

WATER STANDARDS

15 WATER SYSTEMS

15-1 DESCRIPTION

This work shall consist of furnishing and installing pressure water pipes, valves, fittings, fire hydrants, backflow assemblies, meters, thrust blocks, service lines, and valve boxes in accordance with the Standard Plans and these Standard Specifications.

15-2 MATERIALS

All materials incorporated into the work shall conform to these Standard Specifications and the Standard Drawings. All pipe and plumbing fixtures shall comply with AB 1953. Any material proposed to be equal shall be submitted to the Engineer at least 15 working days prior to its proposed installation. The submittal shall include a sample of the material and complete data necessary for evaluation for equivalence.

15-3 POLYVINYL-CHLORIDE PIPE

PVC pipe shall conform to AWWA C900 or C905 for all pipes, except diameters larger than 12 inches shall be C905. All pipes shall be Class 150 or 200 for use in municipal water systems and fire protection lines. Rubber rings shall conform to manufacturer's recommendation. All mains shall include copper tracer wire, #12 in size. The tracer wire shall be connected to all valves and fittings as shown in the Standard Drawings.

15-4 GATE VALVES

Gate Valves shall meet or exceed the current AWWA Standard C509 and shall be resilient seat or wedge with non-rising stem. The following valves are approved for use by the City of Turlock: Mueller R/S, Clow R/W, Waterous Series 500 R/S, Kennedy Ken-Seal R/S, Stockham R/W, MandH R/S or American AVK R/S, American Flow Series 500. All valves shall be epoxy lined. Line valves shall be no more than 500 feet apart.

For 12 inch and larger, valves shall be butterfly valve. M & H 450 for 12 inch and M & H 4500 for 14 inch through 24 inch, or approved equal.

All integral working parts shall be in accordance with the current AWWA Specifications C509.

Valve ends shall be mechanical joint, flanged or a combination thereof in accordance with the current AWWA C509 unless otherwise specified.

When used in conjunction with a tapping sleeve, gate valves shall have a flange for attaching to the tapping sleeve. The tapping sleeve shall be Romac Series SST, all stainless steel or an approved equal. The outlet of the valve shall be provided with a mechanical joint compatible with a CL-12 Mueller Drilling Machine.

15-5 FITTINGS

Ductile iron fittings including tees, crosses, caps, etc. shall be flange, mechanical joint or a combination thereof. Mechanical joint couplings shall conform to ANSI A21.10 (AWWA C110). AWWA C153 (Compact Fittings) are an acceptable alternative. All couplings shall be cement mortar lined in accordance with AWWA C104, and shall be furnished with rubber ring seal joints designed to be used with Class 150 or 200 PVC Pipe, C900 or C905.

15-6 VALVE BOXES

Each valve shall be protected by the use of a valve box set to grade. The lid shall be marked "WATER". The valve box shall be installed in accordance with the Standard Drawings and these Standard Specifications.

15-7 BACKFLOW ASSEMBLIES

All backflow assemblies shall be purchased as factory pre-assembled units. Only those devices approved by U.S.C. Foundation for Cross-Connection Control are acceptable to the City. DC/DA must be a type designed for use in fire systems.

Locking Knox F.D.C. caps are required on new installations. Locking Knox F.D.C. caps may be required on existing F.D.C.'s by the Fire Chief. Two 2½ inch male plugs with swivel guards (all stainless steel) with a bright stainless finish, Knox part number 3041.

On ¾ inch through 2 inch backflow assemblies, all above ground riser pipe shall be galvanized steel. Also, a galvanized union shall be installed on both risers between the top of the riser pipe and the ground.

15-8 FIRE HYDRANTS

Fire hydrants shall conform to the requirements of the Standard Drawings. All hydrants shall be configured with one 4½ inch outlet and one 2½ inch outlet. The bury, valve, valve box, tee, thrust block, and piping shall be installed in accordance with the Standard Drawings, and these Standard Specifications. The hydrant bury shall be mechanical joint, or tyton joint. Fire hydrants shall be of a Rich #950, James Jones J-3740 or J-4040, Mueller A481F, Clow 850, or City approved equal. All Hydrants shall be Federal Safety Yellow in color.

15-9 THRUST BLOCKS

Thrust blocks shall be constructed in accordance with the details shown in the Standard Drawings. Concrete shall be minor concrete in accordance with Section 90 of Caltrans Specifications. Crosses shall be blocked in place and then cradled with concrete in lieu of a thrust block.

15-10 INTERRUPTION OF SERVICE

No valve, other control or existing system shall be operated for any purpose by the Contractor. The City or an authorized City representative will operate all valves, hydrants, blow-offs, and curb stops. City crews will notify customers when service will be interrupted.

15-11 SERVICE LINES

Service lines shall be installed in accordance with the Standard Drawings and these Standard Specifications. All services shall include tracer wire, #12 in size, and shall be connected to the main line tracer wire as well as to the corporation and curb stops. A letter "W" 3 inches in height shall be stamped on curb face over service line. Service line materials shall conform to the following requirements:

¾ Inch and 1 Inch Services

Ultra high molecular weight (UHMW) Polyethylene, SIDR-7 (IPS), 160 psi rating.

1½ Inch to 2 Inch Services

Ultra high molecular weight (UHMW) Polyethylene, SDR-9 (CTS), 160 psi rating.

4 Inch and Larger Services

Same material as mains.

15-12 CURB STOP FOR ¾ INCH AND 1 INCH WATER SERV. WITH METER BOX

For ¾ inch water services, the curb stop shall be as outlined in the Standard Drawings. For a 1 inch water service the curb stop shall be as outlined in the Standard Drawings. The meter box shall be a Christy B-16. Lids shall be Christy FL16D unless otherwise specified.

15-13 CORP. STOP FOR ¾ INCH AND 1 INCH WATER SERVICE

For a ¾ inch and 1 inch water service, the corp. stop shall be as outlined in the Standard Drawings.

15-14 CURB STOP FOR 1½ INCH AND 2 INCH WATER SERV. WITH BOX

For 1½ inch and 2 inch water services the curb stop shall be as outlined in the Standard Drawings. The meter box shall be a Christy B-36 with a Christy FL36D lid.

15-15 CORP. STOP FOR 1½ INCH AND 2 INCH WATER SERVICE

For 1½ inch and 2 inch water services, the corp. stop shall be as outlined in the Standard Drawings.

15-16 METER BOX AND LID

Meter boxes shall be reinforced concrete and meter box lids shall be non-reinforced polymer concrete. Traffic rated lids shall not be metal or contain metallic reinforcement. Meter boxes shall be sufficiently large to allow for a minimum of 4 inches at extreme ends of the meter and strainer assembly and the same clearance on sides. All boxes located in traffic areas must be approved by the Engineer prior to installation.

15-17 WATER METERS

Water meters shall be installed on all new construction or when required by the Turlock Municipal Code or in special circumstances as specified by the Engineer. The meters, for ¾ inch through 2 inch water services, shall have a bronze main case. Turbine meters may be used only by permission of the Engineer.

All registers must be hermetically sealed, shall be in US Gallons and should be magnetically coupled. Meter Strainers shall be used in conjunction with all meters 3 inches and larger, and on all turbine meters 2 inches and larger.

All meters approved for use in the City of Turlock must be straight-reading and meet the current AWWA C700 standards for cold water meters. All meters shall utilize positive displacement technology and incorporate absolute encoders (AMCO C700 or approved equal). The meter shall have a resolution of 10 gallons or less.

Each meter shall be accompanied by an ITRON 200W P single read endpoint. Each ITRON shall be supported with a ½ inch PVC pipe inserted into the native soil a minimum of 6 inches as to support the end. In addition, the following requirements must be met:

All services must be installed with a private gate valve on the downstream side of the meter, or meter idler, for customer use. For ¾ inch and 1 inch services, the private gate valve shall be a Straight Compression Globe Meter Valve by Ford, Catalog Number SG13-332, and SG13-444, respectively. For 1½ inch and 2 inch services, the private gate valve shall be a Red and White gate valve, Catalog Number 206 or approved equal.

On ¾ inch meters, straight ¾ inch meters shall be installed and not ¾ inch by 5/8 inch.

All ¾ inch thru 2 inch displacement type meters shall meet current AWWA C700 standards.

All 2 inch thru 8 inch turbine type meters shall meet current AWWA C701 standards.

All 2 inch thru 8 inch compound type meters shall meet current AWWA C702 standards plus the bypass meter must be removable without disruption of the main water flow.

Fire Line shall be Rockwell, Neptune Protectus II or approved equal.

15-18 REPAIR OF WATER SERVICES AND WATER MAINS

When increasing or decreasing line size, such as connecting to existing water mains; a mechanical joint by mechanical joint ductile iron reducer shall be used. Repairs must be made by using Ford or Jones Pac-joint type couplings or an approved equal. The milled end of C900 pipe shall be removed when connecting to a mechanical joint fitting.

15-19 CONNECTIONS TO AND TAPPING OF EXISTING MAINS

All tapping or connection to existing mains shall be done by the City. The City will furnish, if desired, and install all necessary parts and valves. It shall be the Contractor's responsibility to contact the Engineer at least ten days before any proposed tapping or connection to an existing main. The Contractor shall provide a deposit with the City to cover the cost of the City's work.

All connections to city water mains larger than 2 inches, for new subdivisions or for other new main line installation, will be required to have a temporary tap through an approved double-check back flow assembly, to be furnished and installed at the time of connection by the City. After the new main line has been tested and disinfected to the satisfaction of the Engineer, the City will remove the temporary double-check back flow device, and make the permanent tie-in. The Contractor will be responsible for contacting U.S.A., excavation and back fill for the tie-in, and all traffic safety.

15-20 JACKING

Any jacking, boring, pushing, or other operations proposed to install water system facilities without open cut excavation shall require approval of the Engineer.

15-21 PIPE LAYING

Unless otherwise specified by the Engineer, all pipes shall be laid with the bells facing the direction of laying and shall be laid in accurate conformity with the prescribed lines and grades. Each length shall be jointed to the preceding section as hereinafter specified; and after said jointing procedure has commenced, there shall be no movement of the pipe whatsoever in subsequent operations. Each pipe shall have a firm bearing for its full length in the trench, except at bell holes and field joints. Only approved lubricants shall be used as an aid to mating bells and spigots. The reference line on the spigot end should be flush with the end of the bell. Whenever necessary to deflect the pipe from a straight line either in the vertical or horizontal plane to avoid obstructions, or where long radius curves are permitted, the degree of deflection at joints shall be approved by the Engineer. The deflection shall be accomplished by using short C900 pieces and compatible C900 repair couplings with stop or using offsets as shown in the Standard Drawings.

When the pipe is laid, it shall be as free as possible of all foreign matter. If, in the opinion of the Engineer, the pipe contains dirt that will not be removed during the flushing operation, the interior of the pipe shall be cleaned and swabbed, as necessary, with an antibacterial solution as approved by the Engineer.

Every precaution shall be taken to protect the pipe against the entrance of foreign material before the pipe is placed in the trench. At the close of the day's operations, or whenever workmen are absent from the job

site, the last section of pipe shall be plugged, capped or otherwise tightly closed to prevent the entry of foreign matter of any nature.

