

**CITY OF WELLSBURG  
BROOKE COUNTY, WEST VIRGINIA**

**CONTRACT #1 MAIN ST., CHARLES ST., AND COMMERCE ST. WATERLINE  
REPLACEMENT PLAN**

**ADDENDUM #3**

**MARCH 19, 2021**

**THRASHER PROJECT #101-010-1117**

TO WHOM IT MAY CONCERN:

The following are clarifications and responses to questions posed by Contractors for the above-referenced project.

**A. GENERAL**

1. Under Section C-430, Bid Form,
  - a. Item #22 quantity was revised from three to one.
  - b. Item #23 quantity was revised from five to three.
  - c. Item #24 was revised from 10"x8" Hot Tap to 8" Hot Tap.
  - d. Item #25 was revised from 10" Hot Tap to 10"x8" Hot Tap.
  - e. Item #27 Maintenance of Traffic was added.

**B. SPECIFICATIONS**

1. Under Section 012000 – Price and Payment Procedure, Part 1.6.F Unit Price Schedule. Item # 27 Maintenance of Traffic was added.
2. Added Section 331213 – Water Service Connections.

**C. DRAWINGS**

1. Plan Sheet 13, Interconnection detail #12, removed the extra gate valve.
2. Plan Sheet 15, Interconnection detail #19, revised to correctly show a 6" x 6" Hot Tap and not 6" x 8".

## **D. QUESTIONS AND RESPONSES**

### **QUESTION**

1. Note 2 on the plan sheets state “abandoned rail road lines are buried beneath Charles and Commerce Streets in the vicinity of the existing and proposed water mains”. This could affect our pipe production if we encounter them, the cost of removing them, and the cost and width of the pavement replacement necessary. Could you please either show these on the plans in order that we have a baseline for our estimate or establish a quantity of railroad lines to be removed? I am assuming that if this becomes a big issue that you would allow the contractor to move the waterline to avoid the additional costs of the railroad tracks if they become a big problem. Please advise.

### **RESPONSE**

The exact location of the rail cannot be determined. Officials of the City of Wellsburg have stated the approximate location of the rails is down the center of the road and installation of mainline should not be impacted. You should expect to encounter the rails when running service lines. Should a conflict arise with the location of the mainline and the rails, the Engineer will consider relocation of the mainline..

### **QUESTION**

2. Bid Item #15 has 16 Tie-ins, Bid Items 22-25 have 23 Hot Tap Tie-ins between them, and plans/details call out 25 Tie-Ins. Please clarify the number of Tie-ins.

### **RESPONSE**

The quantities for Hot Tap Tie-ins have changed. See revised Bid Form. Between the Hot Tap Tie-ins and the Non-Hot Tap Tie-ins there are 26 all together. There are 25 interconnection details but interconnection detail #9 has two tie-ins.

### **QUESTION**

3. All pipe trenches in Commerce Street S.R. 2 are to be backfilled with Controlled Low Strength Mortar Per the Type A Trench details with and without casing. This includes the open cut service line and lateral trenches in Commerce Street. Is this correct?

### **RESPONSE**

Yes.

### **QUESTION**

4. All pipe trenches in Main Street and Charles Street are to be backfilled with Crusher Run Stone and Compaction Tested per the Type B trench Detail. This includes the open cut service line and lateral trenches in Main Street and Charles Street. Is this correct?

**RESPONSE**

Yes.

**QUESTION**

5. Addendum #2 eliminated pay item 3 for maintenance of traffic. Is this work to be done by others?

**RESPONSE**

Maintenance of Traffic is item # 27 on revised Bid Form.

**QUESTION**

6. Will the waterline lineal footage and valves for the tie-ins #1 thru #25 shown on sheets 9-17 be paid for beneath the waterline and valve pay items in addition to the tie in pay items? (Clarification of Addendum 2, question 3)

**RESPONSE**

The waterline footage and valves for the tie-ins 1-25 will be paid for under the water line and valve items in addition to the Tie-in items. Valves not associated with tie-ins are paid separately.

**QUESTION**

7. Specifically how is restoration of service trench to be paid?

**RESPONSE**

If the restoration of service trench involves concrete, it will be paid for under concrete repair, if brick then brick repair and if it is asphalt, then asphalt repair. The backfill, bedding and any lawn restoration will be a part of the service tubing bid item.

**QUESTION**

8. Detail #19 (6" x 8" tapping sleeve & valve on existing 6" line)? Please clarify

**RESPONSE**

Detail #19 has been revised to show a 6" x 6" tapping sleeve & valve. See revised Sheet Number 15.

**QUESTION**

9. Detail #24 calls for a 8" x 8" tapping sleeve & valve, there is no bid item for an 8" Hot Tap. Please clarify.

**RESPONSE**

The Bid Form has been revised to show 8" x 8" Hot Tap.

**QUESTION**

10. Pipe being installed in Commerce St (Rt 2), what trench detail is to be used?

**RESPONSE**

Type "A" Trench repair found on Plan Sheet D4.

**QUESTION**

11. Pipe being installed in Charles & Main St, what trench detail is to be used?

**RESPONSE**

Type "B" Trench repair found on Plan Sheet D4.

**QUESTION**

12. Detail on drawing TS shows waterline under sidewalk and plans show waterline under streets (for Main, Charles & Commerce Streets). Please Clarify.

**RESPONSE**

The waterline shall be installed where it is shown on the plan sheet.

**QUESTION**

13. Is sidewalk/driveway replacement now paid under bid item #17 Concrete Pavement Repair? Is any of this repair getting paid under bid item #11 3/4" Poly Service Tubing (open cut)?

**RESPONSE**

Yes. All concrete trench repair shall now be paid under #17 Concrete Pavement as state in the Price and Payment Specification. No pavement repair shall be paid under bid item #11 ¾" Poly Service Tubing (Open Cut).

**QUESTION**

14. I do not see any details for the concrete walk replacement. I see where it falls beneath bid item 17 – Concrete Pavement Repair. The closest detail is on sheet D4 beneath the typical road repair details entitled “Concrete Pavement”. This allows to sawcut and leave the bulk of the concrete walk-in place and just replace the trench patch. Typically they want the walk replaced to the nearest joint. It also requires rebar which is not typical for concrete walk. Can you please provide details for concrete walk replacement?

**RESPONSE**

Sidewalk will be replaced to the nearest joint. Detail for concrete walk replacement can be found on the typical sections, plan sheet TS.

**QUESTION**

15. Does ¾ Service Tubing (Bore & Jack) include any asphalt, concrete or lawn restoration?

**RESPONSE**

¾ Service Tubing (Bore & Jack) does not include any asphalt, concrete or brick restoration. It does include lawn restoration.

**QUESTION**

16. Are the ¾" services on Main St and Charles St that are on the opposite sides of the main line getting bored, please clarify?

**RESPONSE**

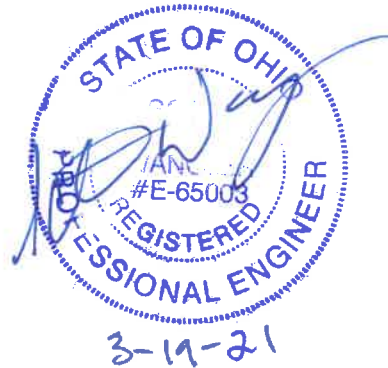
No. Only services on Commerce St. (Rt. 2) will be bored.

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 2:00 p.m. on Wednesday, March 24, 2021 at City of Wellsburg, 70 Town Square, Wellsburg, WV. Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.

  
Project Manager



**CITY OF WELLSBURG**  
**BROOKE COUNTY, WEST VIRGINIA**  
**MAIN STREET, CHARLES STREET, AND COMMERCE STREET**  
**WATERLINE REPLACEMENT PLAN**  
**THRASHER PROJECT #101-010-1117**

**BID FORM**

**ARTICLE 1 – BID RECIPIENT**

1.01 This Bid is submitted to:

City of Wellsburg  
70 Town Square  
Wellsburg, WV 26070

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

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

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

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

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

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

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

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

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

Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

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

#### **ARTICLE 4 – BIDDER'S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.



**ARTICLE 5 – BASIS OF BID**

**GENERAL**

The Bidder shall take notice of and shall be responsible for any local or state taxes levied and applicable, and the cost for the same shall be included as part of the submitted Bid.

The total Bid cost stated includes a complete operating installation including furnishing and installation of any and all changes or additions in plans, piping, mechanical work, additional electrical work, accessories, controls, etc. necessary to accommodate alternative equipment systems or materials used in construction.

**BID PROPOSAL**

The Bidder agrees to perform all required Work described in the detailed Specifications and as shown on the Plans for the complete construction and placing in satisfactory operation the Main Street, Charles Street, and Commerce Street Waterline Replacement Plan. The Project "Sequence of Construction" has been detailed in the Drawings and Specification Division 1, Project Summary, Section 011000, Part-2 Execution. The Bidder agrees to perform all the Work proposed for the total of the following Bid prices.

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

**PROPOSED**

**MAIN STREET, CHARLES STREET, AND COMMERCE STREET**

**WATERLINE REPLACEMENT PLAN**

**FOR THE**

**CITY OF WELLSBURG**

**BROOKE COUNTY, WEST VIRGINIA**

**THRASHER PROJECT #101-010-1117**

**BID SCHEDULE**

*NOTE: Bid Unit PRICE amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. Bids shall include sales tax and all other applicable taxes and fees.*

<b>Item #</b>	<b>Qty.</b>	<b>UNIT</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>	<b>UNIT PRICE WRITTEN IN WORDS</b>	<b>TOTAL PRICE</b>
1	1	LS	Mobilization/Demobilization			
2	1	LS	Videotaping of Project Area			
3	1	LS	Erosion and Sediment Control			
4	14	EA	Remove Existing Fire Hydrant Assembly, Complete			

Item #	Qty.	UNIT	DESCRIPTION	UNIT PRICE	UNIT PRICE WRITTEN IN WORDS	TOTAL PRICE
5	10559	LF	8" PVC C-900 DR-18 Water Line			
6	59	EA	8" Gate Valve, Complete with Box, Lid and Restraints			
7	2	EA	Cut and Cap Existing 3" Water Line			
8	19	EA	Cut and Cap Existing 4" Water Line			
9	11	EA	Cut and Cap Existing 6" Water Line			
10	3	EA	Cut and Cap Existing 8" Water Line			
11	2863	LF	3/4" Polyethylene Service Tubing (Open Cut)			
12	1319	LF	3/4" Polyethylene Service Tubing (Bore and Jack)			
13	192	EA	Reconnect to Existing Services			
14	14	EA	New Fire Hydrant Assembly, Complete			
15	16	EA	Tie Into Existing Water Line, Complete			
16	10196	LF	Asphalt Pavement Repair			
17	3022	LF	Concrete Pavement Repair			
18	290	LF	Brick Sidewalk/Driveway Repair			
19	2265	SY	2" Pavement Planing			
20	2265	SY	2" Superpave Asphalt Skid Resistant Pavement			
21	159	GAL	Tack Coat			

Item #	Qty.	UNIT	DESCRIPTION	UNIT PRICE	UNIT PRICE WRITTEN IN WORDS	TOTAL PRICE
22	1	EA	4" Hot Tap Tie-Into Existing Water Line			
23	3	EA	6" Hot Tap Tie-Into Existing Water Line			
24	3	EA	<b>8" Hot Tap Tie-Into Existing Water Line</b>			
25	3	EA	<b>10"x8" Hot Tap Tie-Into Existing Water Line</b>			
26	19	EA	Abandon Existing Gate Valve			
27	1	LS	<b>Maintenance of Traffic</b>			

**TOTAL BID:** \_\_\_\_\_  
 (\$ \_\_\_\_\_ )

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

**NOTE: THE CONTRACTOR'S UNIT PRICES SHALL INCLUDE PURCHASE AND INSTALLATION, COMPLETE IN PLACE, PER BID ITEM IN ACCORDANCE WITH THE DETAILED SPECIFICATIONS.**

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

**METHOD OF AWARD**

If at the time this contract is to be awarded, the lowest total bid submitted by a qualified, responsible Bidder does not exceed the amount of funds then estimated by the Owner, as available to finance the contract, the construction contract will be awarded. If such bids exceed such amount, the Owner may reject all bids.

