



# BID PACKET

Saline County Road  
Department

Water Utility Adjustments

- Instructions to Bidders
- Bid Date February 13, 2024

# **Bid Document for "Water Utility Adjustments to Clear the area for New Bridges on Samples Road at Hurricane Creek"**

## **Bid Number 2024-00-01**

### **BID OPENING LOCATION:**

Saline County Courthouse  
200 N. Main Street, Suite 116  
Benton, AR 72015

**Bid Opening Date: February 13, 2024**

### **MAIL BID TO OR DELIVER TO:**

Saline County Courthouse  
200 N. Main Street, Suite 116  
Benton, AR 72015

**Time: 2:00 P.M.**

Sealed bids for Providing and laying 1912' of HDPE water pipe and all other incidentals.

**BIDDING DOCUMENTS** may be obtained from Saline County Courthouse, 200 N. Main Street, Suite 116, Benton, AR 72015 during regular business hours, 8:00 a.m. – 4:30 p.m., Monday – Friday.

## **Instruction to Bidders:**

To be considered responsive, Bids must be made in accordance with the following instructions:

### **1. RECEIPT AND OPENING OF BIDS:**

Saline County (hereinafter called the "Owner") invites Bids on the Bid Form attached hereto, all blanks which must be appropriately filled in. Bids will be received by the Saline County Purchasing Manager, Suite 116, Saline County Courthouse, 200 North Main Street, Benton, Arkansas, until **2:00 P.M. on February 13, 2024.**

The Owner may consider informal any Bid not prepared and submitted in accordance with the provisions hereof and may waive any irregularities or reject any or all Bids. Bids received prior to the time of opening will be kept unopened. ***Any Bid received after the time and date specified will not be considered.*** No responsibility will be assumed by any person for the premature opening of a Bid not properly addressed and identified, such bids will be rejected.

## 2. PREPARATION OF BID:

Use Bid Form found herein. Bid prices are to be filled in ink or typewritten, in both words and figures. The signature of the individual authorized to bind the Bidder shall be in longhand. Each bid must be submitted in a sealed envelope bearing on the outside the name of Bidder, address, and Bid Number for which bid is submitted, clearly written, and "**BID ENCLOSED**" noted on the envelope.

## 3. CONDITIONS OF WORK:

Before submitting a Bid, Bidders shall carefully examine the General Conditions of the Contract, the Specifications under the Contract, visit the site(s) of the work, fully inform themselves as to all existing conditions and limitations, and shall include in the Bid the sums to cover the cost of **all items** included in the Contract.

Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of, or interference with others.

## 4. LAWS AND REGULATIONS:

The Bidder's attention is directed to the fact that all applicable State laws, county ordinances, and rules and regulations of all authorities have jurisdiction over construction of the project and shall apply to the Contract throughout, and will be deemed to be included in the Contract the same as though written out in full.

## 5. OTHER:

It shall be understood by submission of Bid that Bidder agrees to the General Conditions as herein specified and if Bid is found to be acceptable to Saline County, the Bid Document will serve as a Contract Agreement with Saline County.

Bid prices shall remain in effect for a period of (1) year. The term of the Contract shall be from the date of the award and will run for one year from that date. The Contract is subject to extension annually for up to three (3) additional years, with an extension to be mutually agreed upon by Saline County and the Bidder. Either party may cancel with a thirty (30) day written notice.

## **BID SCHEDULE:**

BIDDER agrees to provide all materials described below in unit prices.

Item #	Description	Unit Price	Total
1.	Providing 1912' of 12" HDPE Water Pipe Complete with all fittings and other incidentals Two 12" Gate Valves, one 6" Gate Valve, and Fire Hydrant Assembly	_____	_____
2.	Laying 1912' of 12" HDPE Pipe installing two 12" Gate Valves, one 6" gate valve, Fittings, Fire Hydrant Assembly, and blocking	_____	_____
3.	Providing and laying by open cut 562' of 18" Diameter HDPE Encasement	_____	_____
4.	Pouring 94 cubic yards of concrete flowable fill	_____	_____
5.	Sterilizing and Testing Water Main	_____	_____
6.	Maintaining a SWPPP, planting grass	_____	_____
7.	Placing 400 tons of Ballast Gravel	_____	_____

**Total Bid Price:** \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Cell: \_\_\_\_\_ E-mail: \_\_\_\_\_

Person Submitting Bid (PRINT): \_\_\_\_\_

**Signature:** \_\_\_\_\_

Unit prices shall be shown in figures.



**TAXES:** Saline County is NOT exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are RESPONSIBLE to the State Revenue Department for such taxes. ALL APPLICABLE TAXES SHALL BE INCLUDED IN THE BID. The total sales tax rate in the City of Benton is 9.0%. The County is exempt from Federal Excise Taxes on all commodities except motor fuels; and excise taxes should not be included in Bid prices except from motor fuels. Where applicable, tax exemption certificates will be furnished by the County

## **GENERAL CONDITIONS**

1. **ACCEPTANCE AND REJECTION:** Saline County reserves the right to reject any or all bids, to accept bids in whole or in part, to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications where efficiency of operation will not be impaired, and to award bids to best serve the interest of the County.
2. **PRICES:** Unless otherwise stated in the Bid Invitation, the following will apply: (1) unit prices shall be bid, (2) prices should be stated in units of quantity specified as (each), and (3) prices must be F.O.B. destination specified in bid as Saline County, Arkansas.
3. **BID BONDS, PERFORMANCE BONDS, CONTRACTOR'S LICENSE, OSHA (IF APPLICABLE):**
  - a. **Bid Bond:** ACA 22-9-203 (2)(A)(ii)- Every bid submitted on public construction contracts for the state or any agency or department of the state shall be void unless accompanied by a cashier's check drawn upon a bank or trust company doing business in this state or by a corporate bid bond, except for projects under twenty thousand dollars (\$20,000). The bid bond shall be five percent (5%) of the amount of the bid;
  - b. **Performance Bond:** Successful bidder shall provide proof of a performance bond in the amount of the total bid price;
  - c. The Contractor is to supply Saline County with evidence of having and maintaining proper and complete insurance, specifically Worker's Compensation, in accordance with the laws of the State of Arkansas, as well as public liability and property damage insurance;
  - d. The Contractor is to abide by all federal, state, and local which apply to OSHA regulations.
4. **TAXES:** Saline County is not exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are responsible to the State Revenue Department for such taxes. ALL APPLICABLE TAXES SHALL BE INCLUDED IN THE BID. The total sales tax rate in the City of Benton is 9.0%.
5. **SPECIFICATIONS:** Complete specifications should be attached for any substitution or alternate offered, or where amplification is necessary. Bidder's name must be placed on all attachments to the bid.
6. **EXCEPTIONS TO SPECIFICATIONS:** Any exceptions to the bid specifications must be stated in the bid. Any exceptions to manufacturer's published literature must be stated in the bid, or it will be assumed that bidder is bidding exactly as stated in the literature.
7. **BRAND NAME REFERENCES:** All brand name references in bid specifications refer to that commodity or its equivalent, unless otherwise stated in Bid Invitation. Bidder should state brand or trade name of items being bid, if such name exists.
8. **FREIGHT:** All freight charges should be included in bid price. Any change in common carrier rates authorized by the Interstate Commerce Commission will be adjusted if such change occurs after the bid opening date. Receipted common carrier bills that reflect ICC authorized rate changes must be furnished.
9. **SAMPLES AND LITERATURE:** Samples or technical literature must be provided within 14 days of request unless time is extended. Samples of items must be furnished free of charge, prior to or

after the opening of bids, and, if not destroyed, will be returned upon request at the bidder's expense.

10. GUARANTY: Unless otherwise indicated in Bid Invitation, it is understood and agreed that any item offered or shipped on this bid shall be newly manufactured, latest model and design, and in first class condition; and that all containers shall be new, suitable for storage or shipment and in compliance with all applicable laws relating to construction, packaging, labeling and registration.
11. DEFAULT: Saline County reserves the right to reject any and all bids, to accept in whole or in part, to waive any informalities or technicalities in bids received, to accept bids on materials or equipment with variations from specifications in those cases where efficiency of operation will not be impaired and unless otherwise specified by the bidder, to accept any item in the bid.
12. NEGOTIATION: All segments of the bid may be subject to negotiation.
13. QUALITY OF WORK: All work performed pursuant to this bid must be to industry standards and accepted by the County.
14. AMBIGUITY: Any ambiguity in any bid as the result of omission, error, lack of clarity or noncompliance by the bidder with specification, instructions and all conditions of bidding shall be construed in the light most favorable to the County.
15. IDENTICAL BIDS: In the event of two or more identical low bids, Ark. Code Ann. § 14-22-111 shall apply.
16. SEALED BID: **Place the bid in a sealed envelope and write "BID ENCLOSED" and the bid number 2023-00-01 and company name on the outside of the envelope.**

**17. Specifications for Providing and Installing the 12" water main and incidentals shall conform Construction Notes, Specifications, and Details of Salem Water Users Association Public Water Authority October 2022 Prepared by Garnet Engineering, LLC. A pdf set is apart of the bidding package.**

**Water Line Notes:**

- 1. All Water Work Shall comply with the Requirements of Salem Water Users Association Public Water Authority and the Arkansas Plumbing Code.**
- 2. Provide nominal thrust block (minimum 1 cubic yard) at each restrained joint fitting.**
- 3. All fittings shall be MJ restrained with Megalugs. All pipe shall be HDPE. Substitutions require prior approval of engineer.**

**With this work mostly being on ARDOT R/W or associated with ARDOT Project;  
Under this contract all work shall follow and materials used shall conform to  
Arkansas Department of transportation (ARDOT): standard specifications for  
highway construction, latest edition, hereafter referred to as "ARDOT standard  
specifications".**



