Barber Manor Area Water Main Upgrades
ECUA BID NO. CC2024-03

JANUARY 23, 2024

ADDENDUM NO. 2

This addendum forms a part of the Contract Documents and modifies the original Specifications dated January 2024, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification. This addendum consists of nineteen (19) pages, including all attachments.

SPECIFICATIONS:

The following changes were made to the Engineer's Estimate of Quantities:

1. Pay Item 35 was added. Follow Pay Item notes 12, 13, and 14 for bidding guidance. Long copper services do not require casing under roadway.
2. Requirements for Working with Asbestos Cement (AC) Pipe has been added to the specifications.

A summary of pre-bid discussion topics:

1. Guidance regarding electronic bid bonds is attached to this addendum.
2. For pay item 34; the contractor is only responsible for what is explained in the pay item notes. ECUA will provide the Inserta valve and install it.
3. Contractor asked about how water main fittings are to be billed. Please refer to bid item notes 7, 8, and 9. These fittings are to be included into the linear footage of pipe unit price.
4. Contractor asked about how to deal with existing irrigation systems. It is the contractor's responsibility to reach out to each homeowner to verify if they have an irrigation system, where the irrigation system is located, and the working condition of the irrigation system. Any damage to existing irrigation systems will be the contractor's responsibility.
5. Contractor asked about how sod will be covered in the contract. Line item 6 is to cover this expense. It is the contractor's responsibility to bid this item with the understanding that the right-of-way restoration is to be to preconstruction condition or better once the project is complete. Please refer to pay item note 6.
6. Contractor asked about if new service taps can be made at an angle to prevent the taps being under existing driveways. ECUA will allow the services to be ran at an angle to prevent the tap from being under the roadway.
7. Clarification of pay item 2 was discussed. Contractor is only responsible for Part 2 of Section 4000. I have attached Section 4000 with items highlighted that are required for pay item 2 as a part of the bid.
8. The last day to submit questions will be January 30th, 2024.

-END OF ADDENDUM

Barber Manor Water Main Upgrades

PRE-CONSTRUCTION MEETING SIGN-IN SHEET

01/18/2024 10:00AM

NAME	COMPANY	PHONE	EMAIL
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Tony Howard	ECUA	850-969-6530	Tony.howard@ecua.fl.gov
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Barber Manor Water Main Upgrades

PRE-CONSTRUCTION MEETING SIGN-IN SHEET

01/18/2024 10:00AM

NAME	COMPANY	PHONE	EMAIL
Crayton Brogdon	CPS	850 791 4339	crayton.brogdon@cps.com
Avant, Autumo	ECUA	850-503-9580	autumo.avant2@ecua.fl.gov

ENGINEER'S ESTIMATE OF QUANTITIES - APPROXIMATE ONLY BASE BID:

BASE BID

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization (Max 5% of Bid)	1	LS		
2	Record Drawings Per Section 4000 of ECUA Specifications	1	LS		
3	County Right-of-Way Permit	1	LS		
4	Erosion Control	1	LS		
5	Maintenance of Traffic	1	LS		
6	Right-of-Way Restoration	1	LS		
7	6" Ductile Iron Water Main	630	LF		
8	6" PVC Water Main	2675	LF		
9	4" PVC Water Main	110	LF		
10	14" Casing	35	LF		
11	12" Casing	30	LF		
12	Long Water Service	24	EA		
13	Short Water Service	14	EA		
14	Short Copper Water Service	3	EA		
15	Relocate Existing Meter to Property Line	9	EA		
16	8"x6" Wet Tap	3	EA		
17	Cut and Cap Existing 6" Water Main	1	EA		
18	Cut and Cap Existing 4" Water Main	1	EA		
19	Cut and Cap Existing 2" Water Main	1	EA		
20	Cut out Existing 8" Tee and Straight Pipe Using Hymax	2	EA		
21	6"x6" Tee	3	EA		
22	4"x6" Reducer	2	EA		
23	6" Gate Valve and Box	8	EA		
24	Fire Hydrant Assembly	3	EA		
25	Flush Hydrant Assembly	2	EA		
26	Grout Fill Existing 6" Water Main	40	LF		
27	Grout Fill Existing 4" Water Main	35	LF		
28	Cut and Patch Asphalt Driveway	55	SY		
29	Cut and Patch Concrete Driveway	100	SY		
30	Stockpile and Replace Existing Gravel Driveway	175	SY		
31	Cut and Patch Asphalt Roadway (Per County Standards)	335	SY		
32	Remove Existing Valve Box and Backfill	6	EA		
33	Remove Existing Fire Hydrant and Backfill	1	EA		
34	Prep Work for 8" Inserta Valve	2	EA		
35	Long Copper Water Service	1	EA		

