall be properly reinforced. Loads imposed by openings in the base of the support structure shall be accommodated in the foundation design.
10. The overturning moment used in designing the support structure and foundation shall include the moment due to eccentricity of the gravity loads caused by deflection of the structure under wind or seismic conditions (i.e. P-Delta effect).
11. Unless otherwise noted, at junctions in plates where meridional forces are discontinuous such as cone to cylinder junctions, a tension or compression ring may be required to resist the radial forces generated. In these regions, the allowable stresses shall not exceed those specified in AWWA D100.
12. No corrosion allowance is required unless specified in Sec. 7.8 herein.

2.03 FOUNDATION

- A. The design of the foundation shall conform to ACI 318 except as modified herein.
- B. The foundation design shall be by the Contractor and shall conform to the recommendations given in the geotechnical report. The foundation depth shall be as required for the extreme frost penetration shown in AWWA D100.
- C. Earth cover shall be a minimum of 3 feet over top of pipe in accordance with AWWA D100. Any pipe passing through the foundation which does not meet this minimum cover requirement shall be properly insulated until such minimum cover is achieved.
- D. Unless modified by the Geotechnical Engineer, the foundation shall be sized to provide a safety factor of 3.0 against the ultimate soil bearing capacity in accordance with AWWA D100. For driven pile the safety factor shall be at least 2.0. Safety factors may be reduced to 2.25 and 1.5 respectively when direct vertical loads are combined with wind or seismic.
- E. The foundation shall be sized such that there is a minimum safety factor of 1.5 against overturning for wind or seismic events using service load combinations.

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- F. Settlement Criteria: The foundation system shall be designed to comply with the following criteria:
1. Total Settlement for Shallow Foundation: Maximum 2 inches or per tank manufacturer's recommendation.
 2. Total Settlement for Deep Foundations: Maximum 3/4 inch.
 3. Maximum Differential Settlement: 1/800.
- G. Foundation piling shall conform to the design and detailing requirements of International Building Code (IBC) Section 1810, including the supplemental design and detailing requirements based on the assigned Seismic Design Category (SDC).

2.04 ACCESS DOOR

- A. One 36-inch by 80-inch plate access door with flush threshold shall be provided and located in the base of the support structure complete with a handle, drip cover, and dead bolt lock. The door shall be fabricated from steel plate with adequate stiffening and specifically designed for use with the tank. A step-over threshold is not acceptable.

2.05 PIPING AND PRESSURE RELIEF

- A. A 10-inch diameter inlet/outlet pipe shall be provided from the bottom of the tank to a flanged connection at the base of the support structure. The inlet/outlet pipe shall be steel with welded connections and have a thickness not less than 1/4 inch. The inlet/outlet pipe shall have an expansion joint above the base bend. Provide taps as shown on the Drawings.
- B. The inlet/outlet pipe shall extend a minimum of six inches above the bottom of the tank floor or be equipped with a removable silt stop.
- C. A 12-inch diameter overflow pipe equipped with an anti-vortex entrance detail shall be provided. The overflow shall be designed to accommodate the maximum inlet rate specified in Sec. 2.3.2.4. The overflow pipe shall be steel with welded connections. The overflow shall extend down the inside of the access tube and support structure and discharge at a point approximately two feet above finish grade onto a splash block. The end of the overflow shall be covered with No. 4 galvanized steel wire mesh screen.

- D. A minimum of one aluminum pressure-vacuum vent near the center of the roof shall be provided. The vent(s) shall be sized to handle pressure differential caused by water entering or leaving the tank at a maximum rate. The maximum inlet rate is 1500 gpm, and the maximum withdrawal rate is 1500 gpm. The open area of the overflow shall not be considered as a venting area. The vent(s) shall have insect screens and shall be designed to relieve any pressure or vacuum in the event the screen frosts over or is otherwise clogged and shall be easily dismantled for cleaning. The vent(s) shall be self-correcting. The pressure-vacuum vent may be mounted on the exhaust hatch.