The owner may award the contract on the Total Bid submitted by a qualified responsible Bidder as listed in the contract to produce the lowest bid within the funds available for financing.

- A. Unit prices have been computed in accordance with paragraph 13.03.A of the General Conditions.
- B. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

#### **ARTICLE 6 – TIME OF COMPLETION**

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

#### **ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
  - A. Bid Opening Requirements

#### **ARTICLE 8 – DEFINED TERMS**

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

**ARTICLE 9 – BID SUBMITTAL**

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

\_\_\_\_\_

By: \_\_\_\_\_  
*[Signature]*

\_\_\_\_\_

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

Attest: \_\_\_\_\_  
*[Signature]*

\_\_\_\_\_

Title: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

Contact Name and e-mail address: \_\_\_\_\_  
\_\_\_\_\_

Bidder's License No.: \_\_\_\_\_  
*(where applicable)*

*NOTE TO USER: Use in those states or other jurisdictions where applicable or required.*

## SECTION 012000 - PRICE AND PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Schedule of Values.
- B. Application for Payment.
- C. Change procedures.
- D. Defect assessment.
- E. Measurement and Payment.

#### 1.2 SCHEDULE OF VALUES

- A. Submit Schedule of Values on Contractor's Application for Payment Form EJCDC C-620.
- B. Submit Schedule of Values within twenty (20) days after date established in Notice to Proceed.
- C. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section.
- D. Include within each line item, direct proportional amount of Contractor's overhead and profit.
- E. Revise schedule to list approved Change Orders with each Application for Payment.

#### 1.3 APPLICATION FOR PAYMENT

- A. Submit five copies of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit submittals with transmittal letter as specified in Section 013300 - Submittal Procedures.
- F. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
  - 1. Current construction photographs.
  - 2. Partial release of liens from major Subcontractors and vendors.

3. Record Documents as specified in Section 017000 - Execution and Closeout Requirements, for review by Owner, which will be returned to Contractor.
4. Affidavits attesting to off-Site stored products.
5. Construction Progress Schedule, revised and current as specified in Section 013300 - Submittal Procedures.

#### 1.4 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
  1. Use Request for Information Form for requesting interpretations (provided by Engineer upon request).
  2. Engineer may respond with a direct answer on the Request for Interpretation form, separate Engineer Response, EJCDC C-942 - Field Order, or EJCDC C-940 – Work Change Directive Order.
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on EJCDC C-942.
- E. Engineer may issue Notice of Change including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with stipulation of overtime work required and with the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within 10 days.
- F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on the Work by separate or other Contractors.
- G. Stipulated Sum/Price Change Order: Based on Proposal Request or Work Change Directive and Contractor's maximum price quotation or Contractor's request for Change Order as approved by Engineer.
- H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- I. Work Directive Change: Engineer may issue directive, on EJCDC C-940 - Work Change Directive, instructing Contractor to proceed with change in the Work, for subsequent inclusion in

a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

- J. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- K. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.
- L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- M. Change Order Forms: EJCDC C-941 - Change Order.
- N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- O. Correlation of Contractor Submittals:
  - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
  - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise subschedules to adjust times for other items of Work affected by the change, and resubmit.
  - 3. Promptly enter changes in Record Documents.

## 1.5 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer or Owner, it is not practical to remove and replace the Work, Engineer or Owner will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Owner.
- D. Defective Work will be partially repaired according to instructions of Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Owner.
- E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Owner to assess defects and identify payment adjustments is final.
- G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
  - 1. Products wasted or disposed of in a manner that is not acceptable.
  - 2. Products determined as unacceptable before or after placement.
  - 3. Products not completely unloaded from transporting vehicle.



4. Products placed beyond lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

## 1.6 MEASUREMENT AND PAYMENT

- A. Contractor shall take measurements and compute quantities. Engineer will verify measurements and quantities.
- B. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Actual quantities provided shall determine payment.
  1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.
  2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
- C. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- E. Measurement of Quantities:
  1. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
  2. Measurement by Area: Measured by square dimension using mean length and width or radius.
  3. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
  4. Lump Sum Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
- F. Unit Price Schedule:
  1. Bid Item 1 – Mobilization/Demobilization
    - a. This Bid item shall include all costs associated with the performance of construction preparatory operations including, but not limited to, the movement of equipment and personnel to and from the Project Site; establishing and decommissioning the Field Office, storage buildings, and other facilities necessary to conduct Work under this Contract; payment of all bonding costs incurred by the Contractor; all materials and equipment required for unloading and reloading; and all costs associated with demobilization.
    - b. This Bid Item shall also include any and all costs associated with the following Specification Sections:
      - 1) Section 012600 – Contract Modification Procedures
      - 2) Section 013000 – Administrative Requirements
      - 3) Section 013216 – Construction Progress Schedule

- 4) Section 013300 – Submittal Procedures
  - 5) Section 015000 – Temporary Facilities and Controls
  - 6) Section 017000 – Execution and Closeout Requirements
  - 7) Section 017839 – Project Record Documents
- c. Payment shall be made at the lump sum (LS) price Bid for Mobilization, but in no case shall the total lump sum Bid Price exceed 5% of the total Bid.
  - d. The payment request for mobilization on the first estimate shall not exceed 3% of the total bid price for this contract. The balance of the lump sum bid item shall be considered demobilization and shall be paid at project closeout.
2. Bid Item 2 – Videotaping of Project Area
    - a. This Bid item shall include all required labor, materials, equipment and all other costs associated with Videotaping of Project Area.
    - b. Payment shall be made at the lump sum (LS) price Bid for Videotaping of Project Area.
3. Bid Item 3 – Erosion and Sediment Control
    - a. This Bid Item shall include any and all costs associated with Erosion and Sediment Controls
      - 1) Such payment shall constitute full compensation for labor, materials, equipment and other associated costs to provide a complete installation and maintenance of erosion and sediment control measures.
      - 2) This Bid Item shall also include any and all costs associated with the following Specification Sections:
        - a) Section 312500 – Erosion and Sedimentation Controls
    - b. Erosion and Sediment Control shall include the entire construction area affected, as required, including any Contractor secured waste site and material storage or staging areas.
4. Bid Item 4 – Remove Existing Fire Hydrant Assembly, Complete
    - a. This Bid item shall include all required labor, materials, equipment and all other costs associated with removal of existing fire hydrant assembly, complete.
    - b. Payment shall be paid based on the reviewed Schedule of Values.
5. Bid Item 5 – 8" PVC C-900 DR-18 Water Line
    - a. The pipe installed under this item shall be measured and paid for by the linear feet of pipe and installed in place. The measurements under this item shall be the length of the various sizes and classes of pipe and fittings installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured centerline of tie-in to centerline of tie-in.
    - b. The quantities determined as provided above, will be paid for at the contract unit prices bid for the items listed in the Bid Schedule, which prices and payments shall be full compensation for excavation, bedding, backfilling, warning tape, tracer wire, pigging, hydrostatic testing, chlorination and furnishing all materials and doing all the work herein prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, testing and incidentals necessary to complete the work.
6. Bid Item 6 – 8" Gate Valve, Complete with Box, Lid and Restraints

- a. The Contractor's Unit Bid Price for 8" Gate Valves and Valve Box shall include the purchase and installation of the valve including the poured concrete thrust block, cast iron riser box, concrete stabilization block around the riser box, centering rings, mud plugs, and valve markers.
7. Bid Item 7 – Cut and Cap Existing 3" Water Line
  - a. The Contractor's Unit Bid Price for Cut and Cap Existing 3" Water Line shall include the purchase and installation of all required material in order to perform the cap or caps as shown or required. This Unit Bid Price shall include locating and excavation of the water line, capping both the live water line to remain in service and the abandoned line to prevent backfill material from entering line, thrust blocking, bedding, backfilling, etc.
  - b. Payment shall be per each (EA) water line, cut and capped.
8. Bid Item 8 – Cut and Cap Existing 4" Water Line
  - a. The Contractor's Unit Bid Price for Cut and Cap Existing 4" Water Line shall include the purchase and installation of all required material in order to perform the cap or caps as shown or required. This Unit Bid Price shall include locating and excavation of the water line, capping both the live water line to remain in service and the abandoned line to prevent backfill material from entering line, thrust blocking, bedding, backfilling, etc.
  - b. Payment shall be per each (EA) water line, cut and capped.
9. Bid Item 9 – Cut and Cap Existing 6" Water Line
  - a. The Contractor's Unit Bid Price for Cut and Cap Existing 6" Water Line shall include the purchase and installation of all required material in order to perform the cap or caps as shown or required. This Unit Bid Price shall include locating and excavation of the water line, capping both the live water line to remain in service and the abandoned line to prevent backfill material from entering line, thrust blocking, bedding, backfilling, etc.
  - b. Payment shall be per each (EA) water line, cut and capped.
10. Bid Item 10 – Cut and Cap Existing 8" Water Line
  - a. The Contractor's Unit Bid Price for Cut and Cap Existing 8" Water Line shall include the purchase and installation of all required material in order to perform the cap or caps as shown or required. This Unit Bid Price shall include locating and excavation of the water line, capping both the live water line to remain in service and the abandoned line to prevent backfill material from entering line, thrust blocking, bedding, backfilling, etc.
  - b. Payment shall be per each (EA) water line, cut and capped.
11. Bid Item 11 – 3/4" Polyethylene Service Tubing (Open Cut)
  - a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the 3/4" Polyethylene Service Tubing, excavation, backfill, materials, fittings, pipe joints, pipe, tools, supplies, cleaning and disinfection, testing, seeding and mulching, and all other incidentals. All items and appurtenances shall be included in the linear foot price of the pipe. All temporary fittings (i.e. plugs) required for sequencing the work shall be included in the linear foot price of the pipe.
  - b. The waterline installed under this item shall be based on the unit price Bid, measured and paid for by the linear feet of pipe for each of the types and sizes as specified on

Plans or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured centerline of tie in to centerline of tie in.

