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STANDARD WATER SPECIFICATIONS

REVISION 2023-1

TABLE OF CONTENTS

REVISIONS.....	3
CONTRACTOR CREDENTIALS	4
CERTIFICATE OF INSURANCE.....	4
MATERIALS	4
AS-BUILT DRAWINGS	4
CONVEYANCE.....	4
WATER/SEWER PROJECT CHECK LIST	5
DESIGN CRITERIA FOR WATER MAIN & SERVICE CONNECTIONS.....	6
1.1 MATERIALS.....	6
1.2 RESPONSIBILITY OF MATERIALS.....	13
1.3 HANDLING OF MATERIALS.....	13
CONSTRUCTION DETAILS.....	14
2.1 EQUIPMENT.....	14
2.2 EXCAVATION.....	14
2.3 CUTTING PIPE.....	14
2.4 MECHANICAL JOINTS.....	15
2.5 SLIP-ON JOINTS.....	15
2.6 RESTRAINED JOINTS.....	15
2.7 SETTING FITTINGS, VALVES, HYDRANTS, ETC.....	15
2.8 MAINTENANCE OF BACKFILL.....	15
2.9 PIPE LAYING	16
2.10 SHEETING AND BRACING	16
2.11 LEAKAGE AND PRESSURE TESTING.....	16
2.12 DISINFECTION.....	17
2.13 BACKFILLING TRENCHES.....	17
2.14 ENCASEMENT PIPE.....	18
2.15 TRENCHING	18
2.16 RESTORATION OF GROUND.....	18
2.17 RESTORATION OF STREET PAVING.....	19
2.18 SANITARY SEWER CROSSINGS.....	19
WATER QUALITY	20
3.1 WATER SAMPLES.....	20
3.2 SAMPLING PROCEDURES.....	20
CUTTING AND REPLACING FENCES, LAWNS, SOD AND SHRUBBERY	22
4.1 GENERAL.....	22
4.2 FENCES.....	22
4.3 LAWN SOD	22
4.4 SHRUBBERY	22
4.5 PAYMENT.....	22
SURFACE OBSTRUCTIONS	23
5.1 GENERAL	23
5.1 PAYMENT.....	23
5.2 HIGHWAY AND RAILWAY CROSSINGS.....	23
5.3 STREAM CROSSING.....	23
STANDARD DETAIL DRAWINGS.....	24

Contractor Credentials

The Directors of the Waterworks, Sewer and Gas Board of the City of Scottsboro have directed the General Manager to examine the credentials of the contractor, selected by the developer to perform the construction and installation of water/sewer piping, to determine the experience and competency of such contractor. Contractors seeking to install utilities connected to the Board's systems shall provide written proof of satisfactory installations of an equivalent scope of work, as defined in the project proposal, along with names, addresses, and telephone numbers of associated references. In addition, contractors shall provide written documentation of an Alabama Contractor's License with major and specialty classifications for relevant work, Alabama Plumbers & Gas Fitters Examining Board Master Plumber's License, and City of Scottsboro Business License.

Certificate of Insurance

Any contractor performing water, sewer or gas construction must provide general liability insurance in the minimum amount of \$1,000,000.00 and such policy shall specifically name The Scottsboro Water, Sewer and Gas Board as ADDITIONALLY INSURED. The Certificate of Liability Insurance must be in the possession of The Scottsboro Water, Sewer and Gas Board prior to any inspections and/or other activity requiring the Board's service.

Materials:

Submittals must be approved by the Scottsboro Water, Sewer & Gas Board prior to the start of construction.

As-Built Drawings:

A complete set of As-built drawings is required for all projects. A complete set shall consist of water and/or sanitary sewer lines as constructed, all engineering design specifications (i.e., sewer profiles, pump specifications and details, manholes, valves, fireplug diagrams, etc.) and the engineer's signature and seal. All As-Built drawings must be approved by the SWSG, General Manager prior to any service connection to the lines.

A hardcopy (standard 22" x 34"D-size) and an Auto-Cad file of the As-Built must also be provided to the SWSG upon approval. If As-Built drawings are not in Auto-Cad format, contact Mapping Department.

All As-built drawings should be sent to the following address:

Attention: Mapping Dept.
Scottsboro Water, Sewer and Gas Board
P.O. Box 550
404 East Willow
Scottsboro, Alabama 35768.

Conveyance

Transfer of ownership of real property to the Scottsboro Waterworks, Sewer and Gas Board will be required upon completion of a development project. Completion shall include satisfactory design, installation, and testing of water/sewer system infrastructure. Property transfer is to include, but not limited to pipes, fire hydrants, manholes, pumping stations, water storage tanks, and all other facilities to be maintained by the Board. These facilities must be conveyed to the Board in the form of a signed "CONVEYANCE", approved and accepted by the Board of Directors. Real estate transfers for sites, such as pumping stations or water storage tanks, must be conveyed to the Board by warranty deed.

Water/Sewer Project Check List

Project Name:	Owner:
Engineer:	Contractor:

	Date	WSG Approval
* Construction Plans Approved	_____	_____
* Planning Commission Approval	_____	_____
* Contractor Insurance Certificate On File	_____	_____
* As-Built Drawings Complete/Electronic/Paper	_____	_____
* Property/Easements Conveyed to WSG Board	_____	_____
* System Conveyance Approved by WSG Board	_____	_____

WATER	Date	WSG Approval
* Approved Material Submittals	_____	_____
* Tie-In to Existing System Complete	_____	_____
* Water Main Installed Per Specs/Plan	_____	_____
* Air Release Valves Operational	_____	_____
* Long Side Services Installed	_____	_____
* Meter Boxes to Grade	_____	_____
* Fire Hydrants to Grade	_____	_____
* Valves Boxes to Grade/Clearly Marked	_____	_____
* Acceptable Hydrostatic Pressure Test	_____	_____
* Acceptable Bacteriological Samples	_____	_____
* ADEM Authorization (if required)	_____	_____

SEWER	Date	WSG Approval
* Approved Material Submittals	_____	_____
* Tie-In to Existing System Complete	_____	_____
* Sewer Gravity Main Installed Per Specs/Plan	_____	_____
* Services Installed including ROW Cleanouts	_____	_____
* Manholes to Grade	_____	_____
* Manhole Inverts Complete	_____	_____
* Gravity Lines Cleaned	_____	_____
* TVI Inspection Complete & Approved	_____	_____
* Acceptable Manhole Vacuum Tests	_____	_____
* Acceptable Air Pressure Test on Mainline	_____	_____
* Force Main Installed Per Plan/Specs	_____	_____
* Air Release Valves Operational	_____	_____
* Acceptable Hydrostatic Pressure Test on FM	_____	_____
* Pump Station Start-up Complete by Factory Rep	_____	_____
* Pump Station Property Conveyed to WSG Board	_____	_____
* ADEM Authorization (if required)	_____	_____

SCOTTSBORO WATER, SEWER & GAS BOARD
WATER DISTRIBUTION SYSTEM
GENERAL REQUIREMENTS AND COVENANTS FOR CONSTRUCTION OF
WATER MAINS, SERVICES AND APPURTENANCES

SECTION 1.0

DESIGN CRITERIA FOR WATER MAIN & SERVICE CONNECTIONS

This item consists of furnishing and installing approved water pipe, services and fittings of the specified type and size, laid in a trench and backfilled as specified herein and conforming in all aspects to the lines and grades shown on the plans. In the case of a conflict between the plans and these specifications, these specifications shall govern.

This item shall include the following: excavation, trenching, backfilling, installing all trench sheeting and bracing, furnishing and installing pipes, fittings, valves, fire hydrants, curb stops, corporation cocks, service connections and making up all joints and connections.

1.1 MATERIALS

1. General

Materials shall conform to the following requirements.

Note: Scottsboro WSG reserves the right to specify a certain manufacturer's material (which may or may not be described in this document).

2. Pipe

- a. Ductile Iron Pipe** - Ductile iron pipe shall be designed in accordance with the latest revision of ANSI/ AWWA C150/A21.50 for a minimum 350 psi rated working pressure plus a 100psi minimum surge allowance; a 2 to 1 factor of safety on the sum of working pressure plus surge pressure; Type 2 laying condition and a depth of cover of 3.0 feet.

Ductile iron pipe shall be manufactured in the U.S.A. in accordance with the latest revision of ANSI/AWWA C151/A21.51. Each pipe shall be subjected to a hydrostatic pressure test of at least 500 psi at the point of manufacture.

Pipe shall have a standard asphaltic coating on the exterior. Pipe shall also have a cement mortar lining on the interior in accordance with ANSI/AWWA C 104/A21.4, of latest revision. The class or nominal thickness, net weight without lining, and casting period shall be clearly marked on each length of pipe. Additionally, the manufacturer's mark, country where cast, year in which the pipe was produced, and the letters "DI" or "Ductile" shall be cast or stamped on the pipe.

All pipes shall be furnished with Push-on Type Joints, such as "Tyton" or "Fastite". Joints shall be in accordance with ANSI/AWWA C111/A21.11, of latest revision, and be furnished complete with necessary accessories.

Newly installed ductile iron water mains shall be disinfected in accordance with the latest revision of AWWA Standard C651 prior to placing in service.

- b. Polyvinyl Chloride Pipe** - When indicated in the Proposal or on the plans, polyvinyl chloride (PVC) pressure pipe may be used for water lines except for fire hydrant branch lines, runs less than 30' in length, for creek crossings and 50 feet adjacent to dead ends of lines or other similar locations designated by the Owner in the field. It is the intent that PVC water pipe is used in long runs between fittings and/or valves only.

The PVC pipe shall be manufactured of Type 1, Grade 1, 2000 PSI design stress compound and shall conform to ASTM Specifications D 2241 and bear the National Sanitation Foundation (NSF) seal of approval. Pipe having a maximum hydrostatic working pressure of 200 PSI (SDR-21) shall be used as shown in the proposal form. Foam Core, Cell Core or DWV PVC pipe is NOT acceptable. The compound used to produce the pipe and fittings shall conform to ASTM Specification D 1784. All pipes shall have a factory molded belled-end. PVC pipe shall be joined by means of a rubber ring slip joint. The bell joint shall be an integral and homogeneous part of the pipe and shall have the maximum ratio of O.D. to wall thickness as the pipe specified in the bell and ring groove, as well as the barrel of the pipe, to provide the same minimum pressure rating throughout the pipe and joint. Non integral bells will be acceptable provided same are factory welded and that pipe and bell are by the same manufacturer.

All PVC pipe shall have a manufactured date stamped on the pipe. Date of manufacture shall not exceed one year from the date of installation.

Marking PVC pipe: All PVC pipe shall be marked using a metallic tape buried not more than 6 inches above the top of the pipe. Tape shall be Terra Tape, 3" wide minimum, as manufactured by Friffolyn Company, Inc. or equal. The pipe trench shall be backfilled to a depth 6" above the top of the pipe and metallic tape shall be placed flat on the backfill. Backfill shall be carefully placed to a depth of 3 inches by hand to assure that the tape is secured in place over the pipe. Blue 12-gauge wire is also required above the metallic tape to aid in the location of the pipe. It is the intent of this paragraph to provide a means to locate PVC pipe using standard pipe location equipment.

Newly installed water mains shall be disinfected in accordance with the latest revision of AWWA Standard C651 prior to placing in service.

3. Service Pipe

- a. **Copper Tube and Fittings** - Copper tubing is required for underground services and shall be Type K, soft annealed, in accordance with A.S.T.M. Specification No. B88-55. Fittings shall be flare tube fittings, in accordance with A.S.A standard A40.2.
- b. **High Density Polyethylene** – High Density Polyethylene (HDPE), DR 9, CTS (Copper Tubing Size) may be used for service piping 2" in size only.

4. Fittings

Fittings shall be ductile iron and manufactured in the U.S.A. Ductile iron fittings shall conform to the latest revision of either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53. Fittings shall have a standard asphaltic coating on the exterior. Fittings shall also have a cement mortar lining on the interior in accordance with ANSI/AWWA C104/A21.4, of latest revision.

Fittings and accessories shall be furnished with Mechanical joints in accordance with the latest revision of AWWA Standard C600.

5. Steel Encasement Pipe

The steel encasement pipe shall comply with the appropriate requirements for the size shown in the following table:

Pipe Diameter (in.)	Min. Wall Thickness (in.)	Pipe Requirements
4	Sch. 40	ASTM A 120, SCH. 40
4-6	0.25	ASTM A 139, GRADE B
8-12	0.25	ASTM A 139, GRADE B
14-20	0.25	ASTM A 139, GRADE B
22-24	0.25	ASTM A 139, GRADE B
26-36	0.25	ASTM A 139, GRADE B
38-42	0.25	ASTM A 139, GRADE B
44-48	0.25	ASTM A 283, GRADE B
50-60	0.25	ASTM A 283, GRADE B

All pipe shall be coated inside and out with at least one shop coat of an approved primer paint. In addition, the external surface shall be treated with one (1) coat of asphaltum paint. Other approved protection material may be used if approved by the Engineer.

6. Gate Valves and Boxes

- a. **Valves** 4” through 24” shall be **Mueller, U.S. Pipe**, or **American** resilient wedge in compliance with AWWA C509, latest revision, with ductile iron wall thicknesses that meet or exceed AWWA C153 ductile iron fittings. Gate valve shall be rated for 250 psi cold water working pressure and hydrostatically tested at 500 psi. Valve body, bonnet, wedge and operating nut shall be constructed of ductile iron. The exterior of the wedge shall be 100% rubber encapsulated. The wedge shall be symmetrical and seal equally well with flow in either direction.
- b. **Operating nut** shall be constructed of ductile iron and shall have four flats at stem connection to assure even input torque to the stem. All gaskets shall be pressure energized O-rings. Bolts shall follow ANSI A161.1. Metric bolting shall not be allowed. Stem shall be sealed with O-rings. The top two O-rings shall be replaceable with valve fully opened and while subject to fully rated working pressure. O-rings set in cartridge shall not be allowed. Valve shall have thrust washers located with one above and one low below the thrust collar to assure trouble-free operation of valve. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy complying with ANSI/AWWA C550, applied hydrostatically prior to assembly. The epoxy coating shall be a color other than blue. Valves shall be ductile iron resilient seated gate valve (See Typical Branch Line Valve Installation Detail, diagram WD-1).
- c. **Valve boxes** shall be **manufactured in the U.S.A.** of cast-iron, complete with cover. Cast-iron boxes shall be the extension type with screw or slide type adjustment and flared base. The minimum thickness of metal shall be 3/16-inch. The word “WATER” shall be cast in the cover. Boxes shall be installed over each gate valve unless otherwise shown on the plans. The boxes shall be of such lengths as will be adapted, without full extension, to the depth of cover required over the pipe at the valve location with WSG pre-approved concrete collar and valve marker. (See Valve Box Detail, diagram WD-2, and Typical Valve Box Details, diagram WD-3)

7. Tapping Sleeve and Valve

- a. Tapping sleeves shall be stainless; outlet flange is AWWA C207, Class D ANSI 150lb. Drilling, JCM-432 (See Tapping Sleeve and Valve Installation Detail, WD-4).

- b. Tapping valves shall be ductile iron mechanical joint, inlet flange is class 125, ANSI B16. 1, 200 PSI working pressure.