2.06 ACCESS, LADDERS AND PLATFORMS

- A. Provide a ladder system which extends from grade to the upper shaft platform. This ladder shall be equipped with ladder safety cable.
- B. Provide a ladder on the interior of the access tube from the upper shaft platform to the tank roof. This ladder shall be equipped with ladder safety cable.
- C. Provide a ladder from the upper shaft platform to the tank bottom manhole.
- D. The ladder safety cable shall be an OSHA approved, galvanized system as manufactured by DBI-Sala, or equal. The owner shall be supplied with two (2) harnesses and two (2) sleeves.
- E. A steel condensate ceiling with drain shall be supplied, located at the junction of the pedestal shaft and base bell. The condensate ceiling shall be equipped with a drain pipe connected to the overflow pipe.
- F. An upper shaft platform shall be supplied, located at the top of the support structure.
- G. Provide an access tube located on the vertical centerline of the tank. The access tube shall have a minimum diameter of 48 inches and shall provide access from the upper shaft platform to the tank roof.

2.07 MANHOLES, HATCHES & VENTS

- A. One 24-inch diameter painter's access manhole shall be provided giving access to the exterior painter's rails located at the top of the support structure.

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- B. Two 30-inch diameter hinged rain proof hatches shall be supplied. One shall be at the top of the access tube with spring assist, chain, hook, and inside handle. The other shall be adjacent to the access tube for entry into the tank and shall have a handle and hasp. The hatch openings shall have a curb four inches high and the cover shall have a downward overlap of two inches.
- C. One 24-inch diameter flanged exhaust hatch shall be supplied, located adjacent to the access tube and so constructed that an exhaust fan may be connected for ventilation during painting.
- D. One 24-inch diameter tank bottom manhole shall be provided in the tank bottom with access by ladder from the upper platform.
- E. Two 30-inch diameter manholes shall be supplied. One shall be in the condensate ceiling with the other in the upper platform.

2.08 PAINTER'S RAILS

- A. Provide painter's rails as shown on the drawings and specified herein:
 - 1. Interior Painter's Rails: On tanks with a capacity greater than one million gallons, a rail shall be attached to the underside of the roof at the roof-to-shell junction.
 - 2. Exterior Painter's Rails: A minimum of two rails shall be located near the top of the support structure and be accessible from the upper shaft platform via the painter's access manhole.

2.09 ELECTRICAL

- A. Interior waterproof light sockets with rigid conduit, wiring and switch shall be provided inside the support structure and access tube. Total number and location of lights shall be as shown on the drawings. All wiring shall be in conduit. The conduit and wiring shall terminate with a junction box in the base of the support structure. Duplex outlets shall be installed as shown on the drawings. Electric service shall be provided and connected by others.

2.10 GALVANIC CORROSION PROTECTION

- A. Dissimilar metals inside the tank and below the TCL shall be electrically isolated from carbon steel tank components to which they attach. Painting of the dissimilar metals does not eliminate the requirement for isolation.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspection and testing shall be in accordance with AWWA D100. Shop subassembly welds that require radiographic inspection shall be inspected in the shop or field. If radiographic inspection is performed in the shop, radiographs shall be provided to the Engineer prior to their delivery to the jobsite.

3.02 CONCRETE FOUNDATION

- A. If, during excavation, conditions are encountered which differ from those given in the geotechnical report, appropriate adjustments to construction schedule and price will be negotiated.
 - 1. An inlet/outlet pipe extending a minimum of 3 feet outside the foundation wall shall be included as part of the foundation.
 - 2. Provide a 6-inch-thick concrete slab at grade in the base of the support structure. The slab shall be placed over compacted structural backfill and shall be reinforced with welded wire reinforcement. Provide 1/2-inch expansion material at the slab to foundation intersection and at floor penetrations. Provide saw-cut control joints at 18 feet maximum spacing. The slab shall be sloped towards the floor drain. The slab shall be constructed in accordance with the latest edition of ACI 301.
 - 3. All concrete work shall comply with ACI 301.
 - 4. Foundation piling, if required, shall conform to the design and detailing requirements of International Building Code (IBC) Section 1810, including the supplemental design and detailing requirements based on the assigned Seismic Design Category (SDC)