All trenches shall be of sufficient depth to provide a minimum cover of 36 inches, measured from the top of the pipe to the finish grade. Greater depths of cover shall be provided when so shown on the plans or directed by the Engineer. All mains with less than 36 inches of cover shall be ductile iron or pressure Class 200, C900 with approval of Engineer.

15-22 CHLORINATION AND ISOLATION OF NEW MAINS

All new water and fire lines shall be completely isolated from any existing main until it has been tested and disinfected to the satisfaction of the Engineer. Nothing in this standard shall preclude the City of Turlock from requiring additional testing or disinfection techniques as determined by the Engineer.

The Contractor shall chlorinate the proposed water line in accordance with the provisions in current AWWA Standard C601. However, the tablet method will not be allowed where water or foreign material has entered the pipe or when the first test has failed.

A sufficient amount of chlorine shall be introduced into the main so as to obtain at least 50 ppm of chlorine in all parts of the system being tested, when the line is filled with water. Prior to flushing, a residual test shall be taken at locations as specified by the Engineer. The residual shall have a minimum 10 ppm of chlorine.

The City will collect all water samples to conduct bacteriological tests on new main line installation. All main line installation must pass the bacteriologic test performed by the City of Turlock before the new main line is accepted and introduced to the utility system. The first test will be provided by the city at no charge to the Contractor. In the event that the water samples do not pass the first time, the Contractor will be required to pay for any and all follow-up bacteriological tests. No independent water samples will be accepted in lieu of the City's bacteriological testing. However, any additional tests required will be charged to the Contractor.

New mains may be filled from existing mains only by a temporary tap and through an approved double-check backflow assembly. If additional piping is needed before the double-check assembly the contractor will be responsible for disinfecting that piping and passing a bacteriological test. At the end of the contact period, the mains shall be flushed to the satisfaction of the Engineer. All flushing water shall be de-chlorinated and discharged into the storm drainage system or other approved location. Under no circumstances will the Contractor be allowed to discharge the flushing water into the sanitary sewer system. Under no circumstances will water be allowed to accumulate on public right-of-way or easements, or in any manner, as to create a potential hazard to existing public improvements or any that are under construction.

15-23 DISINFECTING - TABLET

If this method is utilized to disinfect the mains at least 72 hours shall be allowed for the tablets to fully dissolve before a sample is taken. The number of tablets and their placement shall be as directed by the Engineer. The Contractor shall fill the mains slowly to insure that the tablets stay in place.

15-24 DISINFECTING - LIQUID

This method will be utilized when the Contractor is required to re-chlorinate the mains. When this method is used on a main, disinfectant is introduced into the line until a residual is detected at all services and blow-offs.

Under no circumstances will gaseous chlorine be allowed to be used for this test method.

15-25 LEAKAGE TEST

All water mains, service, fittings, and all appurtenances shall be subject to a hydrostatic pressure test and a water loss hydrostatic test. Tests on all mains and services shall be performed and accepted only in the presence of the Engineer.

Hydrostatic Pressure Test

The Hydrostatic Pressure Test shall consist of maintaining a test pressure of 50 psi for a period of one hour. Any pressure drops will be recorded. Upon successfully completing the 50 psi Hydrostatic Pressure Test, the pressure shall be dropped to 0 psi and then increased to 200 psi and maintained at said 200 psi for a period of two hours. The test pressure shall not be allowed to drop more than 10 psi over the two hour test period.

Water Loss Hydrostatic Test

If a pressure drop occurs in the Hydrostatic Pressure Test, the pressure will then be raised to 50 psi by pumping and the quantity of water pumped into the line accurately measured. The amount of allowable water loss shall be calculated on the basis of 15 gallons per inch of diameter per mile of length per 24 hours. If the water loss test fails, the Contractor will be required to find the leak, make all necessary repairs, and repeat the test until a satisfactory test is achieved. The Contractor shall furnish, install, and remove all apparatus necessary for performing the above mentioned tests. The cost of performing said tests shall be borne by the Contractor.

15-26 FIRE LINES

Fire lines installed for the purpose of on-site fire hydrants or fire sprinkler systems shall be fitted with an approved double check detector assembly with F.D.C. installed in the Public Utility Easement whenever possible. This installation shall conform to the requirements shown in the Standard Drawings. There will be no taps allowed off of a fire line without the approval of the Engineer.

15-27 CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

These shall be provided by the developers when in the opinion of the Engineer, a cross-connection or a potential health hazard exists. Protection of the City's water system from these conditions shall be provided by a backflow prevention assembly approved by the Engineer. The type required and its installation shall conform to the "Manual of Cross-Connection Control and Hydraulic Research", by the University of Southern California. Information regarding the above may be obtained from the City.

15-28 USE OF HYDRANTS FOR CONSTRUCTION PURPOSES

Use of hydrants for any purpose is strictly prohibited unless prior permission has been obtained from the City. All use of construction water requires a permit be obtained and fees paid. A water meter will be installed for use charges. All vehicles obtaining water shall be fitted with an air-gap type filler. Hydrants are to be operated using a hydrant spanner wrench only.

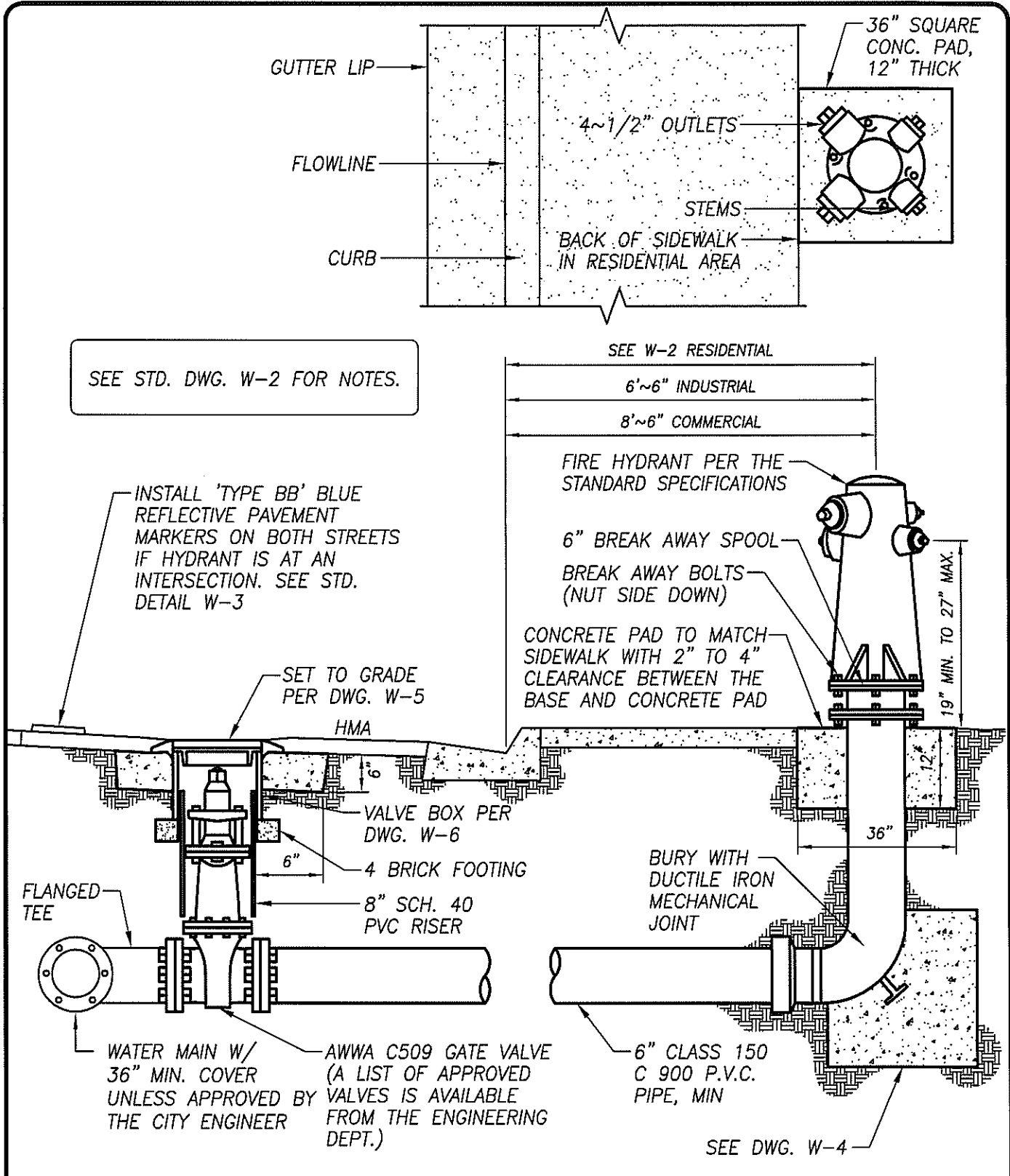
Only under special conditions deemed beneficial by the City shall a direct discharge from the 4½ inch hydrant port be allowed. This use shall only be allowed under the direct supervision of the Municipal Services Department. All construction water will be metered and charged at a metered rate.

15-29 WELL DESTRUCTION

To insure the proper closure of private residential wells and to protect the City's water resources, the City of Turlock will close all such private residential wells. The private residential well closure service is free of charge. To request a well closure, contact Municipal Services Department.

15-30 BACKFLOW THERMAL PROTECTION

Approved polar blankets and approved enclosures shall be provided by the Contractor on all backflow devices 2 inches in diameter and smaller. Approved polar blankets shall be provided by the Contractor and are required for backflow devices larger than 2 inches in diameter. Polar blankets shall not be required for DCDA devices.



FIRE HYDRANT ASSEMBLY

CITY OF TURLOCK



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

APPROVED BY:

CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-1


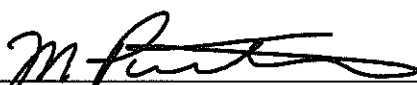
COUNCIL APPROVAL

DEC, 2015

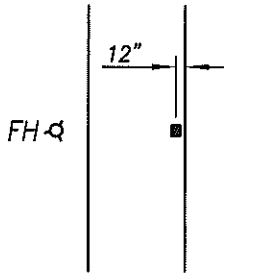
NOTES:

1. IN INDUSTRIAL AREAS, FIRE HYDRANTS SHALL BE LOCATED SIX FEET – SIX INCHES BEHIND FLOW LINE. WHERE PARKWAYS ARE EXISTING OR PROPOSED, HYDRANT SHALL BE 24 INCHES BEHIND FLOW LINE.
2. IN COMMERCIAL AREAS, WHERE 8 FEET TO 10 FEET OF SIDEWALK ARE EXISTING OR PROPOSED, FIRE HYDRANTS SHALL BE LOCATED EIGHT FEET – SIX INCHES BEHIND FLOW LINE. AT EXISTING OR PROPOSED FIVE FEET OR SIX FEET OF SIDEWALK SEE NOTE 1.
3. FIRE HYDRANTS SHALL BE LOCATED
 - A. AT STREET CORNERS WHENEVER POSSIBLE
 - B. IN RESIDENTIAL ZONED AREAS, NO MORE THAN 500 FEET APART AND NO MORE THAN 300 FEET FROM DEAD-END STREETS.
 - C. FOR ALL OTHER ZONES:
 1. NO MORE THAN 300 FEET APART AND NO MORE THAN 300 FEET FROM DEAD-END STREETS.
 2. IF ON-SITE HYDRANTS OR APPROVED FIRE SPRINKLER SYSTEMS ARE INSTALLED, (AS APPROVED BY THE FIRE DEPARTMENT), THE SPACING SHALL BE NO MORE THAN 500 FEET APART AND NO MORE THAN 250 FEET FROM DEAD-END STREETS.
 - D. OTHER LOCATIONS DEEMED NECESSARY BY THE CITY ENGINEER TO PROVIDE ADEQUATE FIRE PROTECTION TO THE PROPERTY.
 - E. ON ARTERIAL, EXPRESSWAY OR DIVIDED COLLECTOR STREETS, AS DESIGNATED IN THE GENERAL PLAN, SPECIFIC AND MASTER PLANS, THE HYDRANT SPACING SHALL BE APPLICABLE TO EACH SIDE OF THE STREETS.
 - F. MINIMUM 36" CLEARANCE AROUND ALL FIRE HYDRANTS TO INCLUDE ALL DRIVEWAYS.

