

ADDENDUM NO. 6

City of Chattanooga
Moccasin Bend WWTP Secondary Clarifier Upgrades
Contract No. W-14-006-201
For Bids Due: September 1, 2016, 2:00 pm (Addendum No. 3)

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ADDENDUM INSTRUCTIONS

Contractors submitting Proposals for the above-named Project shall take note of the following changes, additions, deletions, clarifications, etc. in the Contract Documents, which shall become a part of and have precedence over anything contrarily shown or described in the Contract Documents, and all such shall be taken into consideration and be included in the Contractor's Bid Proposal. Where changes, additions, deletions, clarifications, etc. are made to portions of an article, paragraph, or subparagraph, the unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect.

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED BY ENTRY OF THE ADDENDUM NUMBER IN THE REQUISITE SPACE ON THE BID FORM. FAILURE OF A BIDDER TO ACKNOWLEDGE THIS ADDENDUM MAY CAUSE THE BID TO BE REJECTED AS INCOMPLETE.

CHANGES TO SPECIFICATIONS AND CONTRACT DOCUMENTS

1. SECTION 001116 – ADVERTISEMENT FOR BIDS
 - A. Clarification from Addendum No. 1: Bid opening will be at City Hall, Purchasing Department, Suite G13, 101 East 11th Street, Chattanooga, TN as stated in the original Bid Documents.
2. SECTION 002113 – INSTRUCTIONS TO BIDDERS
 - A. Article 7.01: Delete “Questions received less than ten days prior to the date for opening of Bids may not be answered.” Replace with “Questions received after August 25, 2016 5:00 pm EST may not be answered. Final responses to questions received will be posted via Addendum by August 29, 2016, 5:00 pm EST.”
 - B. Article 15.01.G: Delete this paragraph and re-letter subsequent paragraphs.
3. SECTION 01010 – SUMMARY OF WORK
 - A. Paragraph 1.07.B: First sentence, change “8” to “10”.
4. SECTION 01520 – MAINTENANCE OF UTILITY OPERATIONS DURING CONSTRUCTION
 - A. Paragraph 1.03.A.1: Delete second sentence and replace with the following: “Parking for personal vehicles of construction personnel shall be allowed within the fence of the treatment plant where permitted by Owner and Engineer.”
5. SECTION 01025 – MEASUREMENT AND PAYMENT
 - A. Paragraph 1.11.F.3: In last sentence change “concrete” to “reinforcing”.

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6. SECTION 02510 – PAVING AND SURFACING
 - A. Paragraph 2.04, A: Add “Mineral Aggregate Base shall be compacted 303-01” before Type “A”. Add “Grade “D”” and delete “or “B”” between Type “A” and aggregate.
 - B. Paragraph 2.05.A: Replace “FOR PLANT MIX” with “(BASE COURSE)” in paragraph title. Replace “620, Asphalt Binder for Plant Mix” with “307 Bituminous Plant Mix Base (Hot Mix)”. Delete “407.19 and 407.20” and replace with “307.08 and 307.09”. Add sentence at the end of the paragraph “Asphaltic Concrete Binder shall be Grading B.”
 - C. Paragraph 2.06.A: Replace “ASPHALT PAVEMENTS” with “ASPHALT SURFACE PAVEMENT” in paragraph title. Replace “610, Asphalt Concrete Plant Mix Pavements” with “Section 411 Asphaltic Concrete Surface (Hot Mix)”. Delete second sentence “Surface Course shall be Superpave S-9.5B, Intermediate Course shall be Superpave I-19.0B, and Base Course shall be Superpave B-25.0C.” Add sentence at the end of the paragraph “Asphaltic Concrete Surface shall be Grading E”.
 - D. Paragraph 3.04.A: Replace “ASPHALT BASE COURSE OR INTERMEDIATE COURSE” with “ASPHALT BINDER (BASE COURSE)” in paragraph title. Delete paragraph in its entirety and replace with “Asphalt Binder shall be placed in accordance with TDOT Section 307. Thicknesses shall be as shown on the Drawings.”
 - E. Paragraph 3.09.A. Second sentence, replace “one-on-one-“ with “one-to-one”.
7. SECTION 11103 –SEAL-LESS MAGNETIC DRIVE CENTRIFUGAL PUMPS
 - A. Attachment. Delete Section 11103 in its entirety and replace with Section 11103 attached to this Addendum.
8. SECTION 11122 - PROGRESSING CAVITY PUMPS
 - A. Paragraph 1.02. In the table, for Maximum Pump Speed at Capacity (rpm), replace “260” with “330”.
9. SECTION 11130 – SUBMERSIBLE NON-CLOG PUMPS
 - A. Paragraph 2.01.A: Add “, no substitutions” at the end of the sentence.
10. SECTION 11131 – DRY-PIT SUBMERSIBLE NON-CLOG PUMPS
 - A. Paragraph 2.01.A: Add “, no substitutions” at the end of the sentence.
11. SECTION 11460 – SECONDARY CLARIFIER EQUIPMENT