3.03 WELDING

- A. All welding shall comply with AWWA D100.
- B. All welding procedures, welders and welding operators shall be qualified in accordance with ASME Section IX for the processes and positions utilized.
- C. To minimize corrosion and rust staining on the underside of the roof, the roof plate laps and rafter-to-roof plate seams shall be seal welded. The minimum thickness for seal welded roof plates shall be 1/4 inch.

ANTIOCH ELEVATED STORAGE TANK

- D. The edges or surfaces of the pieces to be joined by welding shall be prepared by flame cutting, plasma arc cutting, arc gouging, machining, shearing, grinding or chipping and shall be cleaned of detrimental oil, grease, scale and rust. The edges of the pieces may have a protective coating applied to them which need not be removed before they are welded unless specifically prohibited by the welding procedures.
- E. Field and shop welding may be done by the shielded metal arc welding process, the gas metal arc welding process, the flux core arc welding process and the submerged arc welding process.
- F. Plates and component members of the tank shall be assembled and welded following erection methods which result in a minimum of distortion from weld shrinkage. Surfaces to be welded shall be free from loose scale, slag, heavy rust, grease, paint and other foreign material.
- G. Full penetration butt-welded joints shall be inspected using the radiographic examination method. The number and location of the radiographs and the acceptance criteria shall be as required by AWWA D100. Inspection by sectional segments is not allowed.
- H. In order to assist in the maximization of the paint's lifecycle, all welds on the tank exterior shall be ground smooth and blended to a NACE-D profile. All welds on the tank interior shall be ground smooth and blended to a NACE-D profile. Welds on the interior dry support column can remain in an as-welded condition but must have a profile adequate for the specified paint system. Engineer/Owner reserves the right to provide third-party inspection to ensure compliance to this requirement.

PART 4 COATINGS AND FINISHES

4.01 GENERAL

- A. All tank painting and paint testing shall be in accordance with AWWA D102, the Steel Structures Painting Council Specification SSPC-PA1, approved paint manufacturer specifications and as specified herein.
- B. Coatings shall be in accordance with Section 09 90 00.
- C. Each system shall be from a single manufacturer.

- D. Pre-construction primers may be utilized in the fabrication process to preserve the blast profile and cleanliness. In the field, weld seams and abraded areas will be cleaned on a spot basis. The remaining sound primer will be cleaned to remove dirt and other contaminants. After cleaning the specified coating system will be applied in its entirety in the field at the mils specified.
- E. No paint shall be applied when the temperature of the surface to be painted is below the minimum temperature specified by the paint manufacturer, or less than 5 degrees above the dew point temperature. Paint shall not be applied to wet or damp surfaces or when the relative humidity exceeds 85% unless allowed by manufacturer's data sheets. Follow the paint manufacturer's recommendations for the specific paint system used.
- F. After erection and before painting, remove slag, weld metal splatter and sharp edges by chipping or grinding. All surfaces that have been welded, abraded or otherwise damaged, shall be cleaned and primed in the field in accordance with the paint system requirements.
- G. All areas blasted in the field shall be coated before any rusting occurs.

4.02 LETTERING AND LOGO

- A. Mural (alternate bid item) design, size and location shall be as indicated on the drawings. Mural shall be applied using one coat of high gloss polyurethane. Mural color shall be selected by the Owner.

4.03 TESTING AND STERILIZATION

- A. Sufficient cure, per the manufacturer's recommendations, of the final coat on the interior wet surface shall be allowed before the elevated tank is sterilized and filled with water.
- B. The tank shall be sterilized per the requirements of AWWA C652. Chlorination Method No. 2 or 3.
- C. The Owner, free of charge to the Contractor, shall furnish and dispose of sufficient water for testing and sterilization. The water shall be at proper pressure to fill the tank to the maximum working level. Any leaks in the tank that are disclosed by this test shall be repaired by gouging out defective areas and re-welding. No repair work shall be done on any joint unless the water in the tank is at least 2 feet below the joint being repaired. Any paint damaged by repairs shall be properly restored.