# WATER UTILITY ADJUSTMENTS TO CLEAR THE AREA FOR NEW BRIDGES ON SAMPLES ROAD AT HURRICANE CREEK

SALINE COUNTY, ARKANSAS

LOCATION MAP



LIST OF QUANTITIES			
ITEM #	DESCRIPTION	UNIT	QUANTITY
1	LAI D 12" HDPE PIPE	L.F.	1912
2	12" GATE VALVE	E.A.	2
3	6" GATE VALVE	E.A.	1
4	FIRE HYDRANT ASSEMBLY	E.A.	1
5	18" DIA. HDPE ENCASEMENT	L.F.	562
6	CONCRETE FLOWABLE FILL	C.Y.	94
7	CONCRETE BLOCKING	C.Y.	15
8	STERILIZING AND TESTING WATER MAIN	L.S.	1
9	SWPPP	L.S.	1
10	PLANT WINTER GRASS	L.S.	1
11	BALLAST GRAVEL	TON	400

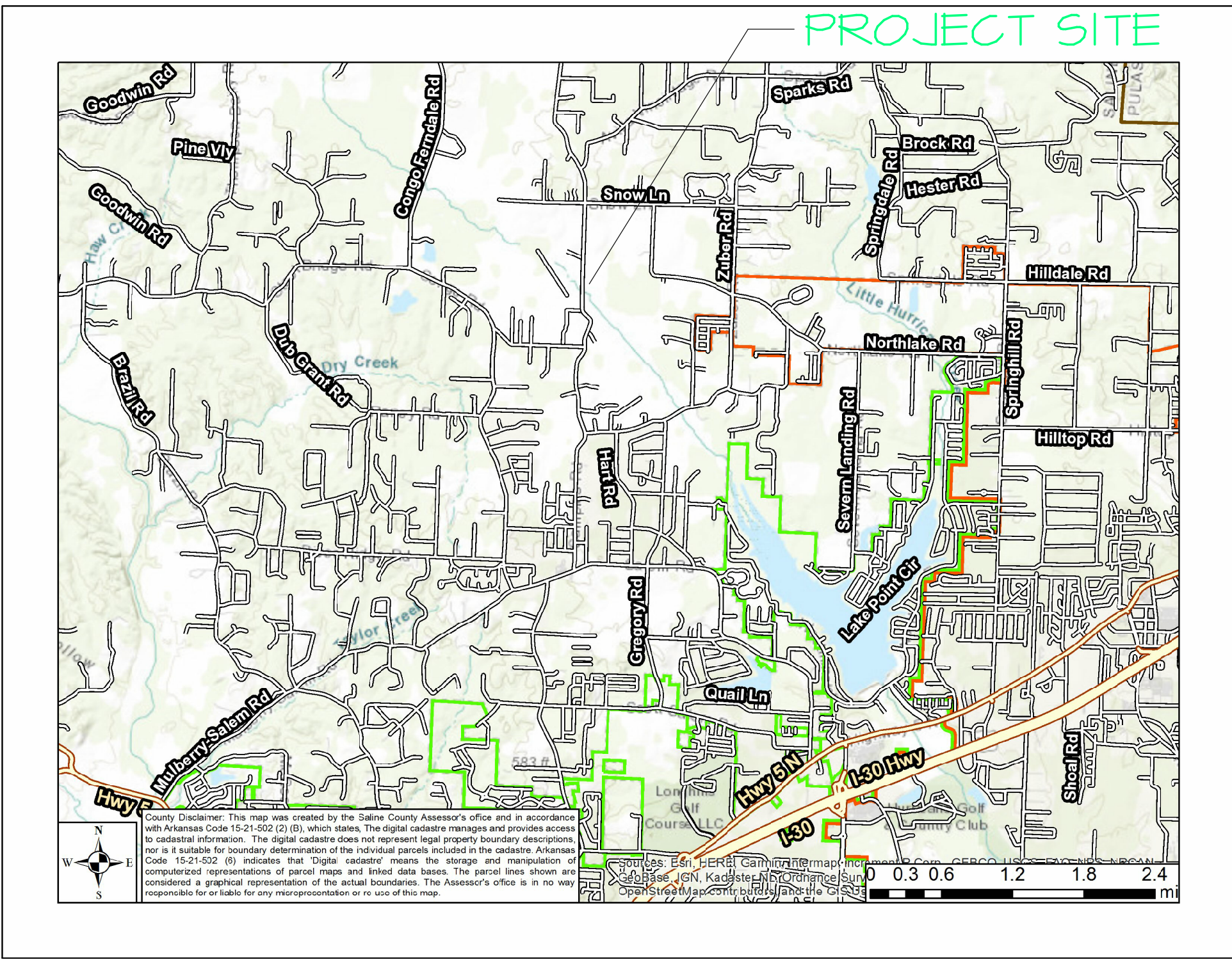
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SEE:  
CONSTRUCTION NOTES, SPECIFICATIONS AND DETAILS  
SALEM WATER USERS ASSOCIATION PUBLIC WATER AUTHORITY  
OCTOBER 2022  
PREPARED BY: GARNET ENGINEERING, LLC

WATER LINE NOTES:  
1. ALL WATER WORK SHALL COMPLY WITH THE REQUIREMENTS OF  
SALEM WATER USERS ASSOCIATION PUBLIC WATER AUTHORITY  
AND ARKANSAS PLUMBING CODE.  
2. PROVIDE NOMINAL THRUST BLOCK (MINIMUM 1 CUBIC YARD) AT EACH  
RESTRAINED JOINT FITTING.  
3. ALL FITTINGS SHALL BE MJ RESTRAINED WITH MEGALUGS. ALL PIPE  
SHALL BE HDPE. SUBSTITUTIONS REQUIRE PRIOR APPROVAL OF  
ENGINEER.

NOTE: UNDER THIS CONTRACT, ALL WORK SHALL FOLLOW AND  
MATERIALS USED SHALL CONFORM TO ARKANSAS HIGHWAY  
AND TRANSPORTATION DEPT. (AHTD):  
STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION,  
LATEST EDITION, HEREAFTER REFERRED TO AS  
"AHTD STANDARD SPECIFICATIONS".



VICINITY MAP

SALINE COUNTY ROAD  
DEPARTMENT  
5555 CYNAMIDE RD.  
BENTON, AR 72015

WATER UTILITY ADJUSTMENTS  
TO CLEAR THE AREA FOR  
NEW BRIDGES ON SAMPLES  
ROAD AT HURRICANE CREEK

HORIZ. SCALE NTS

DATE:  
11/24/23

DRAWN BY:  
JOHN W.

COVER  
SHEET



CONSTRUCTION NOTES

# SPECIFICATIONS AND DETAILS

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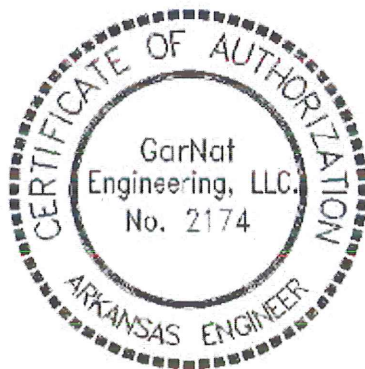
**Salem Water Users Association Public Water Authority**  
**620 Airplane Drive, Benton, Arkansas 72015**



October 2022

**PREPARED FOR**

**Salem Water Users Association PWA**  
**Benton, Arkansas**



Prepared by: GarNat Engineering LLC  
3825 Mt Carmel Rd, Bryant, AR 72022  
Tel 501.408.4650, Fax 888.900.3068

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### **GENERAL NOTES**

1. Salem Water Users PWA water distribution system is maintained and operated by Water Users LLC.
2. Contractors will be responsible for obtaining and familiarizing himself with current Salem Water Users PWA Construction Notes, Specifications & Details.
3. All utilities that lie within the street right-of-way or alley right-of-way must be installed prior to any street sub-grade preparation.
4. Any street, alley, right-of-way, or other property damaged by the contractor or his sub-contractor shall be repaired properly at their expense.
5. No bores shall be made in the State Highway Departments Right-of-Way without first executing an agreement with the Salem Water Users PWA.
6. Obtain all pertinent construction permits for working in city, county, or state rights of ways or easements.
7. Obtain all applicable construction permits from Saline County, the Corps of Engineers, and Arkansas Department of Environmental Quality.
8. The presence or absence of a representative of Salem Water Users PWA on the construction site will not relieve the contractor of full responsibility for the proper performance of his work on the project. Whether a problem is called to the contractor's attention or not, shall in no way relieve the contractor from his responsibility to complete all work in accordance with Salem Water Users PWA Standards and good construction practices.
9. The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by Contractor's work and where existing utilities or service lines are cut, broken, or damaged. The contractor shall replace or repair the same with the same type of original material or better

at his own expense. Failure to show utility or service lines on the plans does not relieve the contractor of the responsibility to prevent damage to said lines.

10. All disturbed grass areas, should be repaired by the developer/contractor with similar grass sod, seeding with mulch, or as otherwise directed by the Engineer or Salem Water Users PWA Inspector.
11. Shop Drawings, material specifications, and equipment data will be submitted for review.
12. A Pre-Design meeting and a Pre-construction meeting is required with Salem Water. Contact Water Users LLC at (501)-315-2212 to schedule the meetings.
13. The contractor/developer shall be responsible for providing "AS-BUILT drawings" plans to the Salem Water Users PWA showing the location of the water services, hydrants, and valves within thirty (30) days after substantial completion. A point file in SHAPEFILE (.shp), comma delimited TEXT (.txt) or CSV (.csv) format using the NAD83/ARKANSAS SOUTH, or WGS84 DECIMAL DEGREE COORDINATE SYSTEM shall also be provided by the contractor.
14. A one year maintenance bond is required to be submitted to Salem Water at the time of substantial completion.

END OF SECTION



### TRENCH SAFETY NOTES

On all trenching in excess of four feet below existing grade, the contractor shall comply with the standards promulgated by the Occupational Safety and Health Administration (OSHA), of the United States Government, regulating excavations, trenching and shoring. Contractors shall refer to and abide by all OSHA regulations published in 29 CFR 1926, ET SEQ., Latest Edition, and any revisions thereto published in the federal register which may become effective during the period of construction.

The Contractor's attention is directed to the separate bid item for trench safety systems, based on the linear feet of trench excavated, under which full payment will be made for trench safety systems, including any additional excavation and back fill required; sheeting, and bracing; for dewatering or diversion of water; for all jacking and jack-removal; and for all other labor, materials, tools, equipment, acquisition of soils information and design of trench safety systems, and incidentals necessary to complete the work. Changes made in the trench safety system after the initiation of construction will not be cause for extension of time, claims for delay or approval of change orders.