12. Bid Item 12 – 3/4" Polyethylene Service Tubing (Bore and Jack)
  - a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the 3/4" Polyethylene Service Tubing, excavation, launching and receiving pits, backfill, materials, fittings, pipe joints, pipe, casing, tools, supplies, cleaning and disinfection, testing, seeding and mulching, and all other incidentals. All items and appurtenances shall be included in the linear foot price of the pipe. All temporary fittings (i.e. plugs) required for sequencing the work shall be included in the linear foot price of the pipe.
  - b. The waterline installed under this item shall be based on the unit price Bid, measured and paid for by the linear feet of pipe for each of the types and sizes as specified on Plans or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured centerline of tie in to centerline of tie in.
  
13. Bid Item 13 – Reconnect to Existing Services
  - a. The Bid Item shall include, but not be limited to, costs such as labor and materials required, fittings and incidental pipe, to make the proper connection from the main to the curb stop including the curb stops and curb repair.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
  
14. Bid Item 14 – New Fire Hydrant Assembly, Complete
  - a. Hydrant Assembly on New Water Line - The Contractor's Unit Bid Price for fire hydrant assembly shall include the purchase and installation of the fire hydrant, 6" or 8" hydrant gate valve, 6" or 8" hydrant tee, piping from main to hydrant, all thread rods, valve box and lid, stone, thrust blocks and all appurtenances as shown on the details of the plans.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
  
15. Bid Item 15 – Tie-Into Existing Water Line, Complete
  - a. This bid item shall include all required labor, materials, equipment, and all other cost associated with the connection to existing water lines, including excavation, cutting into existing water line, fittings, and couplings to connect to the existing water lines, complete in place.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
  
16. Bid Item 16 – Asphalt Pavement Repair
  - a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the Asphalt Pavement Repair.
  - b. Asphalt Repair under this item pertains to replacement due to trenching asphalt pavement on city and state roads.
  - c. Payment shall be paid based on the reviewed Schedule of Values.
  
17. Bid Item 17 – Concrete Pavement Repair

- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the type of sidewalk, Driveway or Roadway restoration. All costs required for traffic control and ADA ramps shall be included in the unit price. Concrete sidewalk, driveway and roadway repairs shall be paid for by the linear foot times the Bid price. No payment shall be made for concrete repair outside the limits shown on the Contract Documents. No payment will be made for temporary paving required during construction. All sidewalk repair work shall be included in this linear foot Bid Price.
  - b. Concrete Repair under this item pertains to replacement due to trenching.
  - c. Payment shall be based on linear foot of concrete repair as determined by the Contractor and confirmed by the Engineer. The Engineer has final authority for measured quantity.
18. Bid Item 18 – Brick Sidewalk/Driveway Repair
- a. Brick sidewalk shall be replaced with a brick sidewalk matching existing.
  - b. This Bid item shall include all required labor, materials, equipment and all other costs associated with the type of sidewalk/Driveway restoration. All costs required for traffic control and ADA ramps shall be included in the unit price. Sidewalk repairs shall be paid for by the linear foot times the Bid price. No payment shall be made for sidewalk repair outside the limits shown on the Contract Documents. No payment will be made for temporary paving required during construction. All brick sidewalk repair Work shall be included in this linear foot Bid Price.
  - c. Payment shall be based on linear foot of sidewalk repair as determined by the Contractor and confirmed by the Engineer. The Engineer has final authority for measured quantity.
19. Bid Item 19 – 2-inch Pavement Planing
- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the process of the 2” pavement planing, asphalt concrete.
  - b. Payment shall be based on per SY Bid Price and shall be paid based on the reviewed Schedule of Values.
20. Bid Item 20 – 2” Superpave Asphalt Skid Resistant Pavement
- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the 2” Superpave Asphalt Skid Resistant Pavement, ST. or GR., Type 12.5.
  - b. Payment shall be based on per SY Bid Price and shall be paid based on the reviewed Schedule of Values.
  - c. Limits for Superpave Asphalt are shown on sheet 5 and 6 of the plans.
21. Bid Item 21 – Tack Coat
- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the non-tracking asphalt material, 0.07 Gal per SY.
  - b. Payment shall be based on per Gallon Bid Price and shall be paid based on the reviewed Schedule of Values.
22. Bid Item 22 – 4" Hot Tap Tie-Into Existing Water Line

- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the 4” hot tap tie-in, including excavation, bedding, backfill, and testing.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
23. Bid Item 23 – 6" Hot Tap Tie-Into Existing Water Line
- a. This Bid item shall include all required labor, materials, equipment and all other costs associated with the installation of the 6” hot tap tie-in, including excavation, bedding, backfill, and testing.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
24. Bid Item 24 – 8" Hot Tap Tie-Into Existing Water Line
- a. This Bid item shall include all required labor, materials, equipment, and all other costs associated with the installation of the 8” hot tap tie-in, including excavation, bedding, backfill, and testing.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
25. Bid Item 25 – 10"x8" Hot Tap Tie-Into Existing Water Line
- a. This Bid item shall include all required labor, materials, equipment, and all other costs associated with the installation of the 10”x8” hot tap tie-in, including excavation, bedding, backfill, and testing.
  - b. Payment shall be paid based on the reviewed Schedule of Values.
26. Bid Item 26 – Abandon Existing Gate Valve
- a. This Bid item shall include all required labor, materials, equipment, and all other costs associated with abandonment of existing gate valves.
  - b. Existing valves that will be abandoned shall have the riser box cap removed, filled to within 6” of the top with limestone sand and place 6” of adjacent material in the top such as concrete, topsoil, gravel etc.
  - c. Payment shall be paid based on the reviewed Schedule of Values.
27. **Bid Item 27 – Maintenance of Traffic**
- a. **This Bid item shall include all costs associated with the labor, material and performance of maintaining traffic operations including, but not limited to, maintaining one lane of traffic unless approved by City and Engineer, access for emergency vehicles, covering open trenches at end of day, barricades, lights, flagger.**
  - b. **Payment shall be made at the lump sum (LS) price Bid for Maintenance of Traffic.**

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 012000

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SECTION 331213 - WATER SERVICE CONNECTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for ¾" water service connections.
2. Corporation stops and service saddles.
3. Curb stops.
4. Underground pipe markers.
5. Bedding and cover materials.

B. Related Requirements:

1. Section 312316.13 - Trenching
2. Section 331300 - Disinfecting of Water Utility Distribution

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Society of Mechanical Engineers:

1. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
2. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

C. American Society of Sanitary Engineering:

1. ASSE 1012 - Performance Requirements for Backflow Preventers with an Intermediate Atmospheric Vent.
2. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers.

D. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
3. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
4. ASTM C858 - Standard Specification for Underground Precast Concrete Utility Structures.
5. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
6. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).

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7. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
8. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
9. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
10. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
11. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

E. American Welding Society:

1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.

F. American Water Works Association:

1. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
2. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
3. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
4. AWWA C702 - Cold-Water Meters - Compound Type.
5. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
6. AWWA C800 - Underground Service Line Valves and Fittings.
7. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. Through 3 In., for Water Service.
8. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.

1.3 SUBMITTALS

- A. Section 013330 – Submittal Procedures.
- B. Product Data: Submit data on all materials and equipment.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 017000 – Execution and Close Requirements
- B. Project Record Documents: Record actual locations of installed materials and equipment.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.



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1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store products and materials off ground and under protective coverings and away from walls.
- D. Exercise care in handling precast concrete products to avoid chipping, cracking, and breakage.

PART 2 - PRODUCTS

2.1 WATER PIPING AND FITTINGS

- A. Polyethylene Pipe – Service Lines (As shown in the Drawings and/or described in the Pay Item(s)):
  - 1. Comply with AWWA C901, ASTM D2737, PE 4710 HDPE material, DR 9 for 250 psig pressure rating, Copper Tube Sized (CTS).
  - 2. Fittings:
    - a. Comply with AWWA C901 and ASTM D2737.
    - b. Type: Molded or fabricated.
  - 3. Joints: Butt fusion or compression.
  - 4. At connections, furnish and install solid 304 tubular stainless steel insert stiffeners, dimpled and flanged to retain placement in service line, and two (2) key locks to maintain solid structural integrity.

2.2 CORPORATION STOPS AND SERVICE SADDLES

- A. Manufacturers:
  - 1. Ford Meter Box Co., Inc.
  - 2. Substitutions: As approved by the Engineer.
- B. Corporation Stops:
  - 1. Comply with ASTM B62.
  - 2. Body: Brass or red brass alloy, ball corporation with a working pressure of 300 PSI.
  - 3. Inlet End: Threaded for tapping according to AWWA C800.
  - 4. Outlet End: Compression for Copper Tube Sized (CTS) polyethene pipe service tubing.
- C. Service Saddles:

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1. Type: Brass with silicon bronze hinge pins and silicon bronze hex head bolts, appropriate for connection to main line waterline material.
2. Designed to hold pressures in excess of pipe working pressure.

### 2.3 CURB STOPS

#### A. Manufacturers:

1. Ford Meter Box Co., Inc.
2. Substitutions: As approved by the Engineer.

#### B. Curb stop shall be water works, angle meter valve consistent with IPS sizes and polyethylene tubing with proper connection fittings. All brass shall conform to AWWA C800.

#### C. Curb Stops:

1. Body: Brass or red brass alloy.
2. Comply with ASTM B62.
3. Valve Type: Plug.
4. Sealing: Positive pressure.

#### D. Curb Boxes and Covers:

1. Body: Cast iron.
2. Type: Extension or Buffalo.
3. Base: Minneapolis or arch pattern.
4. Lid:
  - a. Inscription: WATER.
  - b. Plug: Pentagonal.

### 2.4 UNDERGROUND PIPE MARKERS

#### A. Magnetic Warning Tape:

Magnetic warning tape shall consist of a minimum thickness 0.35 mils solid aluminum coil core running a full length and width, encased in a protective, highly visible, color coded inert plastic that is impervious to all known alkalis, acids, chemical reagents, and solvents found in soil. Minimum overall thickness 5 mils. Tape shall a minimum of 6" wide, marked "water" in blue, and shall be magnetically detectable.