ANTIOCH ELEVATED STORAGE TANK

- D. Upon completion of the sterilization procedure, the Owner or his representative shall arrange and bear the cost of any bacteriological testing of water samples from the tank that may be required. The tank shall not be placed in service until safe test results are obtained.

4.04 GUARANTEE

- A. The Contractor shall guarantee its work for a period of one year from the date of substantial completion. Substantial completion is defined as the date when the tank is placed, or available to be placed, into service. The Contractor will repair any defects of which they are notified during that period which may appear because of faulty design, workmanship or materials furnished under the specifications. Defects caused by damaging service conditions such as electrolytic, chemical, abrasive or other damaging service conditions are not covered by this guarantee.
- B. All guarantees and extended warranties offered by the manufacturer or installer of paint, equipment or accessories not manufactured by the Contractor shall be obtained by the Owner directly from the manufacturer or installer. The Owner shall provide the Contractor a copy of all such guarantees and warranties.

4.05 ALTERNATIVES

- A. The following items are to be added or deleted within the specification by the Engineer / Owner prior to issuing specification for bidding:

4.06 ACCESS, LADDERS & PLATFORMS

- A. A ladder for access to the tank interior from the roof, shall be provided and attached to the access tube. (Note: this is not recommended in cold climates where freezing may occur). This ladder shall be equipped with ladder safety cable.
- B. Provide a 42-inch high circular roof handrail, ____ feet in diameter, to encompass all centrally located roof appurtenances. The roof handrail shall be 42 inches high and shall include a top rail, intermediate rail and toe board. The handrail must be constructed to meet all OSHA requirements.

4.07 ELECTRICAL

- A. Exterior lighting shall be provided above the access door(s) for added security, and exterior lighting around the base of the support structure to illuminate the tank and/or support structure for aesthetic effect.

- B. In accordance with the Purchaser's FAA Determination Letter, a double obstruction light shall be provided on the roof of the tank near the apex. The lights shall be enclosed in aviation red obstruction light globes as approved by the FAA, complete with an automatic photo-electric cell type switch. The contractor shall install all conduit and wiring from the light to the electrical service panel.

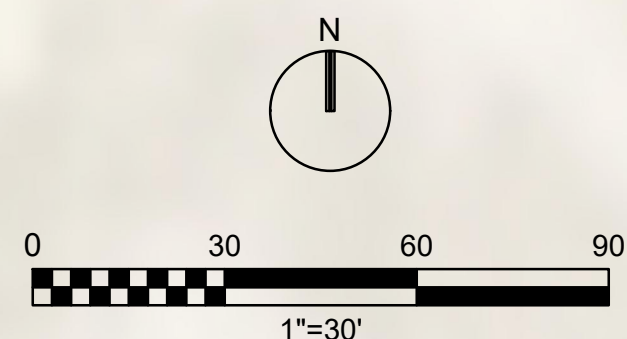
4.08 ANTENNA RAIL AND CABLE DETAILS

- A. Provide all labor, materials, equipment and installation to make all necessary provisions for future antenna cable(s) routing. This work includes but is not limited to the following:
 - 1. Three (3) 4-inch diameter pipe penetrations (with caps) in the support structure, located approximately two feet (2') above the tank floor.
 - 2. Three (3) 4-inch diameter pipe penetrations in the condensate ceiling and platform.
 - 3. Three (3) 4-inch diameter pipe penetrations (with caps) in the access tube cover.
 - 4. Suitable brackets welded to the inside of the support structure and access tube to safely secure future antenna cables. Bracket spacing shall not exceed 8 feet.
- B. For safety considerations during antenna installation, and for maintenance, a 42" high handrail shall be furnished with a top rail, intermediate rail, and toe board. Handrail shall be ~ 20' diameter and centered on the tank access tube roof hatch. The handrail shall also provide an attachment point for the antenna(s).