It is the sole duty, responsibility and prerogative of the contractor, not the owner or engineer, to perform all trenching in a safe manner and in accordance with OSHA regulations and ***Act 291 of 1993 Trench & Excavation Safety Systems***. Any apparent unsafe trenching conditions observed by owner, engineer, or their representatives on the site, shall be reported to OSHA as well as to contractor's job superintendent. Work stoppages or corrective actions required of contractor by OSHA shall not be cause for extension of time, claims for delay or approval of change orders.

The contractor shall indemnify and hold harmless the Salem Water Users PWA, its employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgments or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this contract. The Contractor acknowledges and agrees that this indemnity provision provides indemnity for the Salem Water Users PWA in case the Salem Water Users PWA is negligent either by act or omission in providing for trench safety, including, but not limited to inspections, failure to issue stop work orders and the hiring of the Contractor. END OF SECTION

### **WATER LINE CONSTRUCTION NOTES**

1. All construction methods and materials shall conform to current Salem Water Users PWA standards and specifications.
2. All water mains shall be:
  - a. PVC (ASTM – D2241) pressure pipe (Class 200, SDR-21)/(Class 250, SDR-17).
  - b. Ductile Iron Pipe 350 psi (conform to AWWA C151/ANSI A21.51)
  - c. HDPE D.I.P.S pipe (Class 160 psi, DR-11),(conform to AWWA C901/C906).
  - d. Approved equal.
3. All water mains 6" to 12" in diameter shall have minimum cover of 36" below finished pavement grade, or 48" below existing or finished grade in unpaved areas, or as required maintaining the required clearances from other utilities.
4. Clearances between water mains and wastewater sewers shall follow the requirements of the Arkansas Department of Health as follows:

Water mains and sanitary sewers shall be constructed as far apart as practicable, and shall be separated by undisturbed and compacted earth. A minimum horizontal distance of ten feet should be maintained between water lines and sewer lines or other sources of contamination. Water lines and sewers shall not be laid in the same trench except on written approval of the Arkansas Department of Health. Water mains in close proximity to sewers must be placed so that the bottom of the water line will be at least 18 inches above the top of the sewer line at its highest point. If this distance must unavoidably be reduced, the water line or sewer line must be encased in water tight pipe with sealed watertight ends extending at least ten feet either side of the crossing. Any joint in the encasement pipe is to be mechanically restrained. The encasement pipe may be vented to the surface if carrying water or sewer under pressure. When a water line must unavoidably pass beneath the sewer line, at least 18 inches of separation must be maintained between the outside of the two pipes in addition to preceding encasement requirement. Exceptions to this must be approved in writing by the Arkansas Department of Health.

5. Water service shall be SDR 9 Water Service Tubing, meeting requirements of AWWA C901 latest edition, and shall include corporation stop, curb stop and meter box at property line. Water services under roadways shall be sleeved in PVC pipe to center of ditch line or two (2) feet behind back of curb.
6. Metallic locator tape shall be installed 12 inches above the pipe. Do not wrap the locator wire around PVC pipe. Place the locator wire a minimum of 4-inches below the pipe and to the side of the trench. Tracer wire shall be insulated 12 gauge copper.
7. The contractor shall furnish maintenance bond to the Salem Water Users PWA to run one (1) year from the date on acceptance of the system by the Salem Water Users PWA.
8. All water lines shall be sterilized per Salem Water Users PWA standards and specifications. The new line extension shall be sterilized in accordance with ADH regulations. Salem personnel will conduct or supervise the bacteriological sampling. Test results will be forwarded to Salem Water office.
9. The horizontal and vertical locations of existing subsurface utilities have been determined from record drawings. The contractor shall verify that necessary clearances between existing and proposed utilities exist prior to the construction of any such crossing.
10. Anchor fittings shall be used to attach fire hydrants. Thrust blocks are required behind hydrant and tee. Mega-lug fittings shall be used on all other tie-ins and fitting connections.
11. All water services outside of easements shall be installed by a plumber or owner.
12. Ductile iron pipe and fittings are to be wrapped in 4 mil polyethylene plastic encasement per ANSI A21.50.

13. No water main shutdowns, connections, or tie-ins shall be allowed with permission only from Salem Water PWA.
14. All water mains located under paved roadways shall be encased with steel pipe unless approved otherwise by Salem Water PWA and sealed with end seals. Water services located under paved roadways shall be encased with Schedule 40 PVC unless approved otherwise by Salem Water PWA.
15. Contractor shall submit names and phone #'s of superintendents to Salem Water PWA office prior to commencement of work. Superintendent must be on job-site at all times while work is being performed.
16. All creek crossings shall be constructed with leak detectors per 10 State Standards Section 8.9.2 Underwater crossings and per the Salem Water Creek Crossing Detail No 8.
17. Route water mains around the inside boundary of the Cul-de Sac's street Right of Way or within a dedicated easement. Water mains or water services are not approved under Cul-de-Sacs.
18. Minimum water main diameter shall be 6-inches and ended with a Post Flush Hydrant.
19. Fittings used for PVC, ductile iron and HDPE pipe shall be mechanical joint (MJ) (AWWA C153). Fittings for PVC and ductile iron shall utilize Mega-lugs. Fittings for HDPE shall utilize D.I.P.S butt fusion x MJ adapter with stainless stiffener and mechanical adapter accessory kit.

END OF SECTION

## **TAPPING SLEEVES AND VALVES**

This section addresses the guidelines for installation of tapping sleeves and valves. A tap for a tapping sleeve and valve will only be made on a pressurized main. Dry taps will not be allowed.

### **GENERAL REQUIREMENTS**

- A. Excavation sites shall be sufficient size to allow machines and crew room to perform the tap.
- B. Existing pipe barrels will be cleaned thoroughly to provide a smooth, hard surface for the gasket of the tapping machine.
- C. Tapping sleeves and valves will be installed in accordance with the manufacturer's instruction.
- D. The use of a shell type cutter with pilot drill will be required. The cutter will be of the size required to cut full opening.
- E. Only qualified operators will operate the tapping machine. The operator is responsible for capture and recovery of the coupon.
- F. Valve boxes shall be cast iron with iron lid suitable for traffic and conform to ASTM A48, Class 20 specs.
- G. Valve boxes and extensions shall be provided with a petroleum asphaltic coating in accordance with the latest revision of AWWA/ANSI C151/A21.51.
- H. Concrete donuts shall be installed around the top of the valve box
- I. The tapping sleeve and valve must pass the same hydrostatic testing and maintain a test pressure as the adjacent pipeline, with no visible leaks.

### **ACCEPTABLE MANUFACTURERS**

- A. Smith/Blair Style 662

END OF SECTION

## **RESILIENT-SEATED GATE VALVES**

This section will give specifications on resilient-seated gate valves with nominal diameters of 2" and larger. All products shall confirm to ANSI/AWWA C-509, latest edition.

### **GENERAL REQUIREMENTS**

- A. Minimum design working water pressure shall be 250 psi unless otherwise specified.
- B. These resilient-seated types are bronze mounted with stainless steel stems. When open the valve shall have a clear, full-port, unobstructed waterway.
- C. Ductile iron, full body, steel, brass and bronze materials shall meet or exceed the material requirements of AWWA C509, latest edition.
- D. Valves can be designed for buried installation with stem in a vertical position and be furnished for mounting in a horizontal pipe.
- E. Valve ends will be either mechanical joint, flanged or screwed. Mechanical joints will be supplied with Mega-lugs, bolts and gaskets.
- F. All gate valves will open left (counter clockwise).

### **ACCEPTABLE MATERIALS AND MANUFACTURERS**

- A. Body-Bonnet-Gland-Flange-Wrench Nut: Ductile Iron ASTM A 536
- B. Coating Epoxy resin meets or exceeds AWWA C550 Standards
- C. Stem Standard: Stainless steel ASTM A582
- D. Wedge Ductile Iron ASTM A 536 encapsulated with EPDM rubber compound
- E. Wedge Nut-Thrust Collar Bronze
- F. Bonnet Bolts: Stainless Steel 304 sealed with hot melt
- G. Gland Bolts Stainless Steel 304 Hexagon bolt
- H. Bonnet Gasket ASTM D 2000 Buna "N" nitrile
- I. Valves shall be AVK Series 25, Clow Product F-6100 or Salem Water Users PWA approved equal.
- J. Valve boxes to be Mueller H-10364, Clow Corporation F-2452, or approved equal.

END OF SECTION

## **FIRE HYDRANTS**

The specifications for post-type or dry-barrel fire hydrants will conform to ANSI/AWWA C502 or latest revision standards.

### **GENERAL REQUIREMENTS**

- A. Acceptable manufacturers:
  - 1. Fire Hydrants - Mueller Company, Super Centurion or American AVK series 2700
  - 2. Post Hydrants - Mueller #A 408, #A 411 or American AVK Series 67
- B. Minimum working pressure will be 150 psi.
- C. Test pressure will be 300 psi.
- D. The nominal diameter of the main fire hydrant shall be 5 1/4 inches.
- E. The operating nut, stainless steel main stem, coupling and main valve shall be capable of withstanding input torque of 200 ft. lbs in opening and closing direction.
- F. Nozzle section of hydrant shall be designed to permit field replacement of damaged threads without special tools, excavation or disturbing of ground line.
- G. Steamer nozzles on fire hydrants shall be 18" above the top of the curb or finished grade, and shall face the center of the fire lane or street. Fire hydrants shall usually be located four (4) feet, but not less than two (2) feet or more than six (6) feet, behind the curb.
- H. The fire hydrant shall open counter-clockwise.
- I. Fire hydrants will be painted with standard "fire hydrant red" enamel paint.
- J. Fire hydrant outlet nozzle threads are to conform to National Fire Protection (NFPA) 1963 standard for fire hose connections.

All fire hydrants in the system are tested and results documented yearly by water association. Results are kept in a data program and on the GIS mapping system.