#### B. Tracer Wire (where shown in the Trench Detail(s) in the Drawings)

1. Electronic detection materials for nonconductive piping products.
2. Tracer wire shall be #12 AWG solid copper or high strength copper clad steel with 30 mil high molecular weight polyethylene (HMWPE) insulation or high density polyethylene (HDPE) insulation. Color shall be blue.

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3. Splices shall be avoided to the maximum extent possible. Where splices are required, use 3M DBR (direct bury splice kit), copperhead snake bite connectors, or approved equal.

2.5 BEDDING AND COVER MATERIALS

- A. Bedding: As shown in Trench Detail(s) in the Drawings.
- B. Cover: As shown in the Trench Detail(s) in the Drawings and as specified in Section 312316.13 – Trenching.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that trench excavation is ready to receive work.

3.2 PREPARATION

- A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
- B. Remove scale and dirt from inside and outside of piping before assembly.
- C. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

- A. Corporation Stops and Service Saddles:
  1. Location:
    - a. Provide full support for service saddle for full circumference of pipe, with minimum 2 inches width of bearing area. Attach corporation stops at 10 and 2 o'clock positions along the water main's circumference.
    - b. Locate and stagger corporation stops at least 12 inches apart longitudinally.
  2. Do not backfill and cover service connections until installations are approved by Engineer.
- B. Bedding:
  1. Excavation:
    - a. Excavate pipe trench as specified in Section 312316.13 – Trenching for Work of this Section.
  2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
  3. Provide sheeting and shoring if required and as specified in Section 312316.13 - Trenching.

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4. Place bedding material as shown in the Trench Detail(s) in the Drawings and compact to 95 percent of maximum dry density as per ASTM D698 or 100 percent of the surrounding ground density.

C. Pipe and Fittings:

1. Maintain minimum separation of water lines from sewer piping of 18" vertical and 10' horizontal.
2. Install pipe to depths indicated in the Trench Detail(s) in the Drawings and as specified in Section 312316.15 – Trenching.
3. Install access fittings to permit disinfection of water system performed under Section 331300 - Disinfecting of Water Utility Distribution.
4. Form and place concrete for thrust restraints at each elbow or change of direction of pipe.
5. Cover:
  - a. Establish elevations of buried piping with not less than the cover shown in the Trench Details(s) in the Drawings.
  - b. Measure depth of cover from final surface grade to top of pipe barrel.
6. Pipe Markers:
  - a. Install plastic ribbon tape continuous buried 18 inches below finish grade. Install tracer wire above piping where shown in the Trench Detail(s) in the Drawings.
  - b. Coordinate with trench Work as specified in Section 312316.13 – Trenching

D. Curb Stops:

1. Set curb stops on solid bearing.
2. Boxes:
  - a. Center and plumb curb boxes over curb stops.
  - b. Set box cover flush with finished grade.

E. Backfilling:

Furnish and place bedding as shown in the Trench Detail(s) in the Drawings. Place backfill over bedding in maximum lifts of eight inches (8") unless otherwise required by Authorities having jurisdiction. Tamp in place. Compact to 95 percent of maximum dry density as per ASTM D698 or 100 percent of the surrounding ground density. Maintain optimum moisture content of backfill material to attain required compaction density. Backfill around sides and to top of pipe as specified in Section 312316.13 – Trenching and as shown in the Trench Detail(s) in the Drawings.