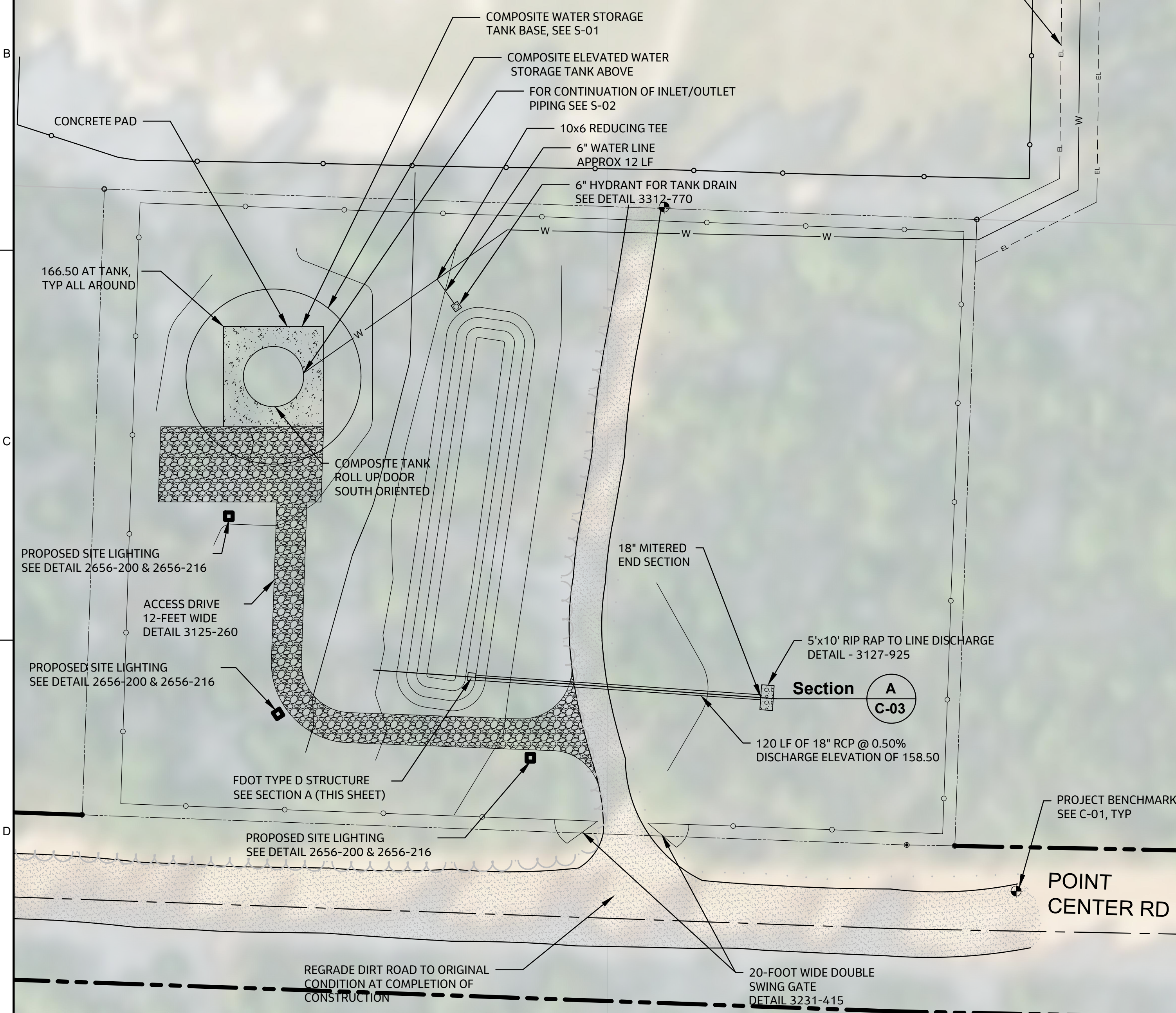
