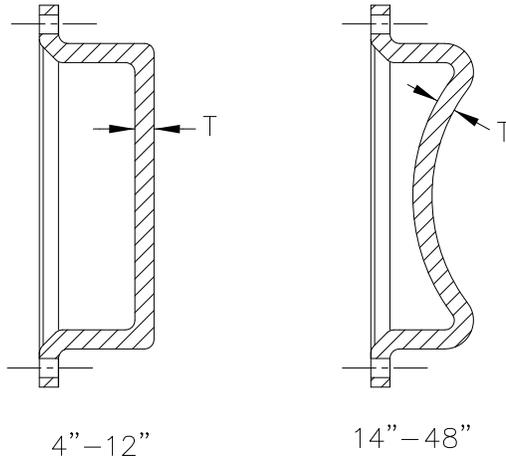
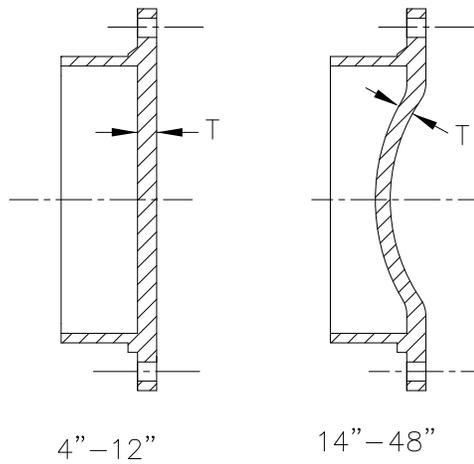


**STANDARD CONSTRUCTION SPECIFICATIONS
MISCELLANEOUS
DIVISION 60
INDEX OF STANDARD DETAILS**

60-1	MJ Cap and Plug
60-2	Thrust Block
60-3	Typical Valve Box
60-4	Single Pumper "L" Base Fire Hydrant Assembly
60-5	Double Pumper "L" Base Fire Hydrant Assembly
60-6	Fire Hydrant Guard Posts
60-7	Water Service Connect - 1"
60-8	Water Service Connect - 1-1/2" and 2"
60-9	Irrigation System
60-10	Connecting Ductile Iron Pipe to Ductile Iron Pipe
60-11	Typical Pipe Angle Marker
60-12	Relocate Water Main (Storm Drain)
60-13	Anode Detail
60-14	Adjust Service Key Box
60-15	Water Main Blowoff



MJ CAP



MJ PLUG

NOTES:

1. MECHANICAL JOINT RESTRAINT EBAA IRON MEGALUG® OR EQUAL.
2. COST OF THIS FITTING TO BE INCLUDED IN BID PRICE OF PIPE.
3. T = THICKNESS PER AWWA C110 STANDARDS.

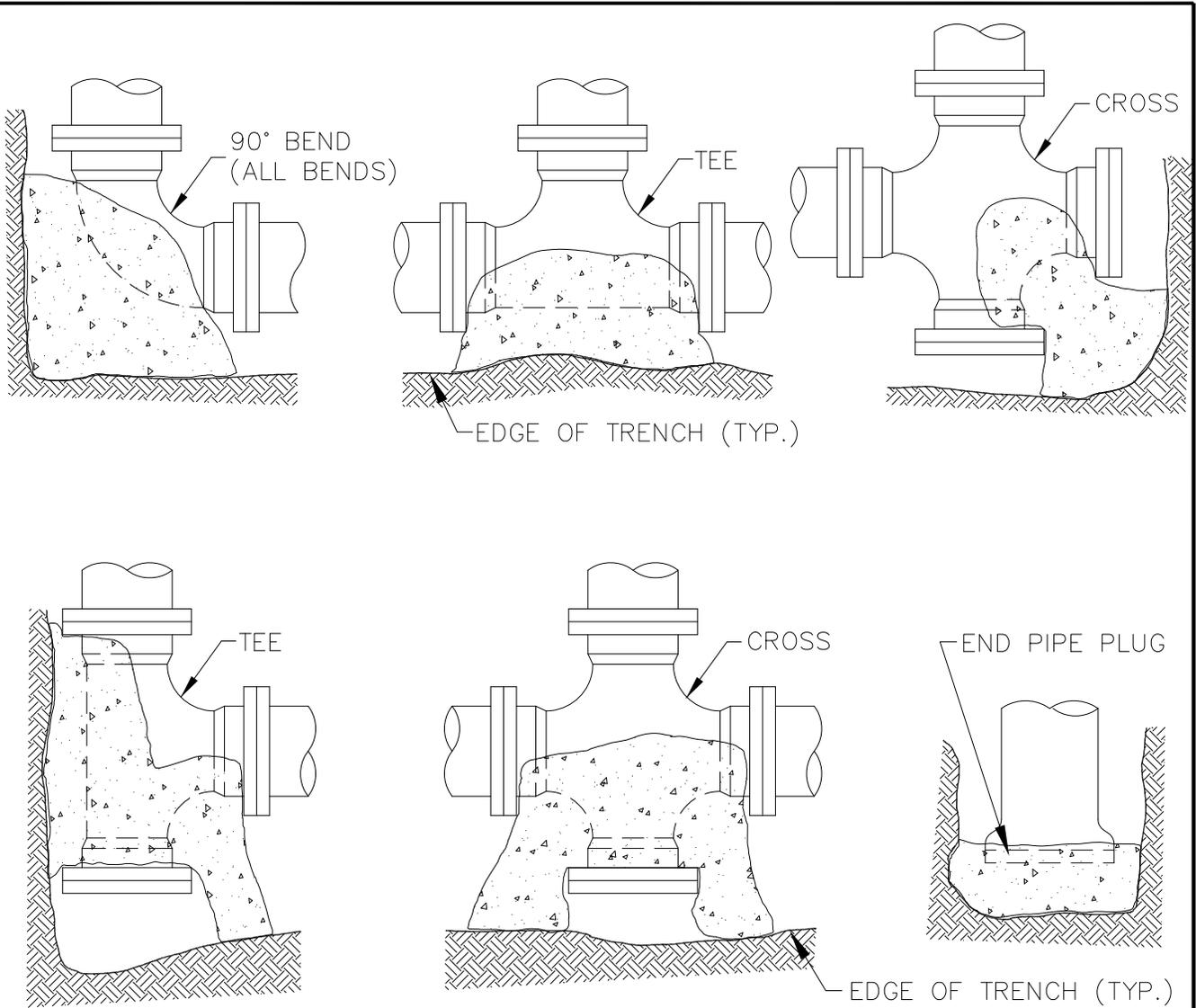
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MJ CAP AND PLUG

SECTION #
60.02
DETAIL #
60-1



MINIMUM BASE AREA SQUARE FEET				
PIPE SIZE	PLUG	90° BEND	45° BEND	22 1/2° BEND
6"	2.0	2.0	1	1
8"	2.5	2.5	1.5	1.5
10"	4.5	4.5	2.5	2.5
12"	6	6	3.5	3.5
14"	8	8	4.5	4.5
16"	10.5	10.5	6	6
24"	24	24	13	13

NOTES:

1. MINIMUM THICKNESS OF PRE-CAST CONCRETE THRUST BLOCKS SHALL BE 6-INCH OR PER THE CONTRACT SPECIFICATIONS, AND IN CONFORMANCE WITH DIVISION 30.
2. THRUST BLOCK MAY NOT BE USED IN LIEU OF THRUST RESTRAINT.
3. THRUST BLOCK CAST AGAINST UNDISTURBED SOIL (HATCH).