8. Fire Hydrants – Mueller - American Darling

- a. Fire hydrants shall be of compression type, conforming to AWWA Specifications C502, having six-inch inlet connection of the mechanical joint type with harnessing lugs, unless otherwise specified. Valve opening shall not be less than 4¼-inches for 4-inch hydrants or less than 5 ¼-inches for six-inch hydrants. Hydrants shall have two 2 ½-inch hose nozzles and one pumper nozzle. Hose and pumper nozzle threads shall conform to A.S.A. specification B 26 (See Fire Hydrant Details, diagram WD-5)
- b. Hydrants shall open by turning to the left, and shall have drain openings and nozzle cap gaskets. Each hydrant shall be installed with a 6-inch gate valve and box between the hydrant and the main. Nozzles shall be set at a minimum of 20” above ground level.
- c. Valve box tops shall be set flush with surrounding ground.

9. Automatic Fire Sprinkler Connections

- a. Connections to the Board’s water mains for the purpose of supplying water for automatic fire sprinkler systems are subject to the following regulations:
 - i. Design plans, specifications and submittals for the specific equipment to be used must be submitted and approved by the General Manager before a connection will be permitted.
 - ii. The potable water supply to automatic fire sprinkler and standpipe systems shall be protected against backflow by a double check-valve assembly or a reduced pressure principle backflow preventer.
 - iii. Approved backflow preventer manufactures shall include; *Watts, Ames and Febco*, and shall conform to ASSE 1048. These devices shall be capable of operating under continuous pressure conditions.
 - iv. A double check detector assembly shall be the minimum requirement. A detector check meter is a required component of the backflow preventer assembly but its inclusion will not establish the assembly as a full metered connection. The bypass assembly shall consist of a meter, which registers in gallons, a double check-valve assembly, and required test cocks.
 - v. Installation and equipment shall conform to the requirements of the International Plumbing Code, and approved by the General Manager.
 - vi. Piping for un-metered fire suppression systems shall be minimum 6-inch ductile iron Class 350 water pipe. Piping shall be tested at 200 psi for 2 hours in accordance with Section 2.11 of these specifications.
 - vii. Taps for fire suppression systems shall be made by an appropriately licensed contractor. SWSG does not charge a tap fee associated with this type connection. A 15-minute air pressure test at 100 psi shall be conducted on the tapping saddle prior to the actual tap. A SWSG representative shall be present to witness the tapping procedure and receive the coupon.
 - viii. 2” Residential fire suppression systems will be required to have a 2” meter which will also require a tap fee to be paid. Shut-off valve on the customer’s side of the meter per SWSG specifications will be required along with an inspection from Scottsboro Fire Department.

10. Air Release Valves

- a. Shall be **CRISPIN – AL Series**, Air & Vacuum combination air-release valve manufactured by Crispin Valve Multiplex Manufacturing Corporation. Valves shall be tapped into the top of the

water main with a two-inch threaded inlet and in operation shall automatically release air from the line while filling or when full and under pressure. The air-release valve shall be furnished with an auxiliary cock or gate valve made of brass and shall be installed between the two-inch pipe and the base of the air-release valve.

- b. The Contractor shall furnish and install air-release valves at high points on the water mains at the locations shown on the plans or as directed by the Scottsboro Water Sewer Gas Board.

Air-release valve assembly shall be housed in a polyethylene enclosure manufactured by Pipeline Products (See Typical Air Relief Valve Detail, diagram WD-6).

11. Flush Valves

- a. Shall be installed on dead end lines or where the Board deems appropriate (see Automatic Flush Valve, Typical Installation diagram WD-7, and Blow-Off Detail, diagram WD-8).

12. Service Meters, Boxes and Connections

a. Single Residential and Small Commercial

- i. **General** - Service meters and boxes are to be placed at the inside edge of the road right-of-way. The lines are to have a minimum cover of 24 inches. In order that the minimum cover can be obtained, it may be necessary to vary the connection at the main from that shown on the plans.
- ii. **Meters** - Service meters shall be 5/8 x 3/4-inch, 3/4 x 1-inch, 1 x 1 1/4 -inch or 2-inch. The size service to be provided at each location shall be directed by the owner. Meter shall be manufactured by **Badger** Meter Company, **Sensus** Meter Company or be approved by the Scottsboro Water, Sewer and Gas Board. Meters shall be of the nutating disc type with magnetic drive and shall be approved by the Scottsboro Water, Sewer and Gas Board prior to installation. All meters shall read in gallons and all meters less than 2" shall have frost proof bottoms.
- iii. **Backflow Preventers** - Backflow Preventers shall be installed at each water meter to prevent the introduction of contaminates into the Public Water System from the customer side. Backflow Preventers shall be installed on the customer side of the Water Meter. Backflow Preventers shall meet or exceed ANSI/ASSE Standard 1024. The size of the device shall be appropriate to the individual connection and shall be straight, dual check, Ford or Mueller Brand or approved equal. All meter sets larger than 1-inch shall be WATTS Model 007 dual check or approved equal.
- iv. **Meter Boxes** - Meter boxes, located in non-traffic areas, shall be plastic boxes with plastic top containing a cast iron reader door (NDS Model D1200 or D1500). Meter boxes located in traffic areas shall be traffic rated. Meter sets larger than 1" shall have a separate box for the meter and an additional box for the backflow. Oversized meter boxes shall be provided at locations where pressure regulating and relief valves are required.
- v. **Service Connections** - All Service connections shall consist of tapping the main, installing a corporation stop, installation of appropriate lengths of copper tubing or high density polyethylene (2" only), curb stop, meter box, meter and Backflow Preventer. Service pipe shall be laid with a minimum of 24" cover. The connections shall be extended from the main to the property or easement line. Curb stops shall be Ford or approved equal with padlock wings. All service connections to existing mains shall be made by SWSG after the appropriate tap fee is paid (includes only items listed in this paragraph above).

- vi. **Taps** - Taps are to be made in accordance with pipe manufacturer's recommended procedures and/or as approved by the Owner. Taps for single residential and small commercial will be made by Scottsboro WSG after the appropriate tap fee is paid.
- b. Large Commercial Meters (Includes Master Meters), generally greater than 2-inch.**
- i. **General** – Vaults with meters, required backflows, etc. are to be placed at the inside edge of the road right-of-way. The lines are to have a minimum cover of 24 inches. In order that the minimum cover can be obtained, it may be necessary to vary the connection at the main from that shown on the plans. SWSG will purchase and install the vault, meter and backflow, after the appropriate fee is paid. Customer is responsible for the cost of these items and cost to install.
 - ii. **Meters** - Meters vary in size depending on individual requirements. The meter and service size shall be determined by the engineer. Meters shall be manufactured by **Badger** Meter Company, **Sensus** Meter Company or be approved by the Scottsboro Water, Sewer and Gas Board. Meters shall be compound or turbine, depending on application, and shall be approved by the Scottsboro Water, Sewer and Gas Board prior to installation. All meters shall read in gallons.
 - iii. **Backflow Preventers** - Backflow Preventers shall be installed at each water meter to prevent the introduction of contaminates into the Public Water System from the customer side. Backflow Preventers shall be installed on the customer side of the Water Meter inside vault. Backflow Preventers shall meet or exceed ANSI/ASSE Standard 1024. The size of the device shall be appropriate to the individual connection. Backflow Preventers shall be WATTS Model 007 dual check or approved equal.
 - iv. **Vaults** - Vaults shall be sized according to the meter and appurtenances required. SWSG will order vault and install, after the appropriate fee is paid. Customer is responsible for cost of vault and cost of installation.
 - v. **Service Connections** - All Service connections shall consist of installing an approved tapping sleeve and gate valve, tapping the main, installation of appropriate lengths of piping, gate valve, meter vault, meter and Backflow preventer. Service pipe shall be laid with a minimum of 24" cover. The connections shall be extended from the main to the property or easement line. An appropriately licensed Contractor shall be responsible for making the tap, and installing valves and piping to vault (SWSG representative must be present to witness the tapping procedure and receive the coupon).
 - vi. **Taps** - Taps are to be made in accordance with pipe manufacturer's recommended procedures and/or as approved by the Owner. Taps for large commercial meters will be made by an appropriately licensed contractor (SWSG representative must be present to witness the tapping procedure and receive the coupon).
- c. Commercial/Residential Development - Multiple Meters, Boxes and Connections**
- i. **General** - Service meters and boxes are to be placed at the inside edge of the road right-of-way. The lines are to have a minimum cover of 24 inches. In order that the minimum cover can be obtained, it may be necessary to vary the connection at the main from that shown on the plans. Plans must be approved by Scottsboro Water, Sewer & Gas Board prior to bids for construction. Owner/Contractor is responsible for construction and cost of tap, piping and appurtenances from the Board's existing main to serve development.

- ii. **Meters** - Service meters shall be 5/8 x 3/4-inch, 3/4 x 1-inch, 1 x 1 1/4 -inch or 2-inch. The size service to be provided at each location shall be directed by the owner. Meter shall be manufactured by **Badger** Meter Company, **Sensus** Meter Company or be approved by the Scottsboro Water, Sewer and Gas Board. Meters shall be of the nutating disc type with magnetic drive and shall be approved by the Scottsboro Water, Sewer and Gas Board prior to installation. All meters shall read in gallons and all meters less the 2" shall have frost proof bottoms.
- iii. **Backflow Preventers** - Backflow Preventers shall be installed at each water meter to prevent the introduction of contaminates into the Public Water System from the customer side. Backflow Preventers shall be installed on the customer side of the Water Meter. Backflow Preventers shall meet or exceed ANSI/ASSE Standard 1024. The size of the device shall be appropriate to the individual connection and shall be straight, dual check, Ford or Mueller Brand or approved equal. All meter sets larger than 1-inch shall be WATTS Model 007 dual check or approved equal.
- iv. **Meter Boxes** - Meter boxes, located in non-traffic areas, shall be plastic boxes with plastic top containing a cast iron reader door (NDS Model D1200 or D1500). Meter boxes located in traffic areas shall be traffic rated. Meter sets larger than 1" shall have a separate box for the meter and an additional box for the backflow. Oversized meter boxes shall be provided at locations where pressure regulating and relief valves are required.
- v. **Service Connections** - All Service connections shall consist of tapping the main, installing a corporation stop, installation of appropriate lengths of copper tubing or high density polyethylene (2" only), curb stop, meter box, meter and Backflow Preventer. Service pipe shall be laid with a minimum of 24" cover. The connections shall be extended from the main to the property or easement line. Curb stops shall be Ford or approved equal with padlock wings. All service connections to existing mains shall be made by an appropriately licensed contractor. Scottsboro WSG will set the meters and backflows after the tap fee is paid. Owner/Contractor responsible for cost of all items.
- vi. **Taps** - Taps are to be made in accordance with pipe manufacturer's recommended procedures and/or as approved by the Owner. Taps for commercial/residential developments will be made by an appropriately licensed contractor.

13. Customer Service Lines

For purposes of this section, the customer service line is defined as the service line from the meter box to the house, building, or applicable termination point. Contractors, plumbers, owners, etc. building inside the city limits of Scottsboro shall contact City of Scottsboro Building Inspection Department for applicable inspections before water service will be turned on. Any installations outside of the city limits of Scottsboro shall contact Scottsboro WSG for inspections.

a. Residential (See Typical Detail WD-17)

- i. Shut-off valve with access box is required to be installed within a reasonable distance from the meter box to aid with locating the valve should it become covered up.
- ii. Service line should be installed a minimum of 12-inches deep. Color-coded tracer wire (12-gauge) is recommended above the service line before backfilling.
- iii. Pressure reducing valve is required and should be set per plumber/contractor/manufacturer's recommendations.

b. Commercial

- i. Shut-off valve with access box is required to be installed within a reasonable distance from the meter box to aid with locating the valve should it become covered up.
- ii. Service line should be installed a minimum of 12-inches deep. Color-coded tracer wire (12-gauge) is recommended above the service line before backfilling.

1.2 RESPONSIBILITY OF MATERIALS

The Contractor shall be responsible for all materials furnished to him and shall replace at his own expense all such material damaged in handling after delivery to the site. This shall include the furnishing of all material and labor required for the replacement of installed material discovered damaged prior to the final acceptance of the work.

The Contractor shall be responsible for the safe storage of material furnished by him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe fittings, castings and accessories shall be kept free from dirt and deleterious matter at all times.

1.3 HANDLING OF MATERIALS

All materials furnished to the Contractor shall be delivered and distributed at the site by the Contractor. Pipe and fittings shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skid ways shall not be skidded or rolled against pipe already on the ground.

SECTION 2.0

CONSTRUCTION DETAILS

2.1 EQUIPMENT

All equipment necessary and required for proper construction of water mains and appurtenances shall be on the project in first class working condition and shall have been approved by the Scottsboro Water, Sewer and Gas Board before construction is permitted to begin.

The Contractor shall provide the necessary hoist equipment or any other devices required for unloading and placing the water pipe in its final position without damage to the pipe. The Contractor shall provide hand tampers or pneumatic tampers or both, and any other equipment necessary for the proper compaction of the backfill in the trenches as specified in these specifications or as directed by the Scottsboro Water, Sewer and Gas Board.

2.2 EXCAVATION

The Contractor shall perform all excavation of every description and or whatever substances encountered to the depth specified in the plans or as directed by the Scottsboro Water, Sewer and Gas Board. The bottom of all trenches shall be carefully graded, shaped and aligned. Care shall be taken not to excavate below the depth specified: however, in the event that this should occur, the bottom of the trench shall be filled back to the grade with approved material and thoroughly compacted in a manner satisfactory to the Scottsboro Water, Sewer and Gas Board.

All excavated material which is unsuitable or not needed for backfill shall be wasted or disposed of to the satisfaction of the Scottsboro Water, Sewer and Gas Board. Surfaces shall be cleaned up, all hummocks and piles smoothed down and the surface left neat and workmanlike. Where existing drainage ditches are disturbed or obstructed with excavated material, such material shall be entirely removed and the ditch left true to original line and grade. Street shoulders, if disturbed, shall be graded and compacted to their original contours.

Bell holes, of ample size, shall cut under and around at all joints to provide adequate room for working and to assure that the body of the pipe shall rest uniformly and in continuous contact with the supporting ground for its entire length.

Water will not be permitted in the trenches while the pipe is being laid. The Contractor shall not be open up more trenches than the available pumping facilities are able to de-water to the satisfaction of the Scottsboro Water, Sewer and Gas Board.

All pipe shall be carefully lowered into the trench by rope slings or by other approved means in such a manner as to prevent damage to the pipe or the pipe coating. The work shall be installed with the bell ends pointing in the direction that the work is to proceed. In soft ground, the Scottsboro Water, Sewer and Gas Board may require each piece of pipe to be supported by three pieces of heart timber which shall be 2 x 8-inch, evenly spaced and long enough to span the bottom of the trench.

2.3 CUTTING PIPE

Where pipe must be cut in order to bring valves, hydrants, or other connections to the required location, this work shall be done in a manner satisfactory to the Engineer.

2.4 MECHANICAL JOINTS

Where mechanical joint pipe is used, the following methods of installation shall be followed: the surfaces, which come in contact with the gasket, shall be brushed thoroughly with a wire brush just prior to assembly. The gasket should be brushed with soapy water prior to installation to remove loose dirt and to lubricate the gasket as it is forced into its retaining space.

2.5 SLIP-ON JOINTS

When slip on pipe is used, the pipe shall be cleaned with a wire brush and the spigot end of the pipe lubricated with a thin film of lubricant. The gasket shall be inserted into the bell socket recess and the spigot end of the pipe pushed home. The joints, of whatever type, shall be completely watertight after being subjected to the required tests.