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- A. Paragraph 2.01.C: Add “, no substitutions” at the end of the sentence.
- 12. SECTION 13207 – POLYETHYLENE STORAGE TANKS
 - A. Paragraph 1.02: Under “Connection Openings” add “10) Calibration Column/PRV Vent Connection, 3”*“.
 - B. Paragraph 2.01.A: Delete “or equal”, replace with “, no substitutions” at the end of the sentence.
 - C. Paragraph 2.02.A. Add the following to the end of the paragraph: “Tanks and anchorage system shall be designed to resist wind and seismic load as specified and as indicated on the Drawings.”
- 13. SECTION 15100 – VALVE OPERATORS AND ELECTRIC VALVE ACTUATORS
 - A. Paragraph 2.03.A.1: Add “, no substitutions” at the end of the sentence.
 - B. Paragraph 2.03.A.2: Add “, no substitutions” at the end of the sentence.
 - C. Paragraph 2.04.C: Add “, no substitutions” at the end of the sentence.
- 14. SECTION 15200 – GATE OPERATORS AND ELECTRIC GATE ACTUATORS
 - A. Paragraph 2.03.A.1: Add “, no substitutions” at the end of the sentence.
 - B. Paragraph 2.03.A.2: Add “, no substitutions” at the end of the sentence.
- 15. SECTION 15734 - PRECISION CONTROL AC UNITS
 - A. Paragraph 2.01.A: Add item 4: “no substitutions”
- 16. SECTION 16482 – MOTOR CONTROL CENTERS
 - A. Paragraph 2.01.C. Delete paragraph in its entirety and replace with the following: “Where existing motor control centers are to be modified, motor control centers components shall be the same make as the existing motor control center and compatible with the existing model. Where new motor control centers are to be installed, motor control centers shall be Freedom 2100 as manufactured by Cutler-Hammer using NEMA rated Freedom Series contactors and starters, Model 6 as manufactured by the Square D Company, Centerline 2100 as manufactured by Allen-Bradley, or Tiastar as manufactured by Siemens Energy and Automation Inc, no substitutions.”

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CHANGES TO THE CONTRACT DRAWINGS

1. DRAWING C10
 - A. Reference Grid B2: Add call out “SEE NOTE 15” pointing to south east corner of Diversion Box.
 - B. Add Note 15: “PRESERVE ADEQUATE LENGTH OF SBS PIPE FOR TIE-IN OF NEW PIPE. REPLACE SBS PIPE INTO DIVERSION BOX USING EXISTING PENETRATION IF PIPE IS DAMAGED OR BRITTLE.”
 - C. Note 4: Delete “,EXISTING PAVEMENT LOCATED IN THE AREA DESIGNATED TO RECEIVE NEW PAVEMENT SHALL BE MILLED FROM CURB TO CURB OR TO NEAREST SAW CUT LINE DEPENDING ON LOCATION. ONLY REMOVE CURB AND GUTTER DAMAGED WITHIN CONSTRUCTION AREA”.
2. DRAWING C11
 - A. Note 4: Delete “,EXISTING PAVEMENT LOCATED IN THE AREA DESIGNATED TO RECEIVE NEW PAVEMENT SHALL BE MILLED FROM CURB TO CURB OR TO NEAREST SAW CUT LINE DEPENDING ON LOCATION. ONLY REMOVE CURB AND GUTTER DAMAGED WITHIN CONSTRUCTION AREA”.
3. DRAWING C21
 - A. Delete Note 2 text in its entirety and replace with “NOT USED”.
4. DRAWING C23
 - A. Delete the following points from the Staking Table: 13, 19, 37, 39, and 40.
5. DRAWING C30
 - A. Modify vault locations and piping alignment as shown in Attachment A6C30A and A6C30B of this Addendum.
 - B. Note 13. Add the following to the end of the note: “INVERT ELEV AT SOUTH END APPROX 651.02 AND AT NORTH END APPROX 649.87.”

6. DRAWING C33

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- A. Delete Northing and Eastings on SHS Vaults.
 - B. Add Note 1: "SBS AND SHS VAULTS QUANTITY, SPACING, AND LOCATION SHOWN ON THE PLANS ARE APPROXIMATE. CHEMICAL FEED SYSTEM CASING PIPE ALIGNMENT SHOWN IS APPROXIMATE AND IS TO BE FIELD LOCATED. FINAL INSTALLATION OF THE VAULTS ARE BASED ON ALIGNMENT OF CASING PIPE. COORDINATE MAXIMUM DISTANCE BETWEEN PULL BOXES WITH TUBING REQUIREMENTS IN SECTION 15008. CASING PIPE RUNS BETWEEN VAULTS ARE TO BE STRAIGHT WITHOUT FITTINGS, TO FACILITATE THE PULLING OF TUBING."
 - C. Shift southernmost vault south to closest bend to replace bend fitting.
7. DRAWING M770
- A. Change Diameter of all 2" SBS Fill Piping and valves to 3" downstream of 2" quick connect to tank connection (all piping becomes 3" diameter except 2" quick connect remains).
 - B. Change Diameter of all 2-1/2" SBS Transfer Pump Piping to 3".
 - C. Add Note 11: "PROVIDE INCREASERS AND REDUCERS AS NECESSARY TO CONNECT PIPING TO TRANSFER PUMP IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS."
8. DRAWING M771
- A. Detail 2: Upsize drain connection from 2" to 4". Upsize valve from 2" to 4". Remove 4"x2" Reducer.
 - B. All Sections: Change Diameter of all 2" SBS Fill Piping and valves to 3" downstream of 2" quick connect to tank connection (all piping becomes 3" diameter except 2" quick connect remains).
 - C. All Sections: Change Diameter of all 2-1/2" SBS Transfer Pump Piping to 3".
9. DRAWING M772