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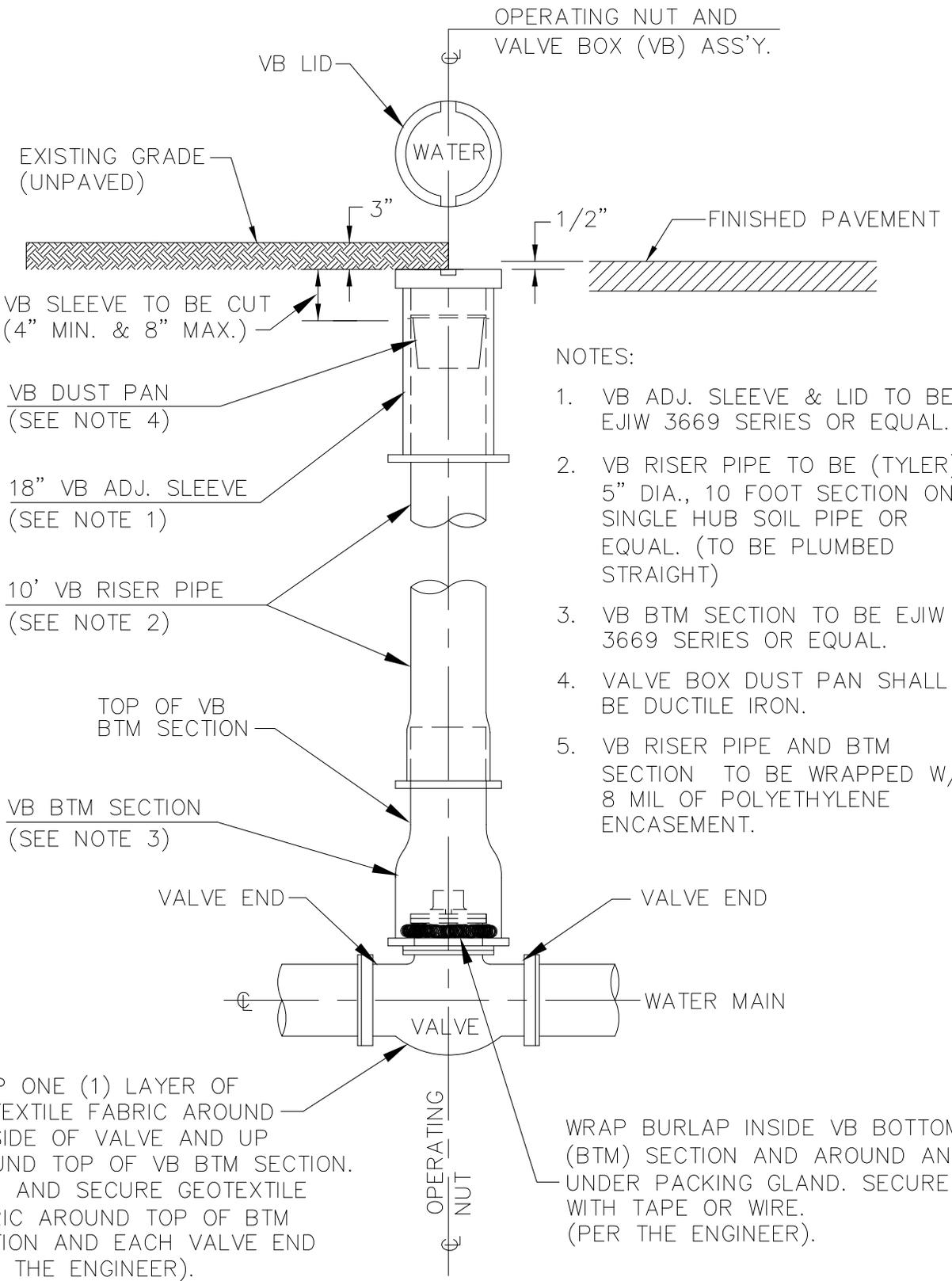
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THRUST BLOCK

SECTION #
60.02

DETAIL #
60-2



NOTES:

1. VB ADJ. SLEEVE & LID TO BE EJIW 3669 SERIES OR EQUAL.
2. VB RISER PIPE TO BE (TYLER) 5" DIA., 10 FOOT SECTION ONLY SINGLE HUB SOIL PIPE OR EQUAL. (TO BE PLUMBED STRAIGHT)
3. VB BTM SECTION TO BE EJIW 3669 SERIES OR EQUAL.
4. VALVE BOX DUST PAN SHALL BE DUCTILE IRON.
5. VB RISER PIPE AND BTM SECTION TO BE WRAPPED W/ 8 MIL OF POLYETHYLENE ENCASEMENT.

WRAP ONE (1) LAYER OF GEOTEXTILE FABRIC AROUND OUTSIDE OF VALVE AND UP AROUND TOP OF VB BTM SECTION. TAPE AND SECURE GEOTEXTILE FABRIC AROUND TOP OF BTM SECTION AND EACH VALVE END (PER THE ENGINEER).

WRAP BURLAP INSIDE VB BOTTOM (BTM) SECTION AND AROUND AND UNDER PACKING GLAND. SECURE WITH TAPE OR WIRE. (PER THE ENGINEER).