2.6 RESTRAINED JOINTS

12-inch and less diameter pipe fittings shall have mechanical joint retainer glands. 12-inch and greater diameter pipe fittings shall have megalugs or approved equal. 8-inch diameter PVC pipe installed with mechanical fittings and transitions between ductile iron and PVC pipe shall have Romac Industries, Inc. gripper rings.

All ductile iron pipe for stream crossings or encasement pipe shall have field lock gaskets.

2.7 SETTING FITTINGS, VALVES, HYDRANTS, ETC.

Fire hydrants are to be located 500 feet apart and served by no less than a 6-inch water main. All fittings, valves, valve boxes and other appurtenances shall be set at the location indicated on the plans or as directed by Scottsboro Water, Sewer and Gas Board. The Contractor shall correct omission of any of these items without extra cost to the Owner.

Fire hydrants shall be set backfilled with washed limestone rock. Hydrants shall be erect and shall stand to the proper height above the ground. Approximately one fourth of a cubic yard of washed gravel shall be placed around the hydrant in order to provide for drain water absorption. The ground shall be securely tamped to the surface around each hydrant as specified for trenching.

Fittings such as bends, tees, plugs, and caps shall be securely braced by concrete thrust blocks supported against the undisturbed trench bank to prevent the possibility of blowing off under pressure. All fittings and hydrants shall be secured with a locking tee and retainer glands.

Where indicated on the plans or directed by the Scottsboro Water, Sewer and Gas Board, the Contractor shall install plugs or fittings for anticipated expansion by placing a branch fitting, (tee or cross) in the line and plugging the unused branch or branches. Where dead end lines are installed, blow off valves shall be placed on the end of the pipe.

2.8 MAINTENANCE OF BACKFILL

Backfill of trenches located in areas subject to traffic shall be sprinkled and kept wetted down by the Contractor to hasten settlement and to abate any dust nuisance. All pavement areas adjacent to trench cuts shall be kept clean of any dirt or gravel spilled thereon during the construction operations. Unless the proposal contains a pay item for watering, the above work shall be considered, as subsidiary work, related pay items and all watering and maintenance of backfill shall be performed at the Contractor's expense.

2.9 PIPE LAYING

Ductile iron pipe, specials, and fittings shall be carefully laid to the line and grade established or as directed by the Scottsboro Water, Sewer and Gas Board. The bed of each piece of pipe is to be shaped either by trimming the bottom of the trench or by placing excavated earth therein and tamped so that each piece of pipe shall have a uniform bearing. The trench shall be further excavated around each bell or hub so that it will be entirely clear of the ground and leave ample room for caulking or tightening the bolts.

The inside of the bell and the outside of the spigot shall be thoroughly cleaned before they are placed, and the inside of the pipe shall be kept clean and free of obstructions and deleterious matter until the work is completed and accepted. Wherever pipe laying is stopped at the end of the day, or for any other cause, the end of the pipe shall be securely closed in order to prevent the entrance of water, mud or any other objectionable matter.

A tolerance of six (6) inches from the established grade may be permitted, if approved by the Scottsboro Water, Sewer and Gas Board, in order to prevent excessive breaks in alignment at the joints to such an extent that the joints cannot be uniformly and properly completed. It is the intent of this section to provide that the pipe shall be laid in such manner as not to create unwarranted strain or deflection in the completed pipe joint.

2.10 SHEETING AND BRACING

The Contractor shall furnish and place to the satisfaction of the Scottsboro Water, Sewer and Gas Board, such sheeting and bracing as may be required to support the sides of the trench and to protect the workmen and the pipe or adjacent structures from injury by sloughing off or caving in of the trenches. This sheeting and bracing may be removed, as the trench is backfilled, or may be left in place where necessary to prevent damage. In the event the sheeting or bracing is left in place, it shall not extend nearer than one foot to the surface of the ground. In no case will extra compensation be allowed for furnishing, placing, or removing any sheeting and bracing, but the cost of this work shall be included in the unit price bid for installing the pipe.

2.11 LEAKAGE AND PRESSURE TESTING

If possible, all new pipelines should be hydrostatically tested before backfilling is completed. This may be impractical in city streets with heavy traffic and complete backfilling may be necessary after a few lengths of pipe have been laid. The test pressure is one and half times the operating pressure for at least twenty-four hours. The pipe must remain within 4 to 5 psi of the test pressure for covered pipe for the duration of the test. The pipeline should be filled slowly and care should be exercised to vent all high points and expel all air. Vents should remain open until water flows from them at a steady flow. In addition, it is important that fittings and hydrants are properly anchored and that all valves are completely closed before applying the test pressure. All of the line segments shall be tested (Fire plugs, fittings, stub outs, services and any other fittings that will be pressurized). Pressure test shall not be made from a fireplug. Testing must be done from a tap on the line. The entire duration of the test shall be recorded on an 8" (minimum) paper chart recorder. A representative of the SWSG Board shall witness the test and make a final determination to accept, reject or retest the line segment. After the air has been expelled and the valve or valves segregating the part of the system under test are closed, pressure is then applied by means of a hand pump, a gasoline pump or fire department pumping equipment for large lines. After the main has been brought up to test pressure, it should be held at least twenty-four hours and the make-up water measured with a displacement meter or by pumping the water from a vessel of known volume. If possible, the pipe and joints should be inspected thoroughly while under test pressure. Any leak or excess moisture at the joints should be reported and the line made airtight. After defects have been corrected, backfilling should be completed. Use pump with recording chart in determining actual leakage. Leakage shall not exceed ten (10) gallons per inch of pipe diameter per mile of pipe per day.

Designated fire lines and sprinkler system requirements, which exceed these minimum standards, are acceptable.

2.12 DISINFECTION

Before each section of work is placed in service it shall be thoroughly flushed out to remove any dirt or other deleterious matter from inside the line, and the lines shall be disinfected to meet the requirements of AWWA Standard C-651.

2.13 BACKFILLING TRENCHES

Backfilling the trenches shall be accomplished by either of the following methods which the Scottsboro Water, Sewer and Gas Board decides to be the most appropriate for the type soil encountered at the time the pipe is being laid. No pipe shall be covered until it has been inspected and approved by the WSG.

- 1. Method A (For clay soil):** Backfilling shall be carefully performed and the original surface restored, to the full satisfaction of the Scottsboro Water, Sewer and Gas Board. The trenches shall be backfilled with fine, loose earth, free from large clods or stone, carefully deposited on both sides of the pipe and thoroughly and carefully rammed until enough has been placed to provide a cover of not less than one foot above the pipe. The remainder of the backfill material may be then thrown in and tamped. Whenever the trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off, and finally made to conform to the surface of the ground. Backfill in open trenches across sidewalks and street traffic areas shall be made as above specified except that the fill above the pipe shall be made in six-inch lifts (See Trench In Roadway/Driveway and Pavement Replacement, diagram WD-11).
- 2. Method B (for loamy soils):** As soon as the Scottsboro Water, Sewer and Gas Board has inspected the pipe and given its approval, the Contractor may proceed with the backfilling by placing loose earth, free from clods or stones, carefully on each side of the pipe and to a point approximately one foot above the pipe. This material shall be hand tamped to the satisfaction of the Scottsboro Water, Sewer and Gas Board. After the backfilling has progressed to this point, the trench shall be thoroughly flooded until the soil is completely embedded around the pipe. Additional backfill material shall then be deposited in lifts not to exceed three feet; each lift being thoroughly saturated with water, except the last two feet of trench shall not be wetted. This section shall be compacted by vibratory roller or other approved mechanical compacting devices until the top six inches attains a density of 95 % of the theoretical density when tested as above specified.
- 3. Method C:** The Scottsboro Water, Sewer and Gas Board may require either one or both of the above methods of backfilling depending upon the type of soil, or may require the Contractor to backfill the trenches in six inch lifts and tamped with a sufficient number or approved pneumatic tampers or mechanical compactors until the backfill has attained the proper density as above specified. (See Standard Trench Detail, diagram WD-12)
- 4. Method D:** The option to use ALDOT No. 410 Aggregate on streets kept open during construction.
- 5. Method E (for Rock Trenches):** The pipe shall be bedded in borrow material (clean sandy clay material) to the centerline of the pipe. Select sandy/clay or sandy loam material free from rocks or stones larger than 1½-inch diameter shall be installed in the remainder of the trench to the original ground surface. The intent of this procedure is to protect the pipe from point pressure caused by sharp stone edges (See Trench Detail In Rock, diagram WD-13).

2.14 ENCASEMENT PIPE

The location of encasement pipe is shown on the Plans. Installation of casing and carrier pipe under railroads and highways shall conform to the requirements of the responsible railroad or highway agencies.

Casing shall be installed by jacking and boring or by tunneling to such minimum limits as may be allowable by railway or highway authorities; casing extending beyond such minimum limits may be placed by the open trench method. Any excavations necessary for approach trenches shall be sheeted and otherwise adequately braced to withstand all possible loads, including traffic loads.

Tunneling operations and installation of liner plates shall be in accordance with the recommendations of the liner manufacturer. Care shall be exercised to install the liner to the proper line and grade. Care shall be taken to avoid loss of ground beyond the tunnel lining and to insure bearing against the ground all around the tunnel. Any space outside the liner plates shall be filled by pneumatically placed pea gravel, by grouting, or by other suitable backfill material as may be approved by the railroad or highway authority and the Scottsboro Water, Sewer and Gas Board. Only personnel thoroughly experienced in performing tunneling operations shall be employed for this work.

Construction operations must be not interrupt or interfere with highway or railway traffic. Roadways shall be kept clear at all times.

2.15 TRENCHING

Excavation of trenches for laying the pipe lines specified herein or shown on the plans shall follow the lines and grades shown on the plans or as directed by the Scottsboro Water, Sewer and Gas Board. Trenches shall be excavated in open cut and to such depths and widths as will give ample space for placing and jointing the pipe, for drainage, for proper blocking and for backfilling under the pipe. Minimum pipe cover shall be 36 inches or as shown on the plans.

If rock is encountered in the bottom of the pipe trench, it shall be under cut to clear all portions of the pipe and fittings as least six (6) inches. This undercut shall be filled to centerline of pipe with sand.

2.16 RESTORATION OF GROUND

1. As the work progresses and whenever so directed, the Contractor shall remove all surplus material and completely restore grounds to the same good condition as when the work began. These items shall include but not be limited to: unpaved roadways, curb and gutter, sidewalks, railroad or other right of way, bridges, drains, grass plots, other public or private properties not included in the hereafter specified street pavement, which have been disturbed, injured, destroyed, or removed by the Contractor or by the traffic on account of this construction. The Contractor shall maintain the same in this condition for 12 months after the date of the final estimate. All cross gutters that may have been rendered unnecessary by this work are to be removed.
2. During the progress of the work, when the Contractor fails or neglects to promptly restore the streets or other property, the Scottsboro Water, Sewer and Gas Board may withhold the next payment due the Contractor; or after giving the Contractor 24 hours notice may have the proper restoration made and deduct the cost from the next payment due the Contractor.
3. At the completion of the work, all ground is to be gone over and all surplus material, refuse, or debris removed and the ground left in an entirely satisfying condition.
4. The Contractor is entirely responsible for satisfying the restoration requirements of the State Transportation Department of Railroad with respect to restoration of work areas, which are in their respective right-of-ways.

2.17 RESTORATION OF STREET PAVING

1. General

All roadway pavement and all hard surfaced roadways, including the street railway area (if any), where disturbed, injured, destroyed or removed by the Contractor or his agent, or by the street traffic or otherwise on account of the construction of this work, directly or indirectly, are to be completely restored to the same good condition as originally found at the commencement of work, and shall be maintained in this condition during the period of guaranty.

2. Paving Over Trenches

Upon approval of the Scottsboro WSG for the application of plant mix, 2½-inches of the dense graded base will be removed, the edges of the ditch trued to as straight a line as possible, and re-tamping accomplished if necessary. The excavated section will be swept clean with particular attention given to the edges and this section will then be primed.

After the prime is allowed to penetrate and dry, a tack coat will be applied and 2½-inches of plant mix base material will be placed therein, rolled and tamped to the level surface of the existing paving. The surface will then be maintained for a one-year duration of time and any failures that may occur corrected as they appear.

2.18 SANITARY SEWER CROSSINGS

1. General

In accordance with Alabama Department of Environmental Management, Division 7 Regulation 335-7-7-.03, a minimum horizontal separation of 5-feet shall be maintained between water mains and sanitary sewer mains. Also, whenever possible, the sewer main should be placed such that the top of the sewer main is a minimum of 18" below the bottom of the water main. In the event crossings are necessary, a casing shall be placed around one of the mains and must allow a minimum of 5-feet separation from the end of the casing to the uncased main.

SECTION 3.0

WATER QUALITY

3.1 WATER SAMPLES

After completion of all work on any section of pipe and after having been disinfected as described in AWWA Standard C-651, a sample must be provided from the newly constructed water main. A minimum of two (2) samples per mile and dead ends of new pipe shall be sampled to meet the requirements of the Alabama Department of Environmental Management (ADEM), Alabama Water Operation Manual, *Bacteriological Sampling and Examination*.

3.2 SAMPLING PROCEDURES:

1. A ¾-inch tap shall be made on the new water main with copper line serving a brass faucet, which is to be used as the test point.
2. Samples shall not be collected from fire hydrants. Fire hydrants have weep holes and large barrels, which may be easily contaminated and are very difficult to disinfect. The mouth of the fire hydrant cannot be disinfected easily nor can a bottle be properly filled (See diagram 122-08-1 on the following page).

Diagram 122-08-1

After the spigot is selected, follow steps below:

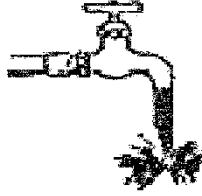


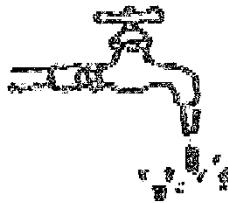
Fig. 1

- (1) **Fig. 1** Let the water run for several minutes to insure fresh water from the system.
- (2) Take Free Chlorine Residual Tests using the (DPD) N, N-Diethyl-p-phenylenediamine method. A minimum free chlorine residual of 0.2mg/L is required through out the distribution system.



Fig. 2

- (3) **Fig. 2** Flame the faucet in order to destroy any bacteria which may be clinging to the faucet. If available, a blowtorch can be used for this purpose. There are Small "easy to light" (LP or butane) gas torches available Which are excellent for this purpose. The flame should be directed against the inside edge of the faucet as much as possible. Do not overheat the fixture.



(4) **Fig. 3**

Reopen the faucet and let the water run in a stream about the size of a pencil. Please remember that the containers are sterile. **Do Not rinse the bottles.** In the course of collecting a sample, if you feel you have contaminated it; do not submit the sample.

- (5) **Fig. 4** Hold the bottle in one hand and with the other hand remove the top. Care should be exercised not to touch the top or the inside of the bottle. Do not put the top down.



Fig. 4

- (6) **Fig. 5** Next, hold the bottle under the faucet, allowing only a small, steady stream to flow into the bottle. Do not splash water on the lip of the bottle any more than necessary. Immediately remove the bottle from underneath the faucet and replace the top.



Fig. 5

Leave 5% to 10% of the bottle empty to allow air space, but make sure the bottle contains at least 100 ml of sample.