F. Disinfection of Water Piping System:

1. Flush and disinfect system as specified in Section 331300 - Disinfecting of Water Utility Distribution.

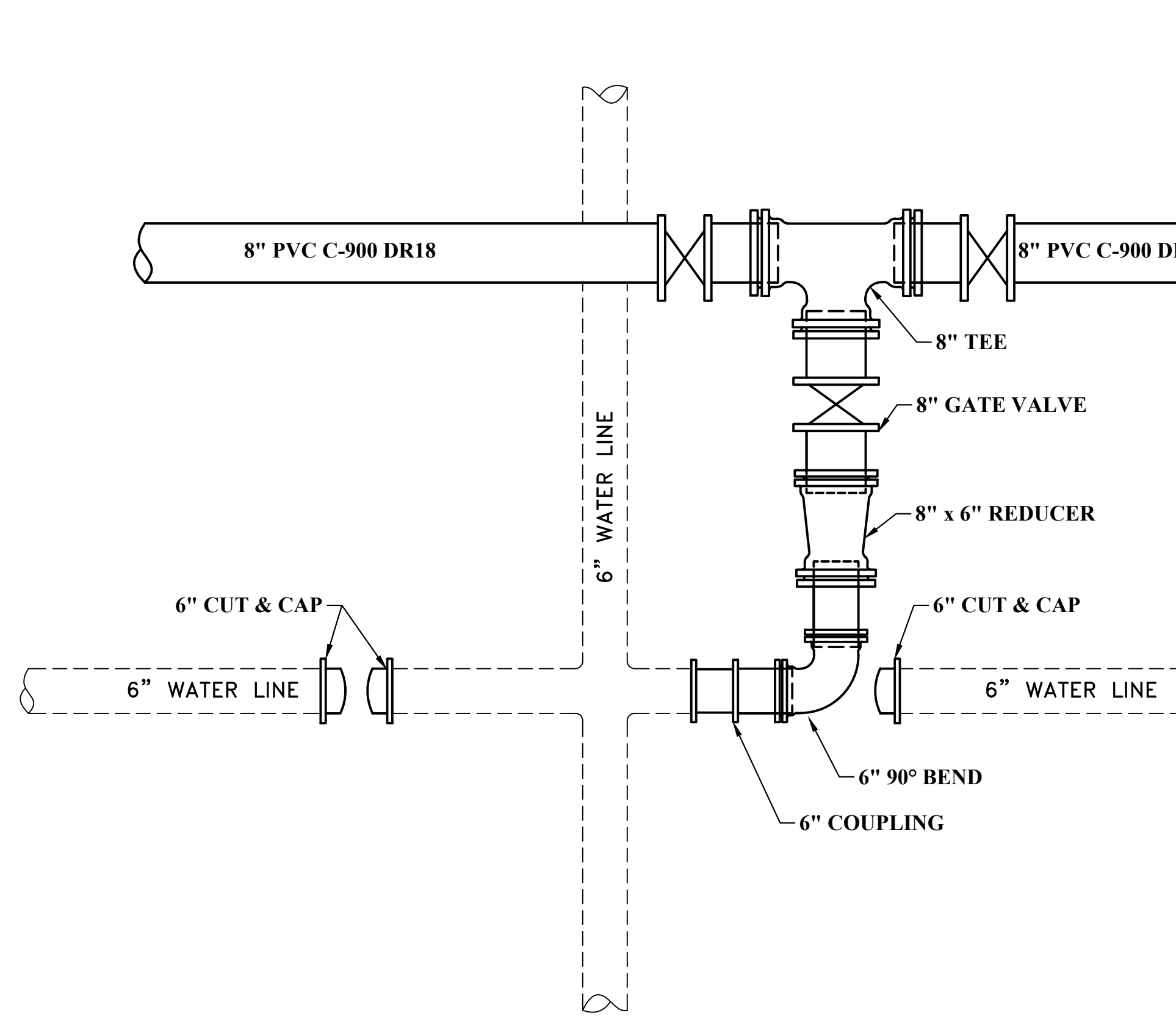
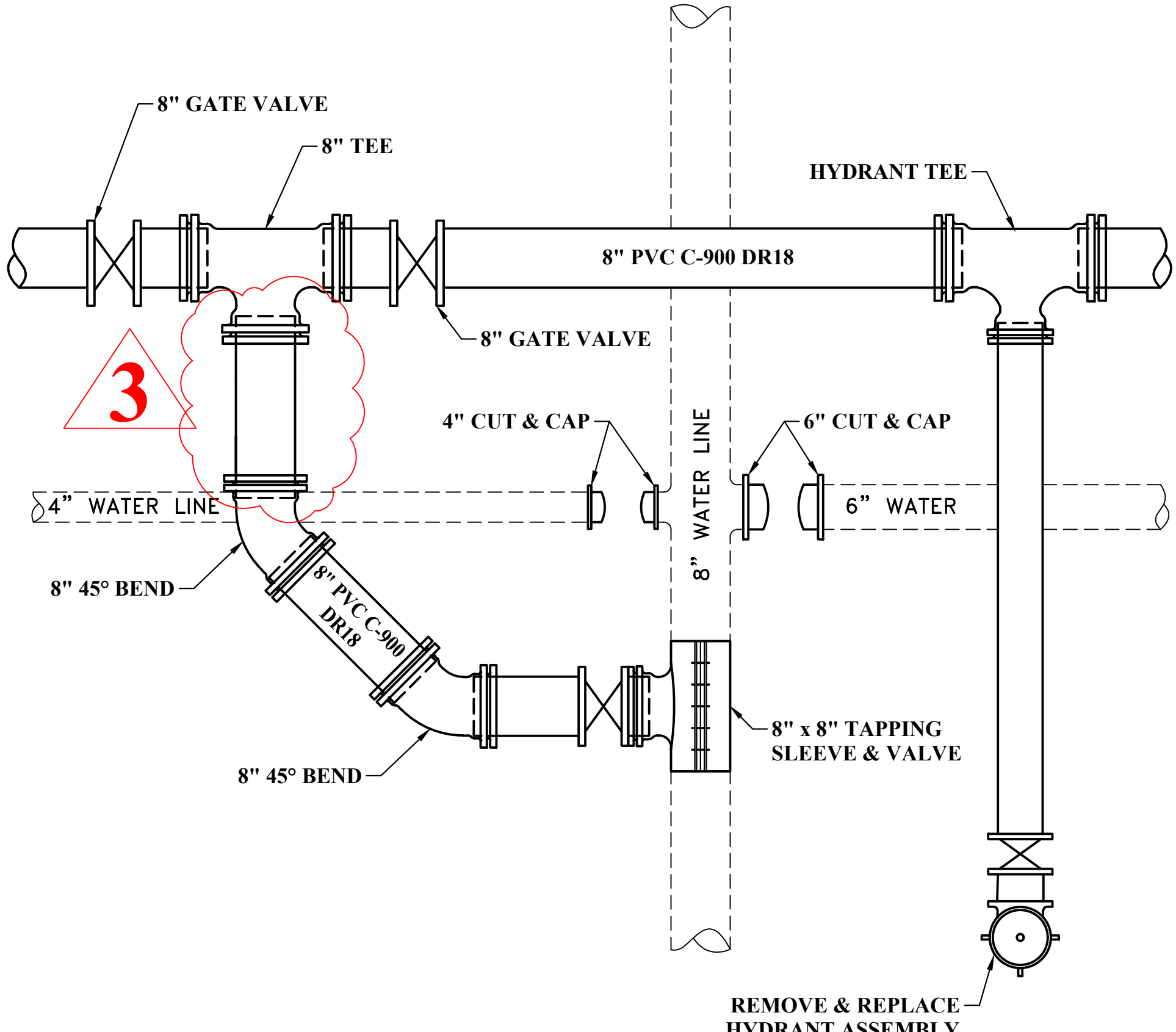
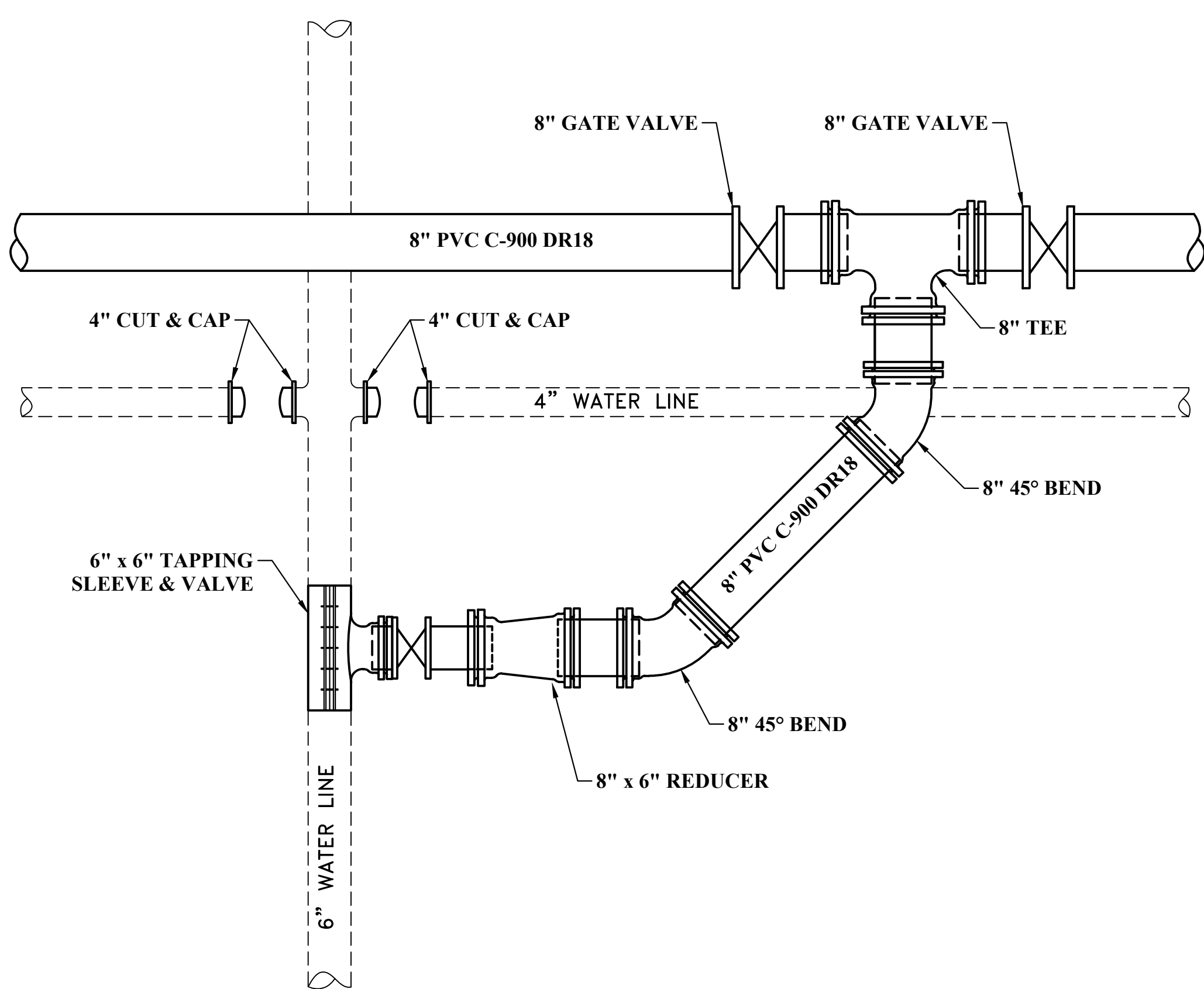
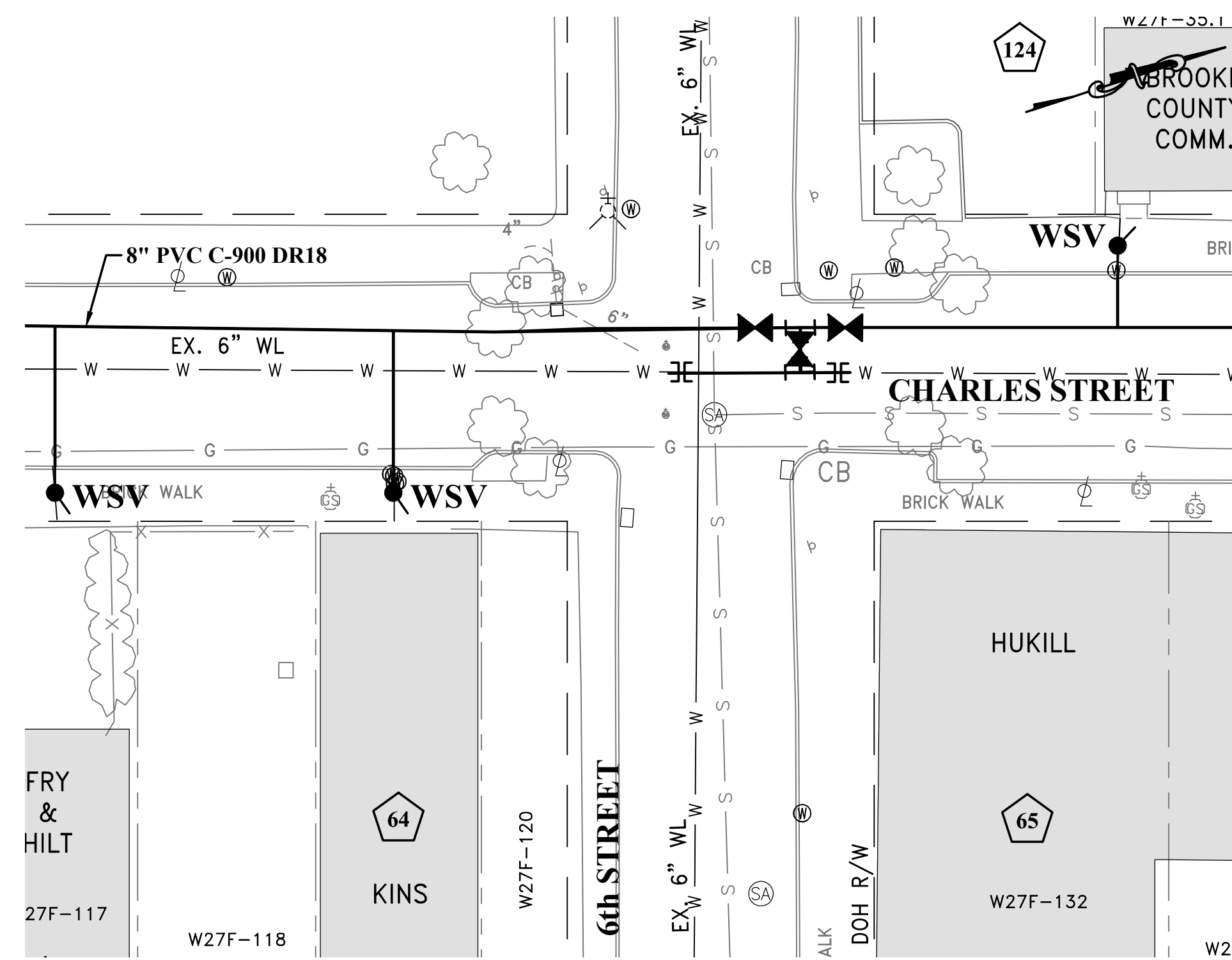
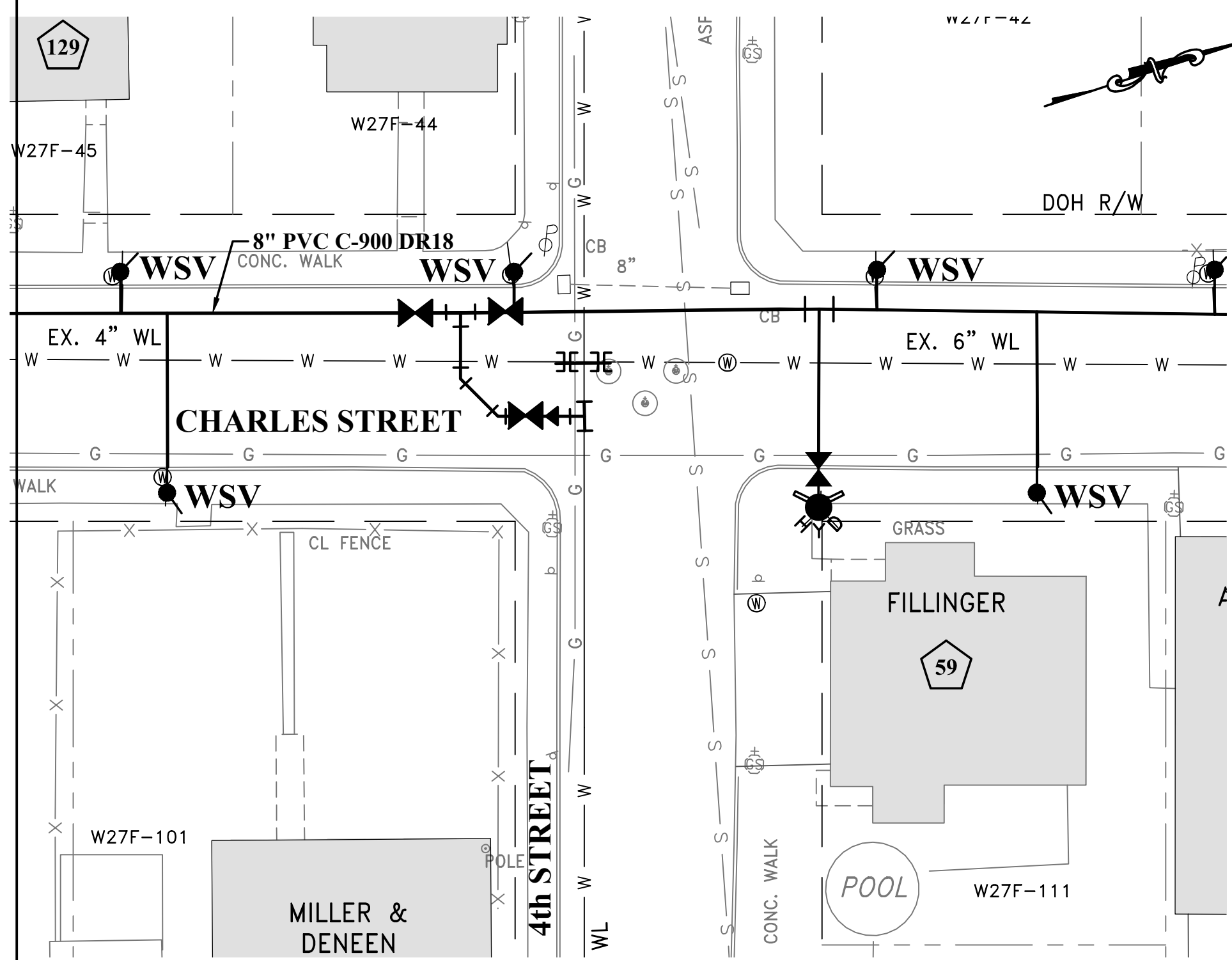
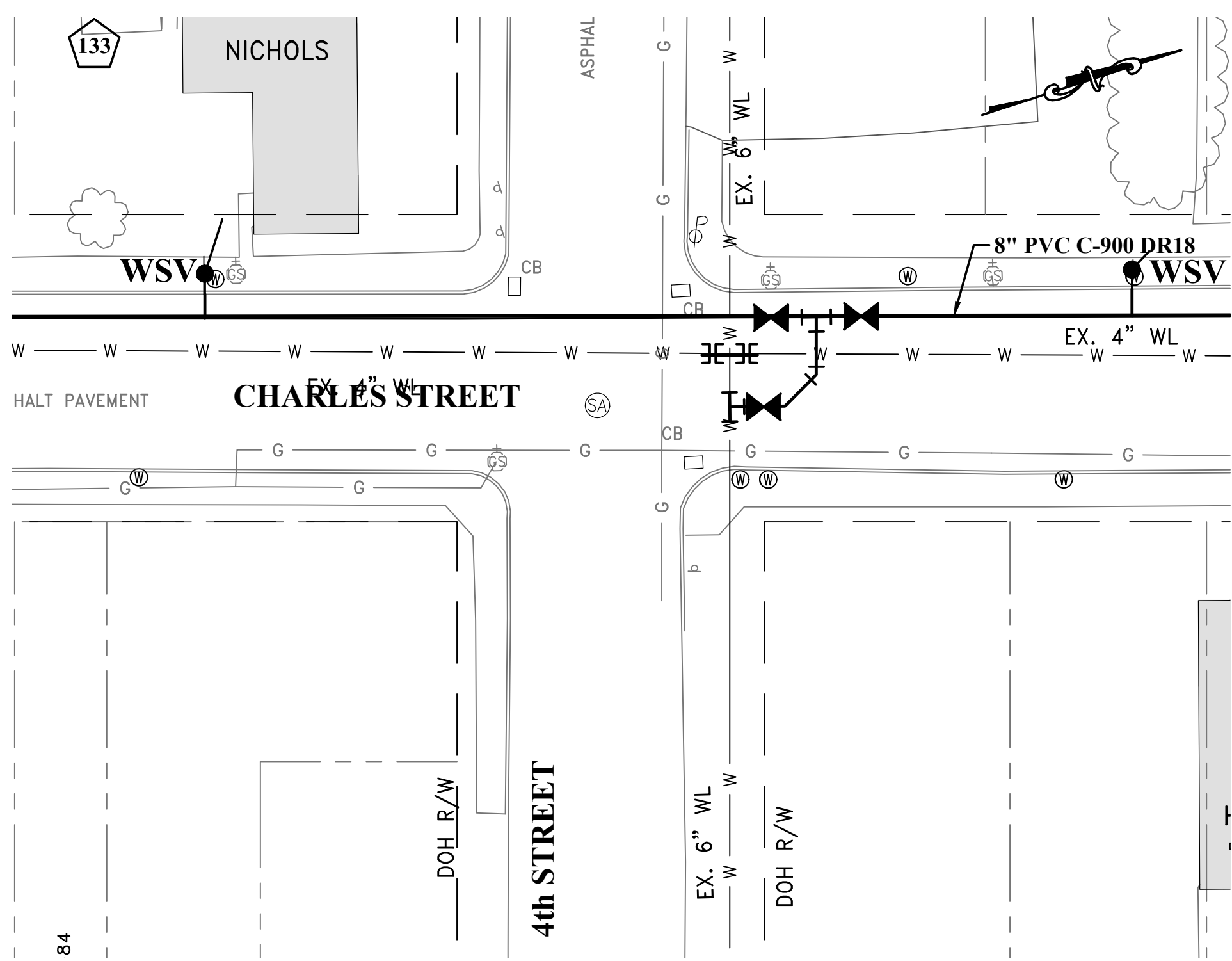
Main Street, Charles Street, and Commerce Street  
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3.4 FIELD QUALITY CONTROL