**END OF SECTION**

## **THRUST BLOCKS AND ANCHOR COLLARS**

### **GENERAL REQUIREMENTS**

- A. All bends, tees, caps, plugs and fire hydrants shall be thrust blocked unless otherwise specified.
- B. Concrete for thrust blocks shall be placed in undisturbed soil and soil that is free of water.
- C. No thrust blocks shall be less than 6" thick between the pipeline or appurtenances and the undisturbed soil.
- D. Concrete shall not be placed if the temperature is below 40° F and should be able to cure for at least 24 hours.
- E. Thrust blocks and anchor collars shall be adequate to restrain the pipeline and appurtenances at specific test pressure.

END OF SECTION



## **BACKFILL AND BEDDING MATERIALS**

### **GENERAL REQUIREMENTS**

- A. Trenches and other excavations should be backfilled as soon as possible after pipe is installed.
- B. Stones over 1-1/2 inches in size, frozen clumps, roots and debris should not be placed in close proximity to the pipe.
- C. Stones with sharp edges or crushed rock that could damage pipe shall be excluded from the initial backfill in accordance with AWWA Manual M23 section 7-1.
- D. Pea gravel, sand or other granular materials that conform to ASTM C33, latest edition, Size No.7 shall be used for bedding.
- E. In areas where sod, trees or other vegetation has been removed the top 3" — 6" should be top soil.

END OF SECTION

## HYDROSTATIC TEST FOR WATER MAINS

### GENERAL REQUIREMENTS

- A. Hydrostatic testing of water mains is required upon completion of construction of any water main.
- B. Pipelines, fire hydrants and all appurtenances shall be hydrostatic tested.
- C. The hydrostatic test duration of each water main line test section is 2 to 4 hours (uninterrupted).
- D. All water main(s) will be given a hydrostatic test of at least 200 psi (*at the lowest point in the tested pipe section*) or 2 times the operating pressure of the water system, whichever is greater. The test will not exceed the pipe or valve rated pressure.
- E. Testing allowance for **PVC pipe** shall comply with AWWA C605, latest edition, Section 7.3.6 maximum allowance for makeup water as follows:  **$Q = LD(P)^{0.5} / 148,000$**

Where:

Q = Quantity of makeup water in gallons per hour  
L = Length of pipe section being tested, in feet  
D = Nominal diameter of the pipe, in inches  
P = Average test pressure during the hydraulic test in psi

- F. Testing allowance for **Ductile Iron Pipe** shall comply with ANSI/AWWA C600, latest edition, maximum allowance for makeup water as follows:  **$L = SD(P)^{0.5} / 133,200$**

Where:

L = allowable leakage, in gallons per hour  
S = length of pipe tested, in feet  
D = nominal diameter of the pipe, in inches  
P = average test pressure during the leakage test, in psi

### FAILURE OF HYDROSTATIC TESTING

Any water main with visible leaks or fails the hydrostatic test must be repaired and retested. The contractor is responsible for the cost of repair and retesting.

END OF SECTION

## **WATER MAIN DISINFECTION**

### **GENERAL REQUIREMENTS**

- A. All water main lines, valves, and appurtenants shall be disinfected upon completion of the hydrostatic pressure testing in accordance with the requirements of ANSI/AWWA C651, latest edition, or using a method approved by Arkansas Department of Health.
- B. Chlorine compound used for disinfection shall be calcium hypochlorite in granular form containing 65 percent available chlorine by weight and must conform to ANSI/AWWA B300, latest edition.
- C. Salem Water personnel will operate the valves connected to the existing water system for flushing, disinfection and sampling. The contractor can operate all other water main valves within the system being disinfected.
- D. Fire hydrants will be bagged within the new system until all water mains have passed the disinfection test.
- E. Testing of the new lines will be done by the contractor using all necessary equipment as approved by the Arkansas Department of Health.
- F. The contractor will furnish copies of the ADH bacteriological test reports of the water mains to the engineer and Salem Water.
- G. The Contractor is responsible for all erosion damage and any downstream flood damage caused by the flushing operation.

### **DISINFECTION PROCEDURES**

- A. Salem Water personnel will open main valves connected to the existing system while the contractor manipulates the water valves within the new pipe network to ensure that the level of concentration of chlorine meets standards.
- B. Before the water main is disinfected the contractor will flush lines to remove trapped air and other debris through fire hydrants. Chlorine can then be introduced into the new lines.
- C. Provide and attach equipment required to execute Work of this Section.
- D. Utilize fire hydrants as blow-off points when possible.

- E. Fire hydrants shall not be used for sample points.
- F. Sample points constructed shall be  $\frac{3}{4}$  inch or 1 inch HDPE SDR9 Drisco Pipe or equal that shall extend adequately above the ground surface.
- G. During application of chlorine solution, prevent solution from flowing back into the distribution system.
- H. Disinfect piping system by The Continuous Feed Method as follows:

Continuous Feed Method

- a. Calcium hypochlorite granules may be placed in the water line during installation. Provide a chlorine dosage of 25 mg/l.
  - b. After installation flush water line to remove particulates. Velocity in the water line shall not be less than 2.5 ft./sec.
  - c. Fill water line with water dosed with chlorine. Chlorine concentration shall not be less than 25-mg/l free chlorine.
  - d. Retain chlorinated water in water line for 24 hours. Operate valves and hydrants during this time to disinfect.
  - e. Chlorine residual in water shall not be less than 10 mg/l at the end of the 24-hour period.
- I. The treated water will remain in the pipes for 24 hours. The contractor can then flush the treated water from the pipes through fire hydrants. After the final flushing the contractor can collect samples for testing by ADH. Water samples will be taken 24 hours apart and submitted to the ADH for analysis. If the samples fail the disinfection procedure will be repeated. If the samples pass the ADH, Salem Water personnel can open the valves within the new system and then the bags on the fire hydrants can be removed.

END OF SECTION

## **WATER METERS AND METER BOXES**

This is a guideline for installation and testing of residential and/or commercial water meters and boxes.

### **GENERAL REQUIREMENTS**

- A. Water service will be SDR 9 water service tubing and include corporation stops, curb stops, schedule 80 meter spud & meter boxes.
- B. All meter boxes installed in vehicular areas will be traffic boxes.
- C. All sprinkler meters will be installed with RPZ and must be inspected every year.
- D. Actual water meter will be set by Salem Water personnel.
- E. The water meter boxes to be Carson/Brooks water products Meter Box cover metal reader lid or equal as approved by owner. One-inch meters will require an 18" cover. Water meter boxes shall be furnished and installed by the contractor after the paving contractor has completed the finish grading behind the back of the curb. Each service location will be tied to property corners on the "AS-BUILT drawings".
- F. All meter boxes shall be located in non-traffic areas.

### **ACCEPTABLE MANUFACTURERS**

- A. Meter Setters — Ford 70 Series Coppersetter
- B. Corporation Stops — Ford Meter Co. Type F1000
- C. Saddles — Ford Meter Box Co Model S70
- D. Meter Boxes - Carson/Brooks #1419-12-BD-9 with 12" or 18" cover depending on meter size
- E. Drisco — SDR 9 Water Service Tubing

END OF SECTION

## **LANDSCAPING AND SODDING**

The contractor shall establish turf on pipelines and areas damaged as a result of construction.

### **GENERAL REQUIREMENTS**

- A. Contractor will provide grading and establishment of grass.
- B. Contractor will shape, trim and finish affected areas to desired shape and contour.
- C. Existing topsoil will be used when it is practical.
- D. Seeding/sodding will be conducted under favorable weather conditions and seasons.
- E. Mechanical seeding or hydro seeding is acceptable.
- F. Sod will be machine cut and delivered on pallets no more than 18 hours before laying
- G. Contractor will make every effort to restore damaged area to its original condition or better.

### **ACCEPTABLE MATERIALS**

- Common Bermuda grass seed
- Winter barley or annual rye grass seed
- Centipede sod
- Bermuda sod

### **LANDSCAPING PROCEDURES**

- A. GRADING OF TOPSOIL
  - 1. Shape the topsoil over the area to the desired shape and contour.
  - 2. Apply commercial fertilizer at the Agricultural Extension Agent's recommended rate, distributing it uniformly with a mechanical spreader.
- B. FINISH GRADING
  - 1. Thoroughly mix the topsoil and fertilizer.
  - 2. Rake the area to a uniform grade so that areas drain in the same manner as at the start of the Project.

3. Lightly compact before planting grass.
  4. Remove trash and stones exceeding 2 inches in diameter from area to a depth of 2 inches prior to preparation and planting grass.
- C. TIME OF SEEDING
1. Conduct seeding under favorable weather conditions during seasons, which are normal for work, as determined by accepted practice in locality of project.
- D. MECHANICAL SEEDING
1. Sow grassed areas evenly with a mechanical spreader at rate of 100 pounds per acre, minimum, or as otherwise recommended by the Agricultural Extension Agent. Roll with cultipacker to cover seed, and water with fine spray. Method of seeding may be varied at discretion of Contractor on his own responsibility to establish a smooth, uniformly grassed area.
- E. HYDROSEEDING
1. Seed may be applied by hydro seeding method. Seeding shall be done within 10 days following soil preparation. Hydro seed areas at rate of 100 pounds seed and 500 pounds ammonium phosphate per acre, minimum, or as otherwise recommended by the Agricultural Extension Agent.
  2. Proceed with seeding operation on moist soil, but only after free surface water has drained away.
  3. Exercise care to prevent drift and displacement of mixture into other areas.
- F. WINTER PROTECTIVE SEEDING
1. Winter barley or annual rye grass applied at a rate of 120 pounds/acre shall be used after September 15 or as recommended by the Agricultural Extension Agent.
  2. Areas receiving temporary winter protective seeding shall be re-seeded when weather conditions become favorable.
- G. MAINTENANCE
1. Begin maintenance immediately after each portion of grass is planted and continue until a reasonable stand of grass has been obtained. Water to keep surface soil moist. Repair washed out areas by filling with topsoil, fertilizing, and seeding.
- H. GUARANTEE
1. If, at the end of a 180-day period, a satisfactory stand of grass has not been produced, the Contractor shall renovate and reseed the

grass or unsatisfactory portions thereof immediately, or, if after the usual planting season, during the next planting season. If a satisfactory stand of grass develops by July 1 of the following year, it will be accepted. If it is not accepted, a complete replanting will be required during the planting season.