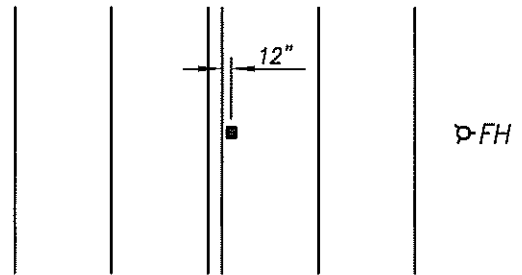
FIRE HYDRANT LOCATIONS

	DRAWN BY: JSH	CITY OF TURLOCK APPROVED BY:  CITY ENGINEER – MICHAEL G. PITCOCK – RCE 52694	DRAWING NO. W-2
	CHECK BY: NBB		COUNCIL APPROVAL DEC, 2015
	SCALE: NONE		

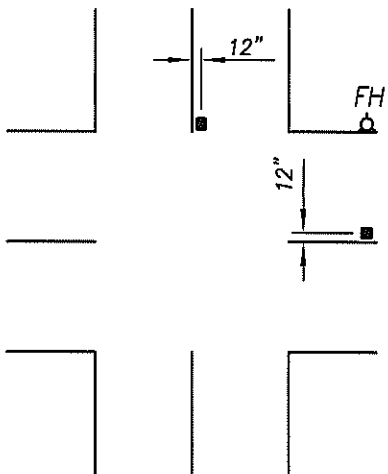
TWO LANE STREET



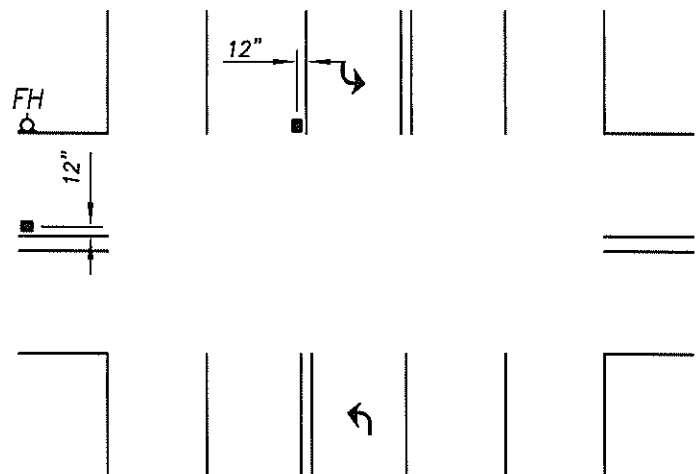
MULTI LANE STREET



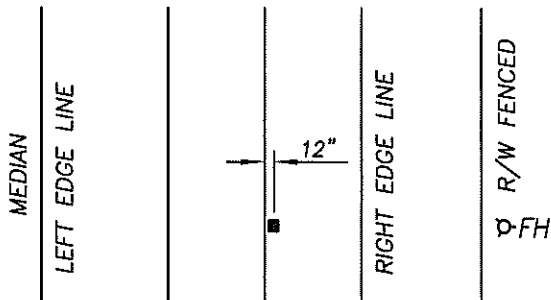
TWO LANE STREET AT INTERSECTION



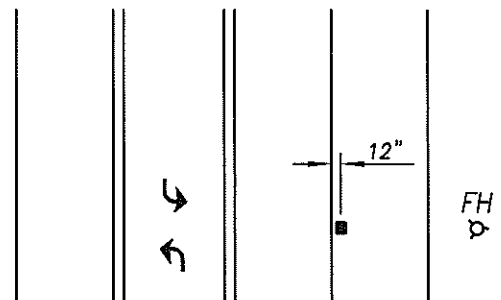
FOUR LANE STREET WITH TURN LANE AT INTERSECTION



EXPRESSWAYS



MULTI-LANE STREET WITH TURN LANE



LEGEND

- FH ◊ FIRE HYDRANT
- BLUE PAVEMENT MARKER (TYPE BB)

FIRE HYDRANT PAVEMENT MARKER LOCATION



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

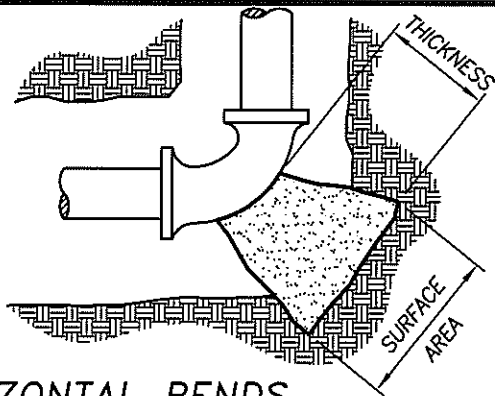
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

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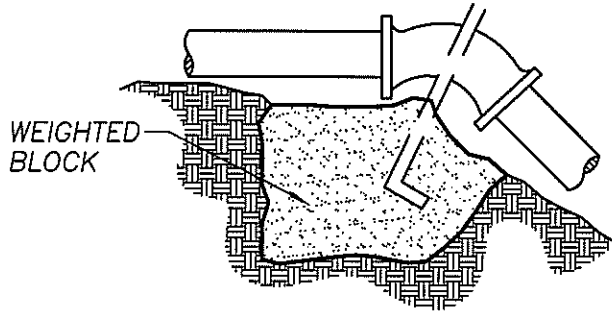
W-3

COUNCIL APPROVAL

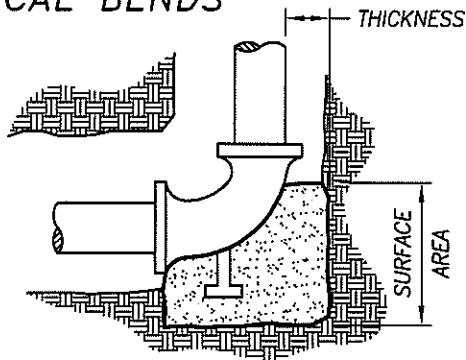
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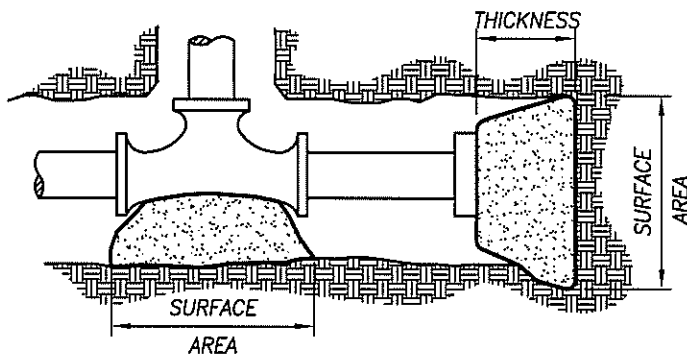
HORIZONTAL BENDS



VERTICAL BENDS



HYDRANT BURYS



TEES & DEAD-ENDS

THRUST BLOCK SIZE

PIPE DIAMETER (INCHES)	HORIZONTAL BEND		WEIGHT AT VERTICAL BENDS (LBS.)
	SURFACE AREA (S.F.)	THICKNESS (INCHES)	
22° BENDS			
6 OR LESS	2	8	1,700
8	3	12	3,000
10	3.5	12	4,600
12	4	14	6,600
14	5	18	9,000
16	6	18	11,800
45° BENDS			
6 OR LESS	4	12	3,200
8	5	14	5,800
10	6	18	9,000
12	7	18	13,000
14	8	24	17,000
16	11.5	24	23,200
90° BENDS			
6 OR LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
TEES & DEAD-ENDS			
6 OR LESS	3	12	—
8	4	15	—
10	6	18	—
12	8.5	18	—
14	11.5	24	—
16	16	24	—

NOTES:

- ALL MECHANICAL FITTINGS AND VALVES SHALL BE WRAPPED IN PLASTIC AND PROTECTED FROM CONCRETE.
- THE CITY ENGINEER WILL CONSIDER REDUCTION OF THRUST BLOCK SURFACE AREA UPON SUBMITTAL OF APPROVED SOIL RESISTANT TEST RESULTS GREATER THAN 2,000 LBS/SQ. FT.
- IF LINES CONFLICT WITH CONC. KICKER, THEN GRIP RINGS ONLY SHALL BE USED. IN OTHER SITUATIONS, GRIP RINGS MAY BE UTILIZED AT THE DISCRETION OF THE CITY ENGINEER.