- A. Request Inspection by Engineer prior to backfilling trench.
- B. Pressure test water distribution system according to AWWA C600.
  - 1. Test Pressure: Not less than 200 psig or 50 psi in excess of maximum static pressure, whichever is greater.
  - 2. Conduct hydrostatic test for at least two hours.
  - 3. Slowly fill with water section to be tested; expel air from piping at high points.
  - 4. Install corporation cocks at high points.
  - 5. Close air vents and corporation cocks after air is expelled.
  - 6. Raise pressure to specified test pressure.
  - 7. Observe joints, fittings, and valves under test.
  - 8. Remove and replace cracked pipes, joints, fittings, and valves that show visible leakage and retest.
  - 9. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate, maintaining test pressure within plus or minus 5.0 psi.
  - 10. Leakage is defined as quantity of water supplied to piping as necessary to maintain test pressure during testing period.
  - 11. Compute maximum allowable leakage using following formula:
    - a.  $L = SD \times \sqrt{P/C}$ .
      - 1) L = testing allowance, gph.
      - 2) S = length of pipe tested, feet.
      - 3) D = nominal diameter of pipe, inches.
      - 4) P = average test pressure during hydrostatic test, psig.
      - 5) C = 148,000.
    - b. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
  - 12. If test of pipe indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
  - 13. Correct visible leaks regardless of quantity of leakage.
- C. If tests indicate Work does not meet specified requirements, remove and/or repair Work and retest.

END OF SECTION 331213

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 LAYOUT: 13  
 USER: joseph.gotshall