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TYPICAL VALVE BOX

SECTION #
60.03

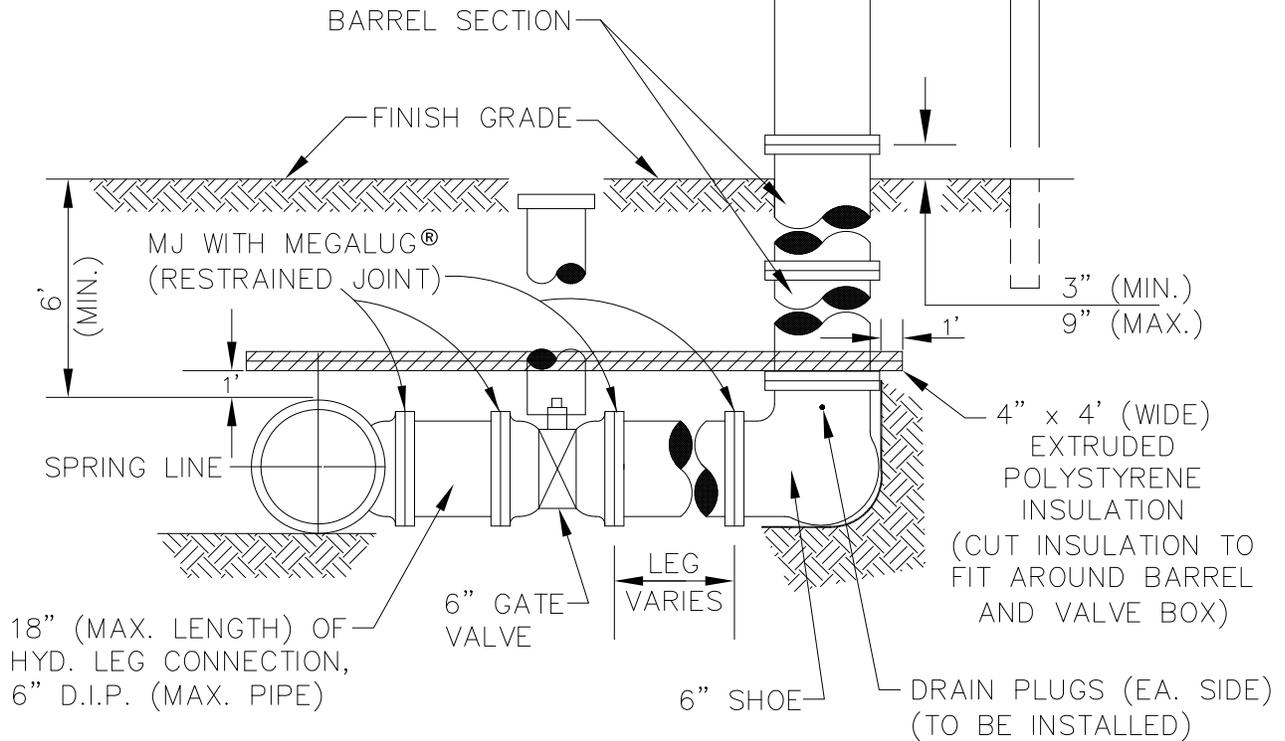
DETAIL #
60-3

STENCILED DISTANCE AND DIRECTION
TO FIRE HYDRANT GATE VALVE
(EXAMPLE: 19'N)

GUARD POSTS
(SEE STANDARD DETAIL 60-6)

(2 EA.) 2-1/2" HOSE CONNECTIONS

(1 EA.) 4-1/2" PUMPER CONNECTION



NOTES:

1. HYDRANT BARREL SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.
2. DRAIN PLUGS TO BE PROVIDED BY CONTRACTOR.
3. ALL HYDRANTS SHALL BE PAINTED CATERPILLAR YELLOW.
4. HYDRANT GATE VALVE BOX TO BE INSTALLED ACCORDING TO DETAIL FOR TYPICAL VALVE BOX.
5. ALL PIPE AND FITTINGS FROM THE MAIN TO THE HYDRANT SHOE SHALL BE RESTRAINED BY USE OF MEGALUG® AND/OR FIELD LOK® GASKETS OR EQUAL.
6. ALL BACKFILL MATERIAL AROUND HYDRANT BARREL SHALL BE NFS.



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**SINGLE PUMPER "L" BASE
FIRE HYDRANT ASSEMBLY**

SECTION #
60.04

DETAIL #
60-4

STENCILED DISTANCE AND DIRECTION
TO FIRE HYDRANT GATE VALVE
(EXAMPLE: 19'N)

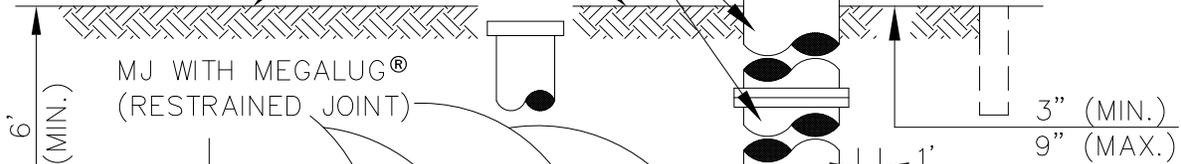
GUARD POSTS
(SEE STANDARD DETAIL 60-6)

(2 EA.) 4-1/2" PUMPER CONNECTION

(1 EA.) 2-1/2" HOSE CONNECTIONS

BARREL SECTION

FINISH GRADE



6" (MIN.)

MJ WITH MEGALUG®
(RESTRAINED JOINT)

3" (MIN.)
9" (MAX.)

SPRING LINE

4" x 4" (WIDE)
EXTRUDED
POLYSTYRENE
INSULATION
(CUT INSULATION TO
FIT AROUND BARREL
AND VALVE BOX)

18" (MAX. LENGTH) OF
HYD. LEG CONNECTION,
8" D.I.P. (MAX. PIPE)

8" GATE
VALVE

LEG
VARIES

8" SHOE

DRAIN PLUGS (EA. SIDE)
(TO BE INSTALLED)

NOTES:

1. HYDRANT BARREL SHALL BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.
2. DRAIN PLUGS TO BE PROVIDED BY CONTRACTOR.
3. ALL HYDRANTS SHALL BE PAINTED CATERPILLAR YELLOW.
4. HYDRANT GATE VALVE BOX TO BE INSTALLED ACCORDING TO DETAIL FOR TYPICAL VALVE BOX.
5. ALL PIPE AND FITTINGS FROM THE MAIN TO THE HYDRANT SHOE SHALL BE RESTRAINED BY USE OF MEGALUG® AND/OR FIELD LOK® GASKETS OR EQUAL.
6. ALL BACKFILL MATERIAL AROUND HYDRANT BARREL SHALL BE NFS.