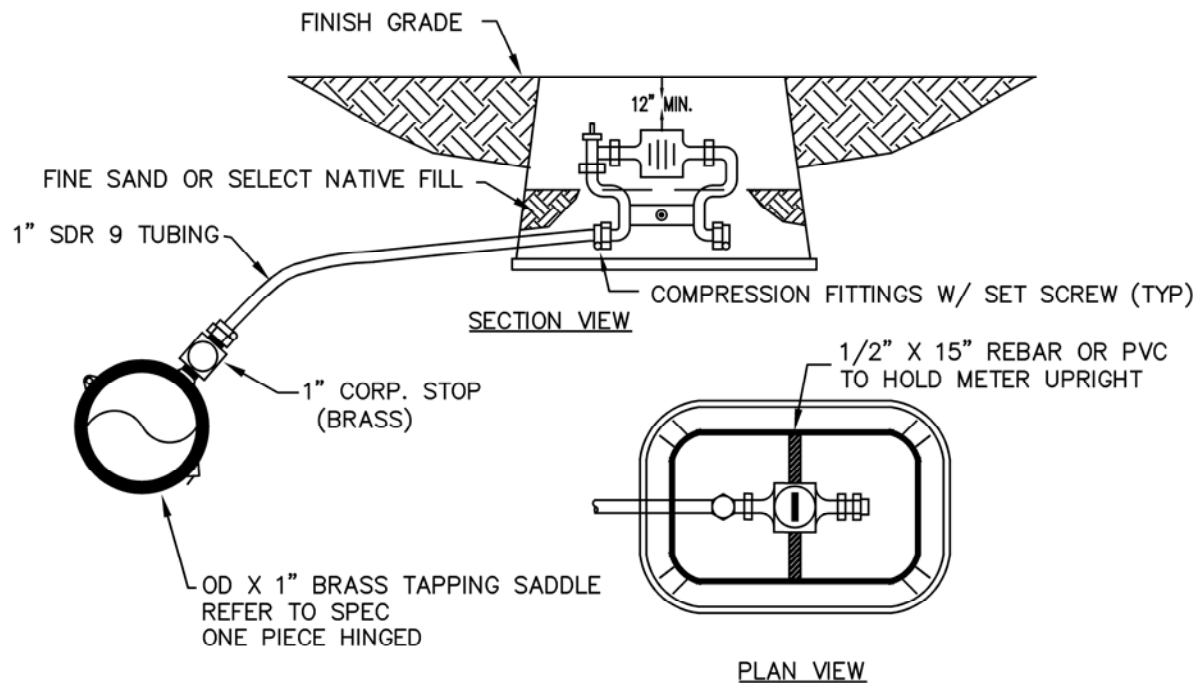
2. A satisfactory stand is defined as grass or section of grass that has:
  - a. No bare spots larger than 1 square foot.
  - b. Not more than 10 percent of total area with bare spots larger than 1 square foot.
  - c. Not more than 15 percent of total area with bare spots larger than 6 inches square.

END OF SECTION



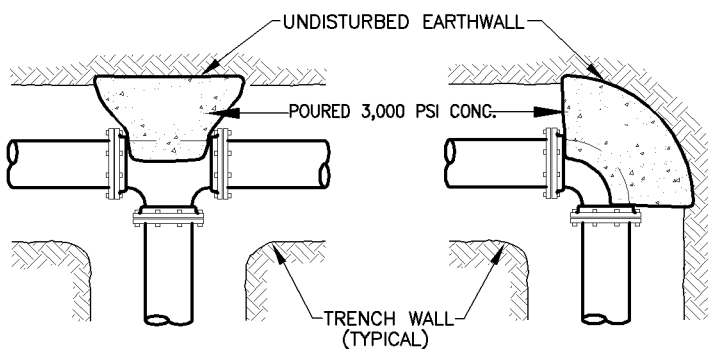
CONSTRUCTION NOTES

1. CARSON/BROOKS WATER PRODUCTS METER BOX  
#1419-12-BD-9 18" COVER METAL READER LID
2. ALL WATER SERVICES BORED UNDER THE  
ROADWAY SHALL BE SLEEVED IN PVC PIPE



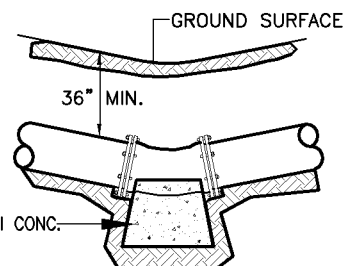
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REV. OCTOBER 2021  
REV. MARCH 2013

**SINGLE METER DETAIL**



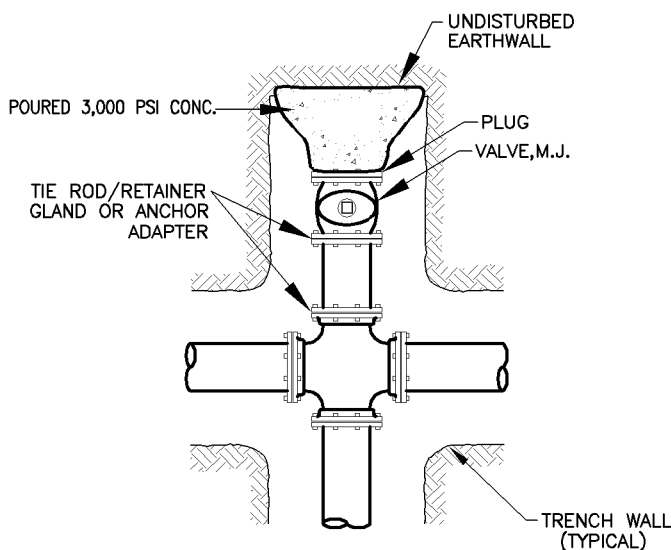
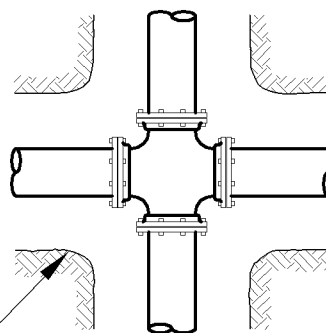
TEE

90° BEND  
 45° BEND (SIMILAR)  
 22 1/2° BEND (SIMILAR)  
 11 1/4° BEND (SIMILAR)



VERTICAL (CRADLE)

45° BEND  
 22 1/2° BEND (SIMILAR)  
 11 1/4° BEND (SIMILAR)

CROSS WITH PLUG/CAP  
TEE WITH PLUG (SIMILAR)

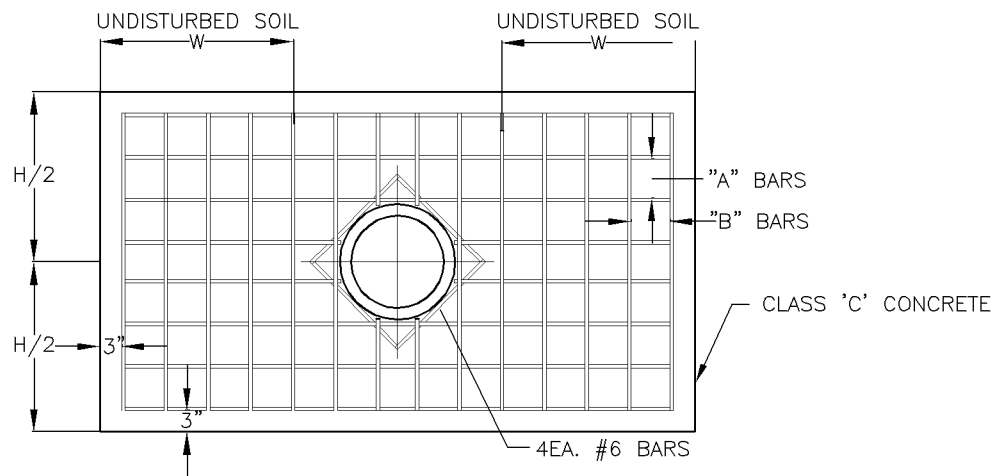
CROSS

## NOTES:

1. All fittings shall be mechanical joint with retainer glands.
2. Do not cover bells or flanges with concrete.
3. Wrap all fittings with visqueen.
4. Back all tees according to size of branch.
5. Backing future line extensions shall be such that later removal is possible.
6. All bends where fittings are used, both horizontal and vertical, shall be backed.
7. Reaction backing table is based on 150 p.s.i. and soil bearing pressure of 2,500 lb./sq. ft. Additional backing may be required in some areas as directed by engineer.

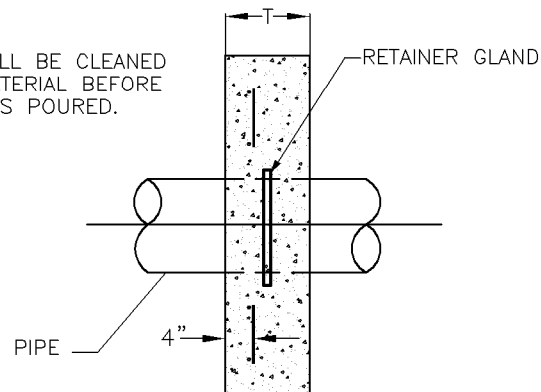
REACTION BACKING TABLE					
REQUIRED SQ. FT. OF UNDISTURBED EARTH WALL FOR REACTION BACKING					
SIZE	TYPE OF FITTINGS				
	TEE OR PLUG/CAP	90°	45°	22 1/2°	11 1/4°
4"	2	2	1	1	1
6"	3	3	2	1	1
8"	4	4	3	2	2
12"	10	10	5	3	2
18"	26	26	14	7	4
24"	38	38	20	10	7
30"	59	59	32	16	10

ANCHOR COLLAR SCHEDULE					
PIPE SIZE	DIMENSIONS				REINFORCING BARS
	W	H	T	M	"A" BARS "B" BARS
6"	1.5'	2.0'	1.0'	M.J. RETAINER GLAND	#6@6"
8"	1.5'	2.5'	1.0'	M.J. RETAINER GLAND	#6@6"
12"	2.0'	4.0'	1.5'	M.J. RETAINER GLAND	#6@6"
18"	3.0'	5.0'	2.0'	M.J. RETAINER GLAND	#6@6"
24"	3.5'	5.5'	2.0'	M.J. RETAINER GLAND	#7@6"