Addendum #3

**#11**  
**INTERCONNECTION DETAIL CHARLES ST. AND 4th ST.**

**#12**  
**INTERCONNECTION DETAIL CHARLES ST. AND 5th ST.**

**#13**  
**INTERCONNECTION DETAIL CHARLES ST. AND 6th ST.**

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NO.	BY	DATE	DESCRIPTION
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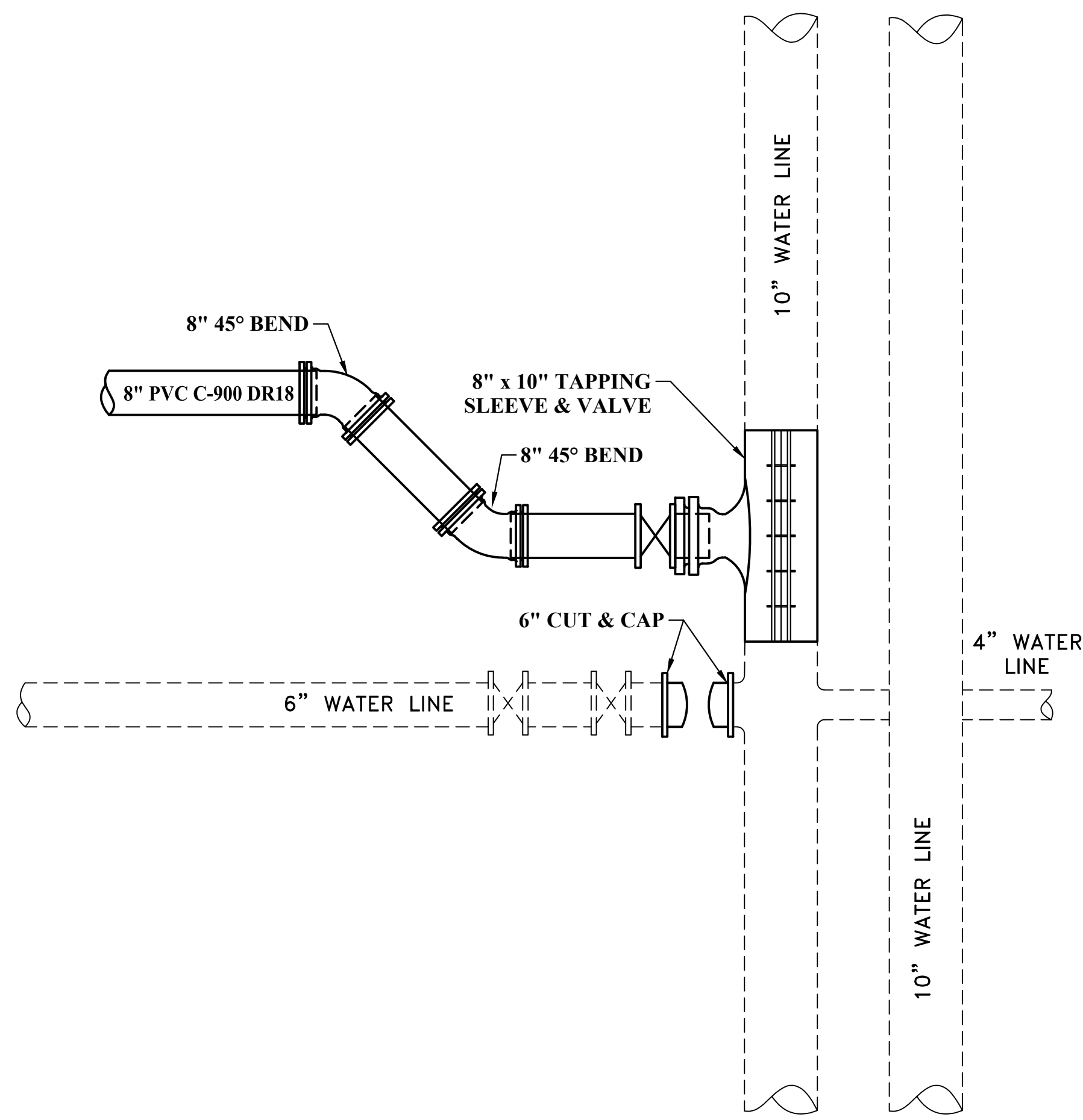
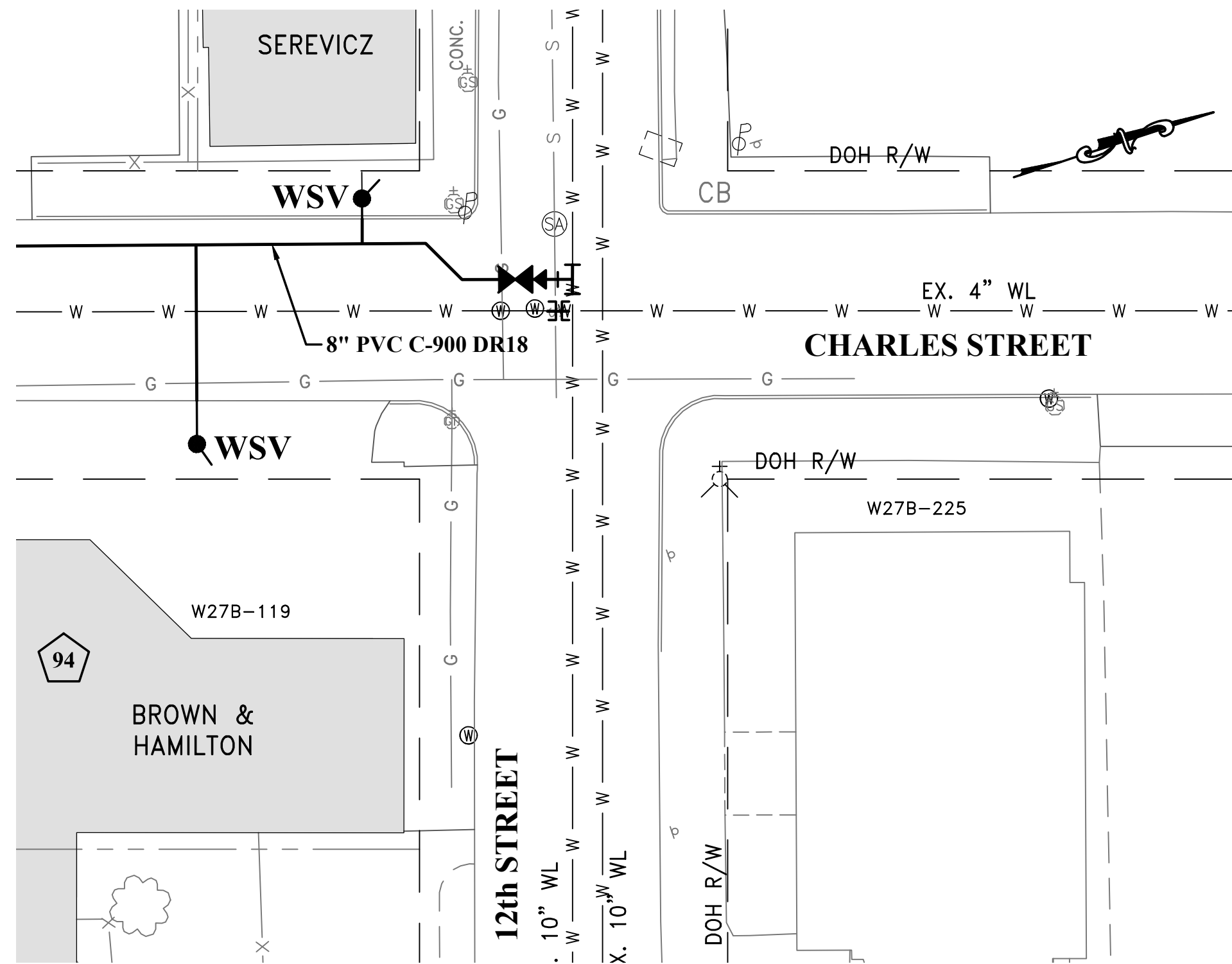
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CHECKED: RSS	DATE: MARCH 2021
APPROVED: SAW	DATE: MARCH 2021
SURVEY DATE:	
SURVEY BY:	
FIELD BOOK No.:	

**THRASHER**  
 400 3rd STREET  
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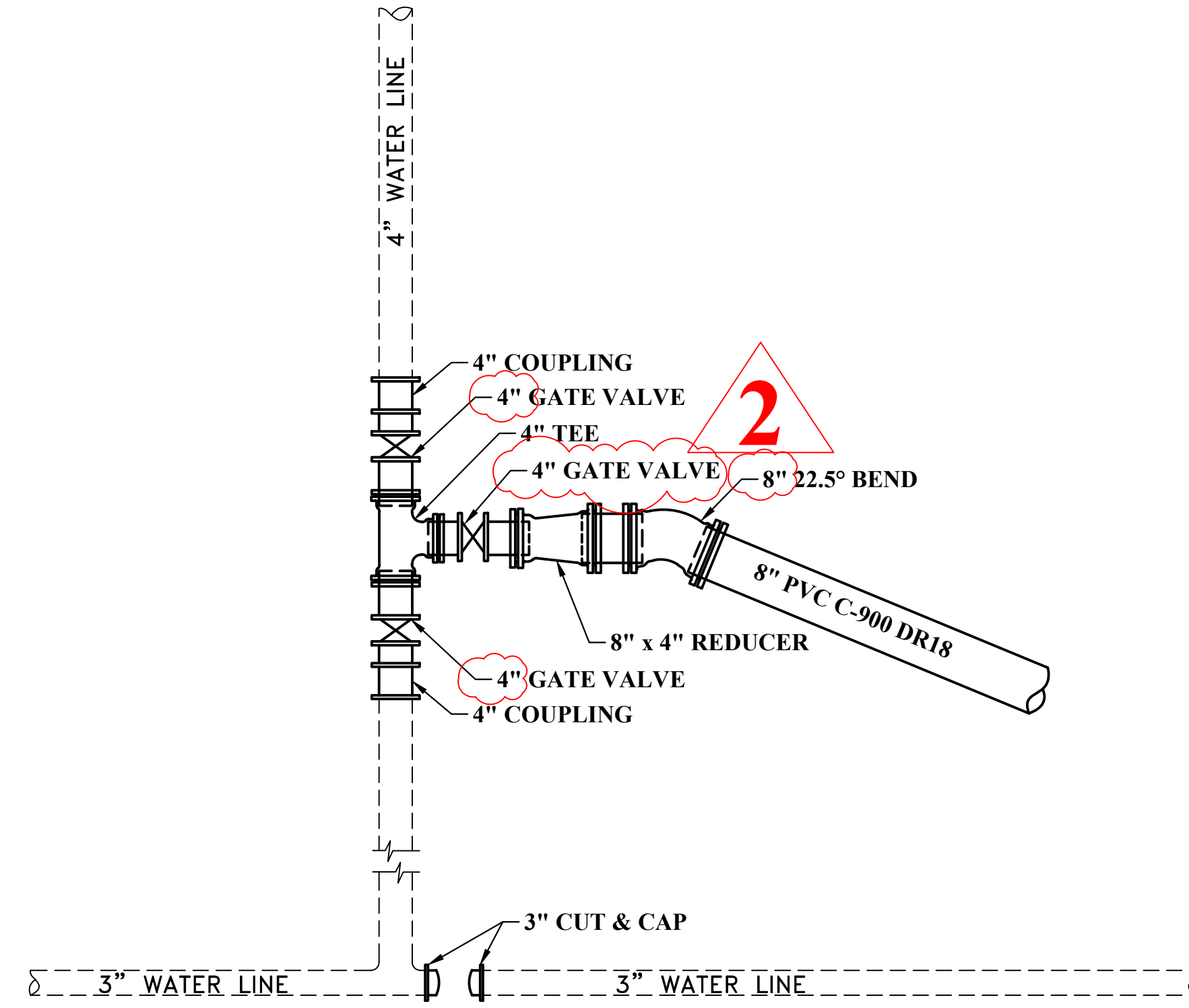
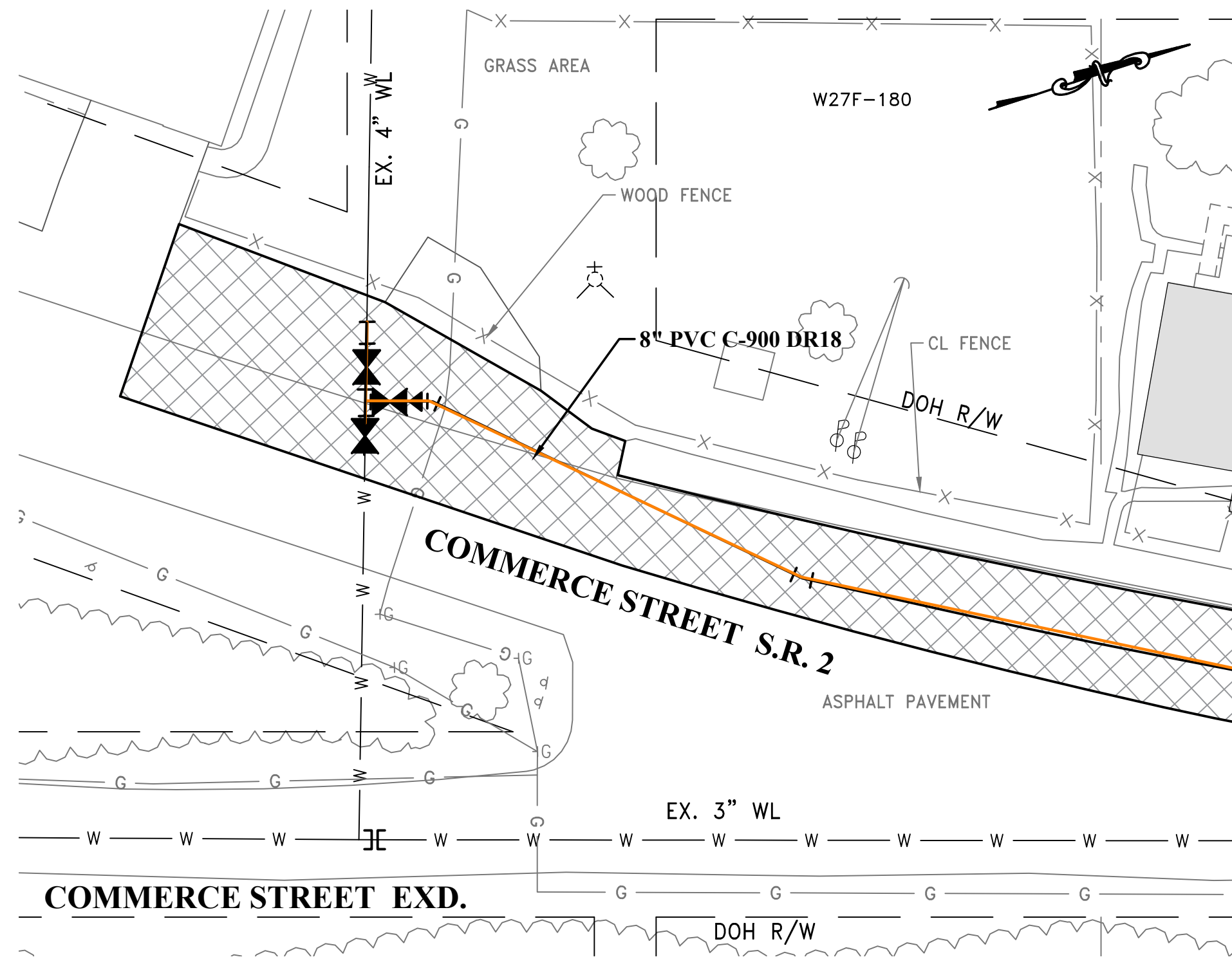
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PROJECT No.
<b>101-010-1117</b>