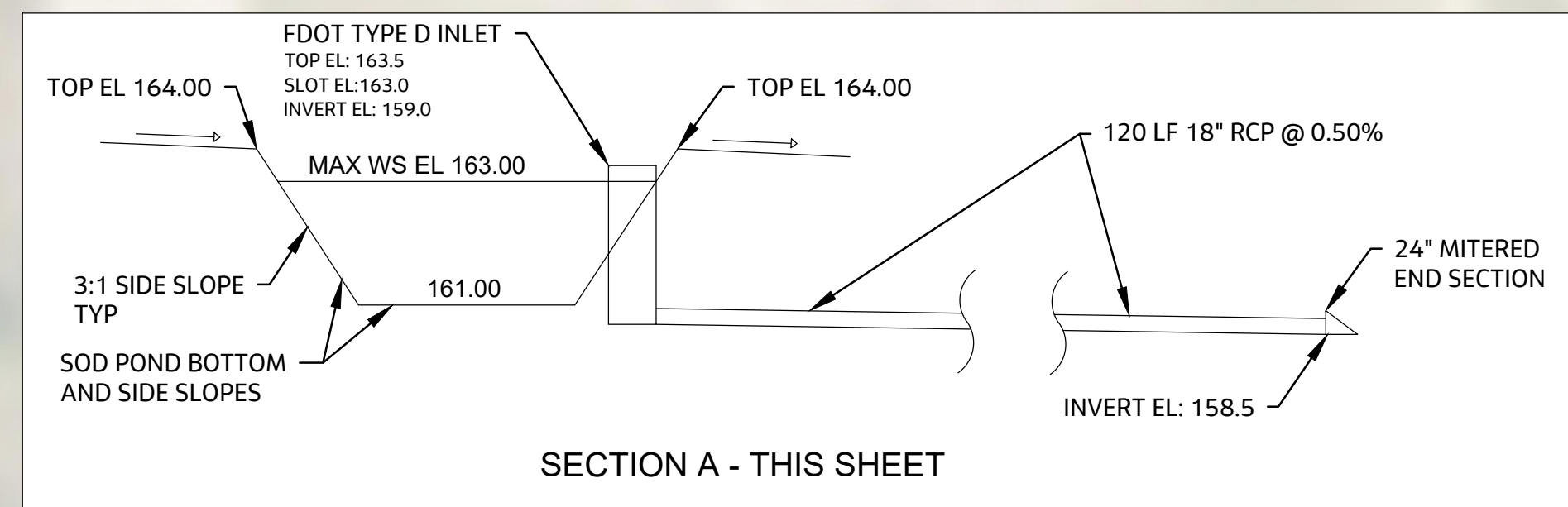
END OF SECTION