Base Bid Total = _____

Base Bid Written _____

_____

CC2024-03 Barber Manor Area Water Main Upgrades

Many government contracts, especially ones for construction projects, will require vendors to provide surety bonds, there are two types of bonds required a performance bond and a payment bond. Bonds are a way for suppliers to prove to buyers that they have access to adequate up-front funding to begin, complete, and pay for the costs surrounding a project. An electronic bond, or e-bond, is simply verified electronic proof of the bond from a surety company or bank.

BOND GUARANTEE

Bonds provide a guarantee to the government agency awarding the contract, that the work will be performed based on the terms and conditions, sub-contractors will get paid, and the contract will be completed. Bonds are usually issued by banks or surety companies, who act as financial backers to the suppliers requesting the bond.

The SBA and other associations provide bond surety guidance to small businesses to show them what to expect when obtaining a bond. They also have a group of authorized surety companies that can help your business if acquiring an e-bond for the first time.

E-BOND CERTIFICATE & SEAL

In the past, bonds were required to be provided in physical form by the bank or surety companies to the government agency by way of the supplier. Now, with bidding platforms and electronic bidding, bonds can be provided digitally, saving the supplier time and expenses associated with acquiring a paper bond.

An e-bond can simply be attached as part of their response and a buyer can view the validity of the bond directly online. To obtain an e-bond, a supplier makes a request to a bank or surety company to provide the e-bond certificate with an electronic seal. Once received, the

supplier provides this digitally sealed certificate to the buyer along with other needed documents.

Now that we live in the digital world, by allowing suppliers to provide e-bonds has simplified an important step of the contract process.

E-bonding is now a highly preferred solution for suppliers and buying agencies because it makes for an easier way to submit and verify that suppliers have the resources needed to complete the work they are contractually obligated to deliver.

REQUIREMENTS FOR WORKING WITH ASBESTOS CEMENT (AC) PIPE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified.
The work specified shall include all labor, materials, tools, equipment, services, and incidentals necessary to modify and/or repair Asbestos Cement Pipe (ACP) as shown, specified and required.

1.02 QUALITY ASSURANCE

A. CONTRACTOR'S Qualifications.
1. CONTRACTOR shall have a minimum of 5 years documented experience working with asbestos cement pipe.

B. Reference Standards.
1. Code of Federal Regulations U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1926.1101, Asbestos.
2. Code of Federal Regulations, 40 CFR Part 763, Subpart G – Asbestos Worker Protection.
3. AWWA Manual M28, Rehabilitation of Water Mains.
4. AWWA Manual M9, Concrete Pressure Pipe.
5. NSF/ANSI Standard 61.
6. Underwriter's Laboratories (UL).
7. International Organization for Standardization (ISO).
8. Factory Mutual Research Corporation.
9. Clean Air Act (CAA).
10. Safe Drinking Water Act (SDWA).
11. ANSI Z88.2-80, Practices for Respiratory Protection.
12. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems.
13. 29 CFR 1910.1001, "Asbestos" (OSHA).
14. 29 CFR 1910.1200, "Hazard Communication" (OSHA).
15. 29 CFR 1910.134, "Respiratory Protection" (OSHA).
16. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA).
17. 29 CFR 1926, "Construction Industry" (OSHA).
18. 40 CFR 61, Subpart A, "General Provisions" (EPA)
19. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (USEPA).
20. Occupational Safety and Health Administration.
21. USEPA 530-SW-85-007, Asbestos Waste Management Guidance.
22. Florida Department of Environmental Protection (FDEP).
23. State of Florida, Chapter 62-257, Florida Administrative Code.

24. Florida Statutes, Chapter 469, Licensing Requirements (Exemptions 469.002)
25. State of Florida's Administrative Code 62-204.800. US EPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M).