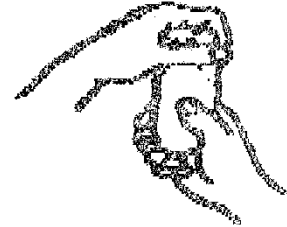


Fig. 6

- (7) **Fig. 6** Replace the top. Fill out the identification card completely, tie the stub to the neck of the bottle and replace the bottle in the shipping case. and be examined within 30 hours after collection. Transportation time should not exceed six hours.

Samples do not need to be iced during shipment. Prompt at the lab and examination begun within 30 hours after it is collected.

The printed report of the examination should be sent directly to The Scottsboro Water, Sewer and Gas Board office.

SECTION 4.0

CUTTING AND REPLACING FENCES, LAWNS, SOD AND SHRUBBERY

4.1 GENERAL

Whenever it becomes necessary in excavating to cut fences or disturb lawns, the fences and lawns shall be restored after completion of the backfill.

4.2 FENCES

Fences shall be restored in their original condition, using the same type of materials as were used in the original construction.

4.3 LAWN SOD

Trenches where lawn sod has been disturbed shall be backfilled in accordance with the applicable provisions of Section 2.13, "Backfill" and compacted by hand, if necessary. After replacing the sod, it shall be covered loosely with earth tamped lightly to protect the roots and sprinkled with water.

4.4 SHRUBBERY

Shrubbery shall be taken up ahead of construction, stored and reset in such a manner as to damage it as little as possible.

4.5 PAYMENT

The cost of all work in this section shall be included in the contract unit bid prices for pipe and will not be paid for separately.

SECTION 5.0

SURFACE OBSTRUCTIONS

5.1 GENERAL

All buildings, walls, fences, poles, bridges, railroads, trees and other property or improvements encountered shall be carefully protected from all injury. In the event that any of the foregoing is damaged or removed during the progress of the work, they shall be repaired or replaced in a satisfactory manner and within a reasonable time. Special care must be exercised in trenching under or near the railroads to avoid or minimize delays or injuries resulting there from.

5.1 PAYMENT

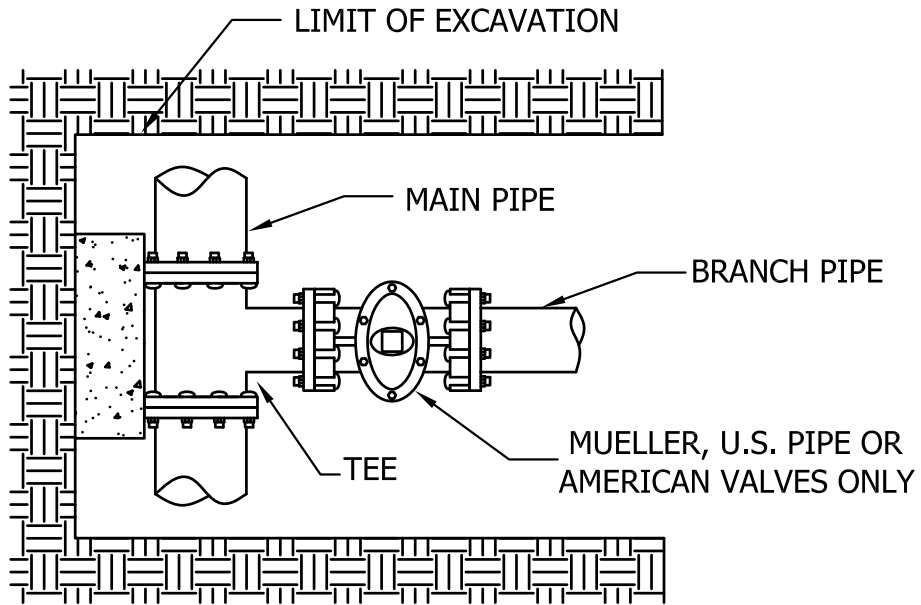
The cost of all work in this section shall be included in the contract unit bid prices for pipe and will not be paid for separately.

5.2 HIGHWAY AND RAILWAY CROSSINGS

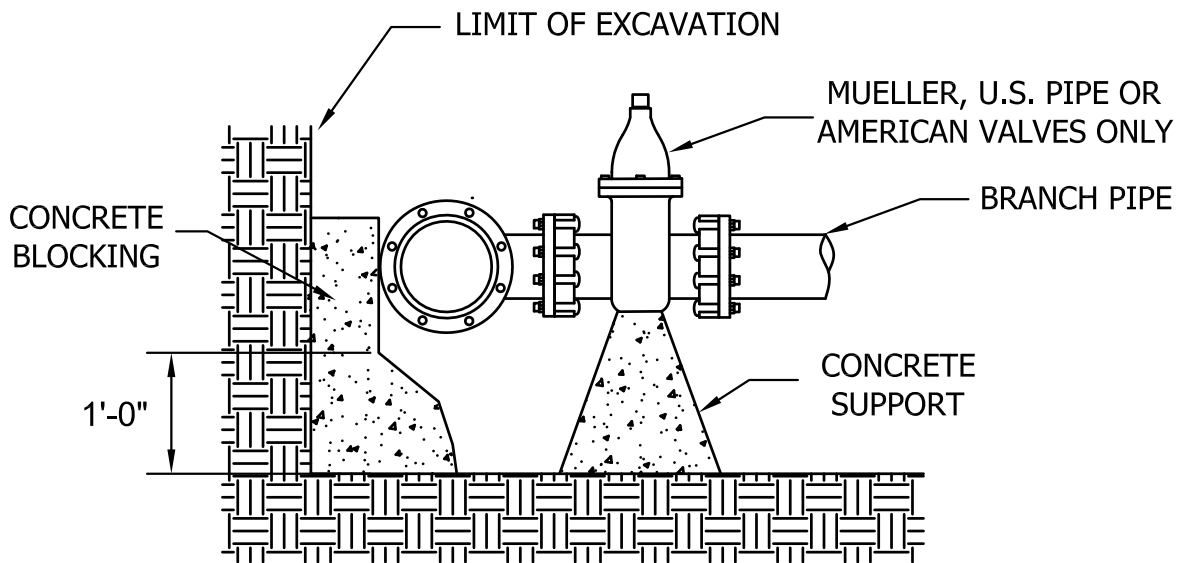
At all highway or railroad crossings the water pipe shall be installed inside a metal encasement. The encasement pipe shall be installed at the depths indicated on the plans or as directed by the Scottsboro Water, Sewer and Gas Board. The methods of installing the encasement pipe may be jacking, driving or boring. Before installing such a crossing, the Contractor shall notify the proper authorities of the Highway Department or the Railroad Company and shall follow the instructions given by the Highway Department or Railroad Company as to the manner and method of crossing.

5.3 STREAM CROSSING

Water mains crossing drainage ditches or intermittent streams shall be ductile iron pipe with mechanical joints. If rock is encountered in the trench the pipe shall be covered with 12-inches of crushed stone and the remainder of the trench filled with concrete.



PLAN



ELEVATION

SCOTTSBORO WATER, SEWER & GAS BOARD

WATER CONSTRUCTION STANDARD DETAILS

**404 E. WILLOW ST.
SCOTTSBORO, AL 35768**

**PHONE: (256) 574-1515
FAX: (256) 574-1965**

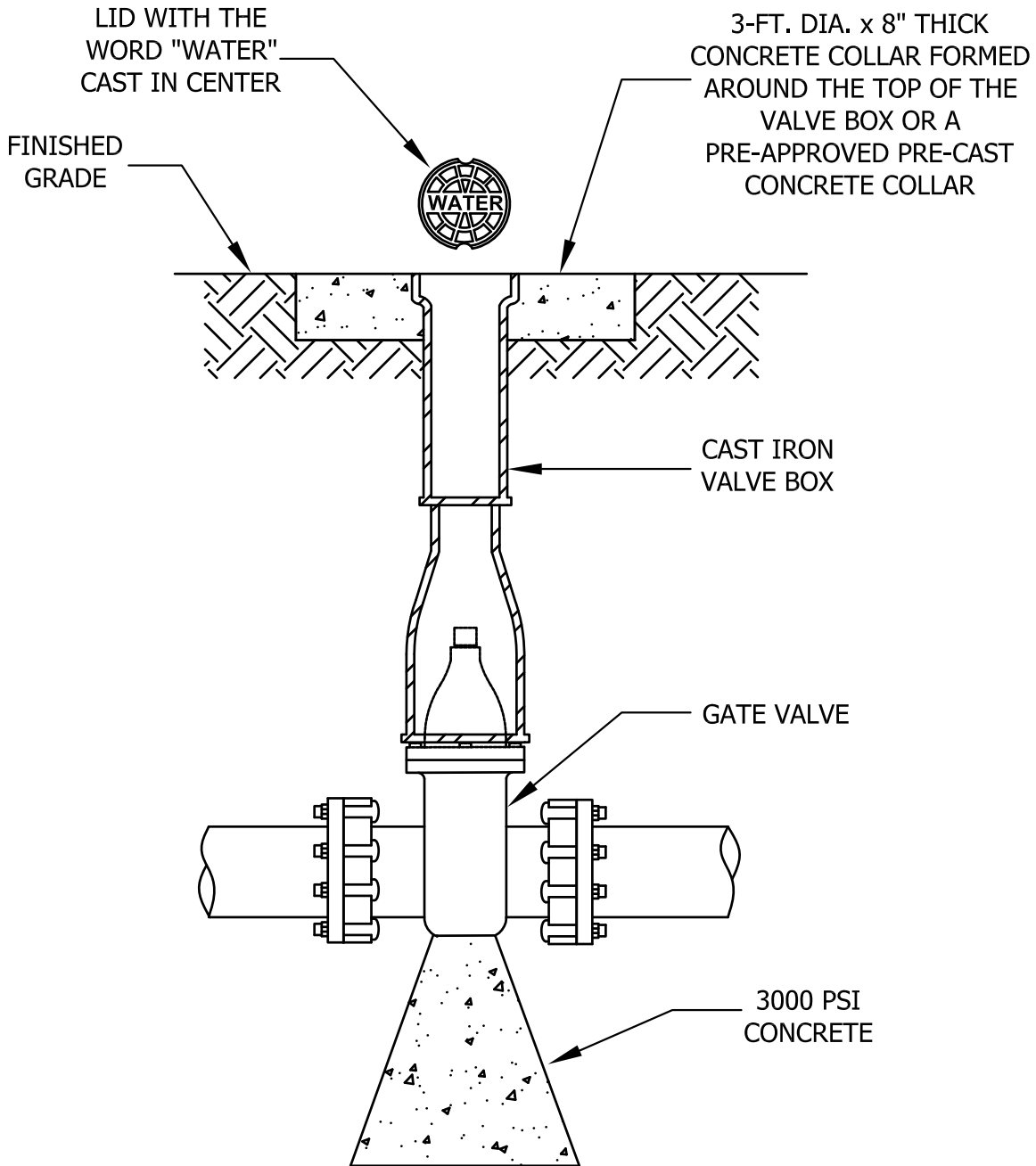
WD-1

TYPICAL BRANCH LINE
INSTALLATION

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



SCOTTSBORO WATER, SEWER & GAS BOARD

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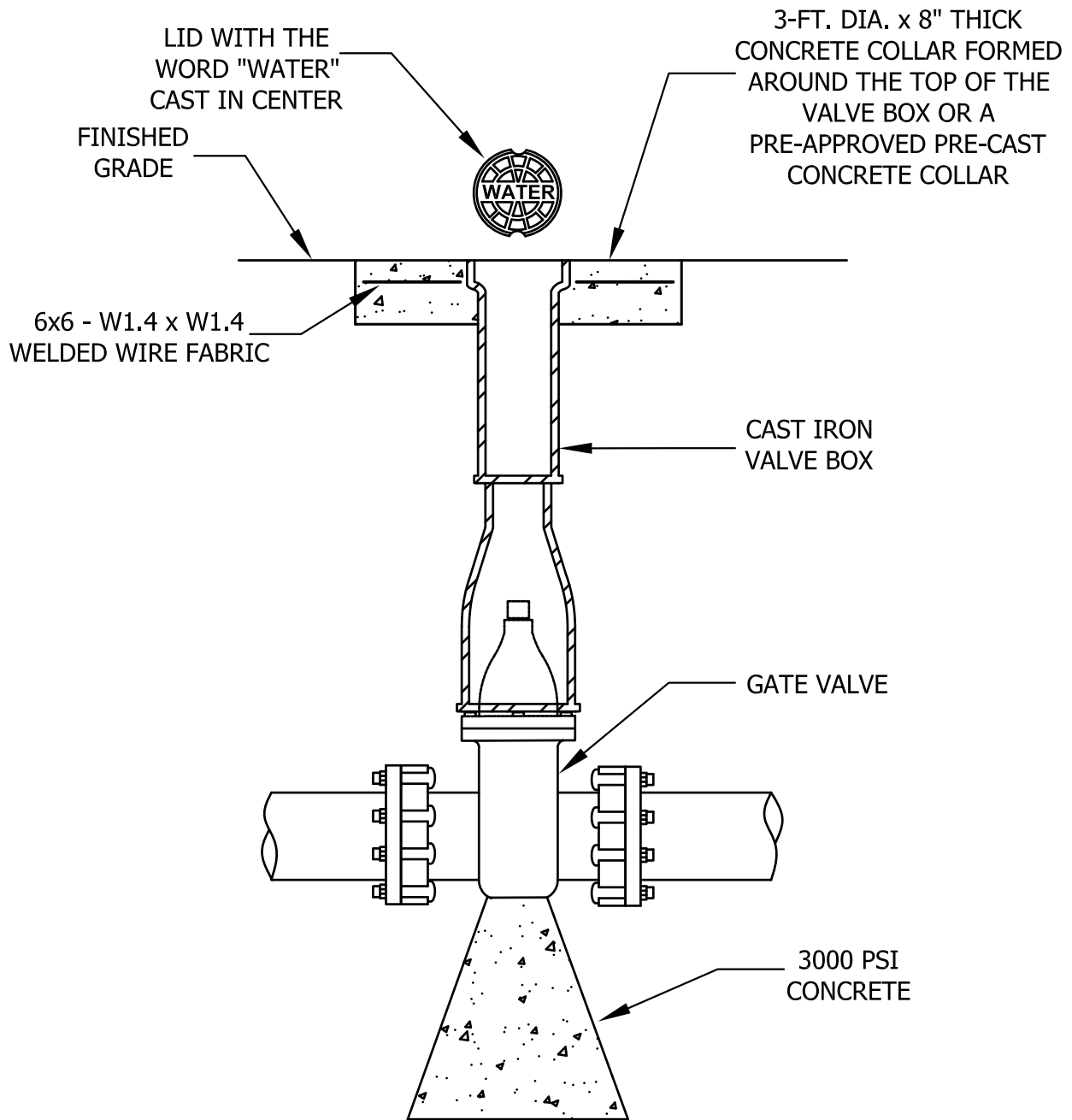
WD-2