NOTES:

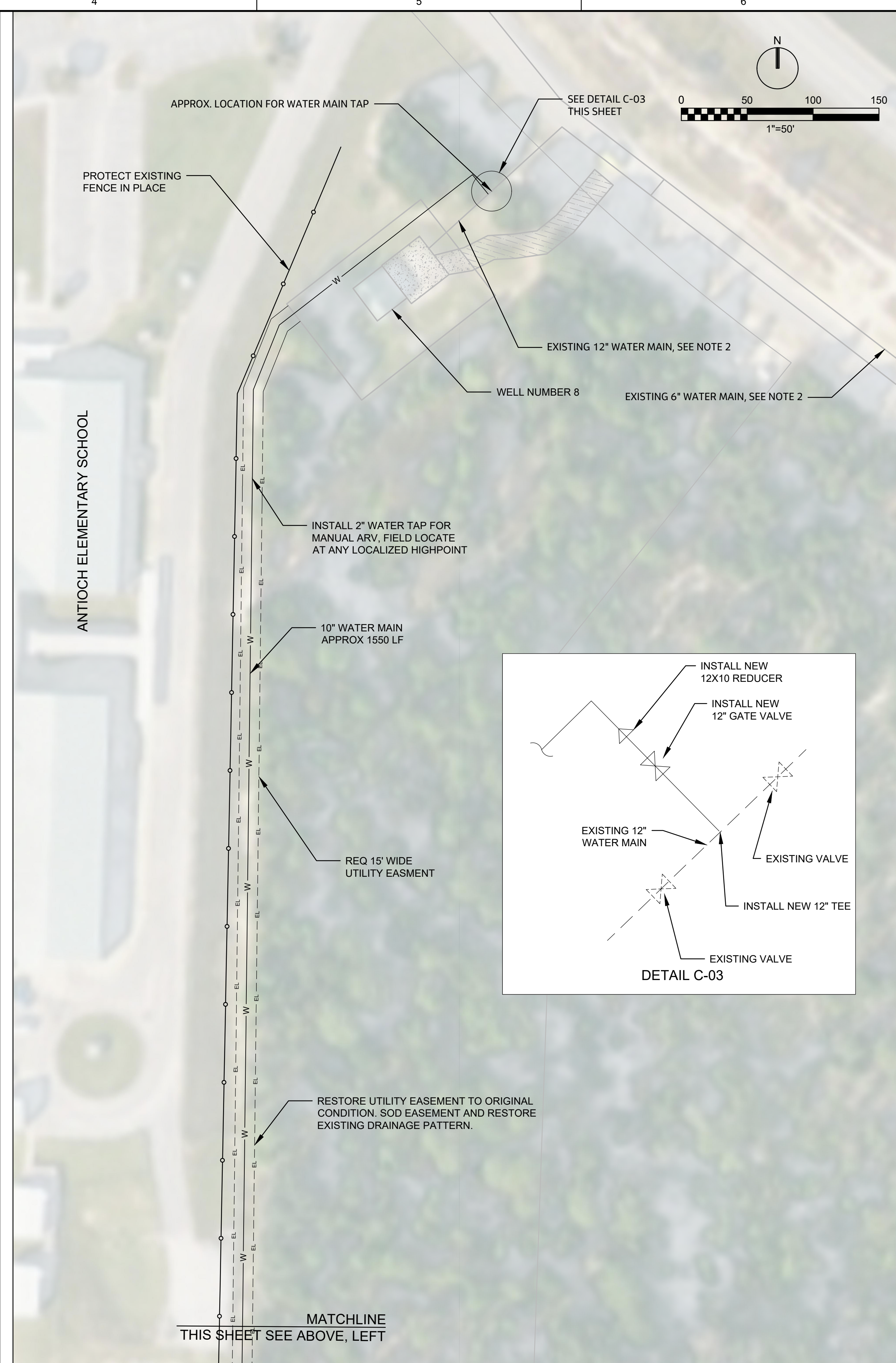
1. CONTRACTOR SHALL LIMIT ALL INTERRUPTION TO EXISTING DISTRIBUTION. CONTRACTOR SHALL NOTIFY PUBLIC SERVICES ONE WEEK BEFORE DISTURBING EXISTING WATER DISTRIBUTION.
2. EXISTING LOCATIONS OF PIPE SHOWN CONTINUE. PIPE LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING WATER MAINS BEFORE CONSTRUCTION.
3. FOR SITE GRADING, REFER TO SHEET C-02.
4. INSTALL MANUAL ARV AT ANY LOCALIZED HIGH POINTS.