CITY OF WELLSBURG  
 BROOKE COUNTY, WEST VIRGINIA  
 MAIN ST., CHARLES ST., COMMERCE ST.  
 WATERLINE REPLACEMENT PLAN  
 INTERCONNECTION DETAILS #11-#13

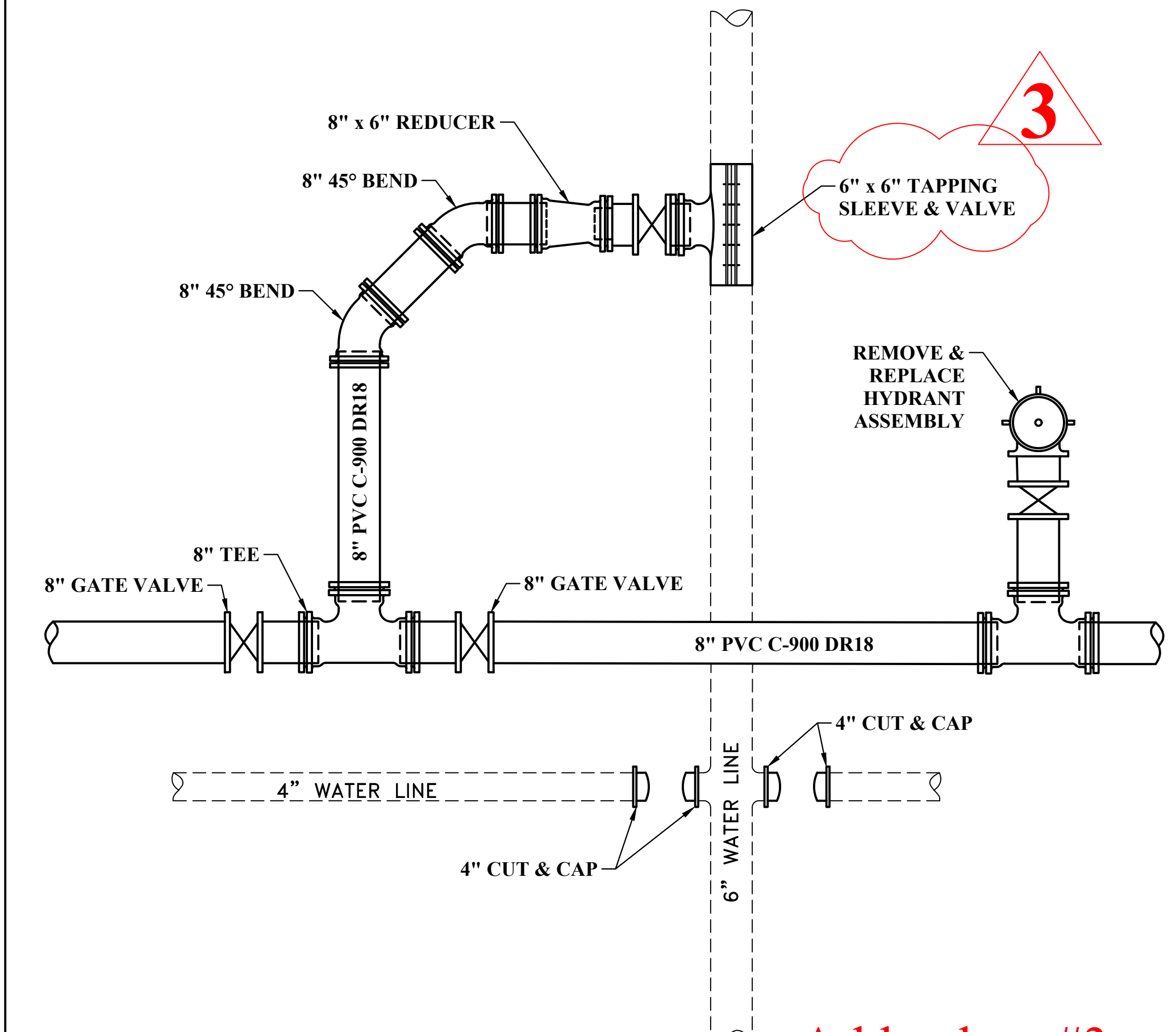
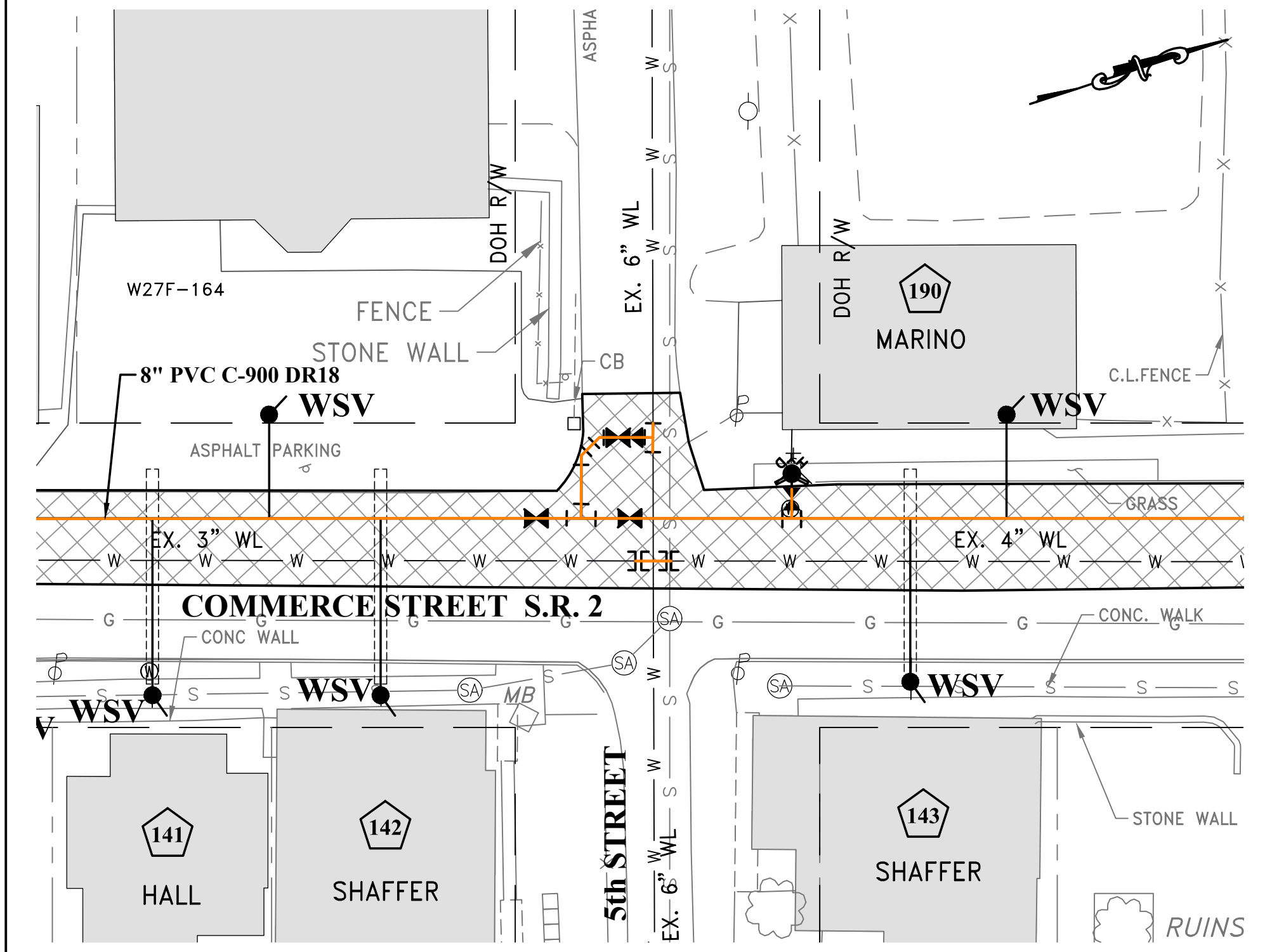
USER: joseph.gotschall  
 LAYOUT: 15  
 PLOT DATE/TIME: 3/19/2021 4:05 PM  
 CAD FILE: R:\010\010-1117-WATERLINE REPLACEMENT-WELLSBURG-Drawing\WATERLINE REPLACEMENT\010-1117 P&P SHEETS (quantity).dwg



**#17**  
**INTERCONNECTION DETAIL CHARLES ST. AND 12th ST.**



**#18**  
**INTERCONNECTION DETAIL COMMERCE ST. AND 3rd ST.**



**#19**  
**INTERCONNECTION DETAIL COMMERCE ST. AND 5th ST.**

**Addendum #3**

1	JLG	2/25/21	REVISED PIPE DIAMETERS FOR DETAIL 18 (ADDENDUM 2)
2	JLG	3/17/21	REVISED DETAIL #19 FROM 6"X8" TO 6"X6" (ADDENDUM 3)
NO.	BY	DATE	DESCRIPTION

SCALE: PLAN: 1" = 20'	DETAIL: NO SCALE
DRAWN: DAC	DATE: MARCH 2021
CHECKED: RSS	DATE: MARCH 2021
APPROVED: SAW	DATE: MARCH 2021
SURVEY DATE:	
SURVEY BY:	
FIELD BOOK No.:	

**THRASHER**

400 3rd STREET  
 CANTON, OH 44702

PHONE (330)-451-2042    www.thrashergroup.com    FAX (330)-451-2043

PHASE No.	
CONTRACT No.	
PROJECT No.	101-010-1117

CITY OF WELLSBURG  
 BROOKE COUNTY, WEST VIRGINIA  
 MAIN ST., CHARLES ST., COMMERCE ST.  
 WATERLINE REPLACEMENT PLAN  
 INTERCONNECTION DETAILS #17-#19

SHEET No.  
**15**