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- A. Add Note 4: “SBS AND SHS VAULTS QUANTITY, SPACING, AND LOCATION SHOWN ON THE PLANS ARE APPROXIMATE. CHEMICAL FEED SYSTEM CASING PIPE ALIGNMENT SHOWN IS APPROXIMATE AND IS TO BE FIELD LOCATED. FINAL INSTALLATION OF THE VAULTS ARE BASED ON ALIGNMENT OF CASING PIPE. COORDINATE MAXIMUM DISTANCE BETWEEN PULL BOXES WITH TUBING REQUIREMENTS IN SECTION 15008. CASING PIPE RUNS BETWEEN VAULTS ARE TO BE STRAIGHT WITHOUT FITTINGS, TO FACILITATE THE PULLING OF TUBING.”
 - B. Plan View: Add Note 2: FOR VALUT LOCATIONS REQUIREING TWO CASING PIPES USING ONE VAULT, SPACE PENETRATIONS IN WALL EVENLY.
10. DRAWING H02
- A. PRECISION CONTROL AIR CONDITIONING UNIT SCHEDULE: In the Notes column, delete “1 & 2” and replace with “1, 2 & 3”.
11. DRAWING I770
- A. Change Diameter of all 2” SBS Fill Piping and valves to 3” downstream of 2” quick connect to tank connection (all piping becomes 3” diameter except 2” quick connect remains).
 - B. Change Diameter of all 2-1/2” SBS Transfer Pump Piping to 3”.
12. DRAWING D22
- A. Add Standard Detail 1765002 attached to this Addendum.

QUESTIONS BY CONTRACTORS

The following questions have been posed by potential bidders for this project. The clarifications are provided for information only and are not made part of the Contract Documents. Where necessary, modifications to the Contract Documents have been made by addenda.

1. QUESTION: Please reference Plan Sheet C30 and specifically existing 30” Storm Drain line (DP03) that runs along the west side of the new Chlorine Contact Tank No. 7. Please provide invert elevations for (DP03) 30” SD, in order that a temporary rerouting plan or

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flow diversion plan can be developed. The line will have to be removed during construction of the Chlorine Contact tank. .

CLARIFICATION: Clarifications regarding invert elevations for 30" SD are included in this Addendum.

2. QUESTION: Please reference Plan Sheet C30 and the reconfiguration of the 54" FE effluent line from the existing Chlorine Contact Tank No. 5 and discussed in Note No.6. This existing Pipe is PCCP (as shown in record dwgs. 2007 set drawing no. W509), and it appears the reconfiguration is attempting to be made with Ductile Iron pipe. Rather than reconfiguring this line by replacing a 90 degree bend with (2) two 45 degree bends we are proposing that the SBS Vault be relocated to the west on the south end of the new Chlorine Contact Tank No. 7 and the existing 54" PCCP pipe configuration remain as is. The 54" FE 90 degree bend would need to be shored/supported when constructing the new Chlorine Contact basin No. 7. Please review and confirm if this is acceptable.

CLARIFICATION: Alternate piping layouts/configurations can be considered during construction.

3. QUESTION: Referencing Plan Sheet H02, within the Precision Control Air Conditioning Unit Schedule, Note 3 instructs to "Provide extreme duty and coastal environmental packages. Provide protective Heresite coil coatings." However, Note 3 is not selected within the Schedule for unit RAS-AC-1. Contrary to this, within Specification Section 15734 Part 2.02 B, coils are specified to receive either a polyurethane or Heresite coating. Additional, per Part 2.02 K of the same specification, the condenser fan cycling control is supposed to allow the unit to operate down to -20°F, which would be the extreme duty package on Marvair units. Please advise whether the Specification or the Equipment Schedule is to be followed. If the Specification rules, please provide a revised Schedule that indicates Note 3 is required.

CLARIFICATION: Clarification regarding coatings is included in this Addendum.

4. QUESTION: Please reference Plan Sheet C30. Please confirm that the two eastern-most vaults illustrated on this sheet, also labeled "SBS Vaults", will in reality contain SHS piping.

CLARIFICATION: Confirmed. Labeling revisions for these two vaults is included in this Addendum.

5. QUESTION: Please reference Plan Sheet C30 where the SBS line appears to terminate in the existing Outfall Diversion Box. No details have been provided that show this

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termination. Please provide the pertinent information showing entry points, elevations, end connections, etc.

CLARIFICATION: New SBS pipe will be connected to existing SBS pipe just outside of Diversion Box as shown in attachments to this Addendum.

6. QUESTION: Referencing Plan Sheet C31, Note 1 indicates new gates are to be installed within the Mixed Liquor Channel “as specified” where the new 36” piping connects. SG-5005 and SG-5006 are included in the Slide Gate Schedule, however, no plans have been provided to show this equipment. Please advise if these are the new gates to be provided at the above mentioned location and provide pertinent details.

CLARIFICATION: Information related to this question was provided in Addendum No. 5.

7. QUESTION: Plan Sheet M504 labels Standard Detail 1765002 as being typical of each discharge pipe directly downstream of the flow meters. Please provide this Standard Detail.

CLARIFICATION: Detail 1765002 is included as an attachment to this Addendum.

8. QUESTION: Specification Section 02510 Subsection 3.04 Paragraph A states, “in accordance with NCDOT Standard Specifications for Roads and Structures 610-8.” Subsections 2.05 and 2.06 also reference Section 610 and 620 which also appear to correspond to NCDOT specifications rather than TDOT. Please provide the appropriate TDOT Specification Section.

CLARIFICATION: Changes to paving specifications are included in this Addendum.