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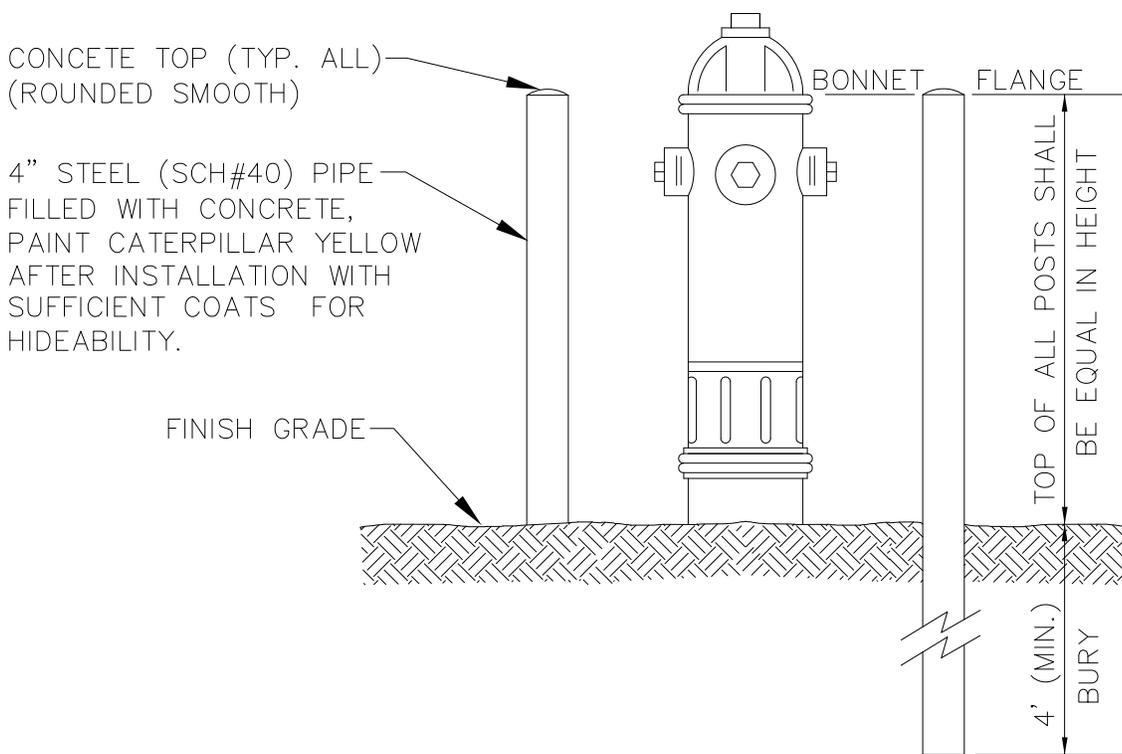
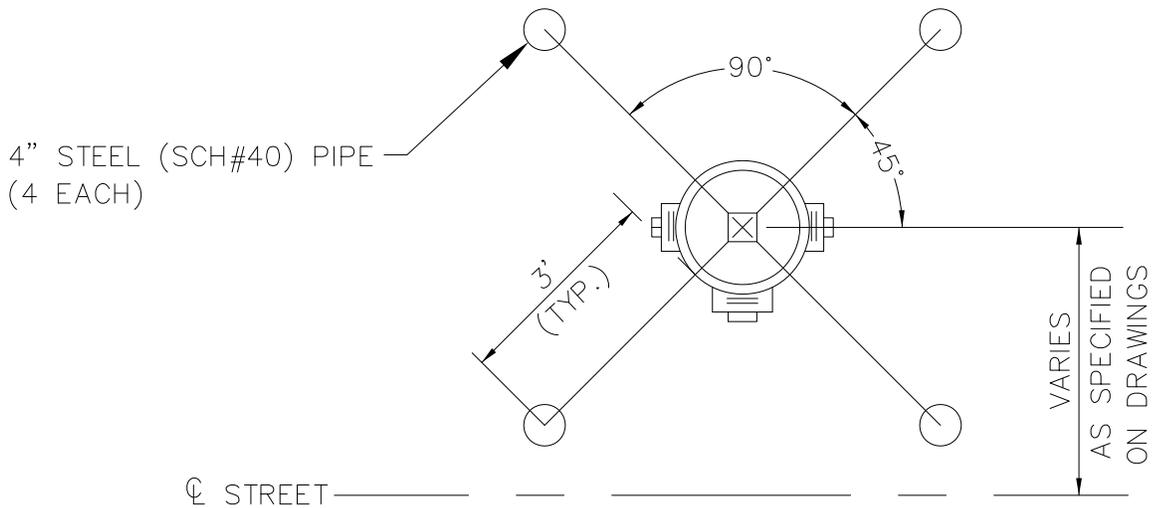
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REVISED:
4/12

**DOUBLE PUMPER "L" BASE
FIRE HYDRANT ASSEMBLY**

SECTION #
60.04

DETAIL #
60-5



NOTES:

1. GUARD POSTS WILL BE FURNISHED & INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
2. GUARD POSTS SHALL BE INSTALLED PLUMB AND LOCATED TO ALLOW UNRESTRICTED ACCESS TO PUMPER AND HOSE CONNECTIONS.
3. GUARD POSTS NOT INSTALLED SHALL BE DELIVERED TO AWWU OPERATIONS DIVISION (PER THE ENGINEER).



SCALE:
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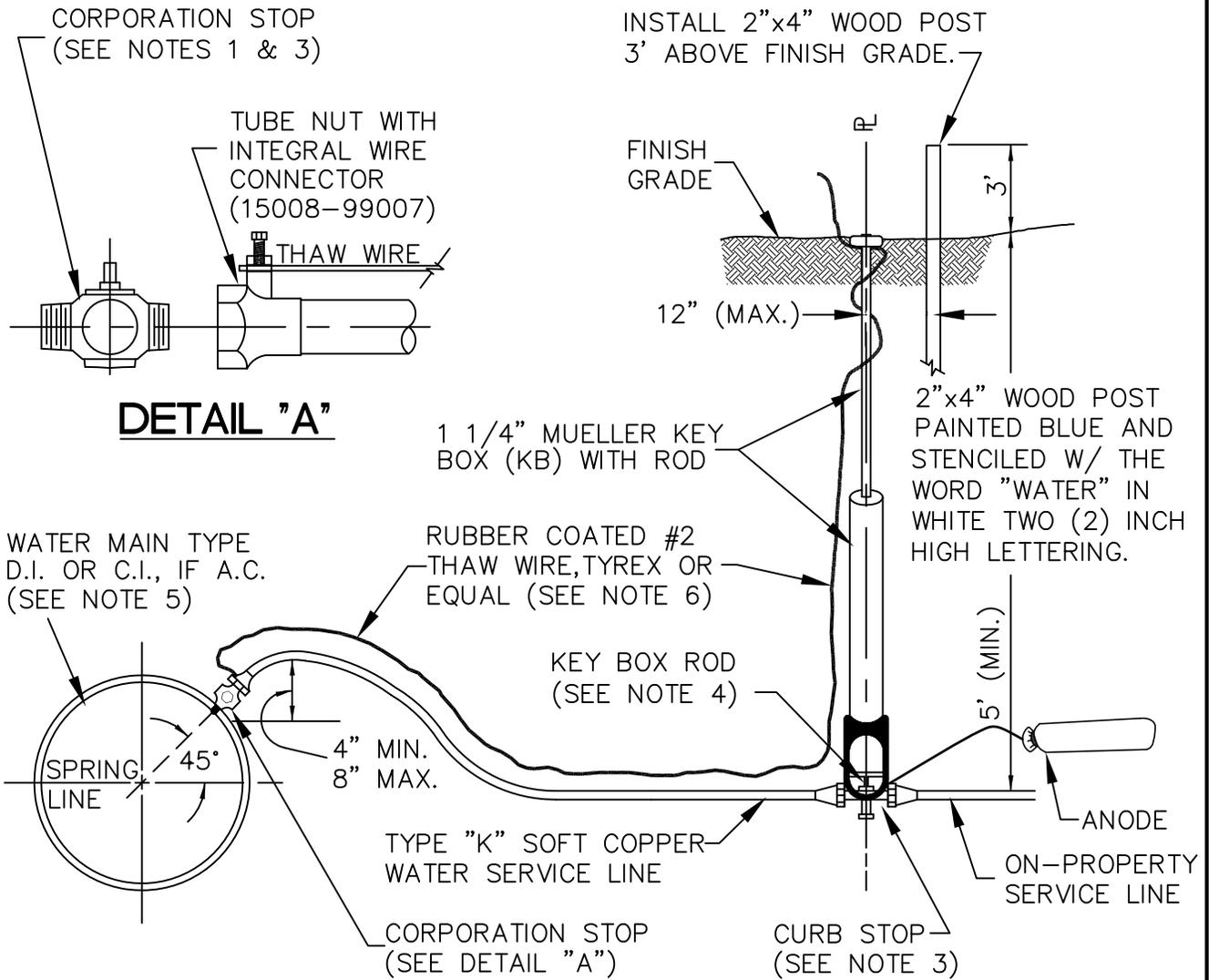
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FIRE HYDRANT GUARD POSTS