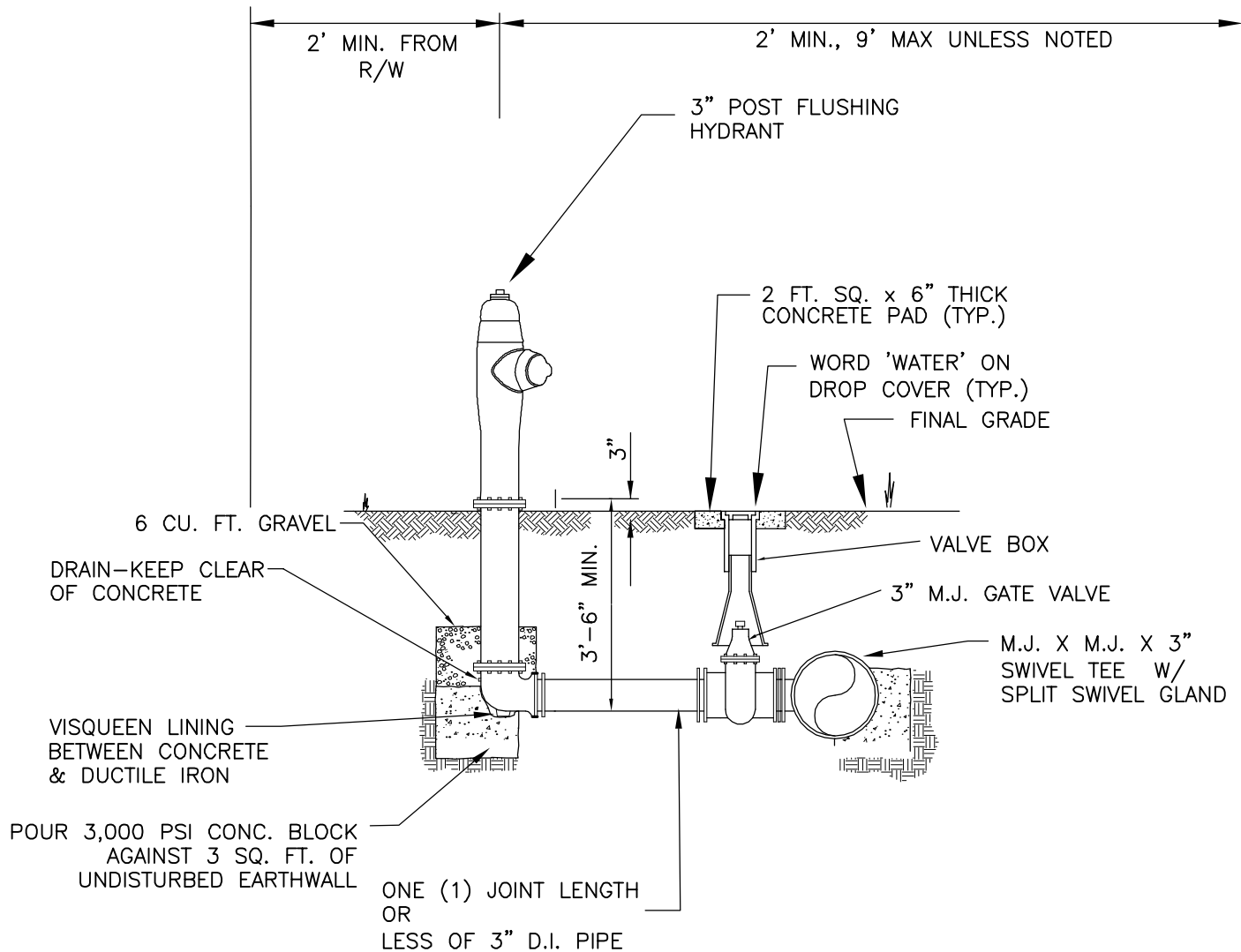
**ANCHOR COLLAR (ELEVATION)**

NOTE:  
PIPE SURFACES SHALL BE CLEANED  
OF ALL FOREIGN MATERIAL BEFORE  
CONCRETE COLLAR IS POURED.



## NOTES:

ALL HYDRANTS TO BE SET  
PLUMB W/NOZZLE FACING  
STREET.



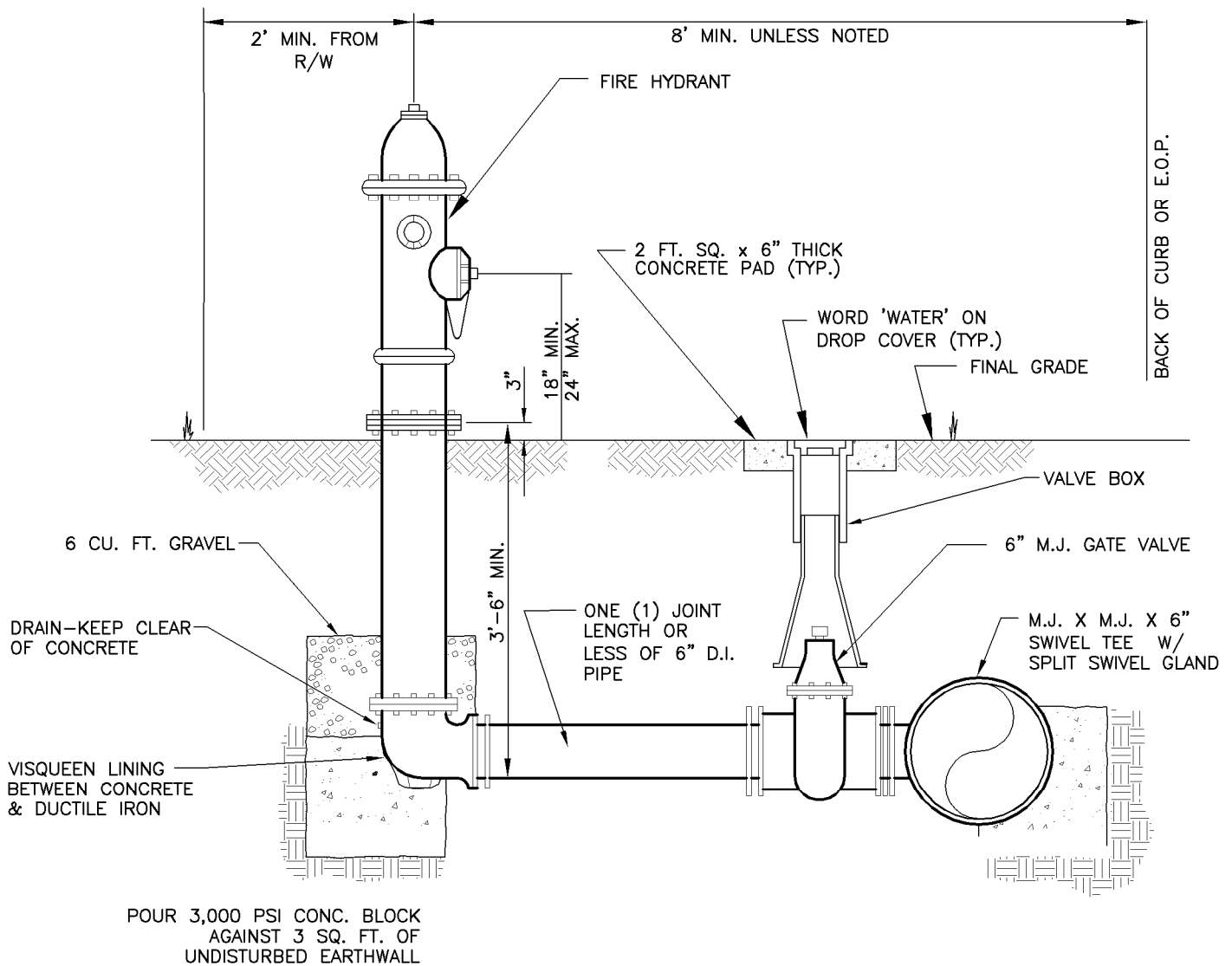
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REV. MARCH 2013

### 3" POST FLUSHING HYDRANT

## NOTES:

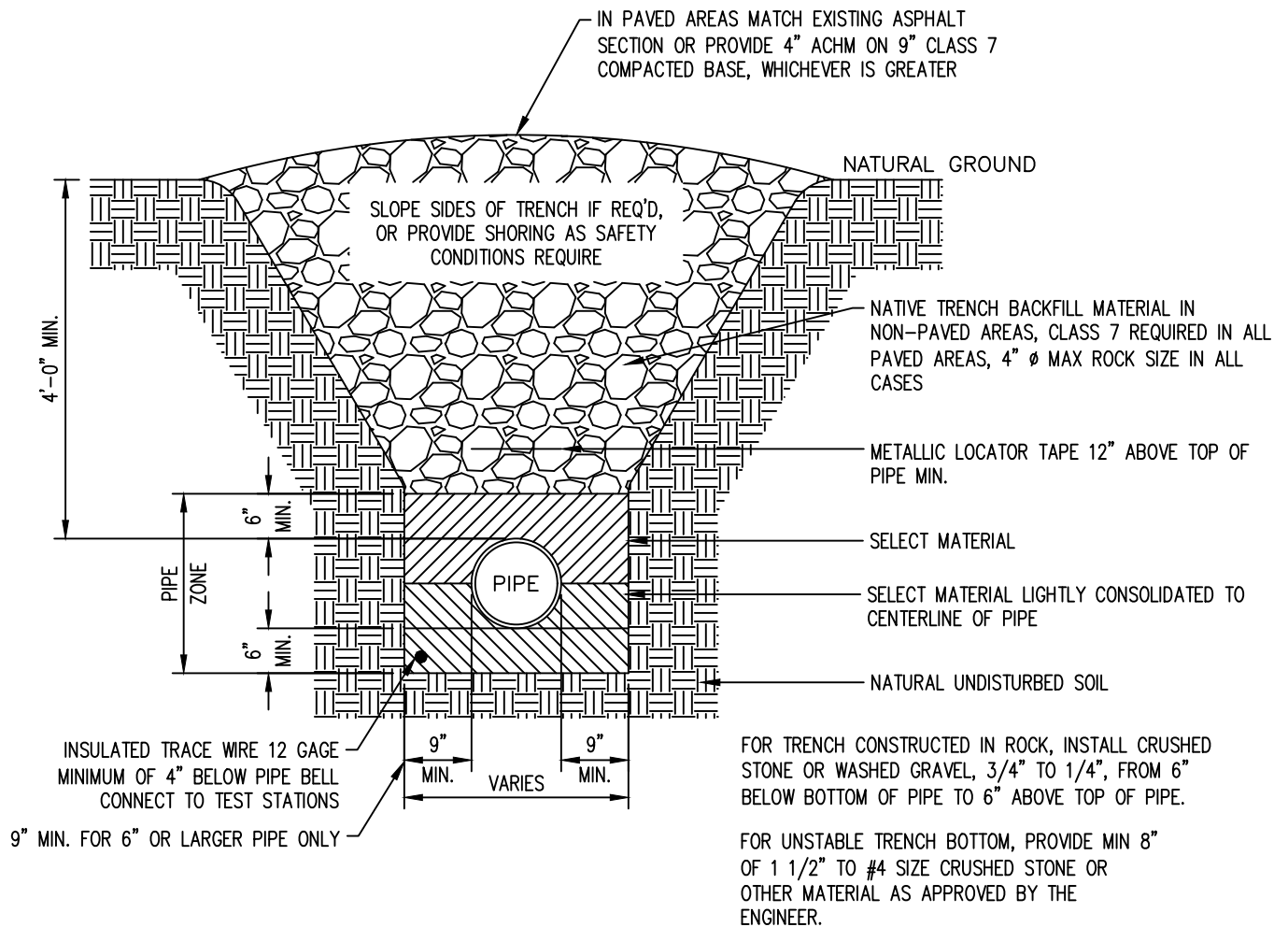
ALL HYDRANTS TO BE SET  
PLUMB W/NOZZLE FACING  
STREET.