9. QUESTION: Please reference Note 4 on Plan Sheet C10, regarding requirements for existing pavement replacement. Similar notes are also provided on Plan Sheets C11 & C20. It is our understanding that in all designated areas, other than where noted on Plan Sheet C22, the existing pavement and curbs are to be completely removed and replaced with new full-depth pavement and curbs; however, Note 4 on Sheet C10 also includes direction for milling existing pavement in areas designated to receive new pavement. The only area of the existing pavement we have found, specifically designated to be milled and replaced is referenced on Sheet C22. Therefore, even though the directive to mill and overlay existing pavement is noted on multiple plan sheets, it appears to only apply to the specific area noted on Sheet C22 and all other designated areas will be completely removed and replaced. Please review and confirm if this is the intent..

CLARIFICATION: Type of pavement replacement has been clarified in this Addendum.

10. QUESTION: Is there a specific size for electrical manholes and hand holes?

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CLARIFICATION: Dimensions are shown in Detail 1611802 and are as required by NEC as specified.

11. QUESTION: Sheet E08 Conduit schedule C-1007, 1011, 1012, 1014 indicates the conductors are Telephone. Can you provide more information? Size, type, and number of conductors.

CLARIFICATION: Refer to Section 17180.2.05 for communication cable specifications.

12. QUESTION: Sheet E08 Conduit number P-1001, 1002, 1004, 1005 Duct bank 24. Please verify line A and B both have double conductors. That will be 6---5" conduits at pole 14A and 15A. Plus 1--3" and 1---2".

CLARIFICATION: Double conductors confirmed as shown on the Drawings.

13. QUESTION: Section 00 41 00 Bid Form, Item 2 is for Temporary Bypass Pumping OR Piping. a) Please clarify whether prices should be provided on the Bid Form for both Pumping and Piping. b) If pricing for both temporary Pumping and Piping should be included, please clarify whether the Bid Total (Items 1-4) should include the cost for both temporary Pumping and Piping.

CLARIFICATION: No – refer to Section 01025 for description of Bid Form items, and refer to Sections 01460 and 01461 for additional information.

14. QUESTION: Drawing C31, Note 1 says to "install new gates in channel as specified". Section 01520 Maintenance of Utility Operations During Construction, Article 1.04.A.3.e says to "provide submersible or other means to install new gates at connections of ML piping". a) Please confirm only two new gates are required. b) Please provide a plan and section view of the new gate installation.

CLARIFICATION: Confirmed. Additional information for these gates was included in Addendum No. 5.

15. QUESTION: Section 01025 Measurement and Payment, Article 1.11.F.3 describes the unit price for additional concrete reinforcing steel. The last sentence of this paragraph indicates that the price will be for "providing all additional concrete." Please confirm this unit price is for reinforcing steel only and additional concrete work will be paid for by a separate unit price.

CLARIFICATION: Clarification for Section 01025 is included in this Addendum.

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16. QUESTION: Drawing C21, Note 2 specifies a new gravel road but Note 2 is not referenced on this drawing. The new driveway leading to the RAS Pump Station includes a reference to Detail 0251000 for an asphalt paved road. Please clarify whether the access drive for the RAS Pump Station should be gravel per Note 2 or paved per Detail 0251000 on Drawing D04.

CLARIFICATION: Clarification for Note 2 is included in this Addendum.

17. QUESTION: The location of the existing Dechlorination Facility is indicated on Drawing C10 will need to be removed for construction of the new Chlorine Contact Tank. Can you provide as-built drawings for the existing dechlorination facilities?

CLARIFICATION: The record drawings available for the existing dechlorination facilities were provided for reference with the Bid Documents. Additional information can be obtained by visiting the site.

18. QUESTION: Refer to Addendum 5, Item 2 revision to Section 00 21 13 Instructions to Bidders. The form Request for Bidder Information (Section 00 21 14, this form) is now included in the list of items required to be submitted with the bid. Please clarify the purpose for including this form with the bid.

CLARIFICATION: Clarification for Section 00 21 13 is included in this Addendum.

19. QUESTION: Drawing 1770 - There is a two inch (2") line routed to the dome of each tank with an isolation valve. This line appears to serve as a vent for the peristaltic hose pump calibration columns as well as their pressure relief valves return line. This connection is not noted in the connection list of specification section 13207 1.02. Please clarify.

CLARIFICATION: Tank connection has been clarified by changes included in this Addendum.

20. QUESTION: Note that there is an additional dome mounted two inch (2") line shown on Drawing 1770 that is fitted with the symbol for a relief valve though it may be a vacuum breaker ... This appears to be a tank fill connection. Specification section 13207 calls for the fill line to be a three inch (3") connection. Please clarify.

CLARIFICATION: Some piping sizes have been changed as noted in this Addendum. Please also see asterisk note in Section 13207.1.02, "Provide increasers/reducers or other fittings as necessary to connect piping to tank connections specified here."

21. QUESTION: Drawing 1770 shows a two and one-half inch (2-1/2") dome mounted connection from the chemical transfer pump (TP-7730), but the specification calls for a

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three inch (3") connection under 1.02 2). Please clarify. Note: Tank fittings are not available in 1/2 inch (1/2") increments above one and one-half inch size (1-1/2"). (No 2-1/2" in other words).

CLARIFICATION: Piping sizes have been changed as noted in this Addendum.

22. QUESTION: Specification 13207 1.02 4) calls for a four inch (4") metering pump suction manifold fitting, but Drawings 1770, M770 and M771 show these connections to be two inch (2") in size. Please clarify.

CLARIFICATION: Correct – manifold is 4" and pump connections are 2".

23. QUESTION: The tank overflow and drain connection are both specified to be four inch (4") fittings and are shown in Drawing 1770 as such. Drawing M771 (Detail 2) shows the drain connection to be a two inch (2") connection. Please clarify.

CLARIFICATION: Drain piping has been changed as indicated in this Addendum.