SECTION #
60.04

DETAIL #
60-6



NOTES:

1. USE MUELLER CORPORATION STOP H-15008 OR EQUAL FOR STEEL PIPE.
2. USE MUELLER 3/4 OR 1-INCH CORPORATION STOP H-15008 OR EQUAL FOR DUCTILE PIPE.
3. USE MUELLER CURB STOP NO. H-15155 OR EQUAL FOR COPPER TO COPPER CONNECTIONS.
4. KB ROD TO BE ATTACHED TO CURB STOP WITH STAINLESS STEEL (SS) COTTER PIN (NO SUBSTITUTIONS).
5. STAINLESS STEEL WRAP AROUND SERVICE SADDLE SHALL BE USED ON ALL PIPE. PVC TAPS MUST BE A MINIMUM OF 3' APART.
6. THAW WIRE TO BE PLACED PARALLEL TO THE SERVICE LINE AND SHALL NOT COME IN CONTACT WITH THE SERVICE LINE AT ANY LOCATION.



SCALE:
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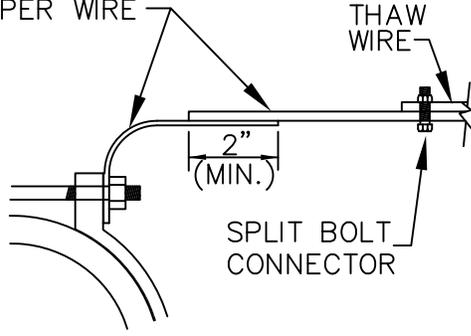
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WATER SERVICE CONNECT
3/4" AND 1"

SECTION #
60.06

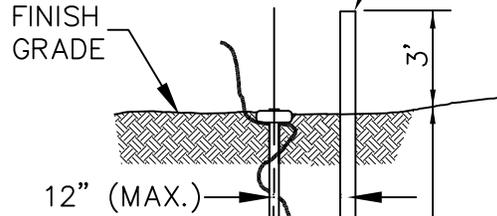
DETAIL #
60-7

1-1/4" x 6" #8 COPPER SHEET BRAZED TO #2 COPPER WIRE



DETAIL "A"

INSTALL 2"x4" WOOD POST 3' ABOVE FINISH GRADE.



2"x4" WOOD POST PAINTED BLUE AND STENCILED W/ THE WORD "WATER" IN WHITE TWO (2) INCH HIGH LETTERING.

2" KEY BOX (KB) WITH ROD

RUBBER COATED #2 THAW WIRE, TYREX OR EQUAL (SEE NOTE 6)

KEY BOX ROD (SEE NOTE 4)

(SEE DETAIL "A")

WATER MAIN

15°
SPRING LINE

SADDLE (SEE NOTE 3)

TYPE "K" SOFT COPPER WATER SERVICE LINE

CORPORATION STOP (SEE NOTE 1)

CURB STOP (SEE NOTES 2 & 5)

5' (MIN.)

ANODE

ON-PROPERTY SERVICE LINE

NOTES:

1. USE MUELLER CORPORATION STOP NO. H-10045 OR EQUAL.
2. USE MUELLER CURB STOP NO. H15172 ORISEAL OR EQUAL FOR COPPER TO IRON CONNECTIONS.
3. WRAP AROUND STAINLESS STEEL SERVICE SADDLE SHALL BE USED ON ALL PIPE.
4. KB ROD TO BE ATTACHED TO CURB STOP WITH 4" STAINLESS STEEL COTTER PIN, NO SUBSTITUTIONS (MANUFACTURERS COTTER PIN SHALL NOT BE USED).
5. USE MUELLER CURB STOP NO. H15155 ORISEAL OR EQUAL.
6. THAW WIRE TO BE PLACED PARALLEL TO THE SERVICE LINE AND SHALL NOT COME IN CONTACT WITH THE SERVICE LINE AT ANY LOCATION.



SCALE:
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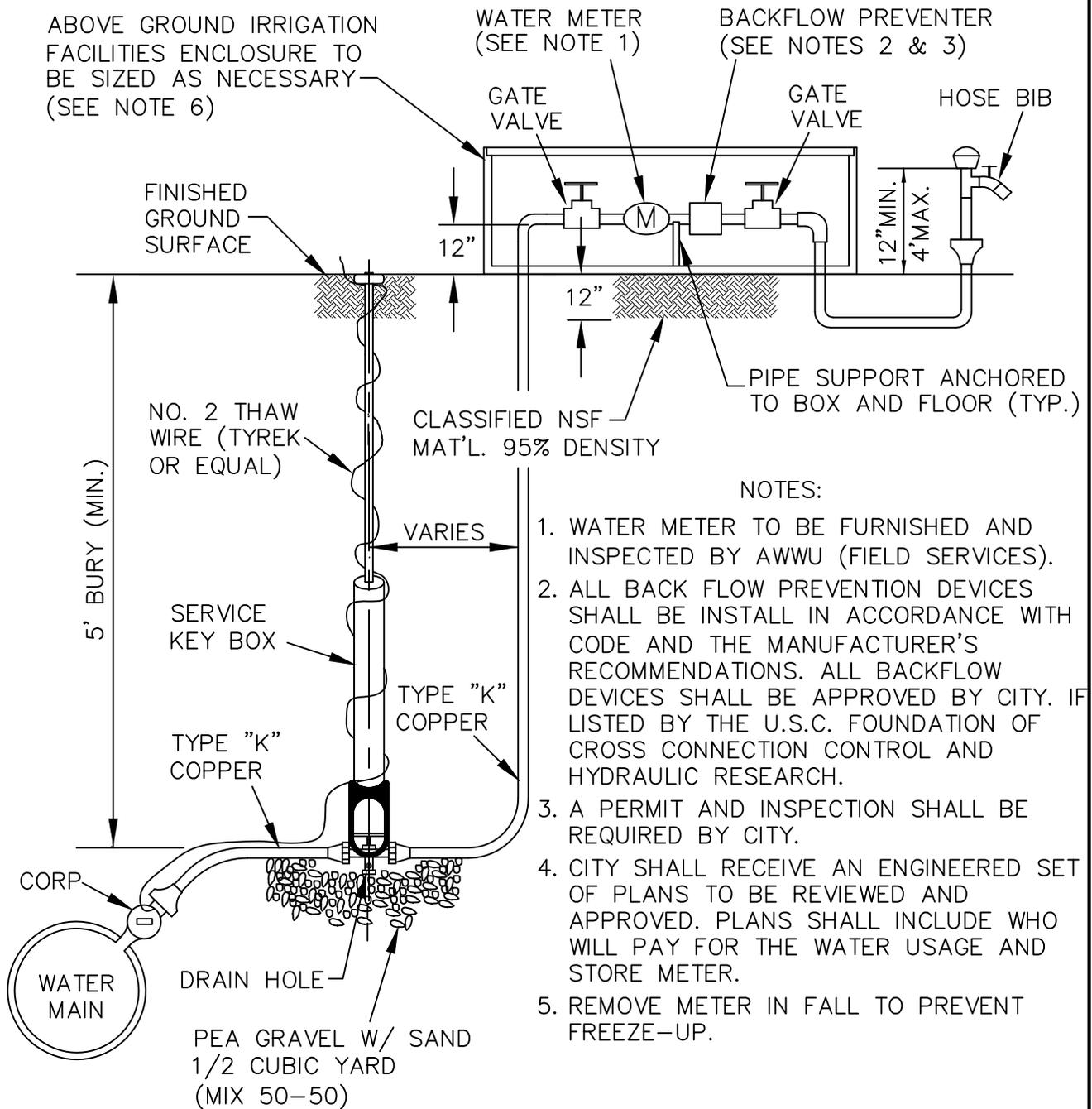
**WATER SERVICE CONNECT
1-1/2" AND 2"**