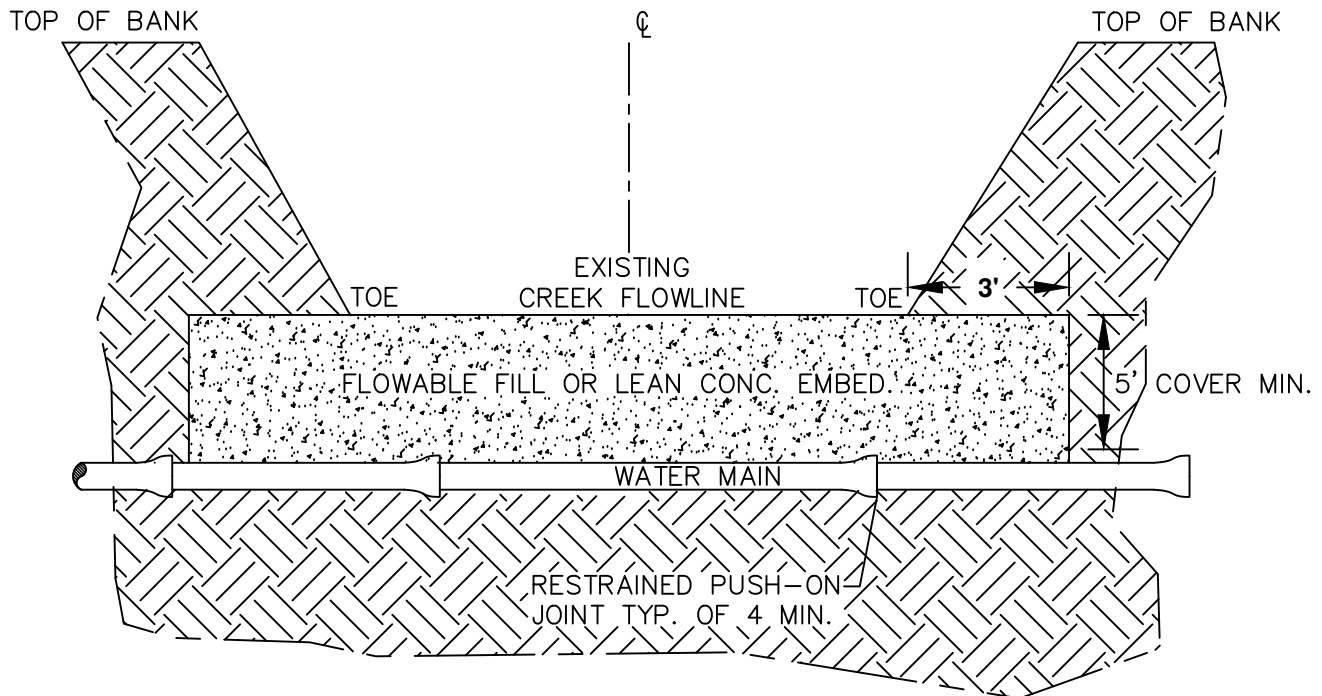


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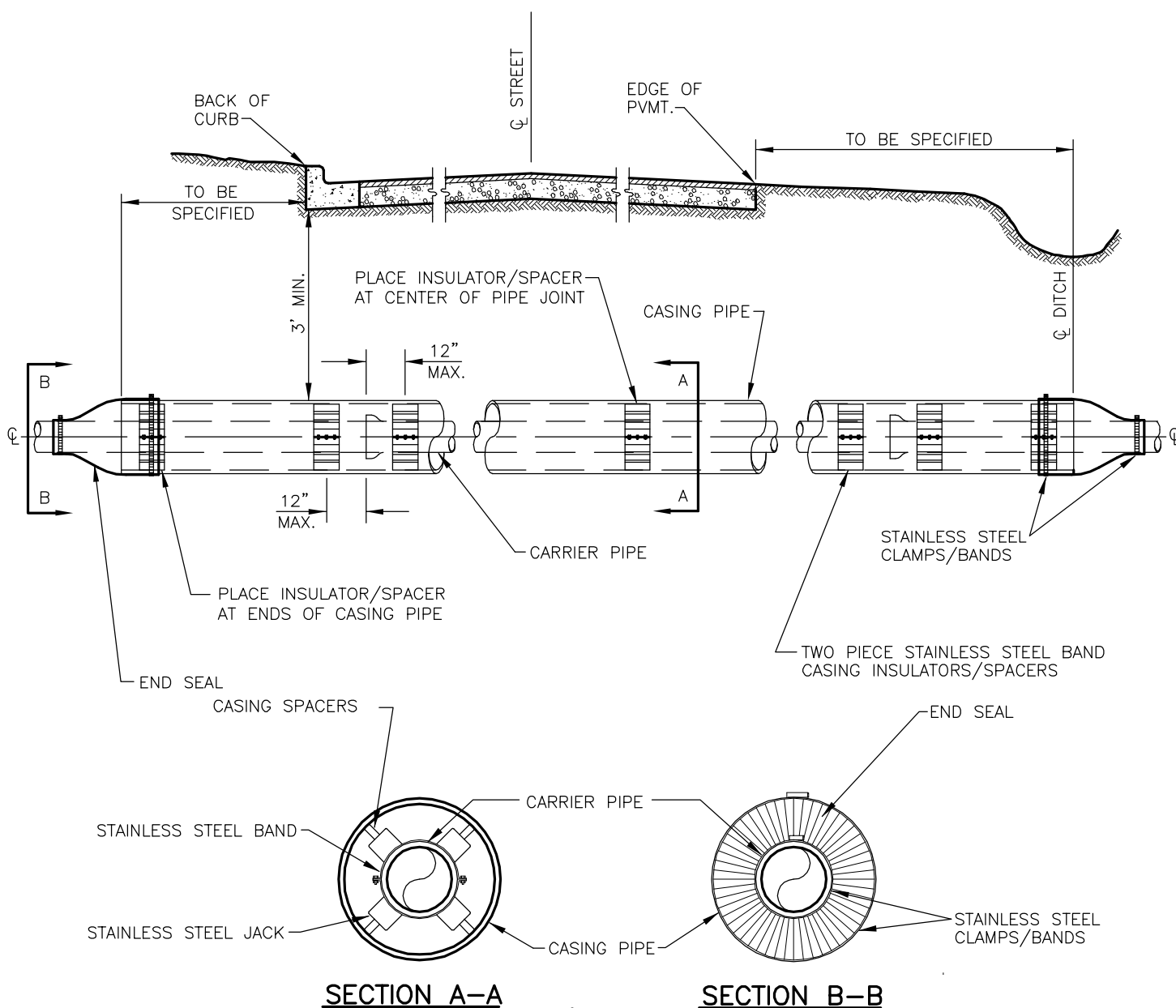
## TYP FIRE HYDRANT INSTALLATION





NOTES:

1. PIPE MATERIAL SHALL BE DUCTILE IRON RESTRAINED WITH AMERICAN FAST GRIP GASKET OR APPROVED EQUAL. PROVIDE MJ SOLID SLEEVES AS REQUIRED TO TRANSITION FROM DUCTILE IRON TO PVC ON EITHER SIDE.
2. WRAP DUCTILE IRON PIPE IN POLYWRAP PER SPECS.
3. CENTER JOINT OF PIPE ON CREEK CENTERLINE.
4. EMBED IN LEAN CONCRETE, PIPE  $\phi + 6"$ , UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. SEE TRENCH DETAIL FOR TRENCH WIDTH.
6. WHEN CROSSING WATER COURSES WHICH EXCEED 15 FEET IN WIDTH:
  - a. PROVIDE VALVES AT BOTH ENDS OF WATER CROSSING SO THE SECTION CAN BE ISOLATED FOR TESTING OR REPAIR. VALVES SHALL BE EASILY ACCESSIBLE AND NOT SUBJECT TO FLOODING.
  - b. PERMANENT TAPS OR OTHER PROVISIONS TO ALLOW INSERTION OF A SMALL METER TO DETERMINE LEAKAGE AND OBTAIN WATER SAMPLES ON EACH SIDE OF THE VALVE CLOSEST TO THE SUPPLY SOURCE.