THRUST BLOCKS



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

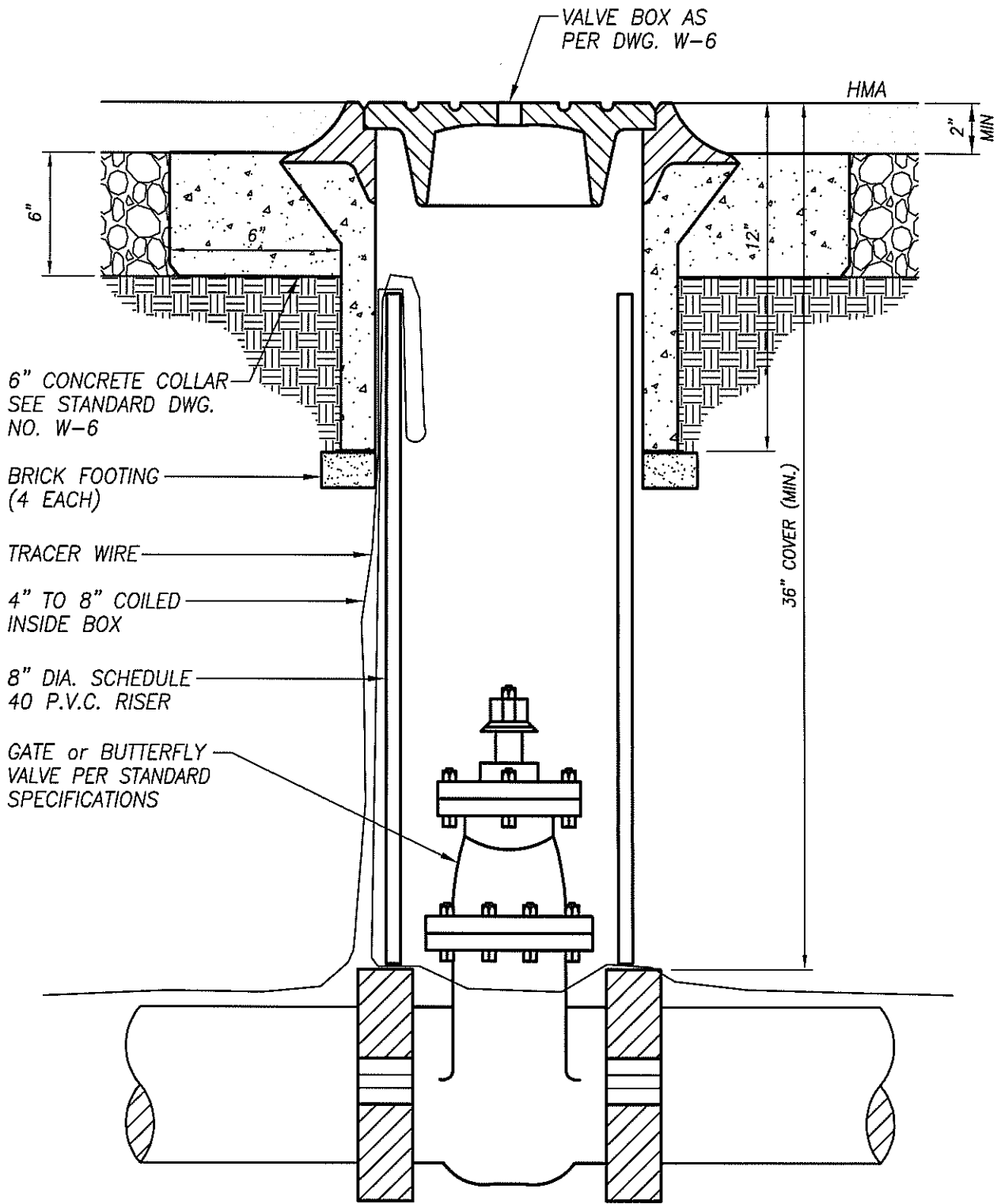
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-4

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6" CONCRETE COLLAR
SEE STANDARD DWG.
NO. W-6

BRICK FOOTING
(4 EACH)

TRACER WIRE

4" TO 8" COILED
INSIDE BOX

8" DIA. SCHEDULE
40 P.V.C. RISER

GATE or BUTTERFLY
VALVE PER STANDARD
SPECIFICATIONS

LINE VALVE

CITY OF TURLOCK



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

APPROVED BY:

Michael G. Pitcock

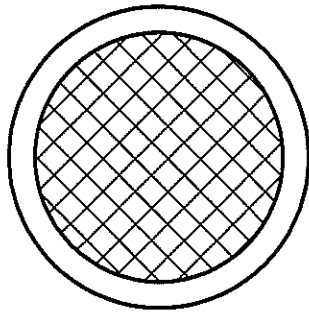
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

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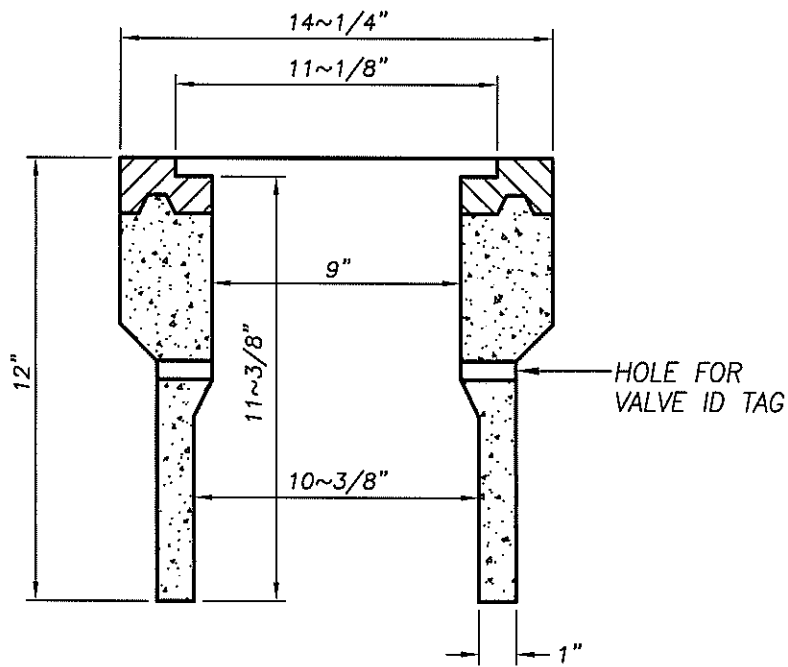
W-5

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DEC, 2015



CHRISTY NO. C276 CAST
IRON TRAFFIC COVER
MARKED "WATER", SET
TO FINISH GRADE



CHRISTY NO. G-5 BODY

WATER VALVE BOX

CITY OF TURLOCK



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

APPROVED BY:

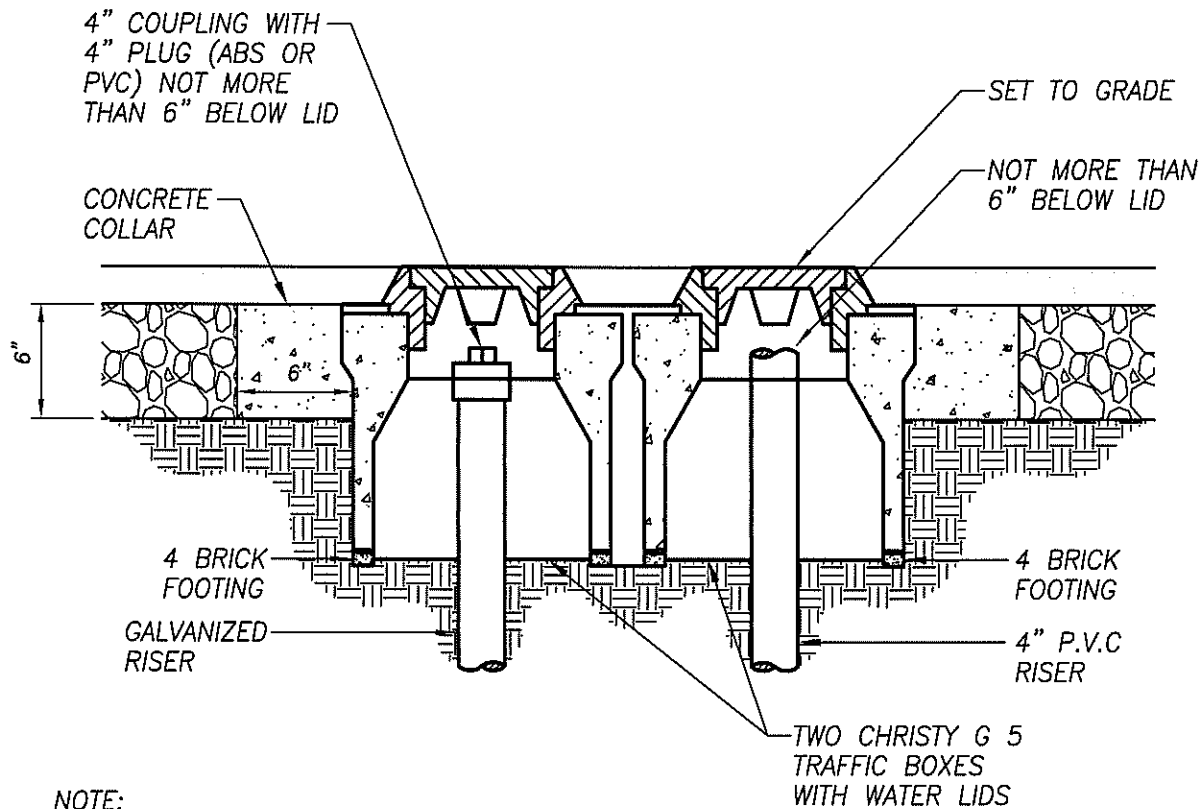
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DRAWING NO.

W-6

COUNCIL APPROVAL

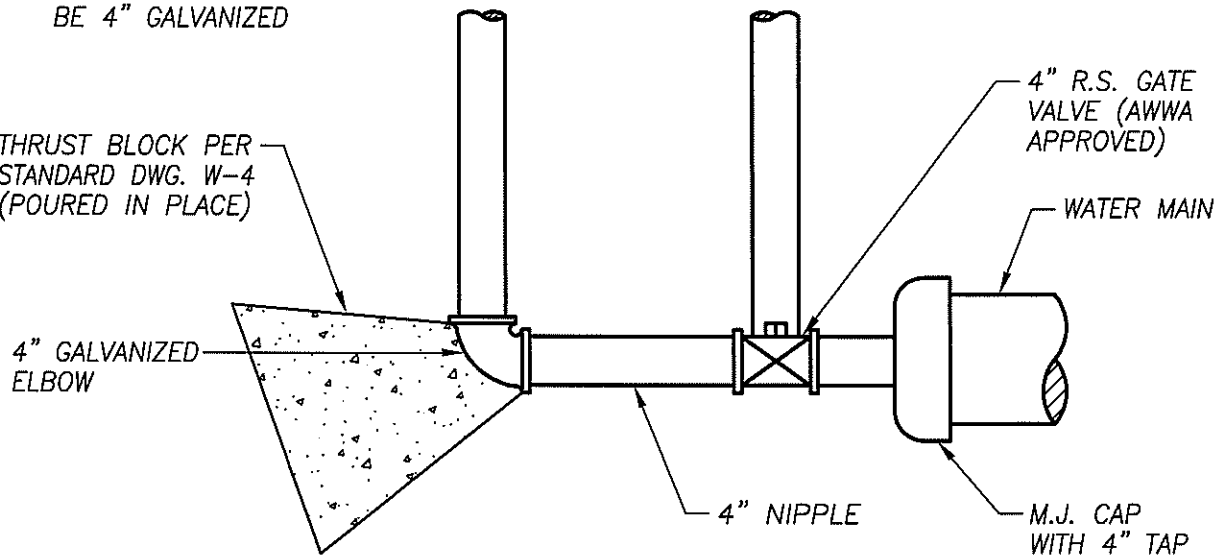
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NOTE:

ALL FITTINGS TO BE 4" GALVANIZED

THRUST BLOCK PER STANDARD DWG. W-4 (POURED IN PLACE)



4" WATER BLOW-OFF

CITY OF TURLOCK



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

APPROVED BY:

M. Pitcock

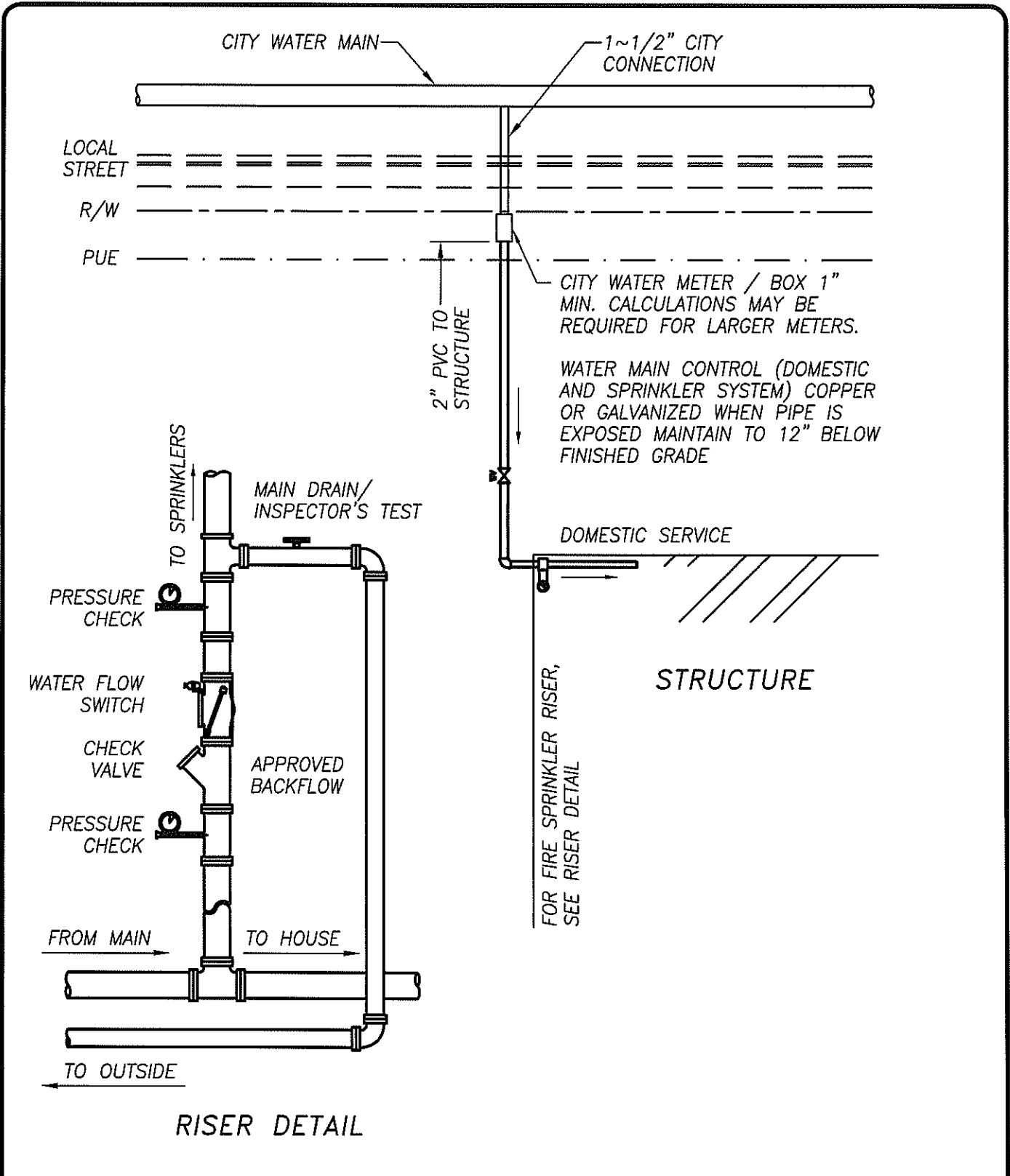
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DRAWING NO.

W-7

COUNCIL APPROVAL

DEC, 2015



FIRE SPRINKLER SUPPLY FOR SINGLE OR TWO FAMILY DWELLING



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

M. Pitcock

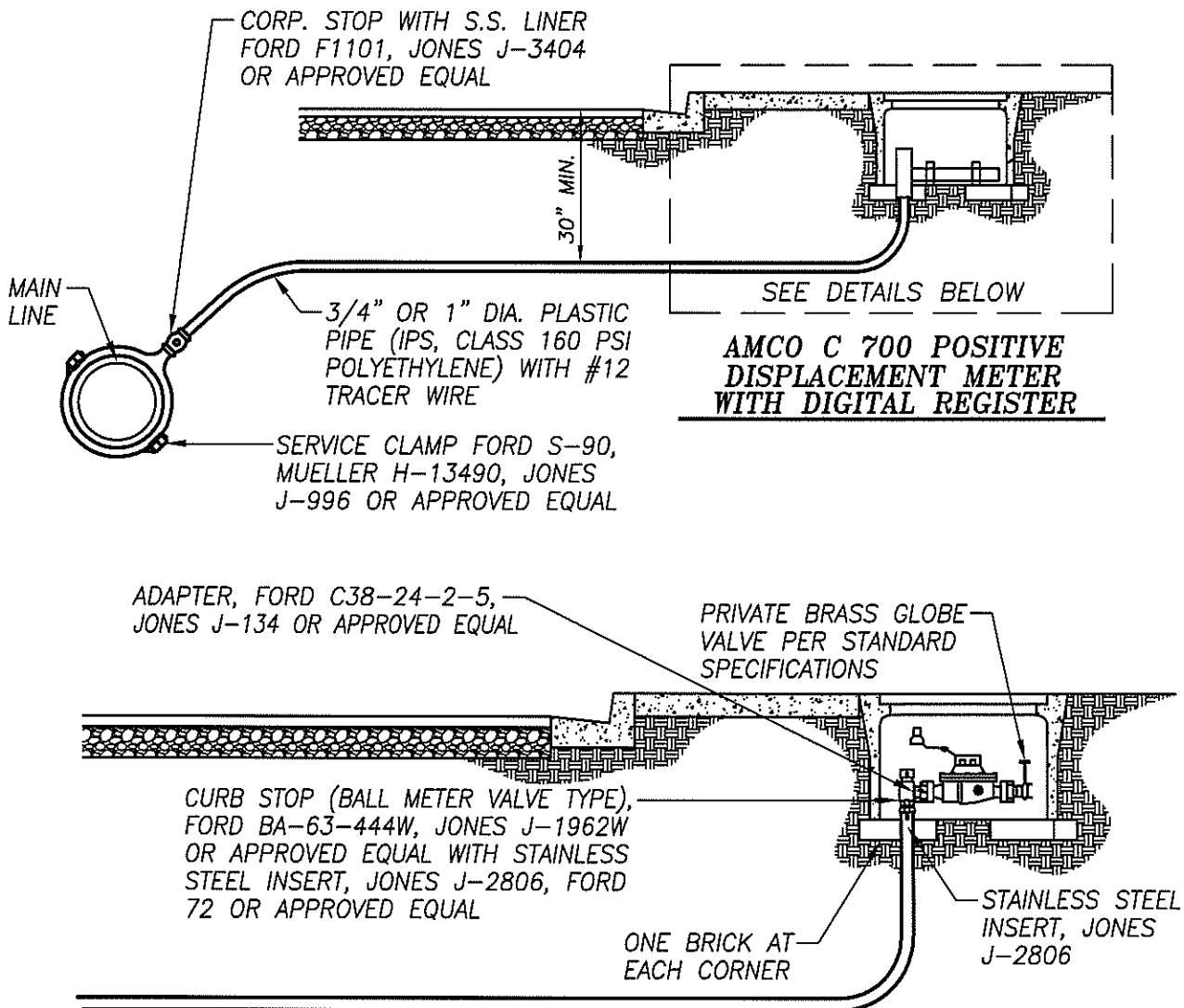
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-8

COUNCIL APPROVAL

DEC, 2015



NOTES:

1. ALL BOX COVERS SHALL BE SET TO GRADE AND SHALL NOT BE SITUATED IN DRIVEWAYS.
2. METER STOP SHALL VARY BETWEEN 6" AND 10" FROM BOTTOM OF LID.
3. POLYETHYLENE PLASTIC OR PLOYMER CONCRETE VALVE BOX AND LID SHALL BE USED.
4. A "W", 3" HIGH, SHALL BE STAMPED OR CHISELED ON THE CURB FACE OVER SERVICE LINES.
5. PLACE A #12 TRACER WIRE IN THE SERVICE TRENCH TO MAKE CONDUCTIVE CONTACT WITH THE CORPORATION AND CURB (METER) STOP.

3/4" OR 1" PLASTIC WATER SERVICE CONNECTION



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

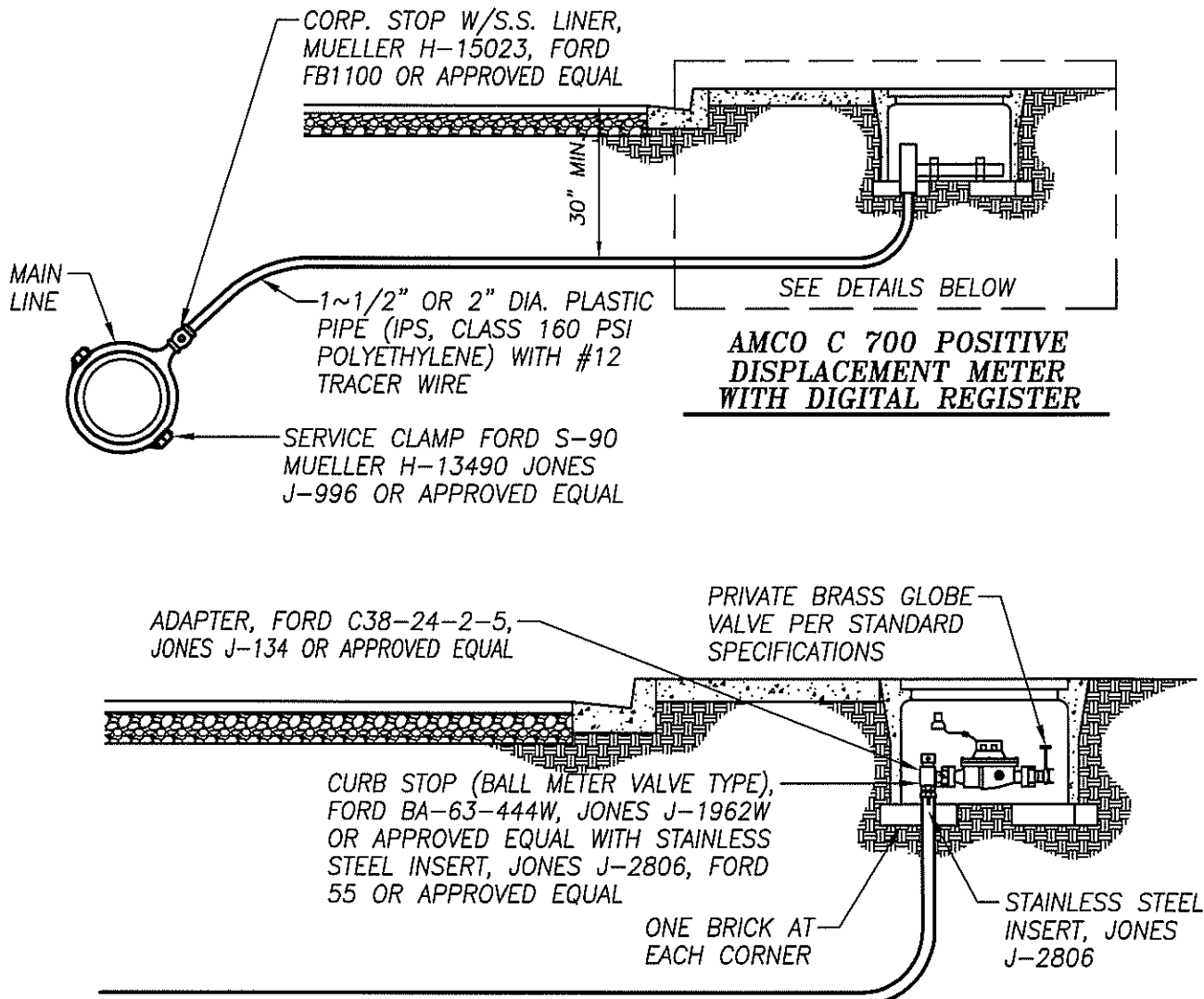
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-9