TYPICAL VALVE BOX
UNPAVED AREAS

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



SCOTTSBORO WATER, SEWER & GAS BOARD

WATER CONSTRUCTION STANDARD DETAILS

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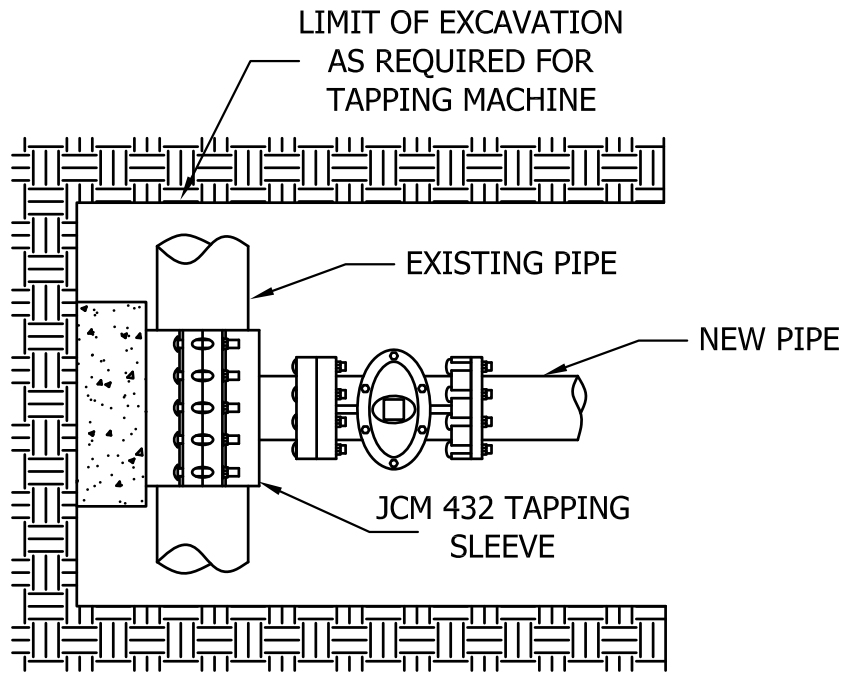
WD-3

TYPICAL VALVE BOX
PAVED AREAS

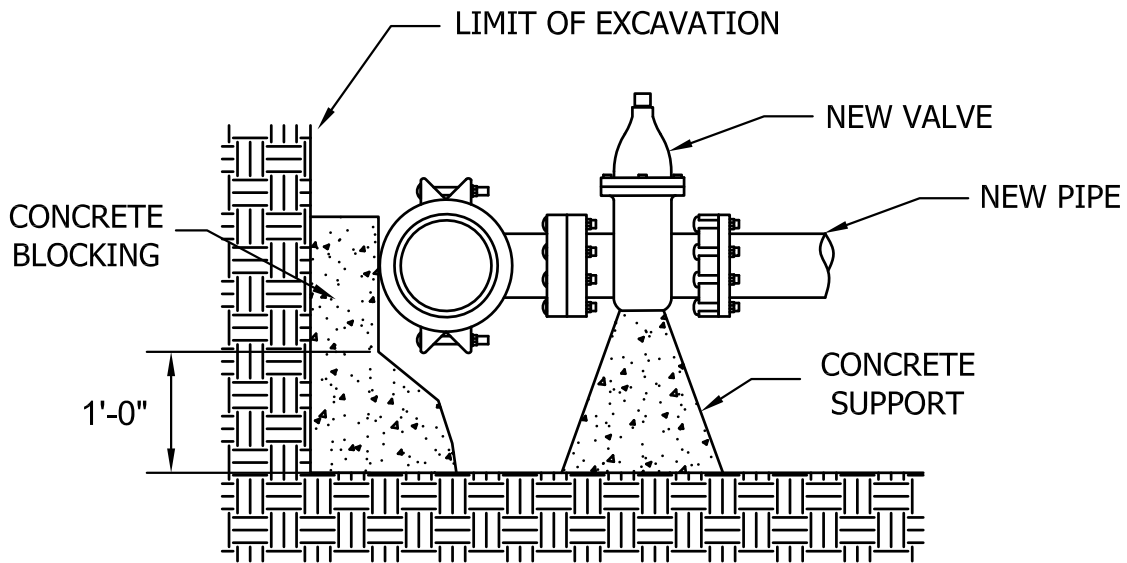
APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



PLAN



ELEVATION

SCOTTSBORO WATER, SEWER & GAS BOARD

***WATER CONSTRUCTION
STANDARD DETAILS***

**404 E. WILLOW ST.
SCOTTSBORO, AL 35768**

**PHONE: (256) 574-1515
FAX: (256) 574-1965**

WD-4

TAPPING SLEEVE AND
VALVE INSTALLATION

APPROVED BY: R.E.L.

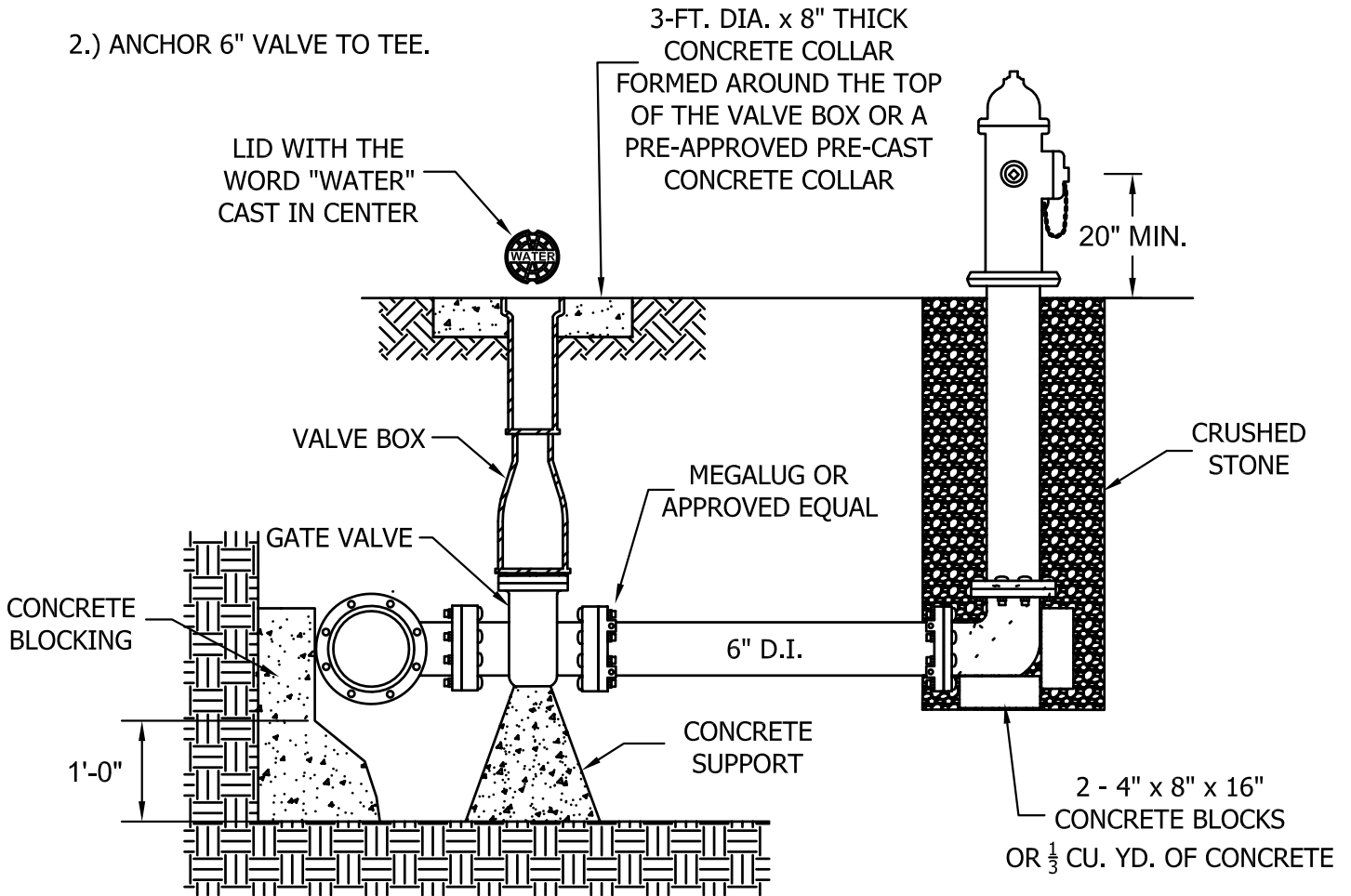
DATE IMPLEMENTED: 8/17/10

REVISIONS:

NOTES:

1.) MUELLER OR AMERICAN DARLING HYDRANTS ONLY.

2.) ANCHOR 6" VALVE TO TEE.



ELEVATION

SCOTTSBORO WATER, SEWER & GAS BOARD

WATER CONSTRUCTION STANDARD DETAILS

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WD-5

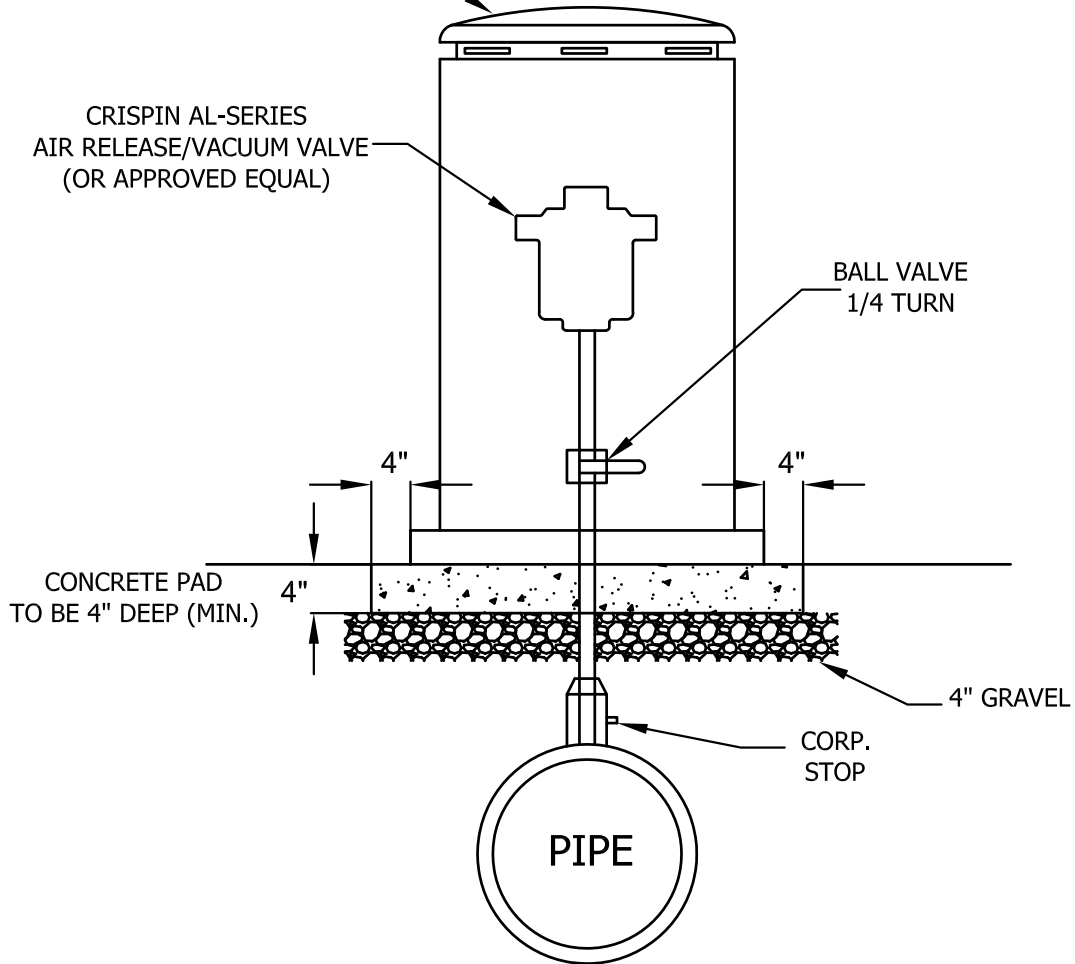
FIRE HYDRANT

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:

18" X 30" TALL VALVE ENCLOSURE WITH BOLT DOWN BASE AND REMOVABLE COVER. COVER AND BASE TO BE MANUFACTURED FROM $\frac{3}{16}$ " THICK POLYETHYLENE WITH UV STABILIZERS. COVER TO BE PIPELINE PRODUCTS MODEL # VCAS-1830 OR APPROVED EQUAL.