1.03 SUBMITTALS

A. CONTRACTOR shall submit the following prior to the start of work:
1. The number of years your organization has been working with asbestos cement pipe under your present name.
2. Any projects similar to this project completed by your organization. Include all projects completed within the last three years and all projects completed for ECUA specifically within the last five years.
3. List the names of any company that has operated under the umbrella of your organization and the projects that they have completed.
4. A list of current employees who have completed appropriate asbestos training and copies of their current certificates identifying their qualifications.
5. A letter from the CONTRACTOR, on company letterhead, stating that they are knowledgeable of all current local, state, and federal requirements regarding this type of asbestos work, that all work will meet those requirements, and that all workers shall be protected against exposure as defined by OSHA. Letter shall have an original signature, signed by an officer of the company.
6. Written procedures for field repairs of pipe, pipe handling, and disposal.
7. Project Close-out Submittals: Within 30 days of project completion, the CONTRACTOR shall submit 1 copy of the documents listed below to the ENGINEER and 1 set of documents shall be forwarded to the OWNER.
    a. Originals of all waste disposal manifests, seals, and disposal logs.
    b. OSHA compliance air monitoring records conducted during the work.
    c. Daily progress log, including entry/exit log.
    d. All documentation identifying that asbestos materials have been properly handled, secured, labeled, and disposed of properly at an approved facility capable of accepting asbestos materials.
    e. Disposal site/landfill permit from applicable regulatory agency.
    f. Final project notifications.
8. The CONTRACTOR shall submit a site-specific Health and Safety Plan for review prior to any work activities. The Health and Safety Plan shall include, but not be limited to, Workers' 40-hour OSHA training and 8-hour refresher training certification and copies of fit testing and medical clearance records.

1.04 COMPETENT PERSON

A. Prior to the start of work on any given day, CONTRACTOR shall designate one individual on site as the Competent Person.

B. *Competent Person* means, in addition to the definition in 29 CFR 1926.32 (f), one

who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff set forth at 40 CFR 763.92 (a)(2).

C. The Competent Person shall have the authority to stop the work or change the work practices, as necessary, to insure compliance with all state and federal regulations.

D. The Competent Person shall maintain all required logs for asbestos work and submit copies of all logs to ENGINEER and OWNER as requested, or at project completion.

E. The Competent Person shall be responsible for worker and job site safety as required by all relevant asbestos regulations and OSHA requirements.

F. The name(s) and contact phone number of the competent person shall be given to the ENGINEER and OWNER before the work is to begin.

1.05 PERMITS AND COMPLIANCE

A. The CONTRACTOR shall assume full responsibility and liability for compliance with all applicable federal, state, and local laws, rules, and regulations pertaining to work practices, protection of workers, authorized visitors to the site, and persons and property adjacent to the work areas.

B. The CONTRACTOR shall be responsible for all fees related to the asbestos abatement work, including, but not limited to, licenses, permits, project notifications, variance petitions, applications and Worker certifications.

C. The CONTRACTOR may, at their own cost, petition applicable regulatory agencies for, obtain and use site-specific variance(s) to conduct the asbestos abatement work. Should the CONTRACTOR choose to apply for any variance, all conditions and provisions of the site-specific variance are subject to the review and approval of the ENGINEER.

1.06 PROJECT LOG BOOK

A. Provide a permanently bound project log book. The log book shall contain, on the first page, the project name; name, address, and telephone number of OWNER; name, address, and telephone number of ENGINEER; name, address, and telephone number of the CONTRACTOR; and emergency numbers, including, but not limited to, local Fire/Rescue Departments.

B. All entries into the log shall be made in non-washable, permanent ink, and such

pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

C. All persons entering and exiting the Work area shall sign the log and include name, employer, certification number, and time of entrance and exiting.

D. The Project Supervisor shall document all Work performed daily and note all visual assessments.

1.07 PERSONAL PROTECTIVE EQUIPMENT

A. All use of Personal Protective Equipment (PPE) shall be in compliance with applicable OSHA regulations and procedures.

B. The minimum PPE is Level D Modified (hard hat, safety glasses, and steel-toed boots), at all times at the project site both inside and outside the work areas.

C. Additional PPE is required to reduce exposure to asbestos. CONTRACTOR shall comply with all OSHA regulations throughout construction operations.

1.08 SIG NS AND LABELS

A. Provide warning signs and barrier tapes at all approaches to the Work area. locate signs at such distance that personnel may read the sign and take the necessary protective steps required before entering the area.

B. Provide danger signs, 3-inch wide red barrier tape, and asbestos danger labels on all asbestos materials as required by regulations.

1.09 POLYETHYLENE SHEETING

A. Unless otherwise indicated, polyethylene sheeting used on this project shall be at least 6 mil fire retardant sheeting.

B. Decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting.

1.10 HEPA VACUUM EQUIPMENT

A. All vacuuming performed in association with the abatement shall be conducted using HEPA-filter equipped industrial vacuums conforming to ANSI Z9.2.

1.11 DISPOSAL BAGS, DRUMS, AND CONTAINERS

A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall be also imprinted with USDOT/FDOT required markings.

1.12 SUFACTANT (AMENDED WATER)

A. Wet all ACP prior to removal with surfactant mix, and apply in accordance with manufacturer’s printed instructions.

1.13 OTHER PRODUCTS OR MATERIALS

A. Other products or materials that are required for use during abatement activities shall comply with local, state, and federal codes and regulations, if applicable. The CONTRACTOR is expected to furnish and utilize industry standard equipment and materials. The CONTRACTOR shall not furnish equipment or materials that have been altered in such a manner that violates local, state, and/or federal codes and regulations, or presents unnecessary health and safety risk.

PART 2 – MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 WORKING WITH ASBESTOS CEMENT PIPE (ACP)

A. Documentation.

1. The CONTRACTOR shall maintain a bound daily project log throughout the project. This daily project log will contain all of the pertinent events and daily inspections that occur throughout the project. The daily project log shall be updated daily and kept on-site throughout the project.
2. In addition to the daily project log, the CONTRACTOR shall maintain a project book, that contains the remainder of documents that might be generated on the project including: daily sign in/out sheets; personal and environmental air sampling analysis; licenses; certifications and notifications.
3. All project documentation shall be kept on the site at all times and be made available upon verbal request of the ENGINEER, OWNER, or any other enforcement agency that has jurisdiction over the asbestos work.

B. Setup Procedures.

1. The material is classified by definition under 40 CFR 61, Subpart M, Section 61.141 as Category II, non-friable ACM, unless, when dry, it can be crumbled, pulverized, or reduced to powder by hand pressure. At that time, it becomes classified as regulated ACM (RACM) and subject to regulation under Subpart M. It is the intent of this specification to define procedures that maintain the AC pipe in an intact state. CONTRACTORS shall not use procedures that subject the AC pipe to forces that will crumble, pulverize, or reduce to powder the AC pipe. By using procedures that have a low to no probability of fiber release, the pipe retains its classification as Category II, non-friable ACM. These procedures will protect workers from the health risk associated with airborne asbestos.
2. Prior to exposing the waterline, CONTRACTOR shall have all necessary materials for working around asbestos cement pipe on site.
3. CONTRACTOR shall properly secure the site, labeling the area and setting up a marked perimeter to minimize exposure for workers or visitors without PPE.
4. The Competent Person shall be on site at all times Work is progressing.
5. All Work shall be performed in such a manner as to minimize the risk of

exposure to personnel and to minimize the risk of release of asbestos or asbestos-containing debris to the environment.

6. All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. The information contained within this specification section will be considered part of the Project Documents. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent procedure(s) shall apply.
7. The CONTRACTOR shall take notice, and make employees aware, of occupational safety hazards associated with the abatement work and other work being performed on-site. The CONTRACTOR shall comply with any site-specific training that may be required by the OWNER.
8. Performance of the Work and preparation and processing of submittals shall be coordinated to comply with the overall project schedule and construction activities that are scheduled for the site, as specified in other applicable sections of the project Documents.
9. The CONTRACTOR is responsible for disposal, as specified, and maintaining records of disposal.

C. Removal of Asbestos-Containing Materials.

1. Perform all asbestos removal work using wet removal procedures. Mix and apply surfactant in accordance with manufacturer's written instructions. Dry removal procedures are not permitted.
2. Sufficiently wet asbestos materials with a low pressure, airless, fine spray of amended water to ensure full penetration prior to ACM removal. Re-wet materials that do not display evidence of saturation.
3. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate or whenever there is enough accumulation to fill a single bag or container. Maintain work area surfaces free of accumulation of asbestos debris.
4. Power or pressure washers are not permitted for asbestos removal or clean-up procedures.
5. All construction and demolition debris determined by the ENGINEER to be contaminated with asbestos shall be handled and disposed of as asbestos waste.
6. Should the area beyond the Work area become contaminated with ACM or elevated fiber levels, immediately stop work and institute emergency procedures. Contaminated non-work areas shall be isolated and subsequently decontaminated in accordance with procedures established for asbestos removal. All costs incurred from decontaminating such non-work areas and the contents thereof shall be borne solely by the CONTRACTOR, at no additional cost to the OWNER.
7. Spoils are to be gently placed in trucks or on ground and not dropped, to minimize dust creation.
8. The Competent Person shall oversee all work being performed and direct the work, as necessary, to insure all regulations and safety requirements are being met.
9. Backfill should be installed into the excavation carefully, to reduce dust generation. Compaction of backfill should also involve wetting, to minimize

dust generation.