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DEC, 2015


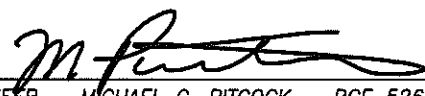


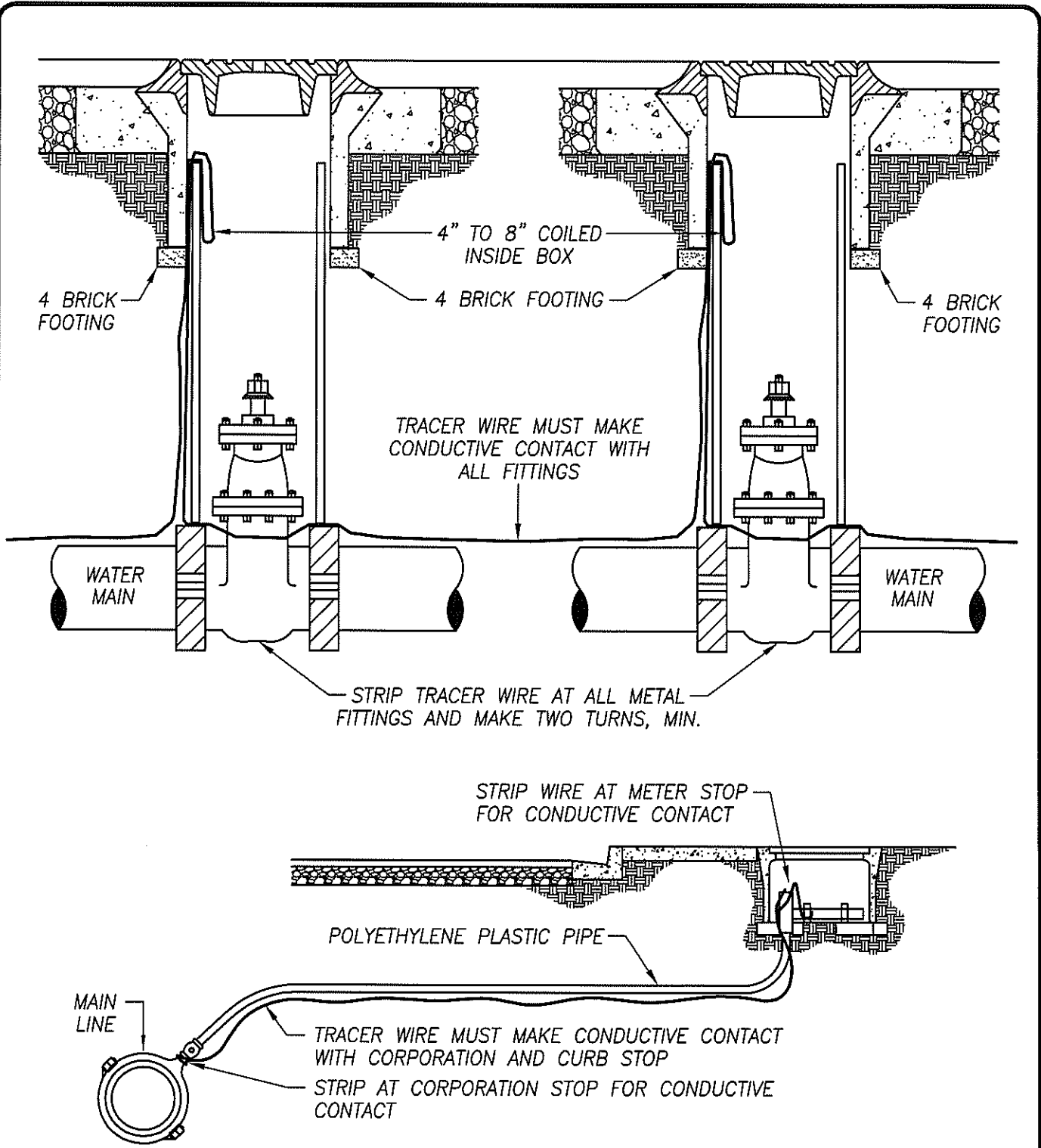
*BFA 43-777W

NOTES:

1. ALL BOX COVERS SHALL BE SET TO GRADE AND SHALL NOT BE SITUATED IN DRIVEWAYS.
2. METER STOP SHALL VARY BETWEEN 6" AND 10" FROM BOTTOM OF LID.
3. POLYETHYLENE PLASTIC OR PLOYMER CONCRETE VALVE BOX AND LID SHALL BE USED.
4. A 'W', 3" HIGH, SHALL BE STAMPED OR CHISELED ON THE CURB FACE OVER SERVICE LINES.
5. PLACE A #12 TRACER WIRE IN THE SERVICE TRENCH TO MAKE CONDUCTIVE CONTACT WITH THE CORPORATION AND CURB (METER) STOP.


1~1/2" OR 2" PLASTIC WATER SERVICE CONNECTION

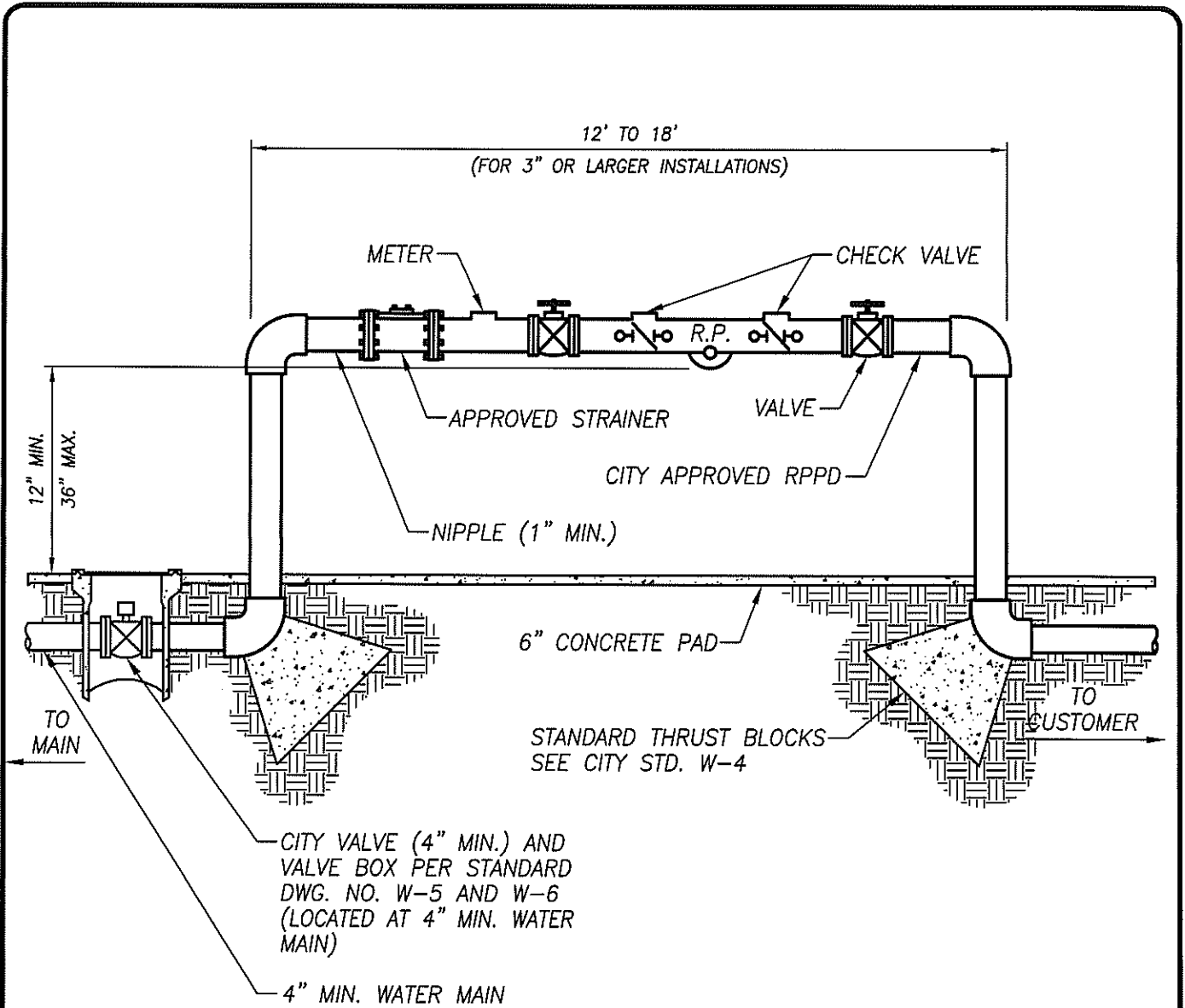
	DRAWN BY: JSH	CITY OF TURLOCK APPROVED BY:  CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694	DRAWING NO. W-10
	CHECK BY: NBB		COUNCIL APPROVAL DEC, 2015
	SCALE: NONE		



TYPICAL PLASTIC SERVICE FROM MAIN

TYPICAL TRACER WIRE INSTALLATION

	DRAWN BY: JSH	CITY OF TURLOCK APPROVED BY: <i>M. Pitcock</i> CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694	DRAWING NO. W-11
	CHECK BY: NBB		COUNCIL APPROVAL DEC, 2015
	SCALE: NONE		



NOTES:

1. REFER TO MANUFACTURER'S CATALOG FOR CORRECT DIMENSIONS TO FIT SIZE OF SPECIFIED BACKFLOW.
2. COVER BACKFLOW ASSEMBLY WITH POLAR BLANKET TO PREVENT FREEZE DAMAGE.
3. DIMENSIONS OF CONCRETE PAD TO BE DETERMINED BY THE CITY ENGINEER FOR EACH INDIVIDUAL JOB.
4. AN APPROVED BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED ON EACH SERVICE LINE TO CUSTOMER'S WATER SYSTEM AT OR NEAR THE PROPERTY LINE AS PER TURLOCK MUNICIPAL CODE, SECTION 6-6.07.