24. QUESTION: Section 01350 provides the seismic anchorage requirements referenced in section 13207 2.03 K., are SBS tanks subject to wind loading? Please clarify the restraint requirements.

CLARIFICATION: Yes, wind loading has been clarified through changes included in this Addendum.

25. QUESTION: Please reference Plan Sheet C35 and Specifications 01460 & 01461, specifically as they pertain to the interface with the existing Equalization Basins (EQ Basins). Whether the temporary bypass pumping or temporary bypass piping option is selected, there will be a need to install temporary piping in the existing north EQ Basin, either the 72" temporary discharge structure overflow or the temporary bypass pump suction lines. In order to avoid damage to the existing submerged aeration equipment, please confirm that the Owner will drain the north EQ Basin, for a sufficient period of time to allow this work to be completed without damaging the existing aeration equipment.

CLARIFICATION: The EQ Basin will not be fully drained. Diffuser location is apparent from the surface during operation and record drawings provided with the Bid Documents as reference contain information about the existing aeration system.

26. QUESTION: Specification Section 01520, 1.03, A.1 advises that "Parking for personal vehicles for construction personnel shall not be allowed within the fence of the treatment plant." This appears to differ from Specification Section 01550, 1.01, B.1. Please clarify.

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CLARIFICATION: Parking at the site has been clarified through changes included in this Addendum.

27. QUESTION: Please to confirm the Bid Opening location will be Chattanooga City Hall, Purchasing Department, 101 E. 11th Street, Suite G13 as the wording of related items included in Addenda 1 & 2 left us a little confused..

CLARIFICATION: Bid Opening location has been clarified in this Addendum.

28. QUESTION: The Instructions to Bidders, Specification Section 002113, Article 15.01 could be interpreted to mean that the Bidder is required to submit one original and two copies of "all documents", including the Bid Form and Bid Bond, with the bid. Please confirm.

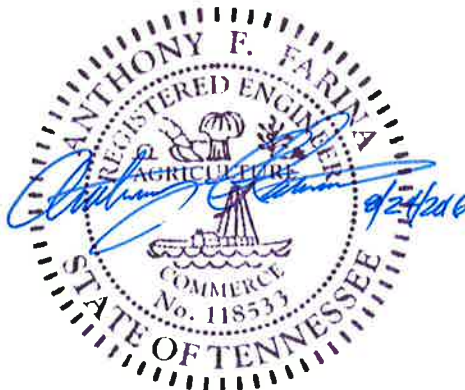
CLARIFICATION: As specified in Section 00 21 13, "The Bidder shall submit one original and two copies of all documents in the envelope."

29. QUESTION: Section 00700, Article 6.02, C, indicates that the contractor shall establish regular work times, e.g., four 10-hour days, five 8-hour days, etc.. Section 01010, Article 1.07, B, states that the normal time of work is limited to a 40-hour week, 8 hours per day, Monday through Friday. We, along with many other contractors, attempt to work a 10-hour day, 4 days a week (typically Monday through Thursday). This allows for a "make-up" day on Friday, if adverse weather conditions shutdown or severely hamper construction operations during the normal 4-day work week. This flexibility helps to assure that the project progresses more consistently when adverse weather occurs. Please confirm that it will be acceptable for the contractor on this project to work a four 10-hour day work week, without being charged extra for Owner/Engineer/RPR related overtime costs.

CLARIFICATION: Work hours have been clarified by changes included in this Addendum.

++ END OF ADDENDUM ++

ISSUED: August 24, 2016



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ADDENDUM ATTACHMENTS

SECTION 11103SEAL-LESS MAGNETIC DRIVE CENTRIFUGAL PUMPSPART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish, install, test and place in operation all chemical transfer pumps and accessories for the transfer of chemicals between bulk storage tanks.
- B. All chemical transfer pumps shall be supplied by the same manufacturer.
- C. Operating Requirements for the pumps shall be as shown in Table 1. Specified performance is at the specific gravity noted.

| Table 1 – Pump Schedule | |
|----------------------------------|---|
| Location: | Dechlorination Facility |
| Service: | Sodium Bisulfite (38% Trade Concentration) |
| Specific Gravity | 1.32 |
| pH | 4-5 |
| Viscosity | 3.0 centistokes |
| Freezing Point | 43 degrees F |
| No. of Pumps: | 1 installed and 1 shelf spare |
| Equipment Tag Nos.: | TP-7730 |
| Chemical Working Temp.: | 90° F |
| Casing Material | PVDF ⁽¹⁾ |
| O-ring Material | Viton ⁽¹⁾ |
| Bearing Material | PTFE ⁽¹⁾ |
| Duty Point 1 | 80 gpm @ 29.6 feet TDH (feet of H ₂ O) |
| Duty Point 2 | 100 gpm @ 9.9 feet TDH (feet of H ₂ O) |
| Minimum Shutoff Head (ft) | 37.5 |
| Max. Horsepower (hp): | 4 |
| Max. Pump Speed (rpm): | 1750 |
| Available NPSH (ft): | 33 |
| Suction Size (in): | 2 |
| Discharge Size (in): | 2 |
| Area Electrical Class: | Unclassified |

(1) Pump manufacturer to ensure materials are acceptable for chemical at concentration indicated.

- D. Pumps shall be single stage, end suction close coupled, leak proof, and of the seal-less magnetic drive design.