ELEVATION

SCOTTSBORO WATER, SEWER & GAS BOARD

***WATER CONSTRUCTION
STANDARD DETAILS***

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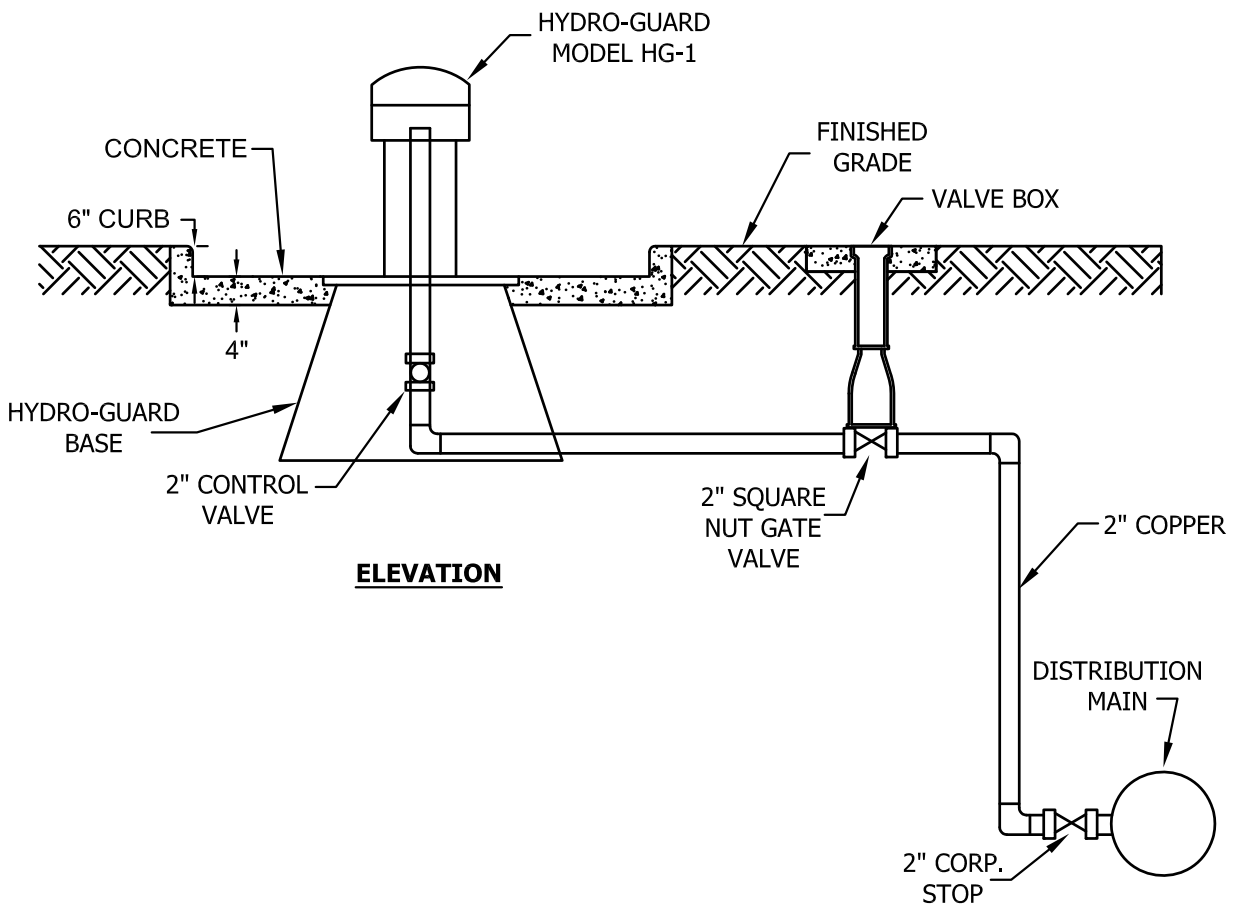
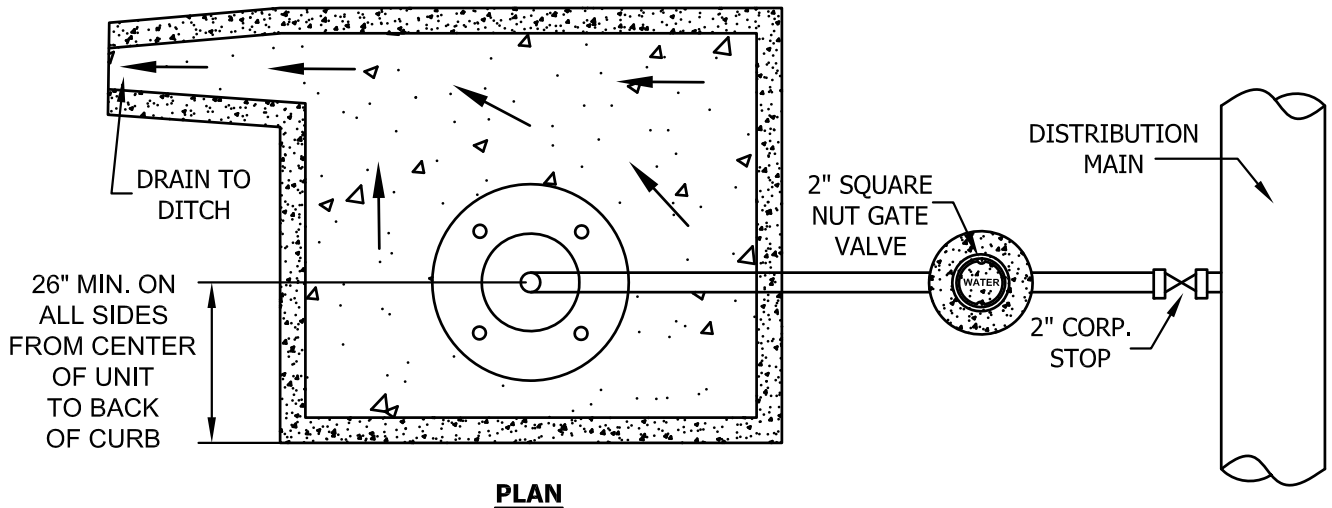
WD-6

AIR RELEASE/VACUUM VALVE

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



SCOTTSBORO WATER, SEWER & GAS BOARD

WATER CONSTRUCTION STANDARD DETAILS

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SCOTTSBORO, AL 35768**

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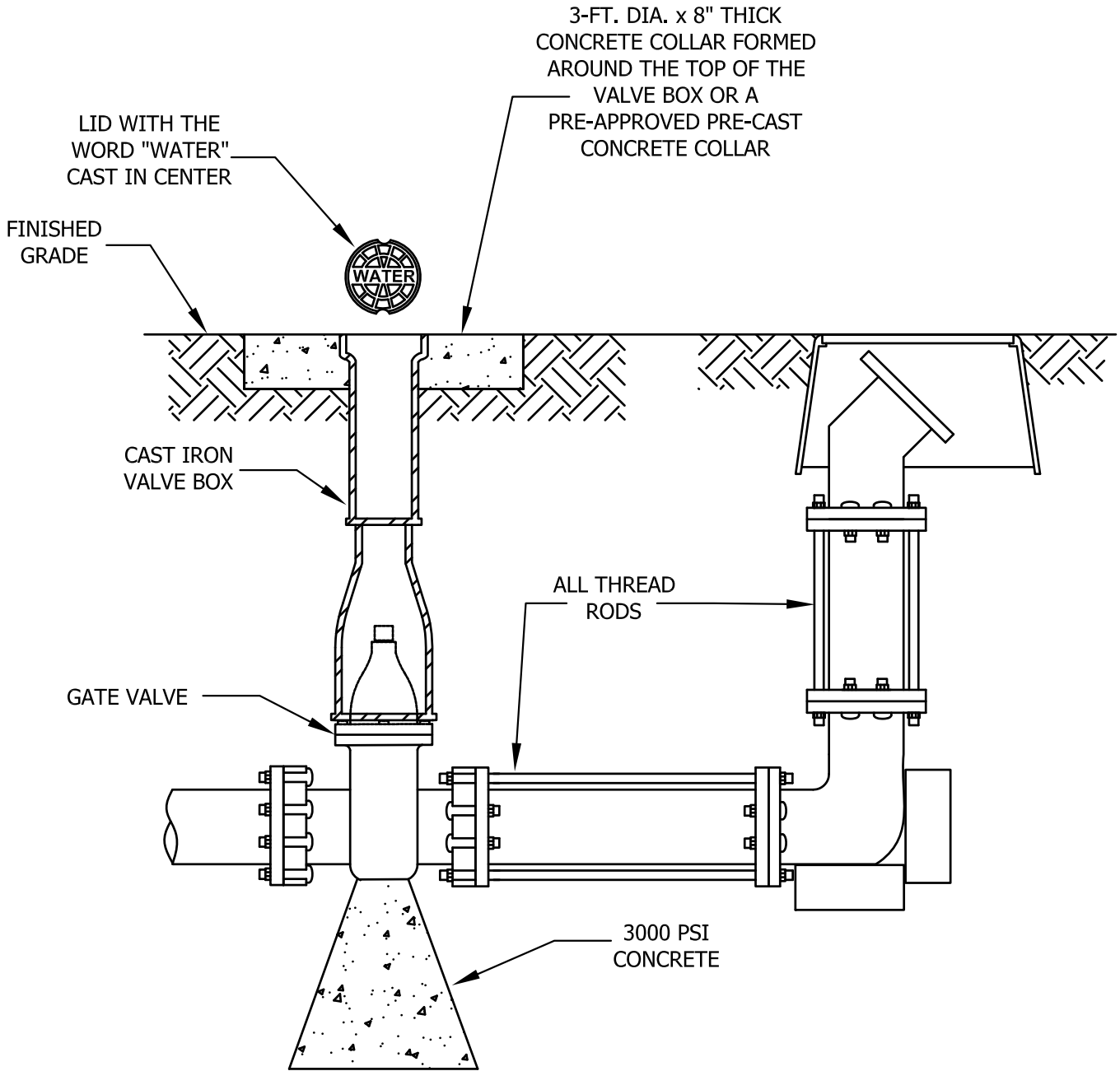
WD-7

AUTOMATIC FLUSH VALVE

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



SCOTTSBORO WATER, SEWER & GAS BOARD

***WATER CONSTRUCTION
STANDARD DETAILS***

**404 E. WILLOW ST.
SCOTTSBORO, AL 35768**

**PHONE: (256) 574-1515
FAX: (256) 574-1965**

WD-8

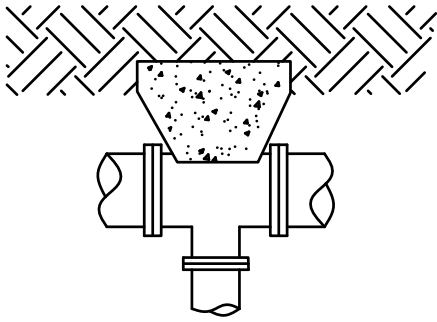
BLOW-OFF

APPROVED BY: R.E.L.

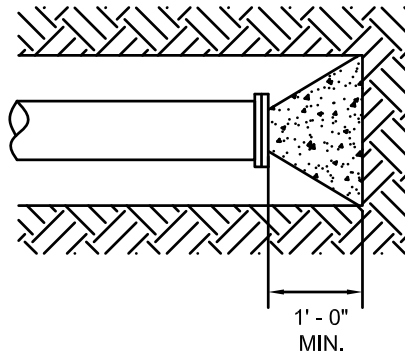
DATE IMPLEMENTED: 8/17/10

REVISIONS:

TYPICAL TEE



TYPICAL PIPE TERMINATION



HEIGHT SHALL BE THE BELL O.D.
PLUS 2' - 0" MINIMUM

NOTES:

1.) BRACES BASED ON TEST PRESSURE OF 100 PSI. FOR TEST PRESSURE OF 100-150 PSI, MULTIPLY BY 1.5. FOR TEST PRESSURE OF 150-200 PSI, MULTIPLY BY 2.0, ETC...

2.) THESE BRACE DIMENSIONS ARE FOR GUIDANCE PURPOSES ONLY AND ARE NOT INTENDED TO TAKE THE PLACE OF THE ENGINEER'S DESIGN.

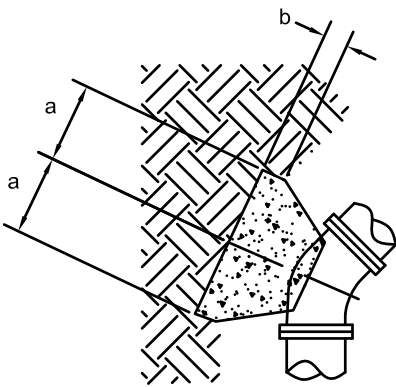
3.) ALL BRACES SHALL BE FORMED BEFORE POURING CONCRETE. SAKRETE BAGS, ETC. WILL NOT BE ACCEPTED.

4.) ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO POURING CONCRETE.

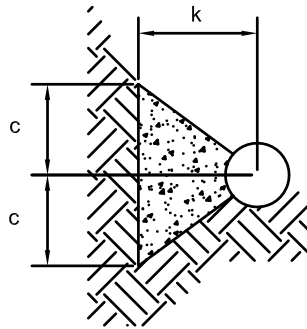
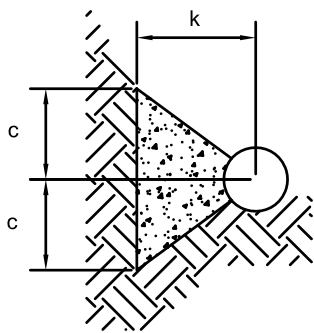
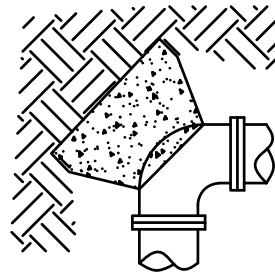
5.) CONCRETE MUST BE POURED AGAINST UNDISTURBED SOIL.

6.) CONCRETE SHALL BE KEPT AWAY FROM FITTING FLANGES TO ALLOW ADEQUATE ROOM FOR DISASSEMBLY.

TYPICAL 45° BEND



TYPICAL 90° BEND



PIPE DIA.	a	b	c	k
4"	3 1/2"	1'-0"	6"	4 1/2"
6"	6 1/2"	9"	9"	4 1/2"
8"	10"	3"	1' - 0"	4 1/2"
10"	1' - 1 1/2"	3"	1' - 3"	4 1/2"
12"	1' - 4 1/2"	3"	1' - 6"	6"

PIPE DIA.	a	b	c	k
4"	6"	1' - 8"	6"	4 1/2"
6"	1 - 0"	1' - 7"	9"	4 1/2"
8"	1' - 3"	1' - 6"	1' - 0"	4 1/2"
10"	2' - 1"	1' - 1"	1' - 3"	4 1/2"
12"	2' - 6"	1' - 0"	1' - 6"	4 1/2"

SCOTTSBORO WATER, SEWER & GAS BOARD

WATER CONSTRUCTION STANDARD DETAILS

**404 E. WILLOW ST.
SCOTTSBORO, AL 35768**

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FAX: (256) 574-1965**

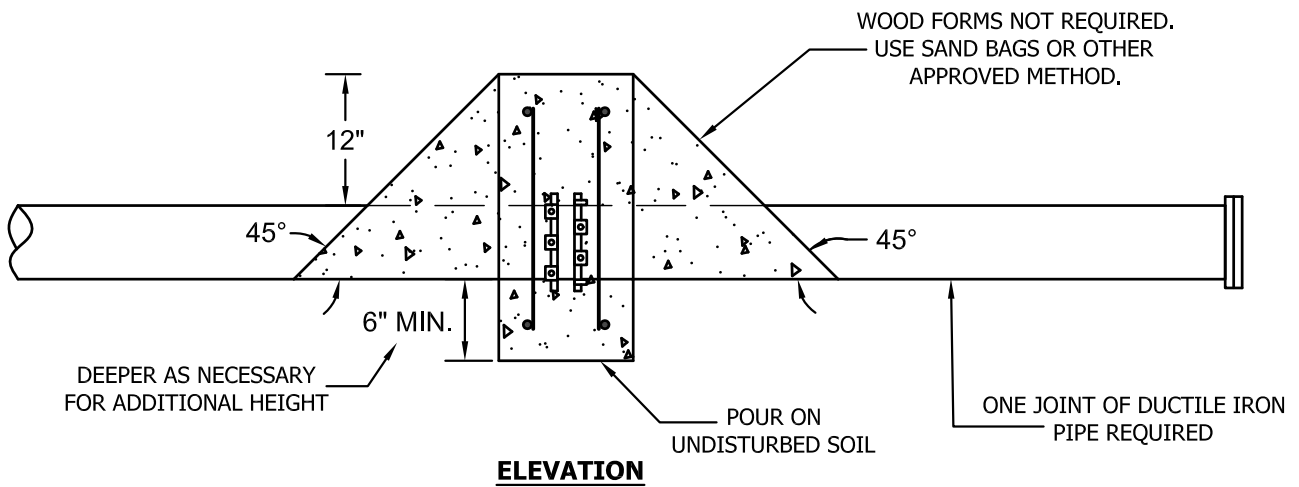
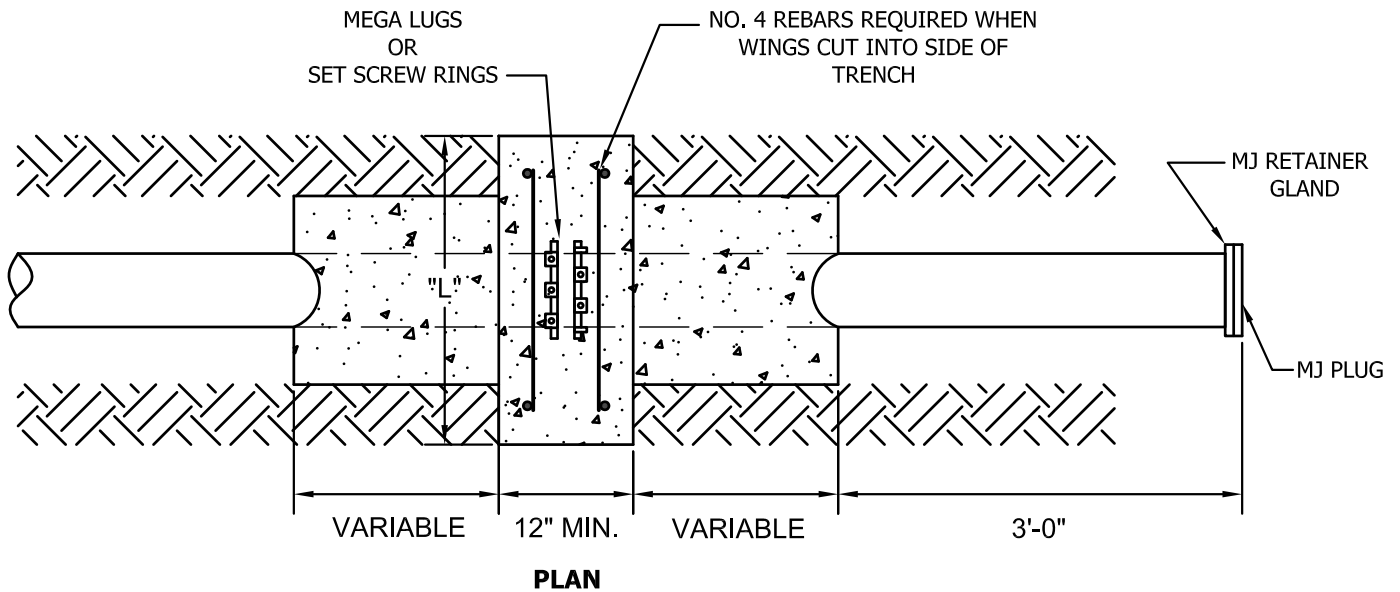
WD-9

TYPICAL THRUST BLOCK

APPROVED BY: R.E.L.