STANDARD METER-BACKFLOW INSTALLATION



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CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

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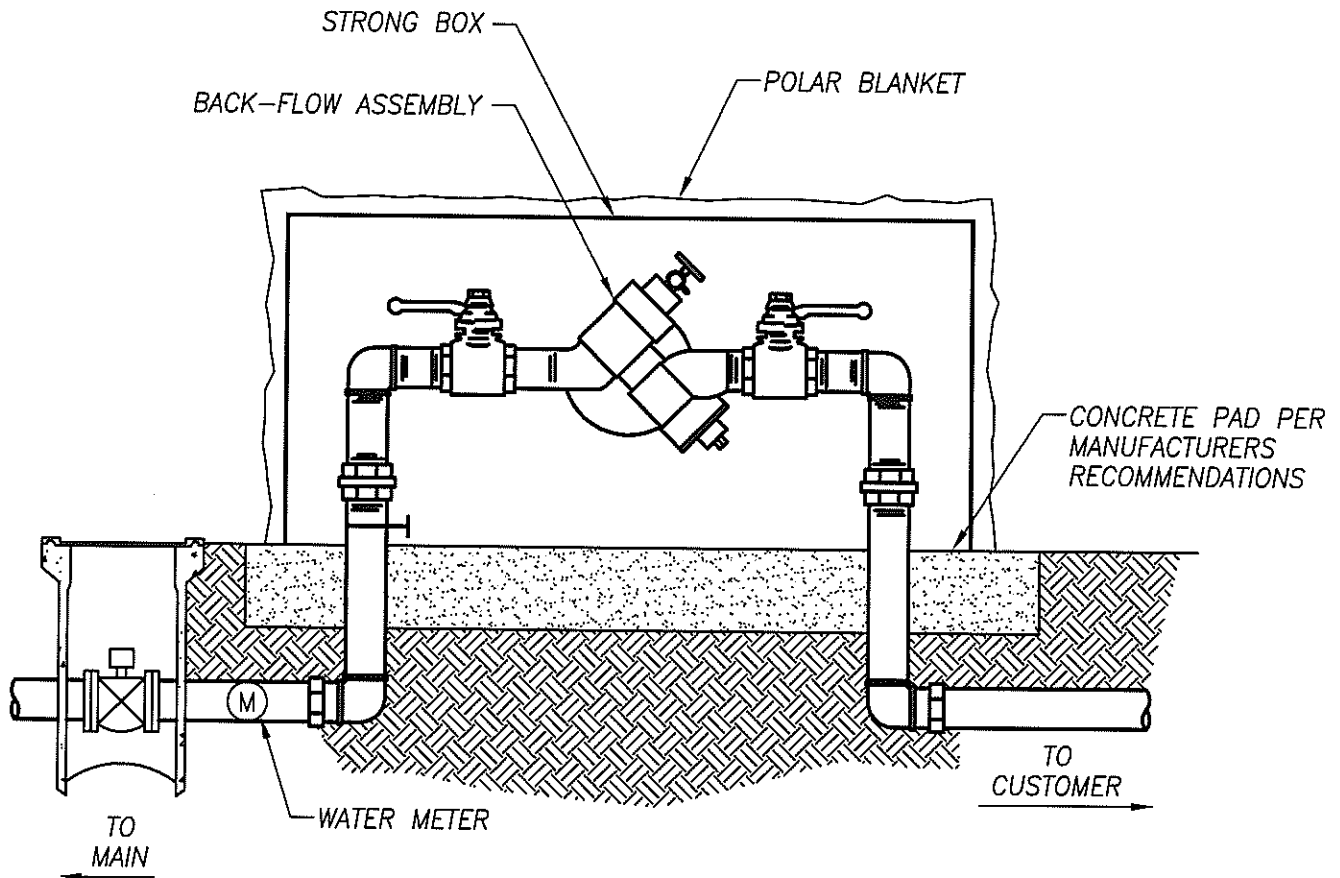
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-12

COUNCIL APPROVAL

DEC, 2015



NOTES:

1. FOR INSTALLATIONS LESS THAN 3"
2. EQUIPMENT TO BE INSTALLED AT A MINIMUM OF 24" FROM ANY STRUCTURES OR HARDSCAPING.
3. COVER BACKFLOW ASSEMBLY WITH POLAR BLANKET TO PREVENT FREEZE DAMAGE.
4. ENCLOSE ENTIRE BACKFLOW DEVICE WITH STRONG BOX BC-45-CR OR APPROVED EQUAL WHEN UNIT IS NEXT TO A STRUCTURE (I.E. WALL, BUILDING, ETC.) MOUNT TEST COCKS ON OPEN OR NON STRUCTURE SIDE.
5. ALL FITTINGS SHALL COMPLY WITH CALIFORNIA HEALTH AND SAFETY CODE, 116875 (NO LEAD BRASS)

BACKFLOW PREVENTER ASSEMBLY DETAIL



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

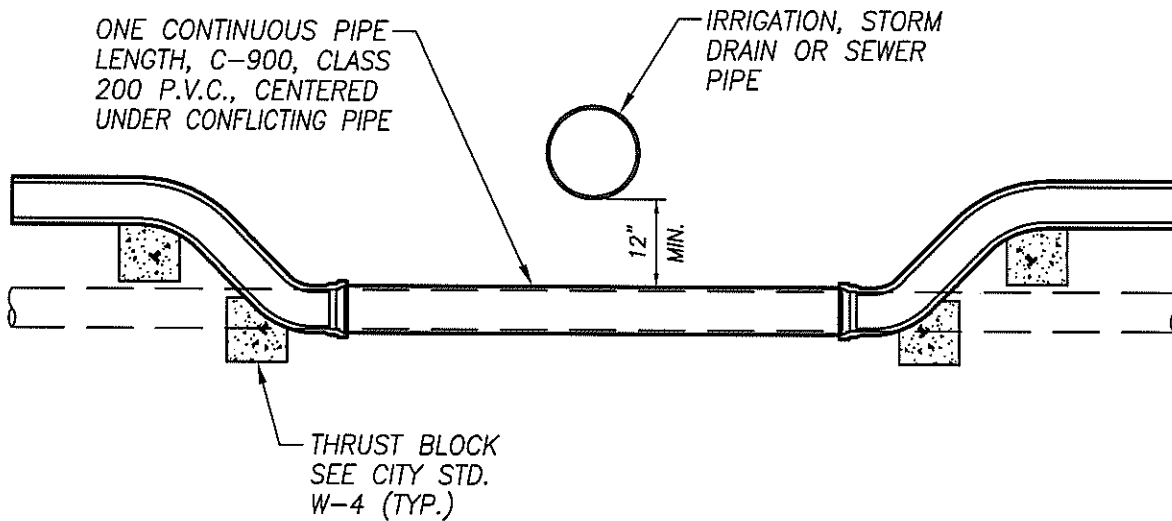
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-13

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DEC, 2015



NOTE:

45° FITTING SHALL BE SWEEPING TYPE WITH SMOOTH TURNS, OR A GRADUAL TRANSITION CAN BE USED INSTEAD OF SWEEPS.

STANDARD WATER UNDER CROSSING



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CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

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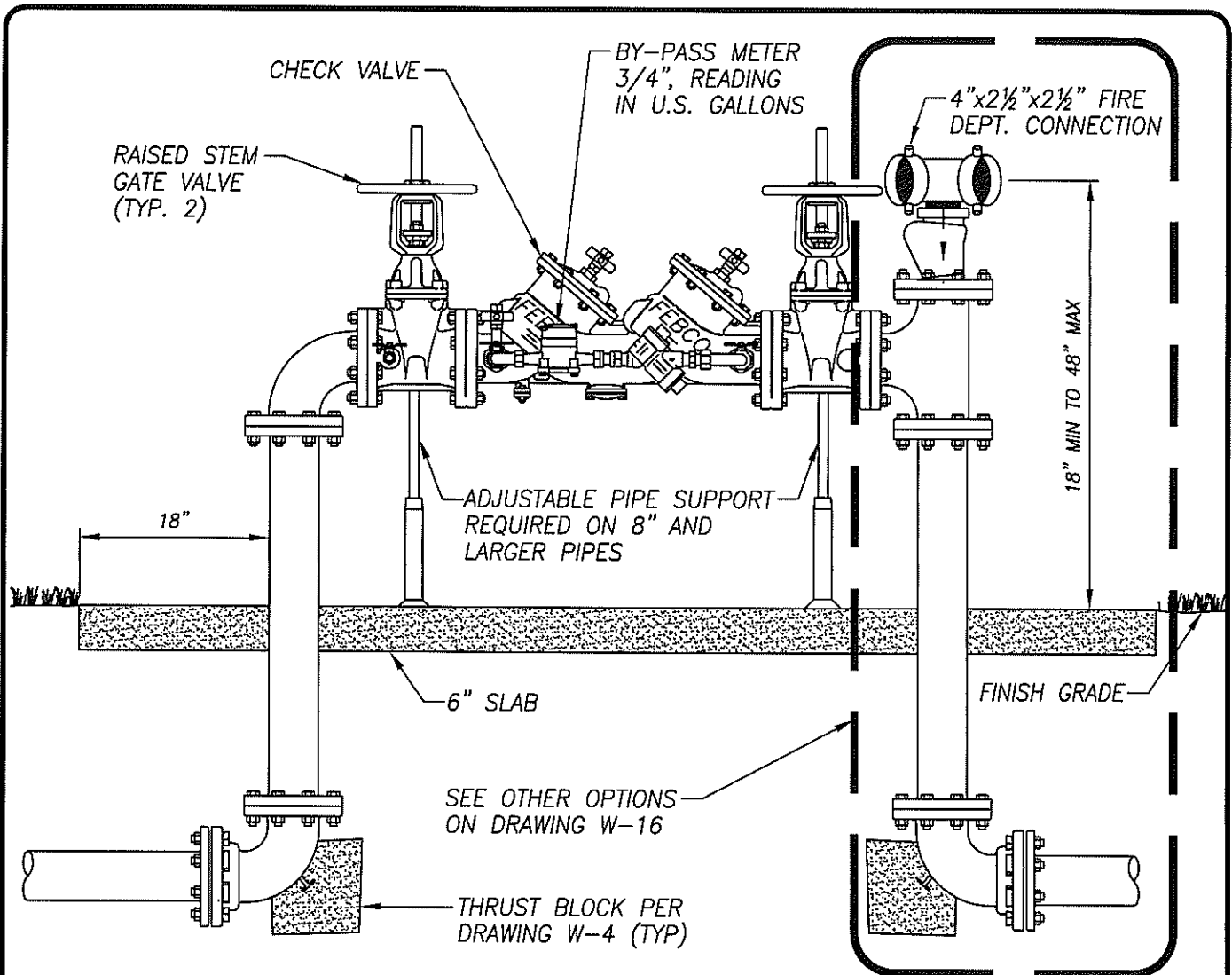
CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-14