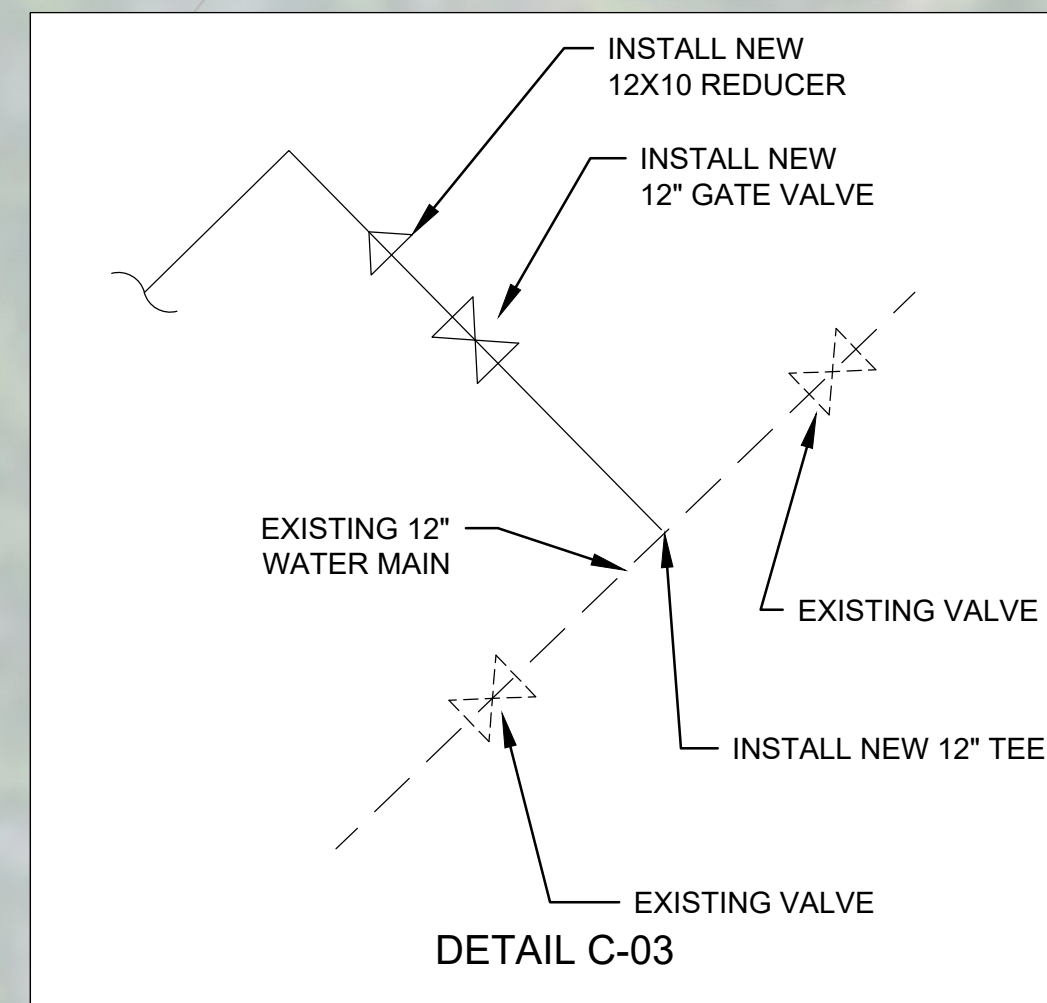
ANTIOCH ELEMENTARY SCHOOL



MATCHLINE
THIS SHEET BELOW, RIGHT



MATCHLINE
THIS SHEET SEE ABOVE, LEFT



04/2021	ADDENDUM 2	NO.	DATE	DR	REVISION	CHK	BY	APVD
				S. TATMAN			S. TATMAN	J. NESSL
							S. JERNIGAN	

ANTIOCH ROAD COMPOSITE WATER TOWER
PUBLIC SERVICES
CITY OF CRESTVIEW
CRESTVIEW, FLORIDA

JACOBS
CIVIL
**ANTIOCH WATER TOWER
PROPOSED SITE IMPROVEMENTS**

DATE	MARCH 2021
PROJ	D3282100
DWG	C-03
SHEET	12 of 21

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
DATE: MARCH 2021
PROJ: D3282100
DWG: C-03
SHEET: 12 of 21

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