CARRIER & CASING SIZES						
CARRIER	6"	8"	12"	18"	24"	30"
CASING (STEEL) FOR PVC & DI	16"	16"	24"	30"	36"	48"
CASING (STEEL) FOR HDPE	10"	12"	18"	24"	30"	42"
CASING/WALL THICKNESS	.250	.250	.375	.500	.500	.625

#### CONSTRUCTION NOTES:

1. A MIN. OF THREE SPACERS IS REQUIRED PER JOINT; SPIGOT, MIDDLE & BELL (MAX. OF 2 FT. SEPARATION OF SPACERS AT JOINT). MAX. ALLOWABLE CLEARANCE BETWEEN I.D. OF CASING PIPE & TOP RUNNER OF SPACER IS 1".
2. ALL DUCTILE IRON PIPE JOINTS WITHIN CASING SHALL HAVE "FIELD LOK" GASKET. EACH RESTRAINED JOINT SHALL BE IDENTIFIED BY A MARK ON THE PIPE BELL.
3. MARKER POST SHALL BE INSTALLED PLUM AND WITHIN 6" OF THE RIGHT-OF WAY.
4. END SEALS SHALL BE SEALED AS SHOWN AND MANUFACTURED BY BWM COMPANY, MODEL BWM-PO OR EQUAL.
5. ENCASEMENTS FOR MAINS 2" AND LARGER THAT CROSS ROADWAYS CONTROLLED BY THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT SHALL HAVE A MARKER POST PLACED AT EACH RIGHT-OF-WAY LINE.

UPDATED OCT 2022

REV. OCT 2021

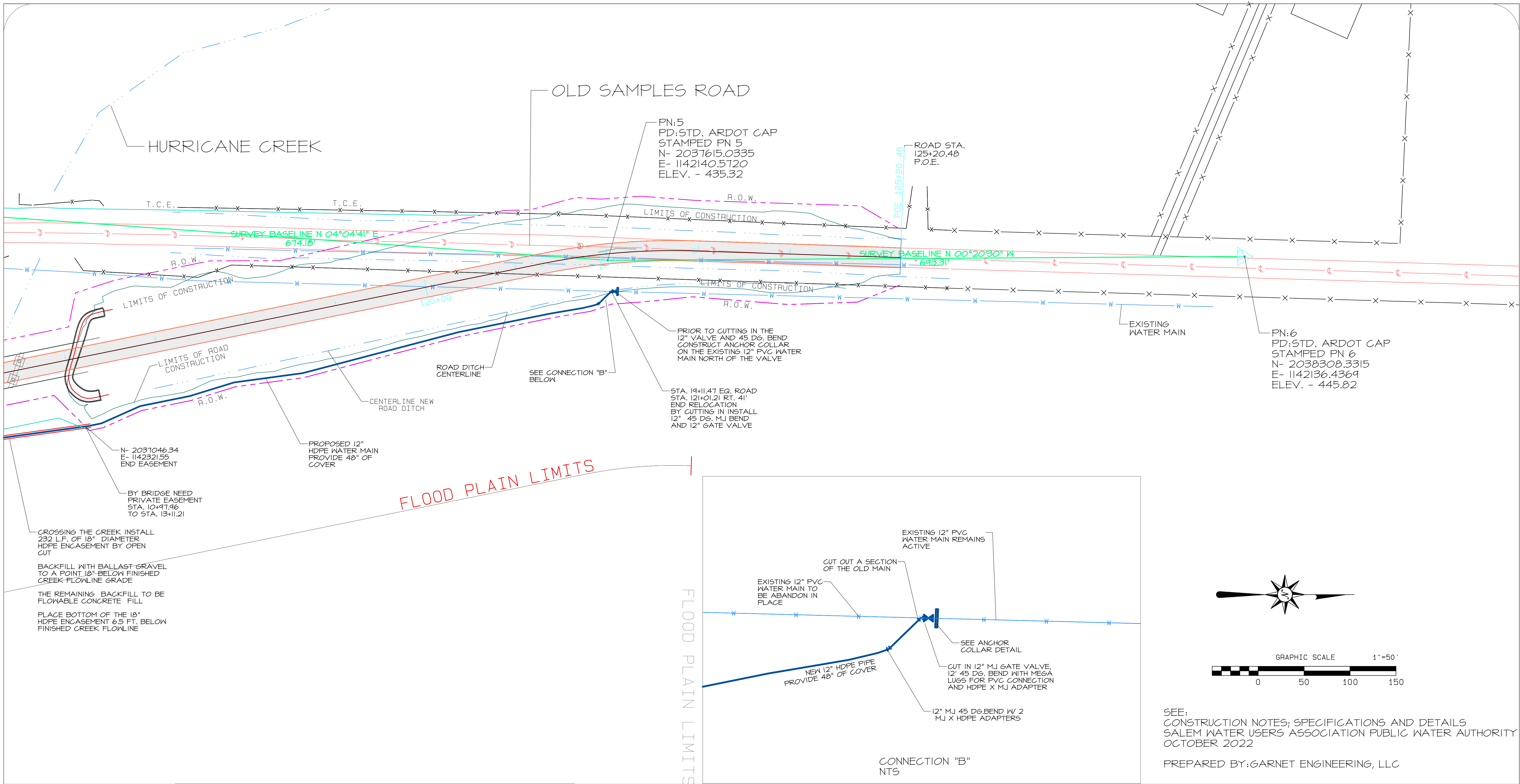
REV. MARCH 2013

**JACK & BORE  
UNDER ROADWAY**

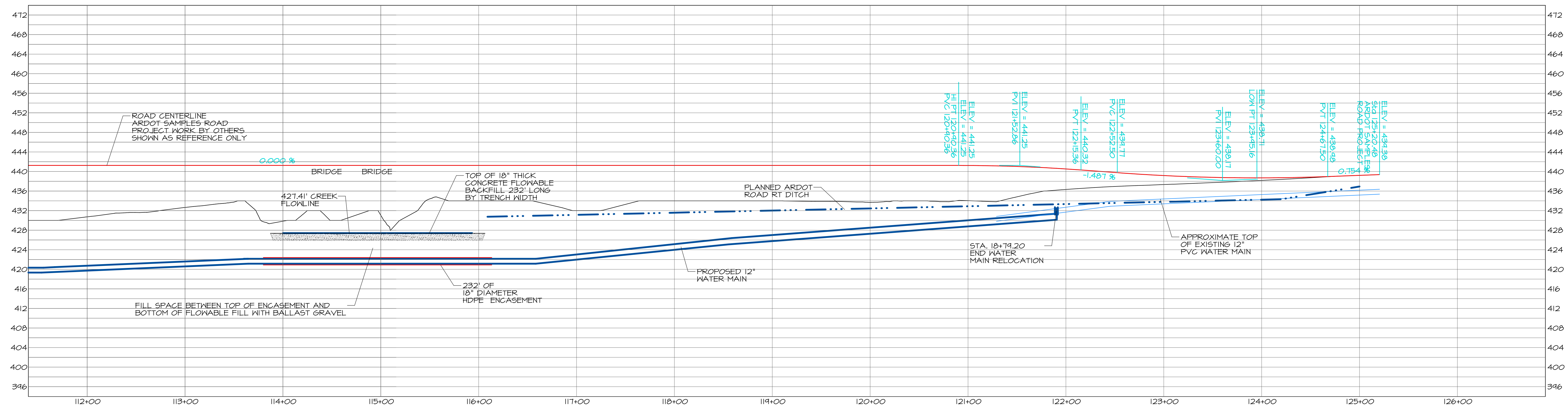
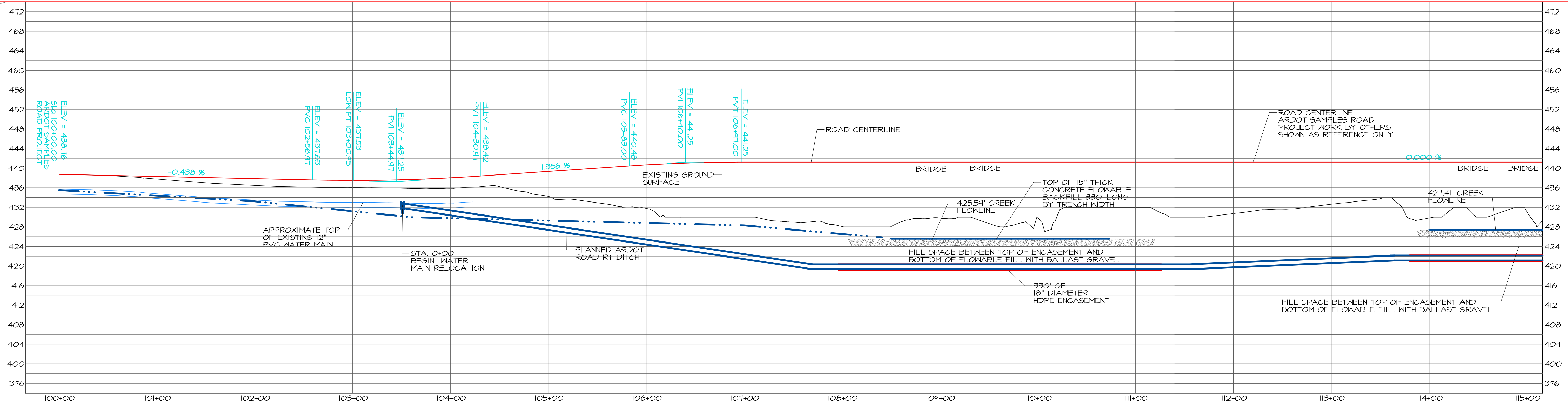








REVISIONS:	SALINE COUNTY ROAD DEPARTMENT		DATE: 11/24/2023
	5555 CYNAMIDE RD. BENTON, AR 72015		
	WATER UTILITY ADJUSTMENTS TO CLEAR THE AREA FOR NEW BRIDGES ON SAMPLES ROAD AT HURRICANE CREEK PLAN VIEW		DRAWN BY: JOHN W.
			SHEET NO. 2 OF 3
	HORIZ. SCALE 1" = 50'		



REVISIONS:	SALINE COUNTY ROAD DEPARTMENT 5555 CYNAMIDE RD BENTON, AR 72015		DATE: 11/29/2023
	WATER UTILITY ADJUSTMENTS TO CLEAR THE AREA FOR NEW BRIDGES ON SAMPLES ROAD AT HURRICANE CREEK PROFILE VIEW		DRAWN BY: JOHN W.
			SHEET NO. 3 OF 3
	HORIZ. SCALE 1" = 50'		