D. Prohibited Work Practices and Engineering Controls.

1. CONTRACTOR shall not use procedures that subject AC pipe to forces that will crumble, pulverize, or reduce to powder the AC pipe.

2. The following work practices and engineering controls shall **not** be used for work related to AC pipe or for work which disturbs ACM regardless of asbestos exposure or the results of the Initial Exposure Assessments:

   a. High-speed abrasive disc saws and sanders not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
   b. Carbide-tipped cutting blades.
   c. Electrical drills, chisels, and rasps used to make field connections in AC pipe.
   d. Shell cutters used to cut entry holes in AC pipe.
   e. A hammer and chisel without using wet techniques to remove pipe connections.
   f. Compressed air used to remove asbestos or material containing asbestos.
   g. Dry sweeping, dry shoveling, or other dry clean-up of dust and ACM debris.
   h. Employee rotation as a means of reducing employee exposure to asbestos.

E. Decontamination Procedures.

1. The work area shall be properly decontaminated, to minimize transfer of asbestos fibers. Drop cloths, enclosures, and workers' PPE shall be appropriately cleaned with vacuums (with HEPA filtration), wetted as necessary to minimize dust generation, removed in an appropriate decontamination area, bagged, labeled, and disposed of properly.
2. Any asbestos materials removed from the work, (including pipe, drop cloths, used HEPA filters, etc.) shall be properly contained, labeled, and disposed of according to all state and federal regulations.

F. Disposal of Asbestos Waste.

1. All asbestos waste shall be stored, transported, and disposed of in accordance with the following regulations as a minimum.

   a. USEPA NESHAPS 40 CFR 61.
   b. USEPA Asbestos Waste Management Guidance EPA/530-SW85.

G. Payment.

1. All costs for work involving asbestos cement pipe, including permitting, logging, and disposal, are included in the various pay items.

END OF SECTION

Section 4000

Record Drawing Requirements

PART 1: General

1.1 *Applicability* – These requirements apply to ECUA Capital Improvement Projects (CIP) and System Extension Projects (aka developer-sponsored projects) based on the following criteria:

1.1.1 All ECUA CIP projects and System Extension Projects that include a new ECUA lift station or an existing ECUA lift station receiving major upgrades.

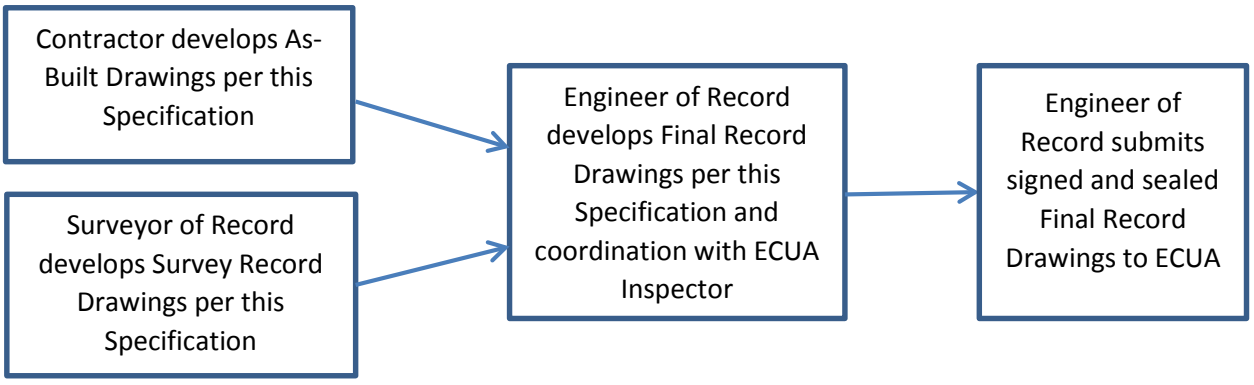
1.1.2 All ECUA CIP projects and System Extension Projects that contain a combined 500' or more of new ECUA mains shall follow this entire specification. For projects with less than 500' of mains, the Survey Record Drawings portion of this specification becomes optional.

1.1.3 If there is a question regarding the applicability of these requirements to a certain project, then the ECUA Project Engineer assigned to that project shall make the determination as early as possible in the project.