- E. A shelf spare pump identical to the installed pump shall be provided to the Owner.
- F. Installed pump shall be provided with a Type 316 stainless steel baseplate from the pump manufacturer, fabricated specifically for the installed pump.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300 – Submittals
- B. Section 01600 – Materials and Equipment
- C. Section 11000 – Equipment General Provisions
- D. Section 11100 – Pumps, General
- E. Section 09900 – Painting
- F. Division 16 - Electrical
- G. Division 17 - Instrumentation

1.03 SUBMITTALS

- A. The following items shall be submitted with the Shop Drawings in accordance with, or in addition to the submittal requirements specified in Section 01300 and Section 11000:
 - 1. Performance Affidavit
 - 2. Furnish certified pump characteristic curves, based on pumping clear water, showing the capacity, efficiency and brake horsepower for each pump furnished, and for maximum and minimum speeds where applicable. Density and temperature correction calculations must also be submitted. Curves shall be derived from shop tests performed by the manufacturer in accordance with the standards of the Hydraulic Institute.
- B. Operation and maintenance manuals shall be provided in accordance with Sections 01300 and 11000 of these Specifications.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. The pumps shall be manufactured by Finish Thompson, Inc., IWAKI America Corp, or equal.

2.02 PUMP CONSTRUCTION AND DESIGN

- A. Pumps shall be magnetic drive type, closed impeller design, flanged suction and discharge connections, and close-coupled drivers. Pumps shall conform to the requirements of Table 1.
- B. Pumps shall comply with applicable sections of Hydraulic Institute, the latest NEMA, and IEEE Standards unless otherwise noted.
- C. Pumps, drivers and accessories shall be suitable for continuous operation at the specified operating conditions, and at flows ranging from the specified minimum flow to end of curve conditions.
- D. Required Net Positive Suction Head (NPSHr) shall be based on the pumped fluid described in Table 1 of this Section. Available NPSHa shall exceed required NPSHr by a minimum of two feet.
- F. Any electrical drives or accessories shall be suitable for the specified electrical area classification and the environment of the installation. Equipment and accessories shall be designed for weather resistance in accordance with the NEMA 4X standard.
- G. Pumps shall require no water flushing or external oiling for any components.
- H. Pump casing shall be vertically split with back pull-out arrangement to maintain the impeller without disconnection of piping.
- I. The drive magnet shall be completely isolated from the pumped fluid.

2.03 DRIVE MOTOR

- A. Electric motors shall conform to Section 15170. The pump motor shall be designed for the area classification indicated in Table 1. Power supply will be three phase, 480 volt, 60 Hz power. Motor enclosures shall be rated TEFC “chemical duty”.
- B. Driver nameplate horsepower, not including the service factor, shall be equal to, or exceed the required pump horsepower over the entire performance curve for the design impeller.
- C. All magnetic drives shall have torque ratings greater than or equal to the maximum motor torque the drive is rated for. Drive shall not “decouple” at any point on the pump operating curve.

2.04 TOOLS AND SPARE PARTS

- A. The manufacturer shall provide impeller shaft and bushing and o-ring gaskets for a complete pump rebuild for each pump model supplied.

PART 3 -- EXECUTION**3.01 INSTALLATION**

- A. Contractor shall install pumps according to manufacturer's recommendations and as shown on the Drawings.
- B. General installation requirements shall be as specified in Sections 11000 and 11100 of these Specifications.

3.02 SHIPPING AND HANDLING

- A. Shipping and handling requirements shall be as specified in Section 11000 of these Specifications.

3.03 PUMP TESTS

- A. Pump tests shall be in accordance with Section 11100.
- B. The Contractor shall conduct field tests in accordance with Section 11100 to demonstrate that pumps meet capacities and operating characteristics specified.

3.04 MANUFACTURER'S SERVICES

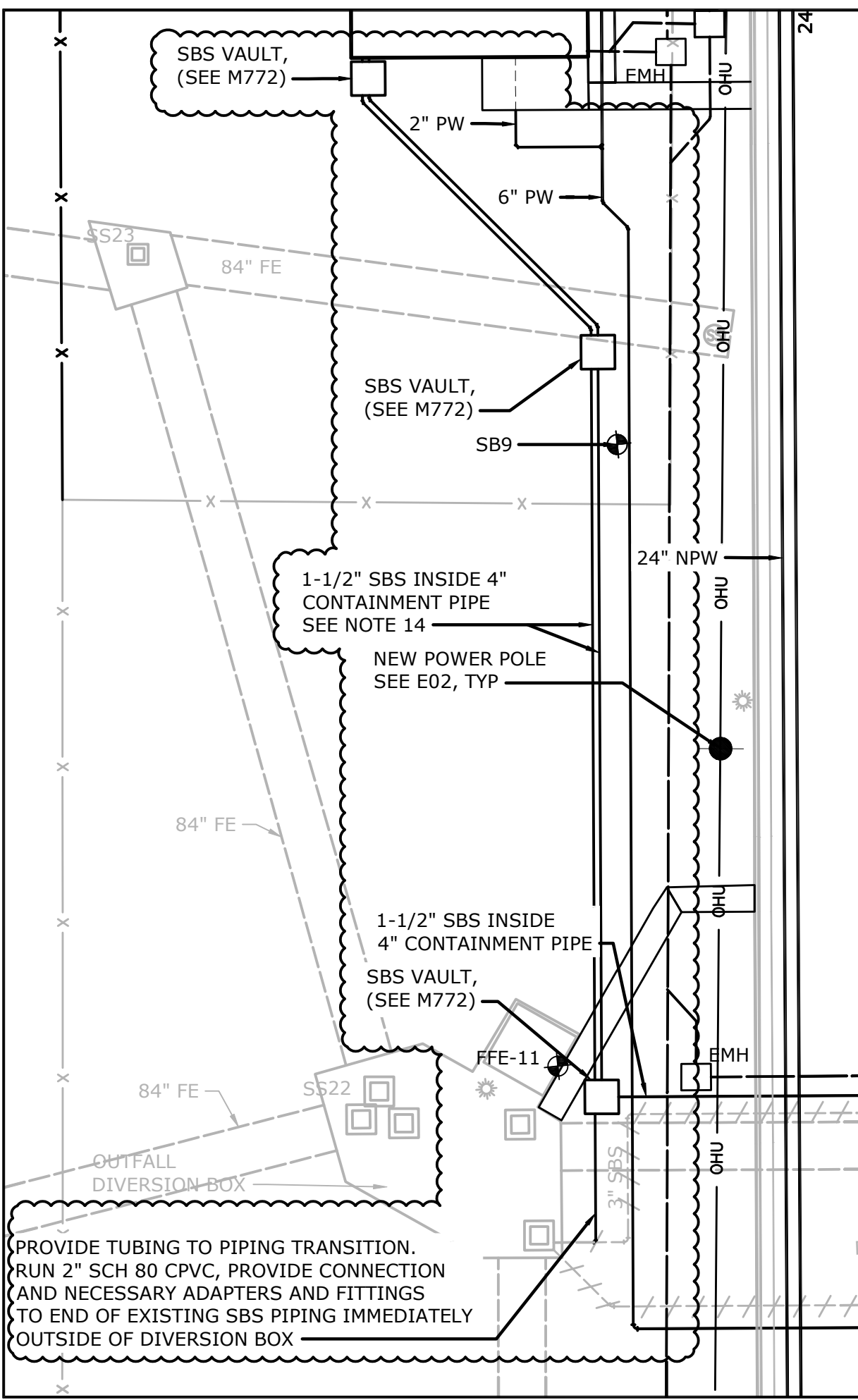
- A. The services of a factory-employed technical representative shall be provided in accordance with Section 11000. For each series of pumps, field services shall include the following site visits:

| Service | Number of Trips | Number of Days/Trip |
|---|------------------------|----------------------------|
| Installation, Startup, Testing and Training | 1 | 2 |

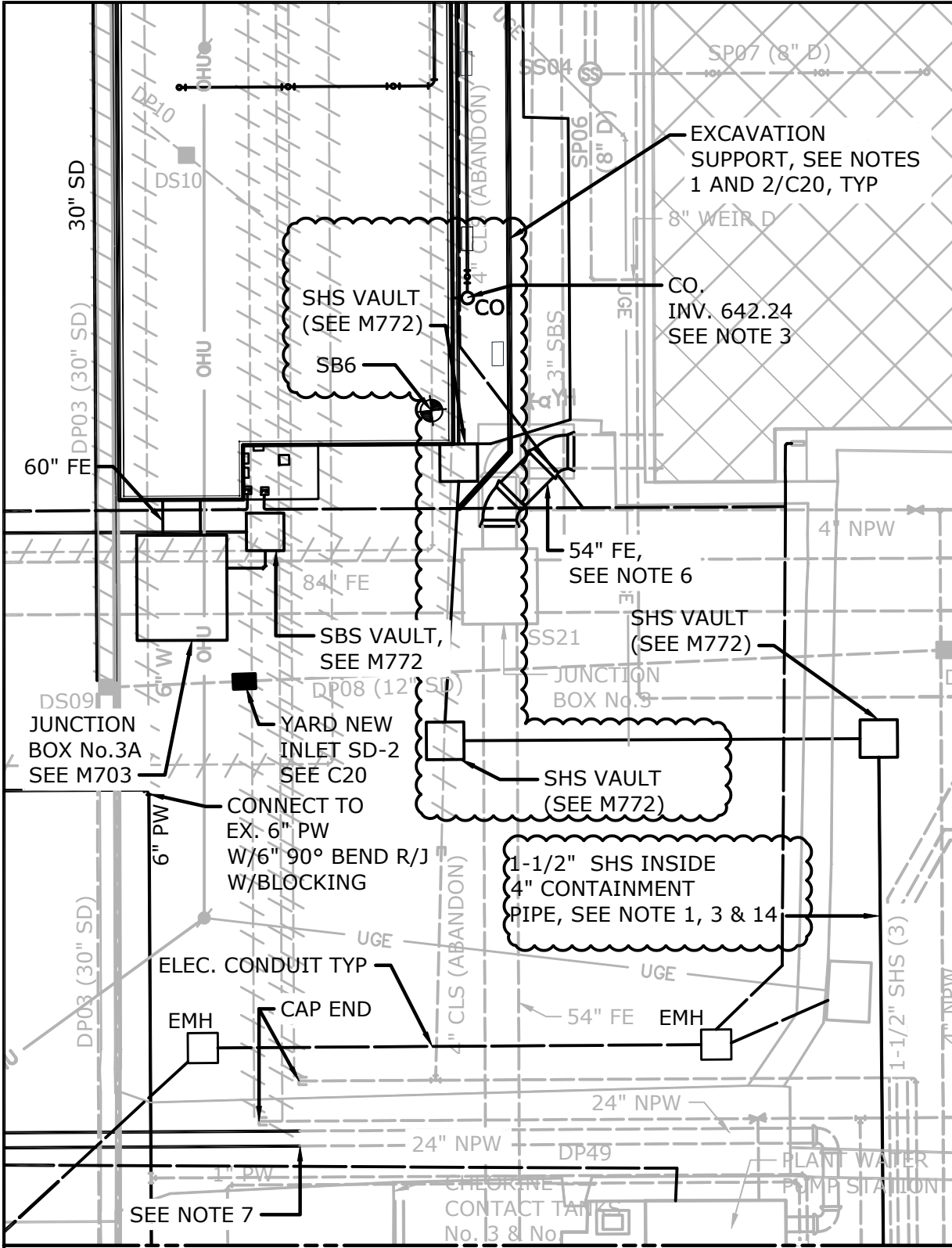
- END OF SECTION -

Secondary Clarifier meeting

| Name | Company | email |
|------------------|----------------------|--------------------------------|
| Kadir Anwar | City | Kanwar@chattanooga.gov |
| MICHAEL OWEN | WHITE ELEC | MOWEN@WHITE-ELECTRICAL.COM |
| NATHAN SHILTS | WHITE ELEC. | SHILTS6266@GMAIL.COM |
| Scott Saleski | Service Electric Co. | ssaleski@serviceelectricco.com |
| Darren DeSautell | Rain For Rent | ddesautell@rainforrent.com |
| Brett Stitt | Rain for Rent | bstitt@rainforrent.com |
| Don Myers | BD | dmy@3dky.com |
| Greg Brown | Service one inc | gbrown@slinc.co. |
| Robbie Bearden | Tri State Elec | robbieb@tristateec.co |
| Scott Morton | TRI STATE ELEC | SCOTTM@TRISTATEEC.COM |
| MIKE POWERS | CROWDER CONSTR Co. | MPOWERS@CROWDER CC.COM |
| RANDY TAYLOR | CITY | |
| DENNIS MALONE | CITY | |
| ALAN MARTIN | CITY | |

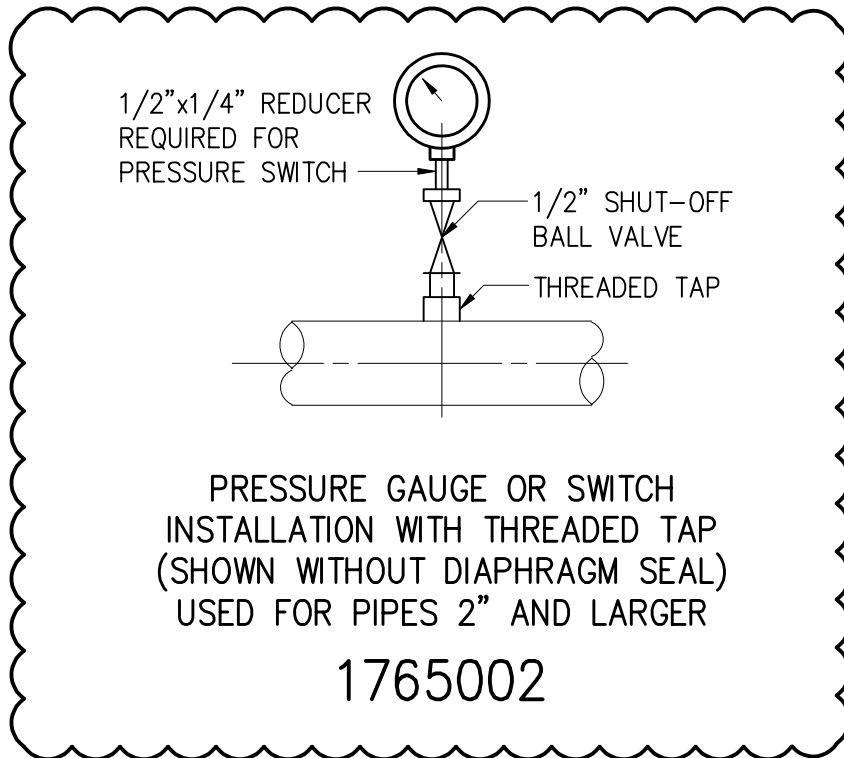


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|-------------------------|-----------------|--|--|------------------------------------|--|