SECTION #
60.06

DETAIL #
60-8

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ABOVE GROUND IRRIGATION FACILITIES ENCLOSURE TO BE SIZED AS NECESSARY (SEE NOTE 6)



NOTES:

1. WATER METER TO BE FURNISHED AND INSPECTED BY AWWU (FIELD SERVICES).
2. ALL BACK FLOW PREVENTION DEVICES SHALL BE INSTALL IN ACCORDANCE WITH CODE AND THE MANUFACTURER'S RECOMMENDATIONS. ALL BACKFLOW DEVICES SHALL BE APPROVED BY CITY. IF LISTED BY THE U.S.C. FOUNDATION OF CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.
3. A PERMIT AND INSPECTION SHALL BE REQUIRED BY CITY.
4. CITY SHALL RECEIVE AN ENGINEERED SET OF PLANS TO BE REVIEWED AND APPROVED. PLANS SHALL INCLUDE WHO WILL PAY FOR THE WATER USAGE AND STORE METER.
5. REMOVE METER IN FALL TO PREVENT FREEZE-UP.

IRRIGATION FACILITIES ENCLOSURE

6. FOR SECURITY AND PROTECTION, IT IS RECOMMENDED THAT THE ENCLOSURE BE FABRICATED WITH 1-1/2"x 1-1/2" ANGLE IRON (FRAME) COVERED W/ FLAT EXPANDED METAL (MESH) PRIMED AND PAINTED. ENCLOSURE SHALL BE SIZED TO ENCLOSE ALL ABOVE FINISH GRADE APPURTENANCES AND SHALL PROVIDE ADEQUATE DRAINAGE TO KEEP THE BACKFLOW PREVENTER FROM BECOMING SUBMERGED.



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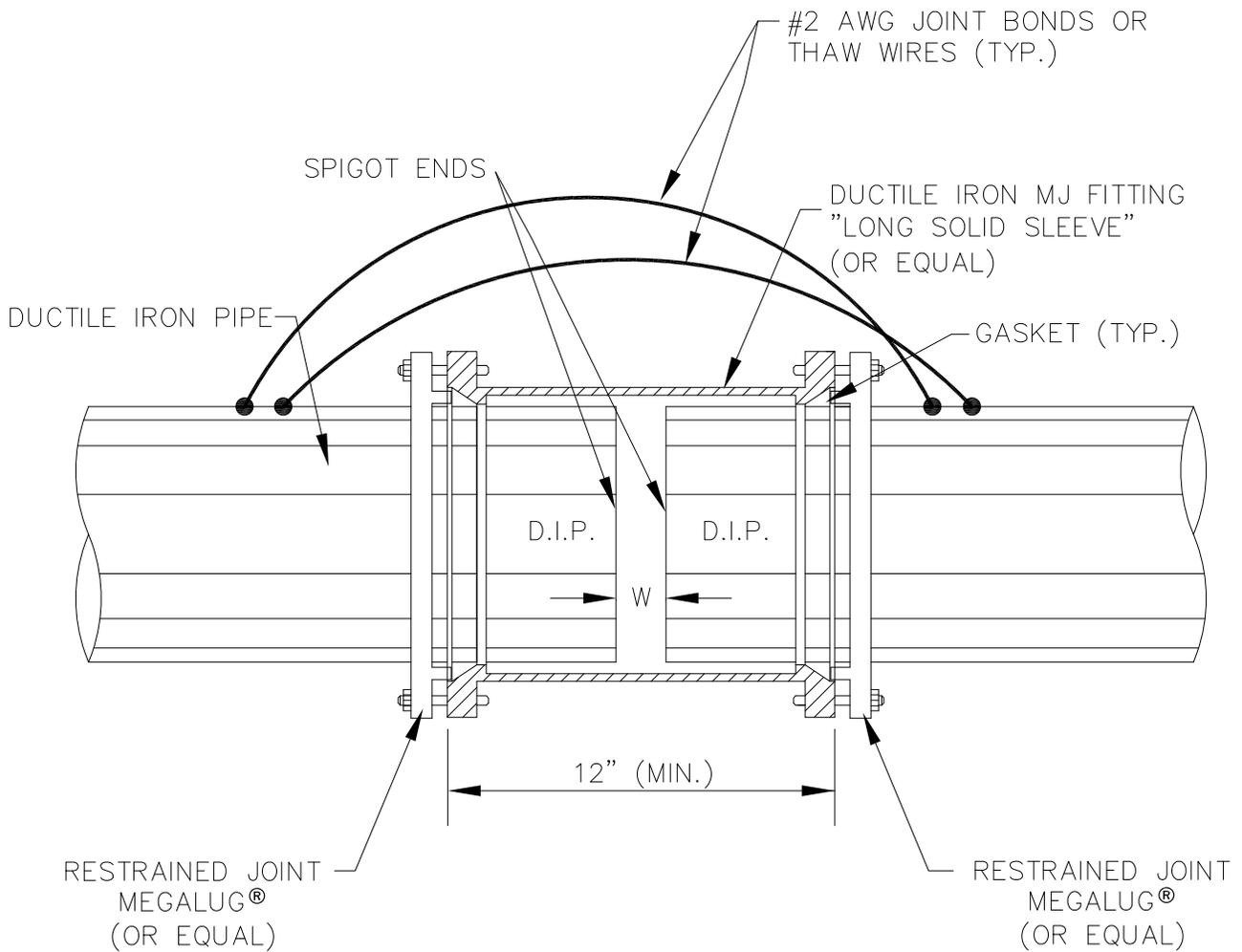
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IRRIGATION SYSTEM

SECTION #
MISC.