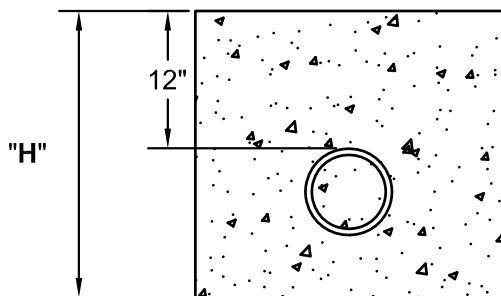
DATE IMPLEMENTED: 8/17/10

REVISIONS:



NOTES:

- 1.) DIMENSIONS ARE BASED ON TEST PRESSURE OF 200 PSI.
- 2.) DIMENSIONS ARE FOR GUIDANCE PURPOSES ONLY AND ARE NOT INTENDED TO TAKE THE PLACE OF THE ENGINEER'S DESIGN.
- 3.) CONCRETE MUST BE POURED AGAINST UNDISTURBED SOIL.



PIPE DIA.	3"	4"	6"	8"	10"	12"
L	30"	30"	37"	52"	64"	77"
H	21"	22"	24"	26"	30"	36"

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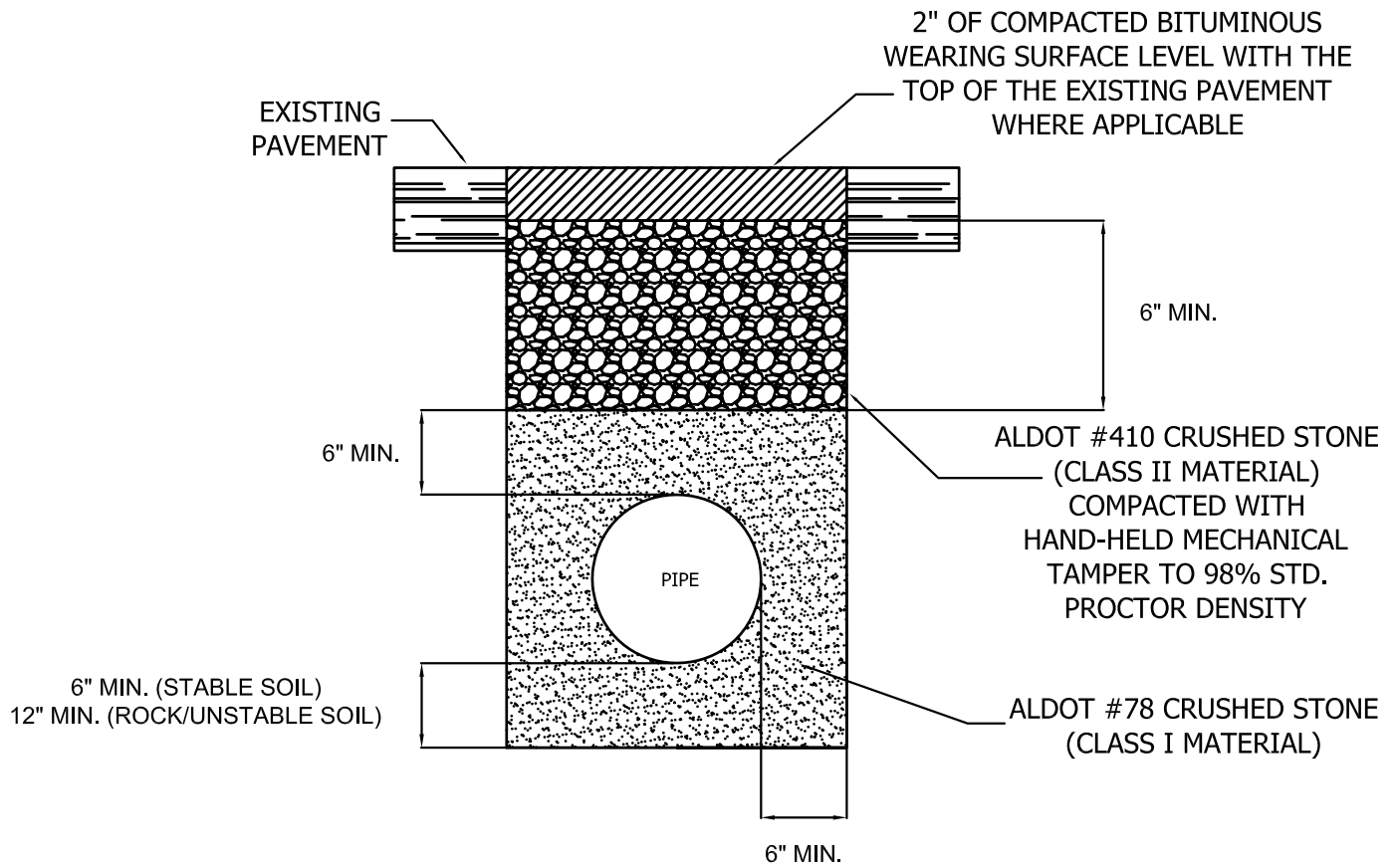
WD-10

DEAD END ANCHOR BLOCK

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



NOTES

- 1.) A CONTINUOUS STRIP OF BLUE, 12-GAUGE COPPER WIRE SHALL BE INSTALLED 2' ABOVE ALL LINES.

SCOTTSBORO WATER, SEWER & GAS BOARD

***WATER CONSTRUCTION
STANDARD DETAILS***

**404 E. WILLOW ST.
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WD-11

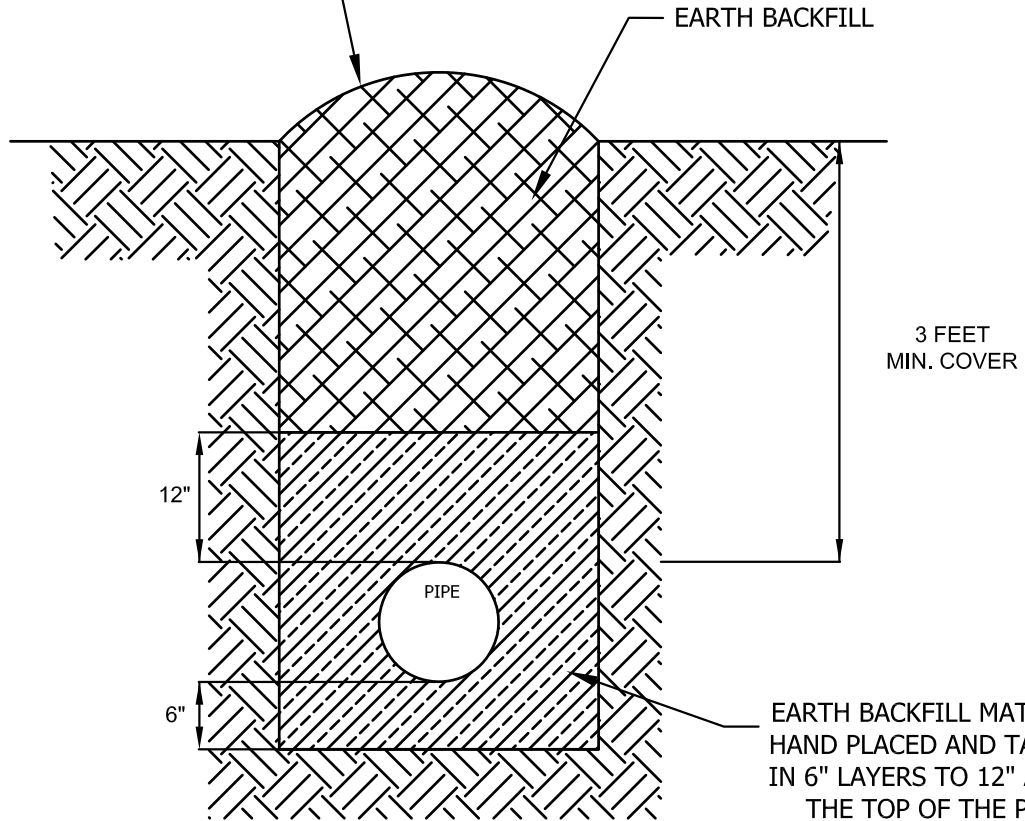
STANDARD TRENCH
TRAFFIC AREAS

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:

EARTH BACKFILL SHALL BE MOUNDED TO ALLOW FOR SETTLEMENT



EARTH BACKFILL MATERIAL HAND PLACED AND TAMPED IN 6" LAYERS TO 12" ABOVE THE TOP OF THE PIPE

NOTES

- 1.) A CONTINUOUS STRIP OF BLUE, 12-GAUGE COPPER WIRE SHALL BE INSTALLED 2' ABOVE ALL LINES.

SCOTTSBORO WATER, SEWER & GAS BOARD

***WATER CONSTRUCTION
STANDARD DETAILS***

**404 E. WILLOW ST.
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WD-12

STANDARD TRENCH

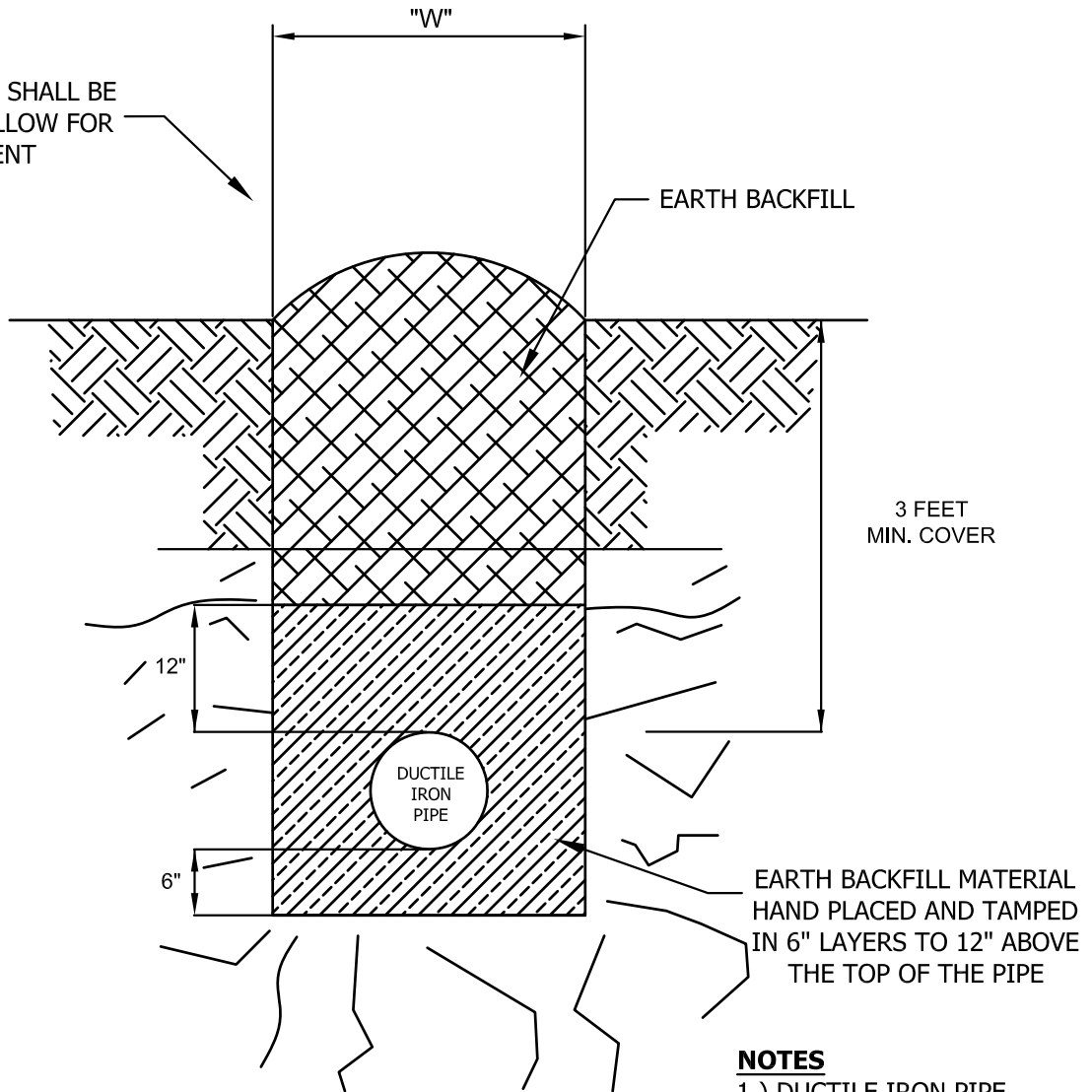
APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:

TRENCH WIDTH "W" SHALL
BE O.D. OF PIPE PLUS 18"

EARTH BACKFILL SHALL BE
MOUNDED TO ALLOW FOR
SETTLEMENT



NOTES

- 1.) DUCTILE IRON PIPE
REQUIRED.
- 2.) A CONTINUOUS STRIP OF
BLUE, 12-GAUGE COPPER
WIRE SHALL BE INSTALLED 2'
ABOVE ALL LINES.

**SCOTTSBORO WATER, SEWER & GAS
BOARD**

***WATER CONSTRUCTION
STANDARD DETAILS***

**404 E. WILLOW ST.
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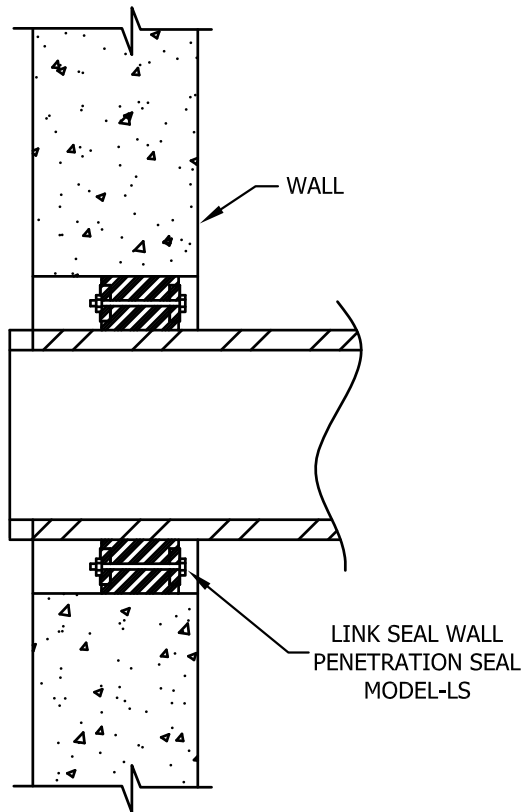
WD-13

TRENCH IN ROCK

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS:



Model "S-316" Link-Seal Modular Seal

For chemical processing waste water treatment. EPDM rubber is resistant to most inorganic acids and alkalis, some organic chemicals (acetone, alcohol, ketones).