| ADDENDUM NO. 6 | DATE 8/22/16 | CITY OF CHATTANOOGA, TN CONSENT DECREE PROGRAM | | HAZEN JOB NUMBER 50037-003 | REFER TO CONTRACT DRAWING NUMBER C30 |
| ATTACHMENT NO. A630A | BY RWW | SECONDARY CLARIFIER UPGRADES MOCCASIN BEND WASTEWATER TREATMENT PLANT | | CONTRACT NUMBER W-14-006-201 | SHEET 1 OF 2 |



MATCH LINE - SEE DWG. C33

| | | | | |
|-------------------------|-----------------|--|------------------------------------|--|
| ADDENDUM NO. 6 | DATE 8/22/16 | CITY OF CHATTANOOGA, TN CONSENT DECREE PROGRAM | HAZEN JOB NUMBER 50037-003 | REFER TO CONTRACT DRAWING NUMBER C30 |
| ATTACHMENT NO. A630B | BY RWW | SECONDARY CLARIFIER UPGRADES MOCCASIN BEND WASTEWATER TREATMENT PLANT | CONTRACT NUMBER W-14-006-201 | SHEET 2 OF 2 |



| | | | | |
|--------------------------|-----------------|--|------------------------------------|--|
| ADDENDUM NO. 6 | DATE 8/23/16 | CITY OF CHATTANOOGA, TN CONSENT DECREE PROGRAM | HAZEN JOB NUMBER 50037-003 | REFER TO CONTRACT DRAWING NUMBER D22 |
| ATTACHMENT NO. A6D22A | BY RWW | SECONDARY CLARIFIER UPGRADES MOCCASIN BEND WASTEWATER TREATMENT PLANT | CONTRACT NUMBER W-14-006-201 | SHEET 1 OF 1 |