1.1.4 For CIP projects, ECUA Project Engineer will require Engineer of Record to include a specific task/fee line item for Survey Record Drawings and a specific task/fee line item for Final Record Drawings, and will provide pay item for Contractor As-Builts in the project's bid proposal form.

1.1.5 For System Extension Projects, these requirements are represented via paragraphs 7 and 8 of the Utility Service Agreement (USA).

1.2 *Overview* – The following chart represents an overview of the process required in order to develop Final Record Drawings for ECUA:



1.3 *Terms Defined* – The Record Drawing process requires various drawings to be developed by multiple parties along the way, with the following terms being defined and used as part of these requirements:

1.3.1 *Surveyor of Record* – The Florida registered PSM that performs the required surveying and then creates the Survey Record Drawings.

1.3.2 *Engineer of Record (EOR)* – The Florida registered PE that collects information from the Contractor As-Builts and Survey Record Drawings and creates the Final Record Drawings.

1.3.3 *Contractor As-Builts* – Drawings prepared by the Contractor and submitted to the EOR.

1.3.4 *Survey Record Drawings* – Drawings prepared by the Surveyor of Record and submitted to the EOR.

1.3.5 *Final Record Drawings* – Drawings prepared by the EOR and submitted to ECUA.

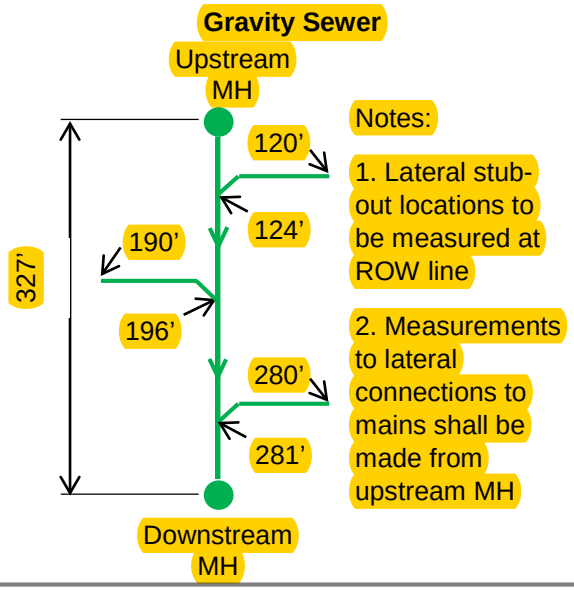
PART 2: Contractor's As-Built Drawings Requirements

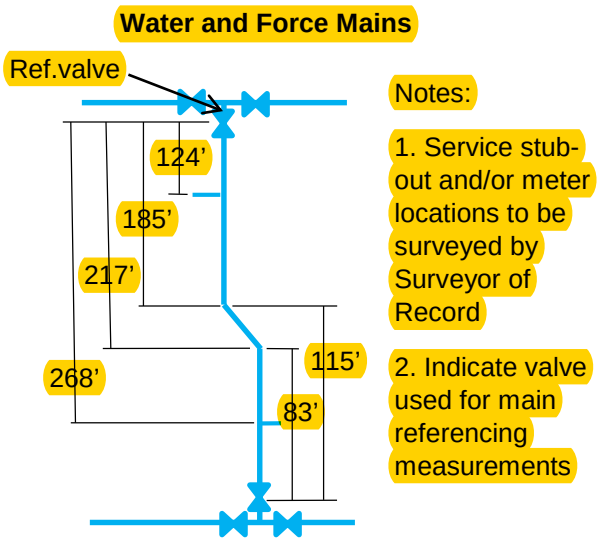
2.1 Prior to backfilling, the Contractor shall make and record measurements (recorded to nearest 1" or 0.1') to all underground features (connections to mains, fittings, etc) that the Surveyor of Record will not have access to with his post-construction survey of surface features (i.e. manhole lids, valve boxes, etc). Contractor shall assemble all of the required information in a legible format on a clean set of plans. As-Builts that are illegible will be rejected by the EOR

2.2 The following underground features shall be measured with measurements being clearly annotated on plans:

Water System	Sewer System
Service taps	Service taps, stubouts (gravity and pressure)
FH taps	ARV taps
WM fittings (tees, bends, elbows, etc)	FM fittings (tees, bends, elbows, etc)
WM every 100' if WM alignment meanders	FM every 100' if FM alignment meanders

2.3 Contractor shall take one measurement, referenced to valves, for features on straight sections of mains that are in-line with above-ground termination features such as valves. Contractor shall take two measurements, referenced to at least two above-ground features, for features on meandering sections of mains. Examples include:





2.4

2.5 Contractor shall provide detailed description of the feature (i.e. 6"x1" saddle tap for water service, 8" 45-degree bend for WM, 4" sewer lateral wye connection to main, etc).