COUNCIL APPROVAL


DEC, 2015

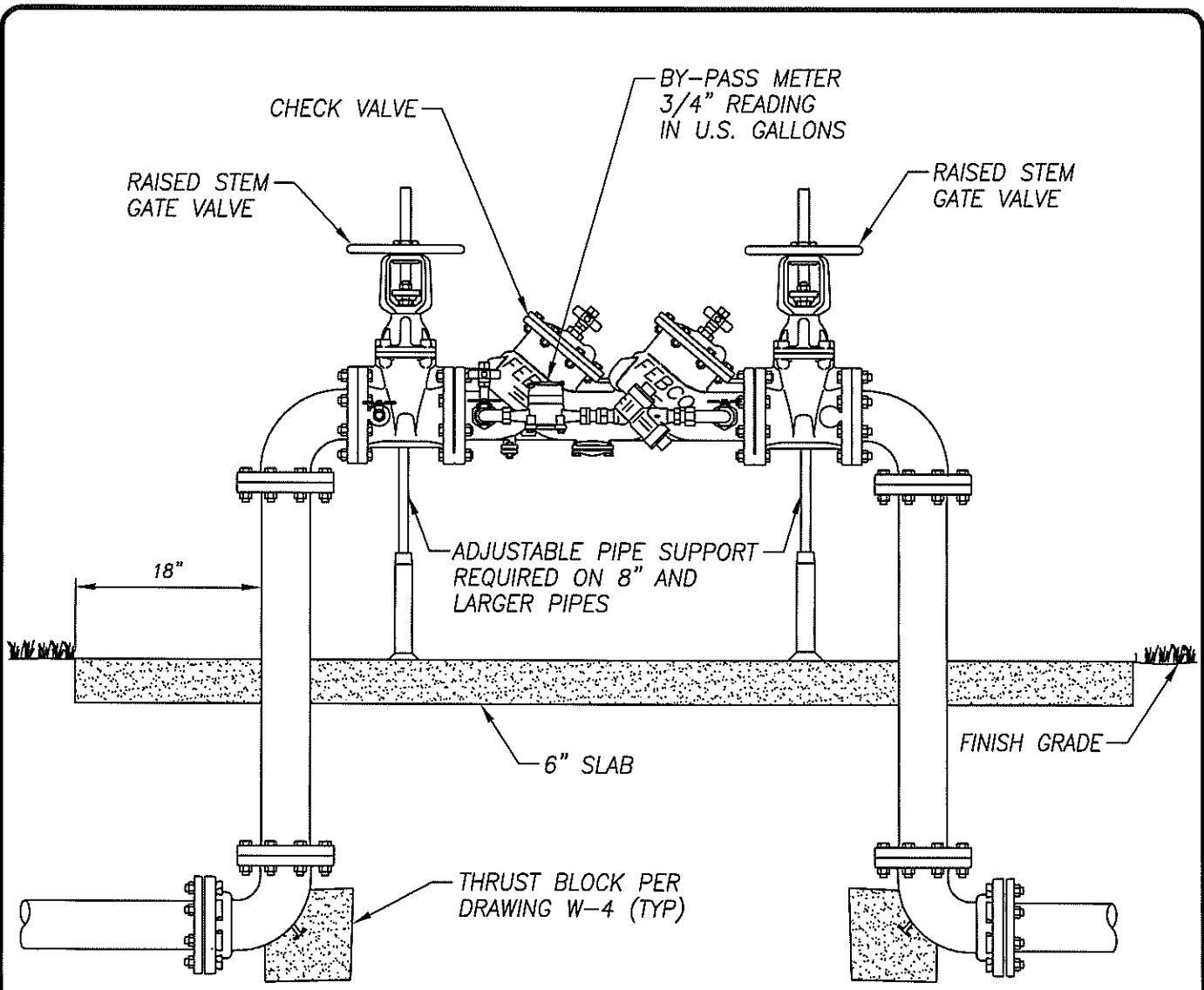


NOTES:

1. METER AND VALVES SHALL MEET CITY AND A.W.W.A. STANDARDS.
2. BACKFLOW DEVICES SHALL BE A DOUBLE CHECK DETECTOR ASSEMBLY OR REDUCED PRESSURE DETECTOR ASSEMBLY, AS PER CITY ENGINEER.
3. MAINTAIN 18" CLEARANCE AROUND PERIMETER OF DEVICE.
4. FIRE HYDRANT SHALL NOT BE LOCATED BETWEEN F.D.C. AND BUILDING.
5. FIRE HYDRANT SHALL BE LOCATED WITHIN 75 FEET OF THE F.D.C.
6. THREE FEET CLEARANCE SHALL BE MAINTAINED AROUND F.D.C.
7. RPDA MAY BE REQUIRED WHERE THERE IS AN EXISTING OR POTENTIAL HEALTH HAZARD, AS DETERMINED BY THE CITY.
8. LOCKING KNOX F.D.C. CAPS ARE REQUIRED ON NEW INSTALLATIONS. LOCKING KNOX F.D.C. CAPS MAY BE REQUIRED ON EXISTING F.D.C.'S BY THE FIRE CHIEF. (2) 2~1/2" MALE PLUG WITH SWIVEL GUARD, ALL STAINLESS STEEL WITH BRIGHT STAINLESS FINISH, KNOX PART NUMBER 3041.

FIRE-LINE INSTALLATION


	DRAWN BY: JSH	CITY OF TURLOCK APPROVED BY: <i>[Signature]</i> CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694	DRAWING NO. W-15
	CHECK BY: NBB		COUNCIL APPROVAL DEC, 2015
	SCALE: NONE		

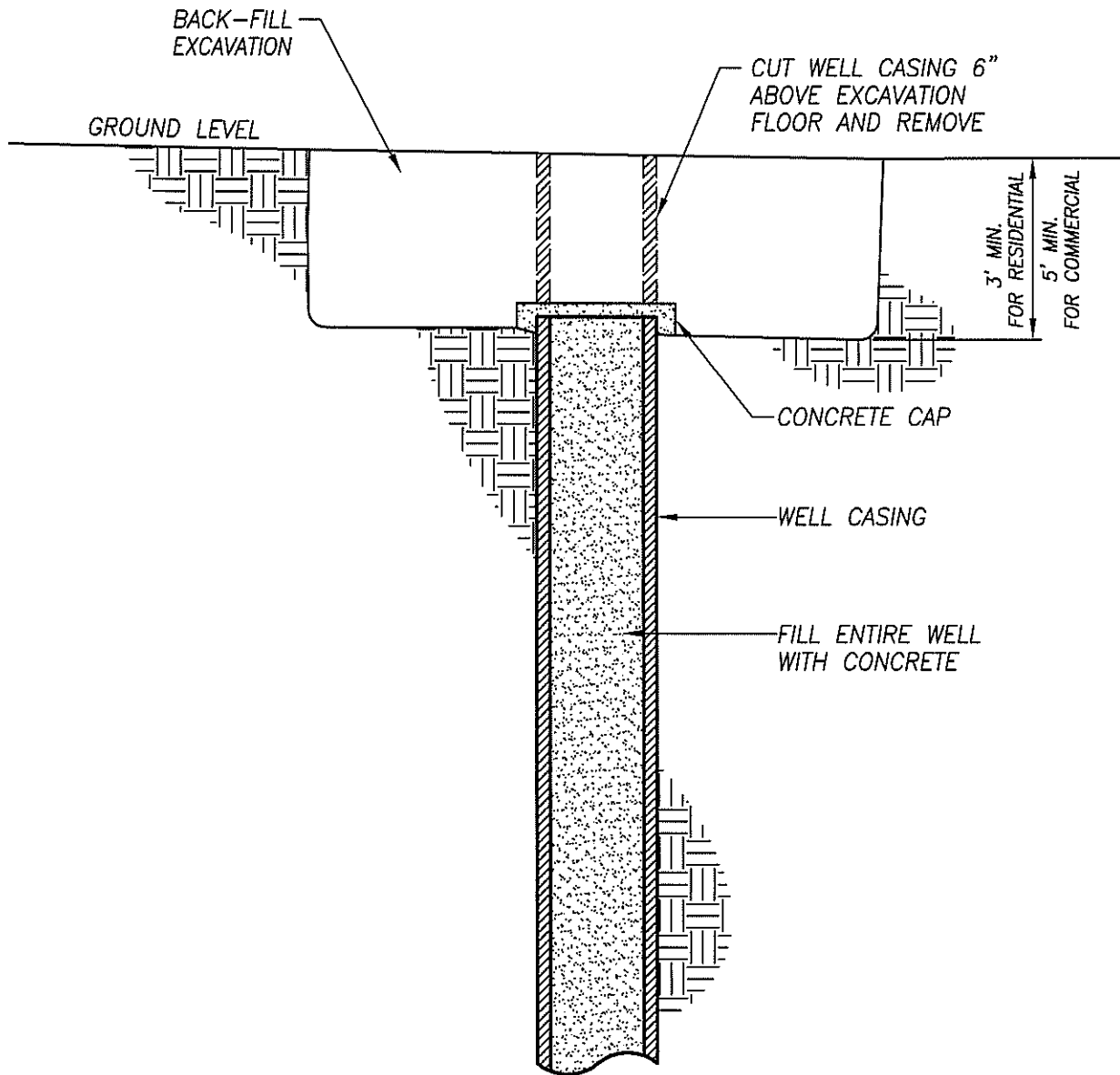


NOTES:

1. METER AND VALVES SHALL MEET CITY AND A.W.W.A. STANDARDS.
2. BACKFLOW DEVICES SHALL BE A DOUBLE CHECK DETECTOR ASSEMBLY OR REDUCED PRESSURE DETECTOR ASSEMBLY, AS PER CITY ENGINEER.
3. MAINTAIN 18" CLEARANCE AROUND PERIMETER OF DEVICE.
4. FIRE HYDRANT SHALL NOT BE LOCATED BETWEEN F.D.C. AND BUILDING.
5. FIRE HYDRANT SHALL BE LOCATED 75 FEET FROM F.D.C. OR LESS.
6. THREE FEET CLEARANCE SHALL BE MAINTAINED AROUND F.D.C.
7. RPDA MAY BE REQUIRED WHERE THERE IS AN EXISTING OR POTENTIAL HEALTH HAZARD, AS DETERMINED BY THE CITY.
8. USE THIS DETAIL WHEN A FIRE HYDRANT IS DOWN STREAM OF THE F.D.C.
9. F.D.C. LOCATION TO BE APPROVED BY FIRE DEPT.

FIRE-LINE INSTALLATION WITHOUT F.D.C.

	DRAWN BY: JSH	CITY OF TURLOCK APPROVED BY: <i>[Signature]</i> CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694	DRAWING NO. W-16
	CHECK BY: NBB		COUNCIL APPROVAL DEC, 2015
	SCALE: NONE		



NOTES:

1. ALL PRIVATE RESIDENTIAL WELLS WILL BE ABANDONED BY CITY OF TURLOCK CREWS, FREE OF CHARGE
2. ALL WORK TO BE INSPECTED AND APPROVED PRIOR TO WATER TURN ON
3. PLEASE CALL MUNICIPAL SERVICES AT (209) 668-5590 TO SCHEDULE ABANDONMENT
4. FOR WELLS DEEPER THAN 20 FEET, A TREMIE PIPE SHALL BE USED TO COMPLETELY FILL THE CASING WITH CONCRETE.

PRIVATE WELL ABANDONMENT



DRAWN BY: JSH

CHECK BY: NBB

SCALE: NONE

CITY OF TURLOCK

APPROVED BY:

CITY ENGINEER - MICHAEL G. PITCOCK - RCE 52694

DRAWING NO.

W-17

COUNCIL APPROVAL

DEC, 2015