DETAIL #
60-9



NOTES:

1. MECHANICAL JOINT (MJ) LONG SOLID SLEEVE SHALL BE USED TO CONNECT SAME SIZE (O.D.) DUCTILE IRON PIPE (D.I.P.) TO D.I.P. ONLY.
2. SEE MANUFACTURERS RECOMENDATIONS FOR DIMENSION "W"
3. ALL D.I.P. FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF AWWA C110/ANSI A21.10 (SEE SECTION 60.02 – FURNISH AND INSTALL PIPE)

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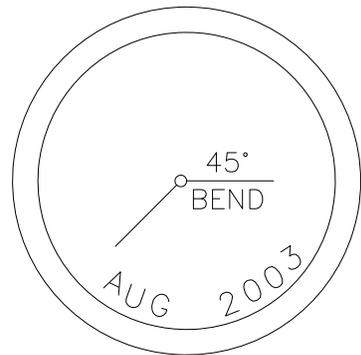
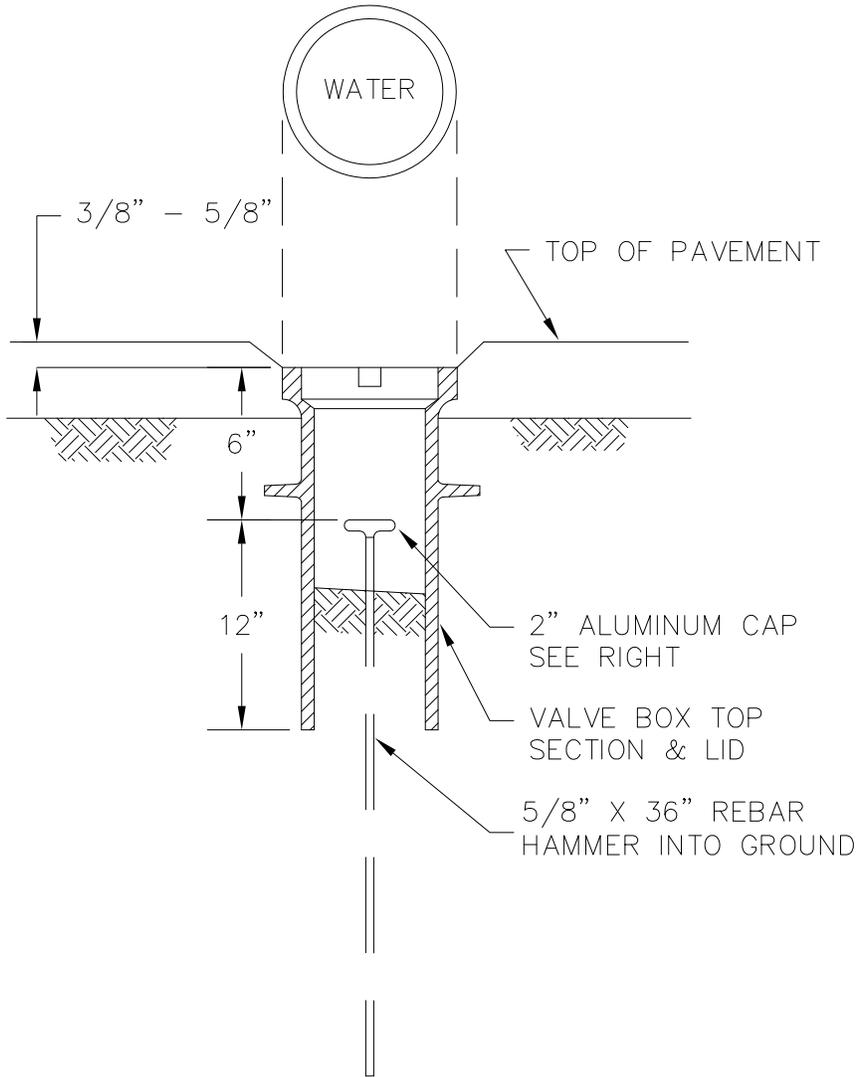


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CONNECTING DUCTILE IRON PIPE TO DUCTILE IRON PIPE

SECTION #
60.02

DETAIL #
60-10



2" ALUMINUM CAP

NOTE: BEND SHOWN ON ALUMINUM CAP SHALL MATCH ACTUAL INSTALLED WATER MAIN BEND.

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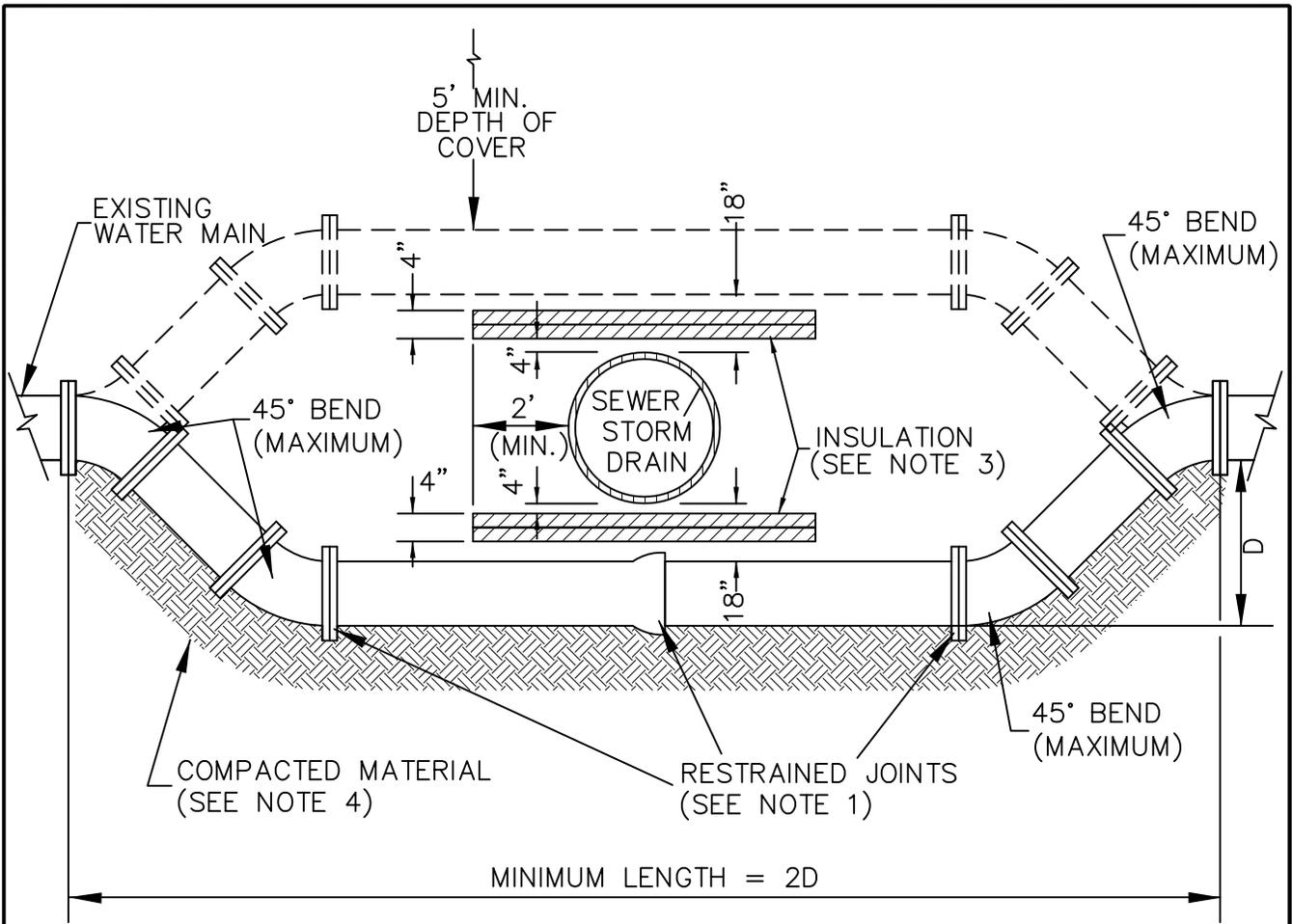
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TYPICAL PIPE ANGLE MARKER