2.6 Title sheet of As-Builts shall include:

2.6.1 Title *"Contractor's As-Builts"*.

2.6.2 Name of the project, and ECUA CIP project number or System Extension number.

2.6.3 Contractor's company name, address, and phone number.

2.6.4 Statement: *"These As-Built Drawings have been prepared per the ECUA Engineering Manual.",* under which shall be signature and printed name of person that prepared drawings, along with phone number and e-mail address.

2.7 Provide as separate document all available photographs, clearly labeled, that show connections to existing mains, critical utility crossings, or other pertinent areas.

2.8 Contractor shall submit As-Built Drawings to the EOR, and shall be available to answer questions related to the drawings as well as supply additional information should there be missing/incorrect information. Insufficient As-Built Drawings as determined by either the EOR or ECUA will delay ECUA payments on CIP projects, and will delay Final Acceptance on System Extension Projects.

PART 3: <u>Survey Record Drawings Requirements:</u>

3.1 The Surveyor of Record is responsible for surveying property and easement boundaries as well as all at-grade and above-grade facilities per the following table:

Water System	Sewer System
Valve boxes	Manholes
Fire hydrants	Lateral stub-outs
Water meters/boxes	Valve boxes
Well and tank site fence and building corners, fence gates, SCADA tower, generator pad, driveway, power service pole, aerial power lines, etc	Lift station fence corners, fence gates, SCADA tower, control panel, hatches, concrete slab corners, water service/BFP, generator pad, driveway, influent piping, power service pole, aerial power lines, etc
All other at- or above- grade facilities	All other at- or above- grade facilities
Parcels and easements	
Property corners, edge of driveways, easement boundaries, encroachments, etc	

3.2 Survey shall be prepared utilizing the Florida North Zone of the Florida State Plane Coordinate System, with horizontal measurements and coordinates accurate to within a tenth of a foot (0.1'). All elevations (i.e. manhole rims, inverts of every gravity wastewater pipe and force main connections to manholes, lift station top of slab, bottom of wet well, influent pipe invert and control set points) will be based on the North American Vertical Datum of 1988 (NAVD88), and shall be accurate to within a hundredth of a foot (0.01').

3.3 Show and dimension all rights-of-ways, ECUA parcels, and easements. Label easements based on type (i.e. public utility, ECUA, etc) and their origination (i.e. per plat named _____ located at book ___ and page ___).

3.4 Provide ample measurements from right-of-way lines, parcel boundaries, and easement boundaries to surveyed facilities such that it is clearly known if a facility is in its correct location or installed outside of ECUA's property interests.

3.5 Surveyor of Record shall provide detailed description of the surveyed facility (i.e. valve box, 4" sewer lateral stub-out, etc.).

3.6 Title sheet of Survey Record Drawings shall include:

3.6.1 Title *"Survey Record Drawings"*.

3.6.2 Name of the project, and ECUA CIP project number or System Extension number.

3.6.3 Surveyor's company name, address, and phone number.

3.6.4 Statement: *"These Survey Record Drawings have been prepared per the ECUA Engineering Manual. I certify that the surveyed location information of the water and sewer facilities shown on these drawings conforms to the minimum technical standards for land surveying in the State of Florida and that said Record Drawings are true and correct to the best of my knowledge and belief."* under which shall be signature, date, and seal of Survey of Record, and printed name of Surveyor of Record, along with phone number and e-mail address.

3.7 Surveyor of Record shall submit Survey Record Drawings to the EOR, and shall be available to answer questions related to the drawings as well as supply additional information should there be missing/incorrect information. Insufficient Survey Record Drawings as determined by either the EOR or ECUA will delay ECUA payments on CIP projects, and will delay Final Acceptance on System Extension Projects.

PART 4: Final Record Drawings Requirements

4.1 The EOR shall assemble the information as provided by the Contractor's As-Built Drawings and the Surveyor's Record Survey Drawings, supplement with additional information provided by the EOR and the ECUA Project Inspector, and prepare a set of *draft* Final Record Drawings. The EOR shall retain the Contractor's As-Built Drawings, the Survey Record Drawings, and a copy of the signed and sealed Final Record Drawings, all for future review by ECUA upon request.