Color: Black

Type: Stainless

Seal Element: EPDM (Black)

Pressure Plates: Composite

Bolts & Nuts: 316 Stainless Steel

Temp. Range: -40 to +250F. (-40 to +121C.)

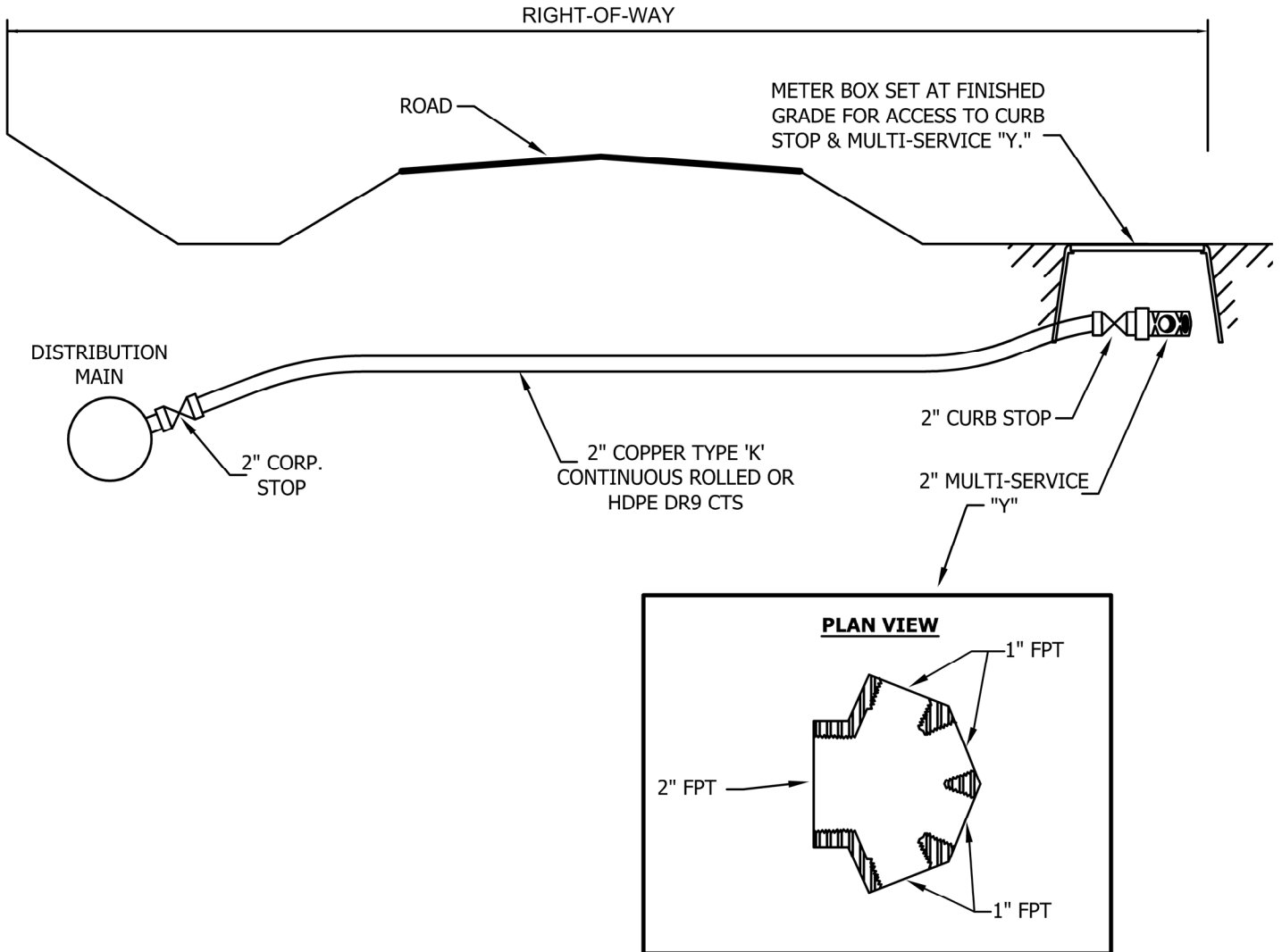
<p>SCOTTSBORO WATER, SEWER & GAS BOARD</p> <p><i>WATER CONSTRUCTION STANDARD DETAILS</i></p> <p>404 E. WILLOW ST. SCOTTSBORO, AL 35768</p> <p>PHONE: (256) 574-1515 FAX: (256) 574-1965</p>	<p>WD-14</p>
	<p>LINK SEAL</p>
	<p>APPROVED BY: R.E.L.</p>
	<p>DATE IMPLEMENTED: 8/17/10</p>
	<p>REVISIONS:</p>
	<p> </p>

NOTES

1.) PIPING SHALL BE 2" COPPER, TYPE 'K', CONTINUOUS ROLLED OR HDPE DR9 CTS.

2.) 3-FEET OF COVER REQUIRED WHEN CROSSING DITCHES.

3.) APPROVED METALLIC MARKER TAPE SHALL BE PLACED IN DITCH 6" ABOVE THE PIPE



SCOTTSBORO WATER, SEWER & GAS BOARD

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**404 E. WILLOW ST.
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**PHONE: (256) 574-1515
FAX: (256) 574-1965**

WD-15

LONG-SIDE WATER SERVICE

APPROVED BY: R.E.L.

DATE IMPLEMENTED: 8/17/10

REVISIONS: 07/08/16

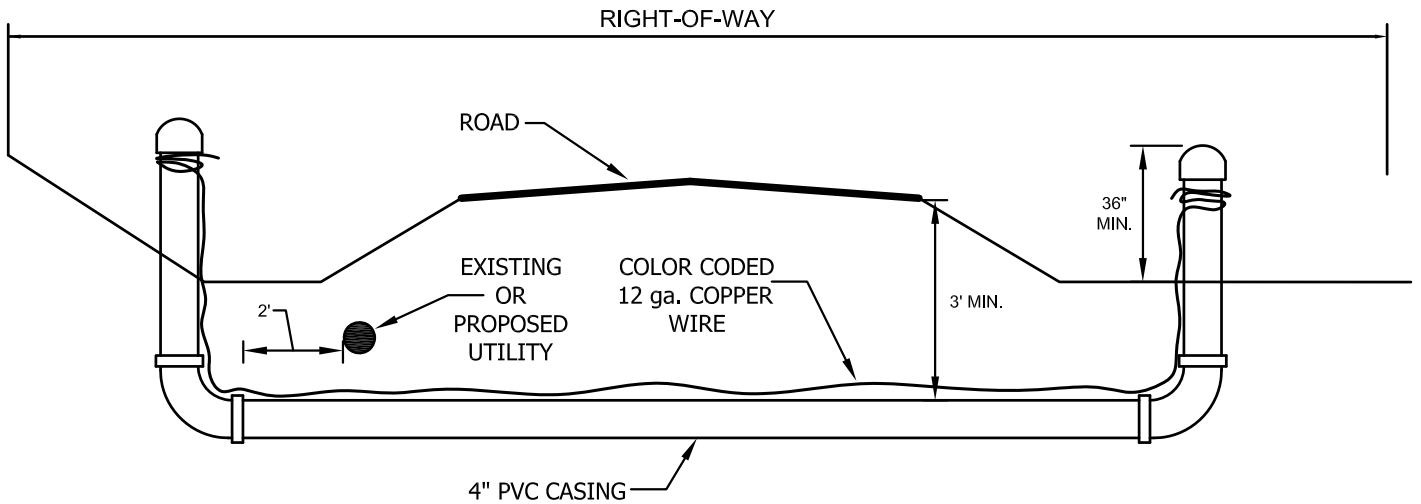
NOTES

1.) CAPS SHALL BE PAINTED TO REPRESENT THE UTILITY ACCORDING TO THE UNIFORM COLOR CODE OF THE AMERICAN PUBLIC WORKS ASSOCIATION.

2.) CASING SHALL EXTEND A MINIMUM OF 2' BEYOND EXISTING OR PROPOSED UTILITIES.

3.) APPROVED METALLIC MARKER TAPE SHALL BE PLACED IN DITCH 24" ABOVE THE CASING.

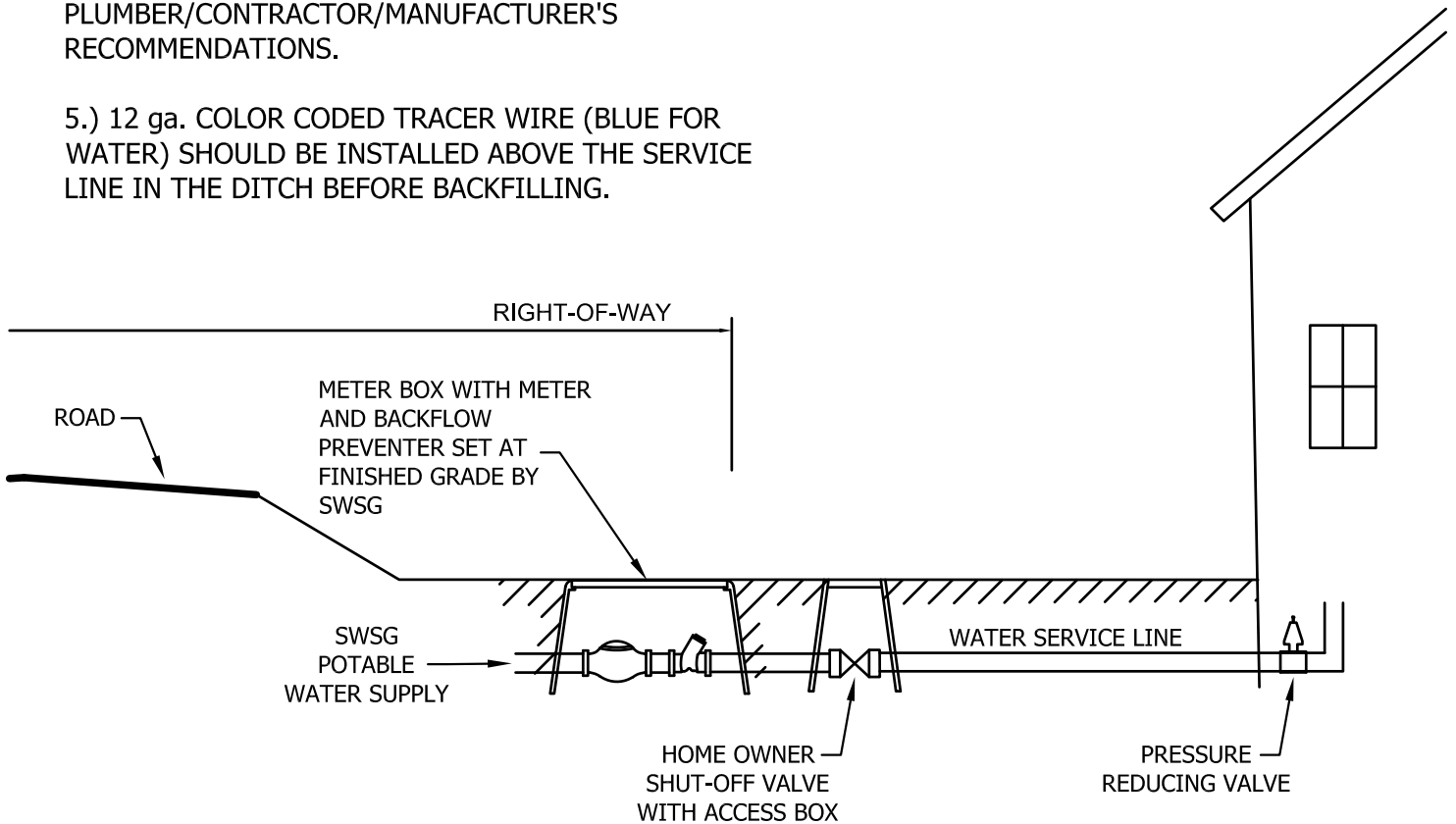
4.) COLOR-CODED 12-ga. LOCATING WIRE SHALL BE PLACED IN DITCH ABOVE THE CASING AND SHALL BE WRAPPED AROUND PIPING JUST BELOW THE CAPS.



<p>SCOTTSBORO WATER, SEWER & GAS BOARD</p> <p><i>WATER CONSTRUCTION STANDARD DETAILS</i></p> <p>404 E. WILLOW ST. SCOTTSBORO, AL 35768</p> <p>PHONE: (256) 574-1515 FAX: (256) 574-1965</p>	<p>WD-16</p>
	<p>UNOCCUPIED LONG-SIDE SERVICE CASING</p>
	<p>APPROVED BY: R.E.L.</p>
	<p>DATE IMPLEMENTED: 8/17/10</p>
	<p>REVISIONS:</p>
	<p> </p>

NOTES

- 1.) HOMEOWNER'S SHUT-OFF VALVE SHALL BE INSTALLED PRIOR TO WATER SERVICE BEING TURNED ON BY SCOTTSBORO WSG. SHUT-OFF VALVE SHALL BE LOCATED WITHIN A REASONABLE DISTANCE (3 TO 5 FEET) FROM THE METER BOX TO AID IN LOCATING.
- 2.) SERVICE TAP, SERVICE LINE, METER BOX, METER AND BACKFLOW WILL BE INSTALLED AFTER CUSTOMER SIGNS UP FOR SERVICE AND PAYS APPLICABLE TAP FEES AT SCOTTSBORO WSG.
- 3.) SERVICE LINE SHOULD BE A MINIMUM OF 12-INCHES DEEP.
- 4.) PRESSURE REDUCING VALVE SETTING PER PLUMBER/CONTRACTOR/MANUFACTURER'S RECOMMENDATIONS.
- 5.) 12 ga. COLOR CODED TRACER WIRE (BLUE FOR WATER) SHOULD BE INSTALLED ABOVE THE SERVICE LINE IN THE DITCH BEFORE BACKFILLING.



<p>SCOTTSBORO WATER, SEWER & GAS BOARD</p> <p><i>WATER CONSTRUCTION STANDARD DETAILS</i></p> <p>404 E. WILLOW ST. SCOTTSBORO, AL 35768</p> <p>PHONE: (256) 574-1515 FAX: (256) 574-1965</p>	<p>WD-17</p>
	<p>CITY OF SCOTTSBORO INSPECTION TYPICAL</p>
	<p>APPROVED BY: J.R.G.</p>
	<p>DATE IMPLEMENTED: 3/14/23</p>
	<p>REVISIONS: 5/23/23 DISTANCE DEF. NOTE 1</p>
	<p> </p>
	<p> </p>