4.2 Final Record Drawings shall be new drawings that show facilities as they are constructed, with drawings of new mains, appurtenances, labels and notes as needed. Design/construction plans with clouding, mark-outs, and strike-throughs that attempt to simply illustrate changes between design plans and record drawings will not be allowed. Any information, notes, or measurements from the design/construction plans that are no longer relevant from a Final Record Drawing perspective shall be deleted. Only installed facility information, notes, and measurements shall remain visible.

4.3 All water and sewer mains and services shall be labeled with the appropriate size, material, color, AWWA designation, pipe thickness, etc. Gravity mains shall be labeled with their diameter, pipe

thickness, length, and slope. Each fitting shall be labeled with its material and size. Valves shall be labeled with their size and type. All service lines and sewer laterals shall be labeled with their diameter, material, etc.

4.4 Coordinates shall be provided for all surveyed facilities as well as measured locations of underground facilities from Contractor's As-Builts.

4.5 Incorporate project photographs per paragraph 2.6.

4.6 Show all abandoned in-place facilities including the extent and method of abandonment (i.e. capping ends of mains, grouting, etc).

4.7 Title sheet of Final Record Drawings shall include:

4.7.1 Title *"Final Record Drawings"*.

4.7.2 Name of the project, and ECUA CIP project number or System Extension number.

4.7.3 EOR's company name, address, phone number, and Certificate of Authorization number.

4.7.4 Statement: *"These Final Record Drawings have been prepared per the ECUA Engineering Manual. I certify these Final Record Drawings have been reviewed by me or by individual(s) under my direct supervision and to the best of my knowledge and belief these drawings substantially reflect the water and/or sewer facilities as constructed. Contractor's As-Builts were provided by _____, dated _____; Survey Record Drawings were provided by _____, dated _____."* under which shall be signature, date, and seal of EOR, and printed name of EOR, along with phone number and e-mail address.

4.7.5 Contractor's name and related information as listed on the Contractor's As-Builts.

4.7.6 Surveyor of Record's name and related information as listed on the Survey Record Drawings.

4.7.7 ECUA Project Inspector's name and location for his signature granting approval of the Final Record Drawings.

4.7.8 ECUA Project Engineer's name.

4.8 Upon development of a set of *draft* Record Drawings, the EOR shall:

4.8.1 Coordinate and hold mandatory meeting at EOR's office with EOR and ECUA Project Inspector and together review the *draft* Record Drawings for completeness, accuracy, and conformance to this specification. Attendance by the Contractor or the Surveyor of Record is optional and at the discretion of the EOR.

4.8.2 Make corrections to all erroneous items as determined in meeting.

4.9 Final Record Drawings package shall include:

4.9.1 Two sets of Final Record Drawings (22" x 34" or 24" x 36" sheets), signed, dated, and sealed by the EOR

4.9.2 CD labeled with project info, containing:

- ACAD version of the Final Record Drawings
- PDF version of the Final Record Drawings (full sheet size)
- PDF version of the Contractor's As-Builts (full sheet size)
- PDF version of the Record Survey (full sheet size)

4.10 EOR shall submit Final Record Drawings package to ECUA Project Inspector per the following:

4.10.1 For CIP projects, Final Record Drawings package shall be submitted with or prior to Contractor's Final Pay Application. Final Pay Application shall not be processed without proper project closeout paperwork, to include Final Record Drawings acceptable to ECUA.

4.10.2 For System Extension projects, Final Record Drawings shall be submitted at Project Closeout along with other required documents. Final Acceptance shall not be granted without proper project closeout paperwork, to include Final Record Drawings acceptable to ECUA.

4.11 ECUA Project Inspector will perform final review and if acceptable, sign the title sheet thereby approving the documents. Insufficient Final Record Drawings as determined by either the ECUA Project Inspector or ECUA Project Engineer will delay ECUA payments on CIP projects, and will delay Final Acceptance on System Extension Projects.

PART 5: Miscellaneous

5.1 On CIP projects, ECUA's Standard General Conditions require Record Drawings to be submitted with each monthly pay request. ECUA Project Engineer may waive this requirement based on project needs.

5.2 Occasionally, portions of partially completed projects may be required to be placed into service prior to project's end. As part of the Certification of Completion of Construction for these portions, Contractor shall submit draft As-Builts prior to placing any mains into service.