SECTION #
60.02

DETAIL #
60-11



NOTES:

1. ALL PIPE AND FITTINGS SHALL BE RESTRAINED BY USE OF MEGALUG® AND/OR FIELD LOK® GASKETS OR EQUAL.
2. RELOCATED WATER MAIN SHALL HAVE A MINIMUM SEPARATION OF THIRTY-SIX INCHES (36") BETWEEN STORM AND WATER. IF LESS THAN THIRTY-SIX INCHES (36") OF SEPARATION CANNOT BE OBTAINED THEN FOUR INCHES (4") OF INSULATION IS REQUIRED. IF EIGHTEEN INCHES (18") OF SEPARATION CANNOT BE MAINTAINED BETWEEN WATER AND SEWER OR STORM AN ADEC WAIVER IS REQUIRED.
3. RIGID BOARD INSULATION SHALL BE HIGH DENSITY EXTRUDED POLYSTYRENE, MIN. 60 P.S.I., EQUIVALENT TO R-20 PER FOUR INCH (4") THICKNESS. INSULATION SHALL BE POSITIONED NO LESS THAN OR EQUAL TO FOUR INCHES (4") FROM STORM SEWER.
4. ALL BACKFILL MATERIAL AROUND RELOCATED WATER MAIN SHALL BE NFS AND COMPACTED TO 95% MAX. DENSITY.
5. ALL MATERIALS USED TO RELOCATE WATER LINE SHALL BE APPROVED BY THE ENGINEER.

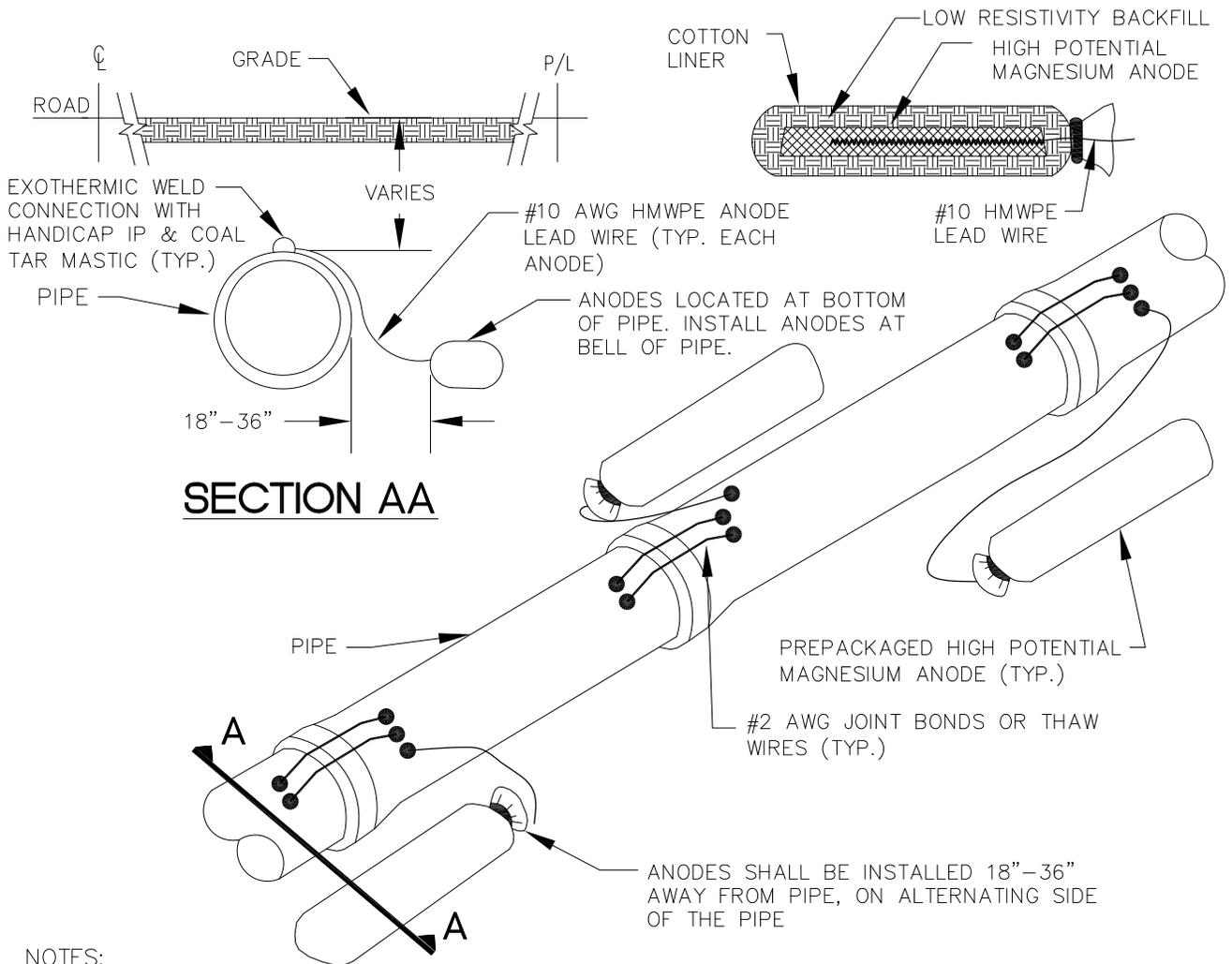
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RELOCATE WATER MAIN (SEWER/STORM DRAIN)

SECTION #
60.15
DETAIL #
60-12



NOTES:

1. HIGH POTENTIAL MAGNESIUM ANODES SHALL BE PREPACKAGED IN A CLOTH BAG WITH A BACKFILL MIXTURE OF 75% GYPSUM, 20% BENTONITE AND 5% SODIUM SULFATE. THE ANODES SHALL HAVE A 20 lb. BARE WEIGHT AND APPROXIMATELY 70 lb. PACKAGED WEIGHT.
2. ANODES SHALL BE INSTALLED AT A MAXIMUM SPACING OF 18 FEET OF BURIED PIPE BETWEEN ANODES. AN ANODE IS REQUIRED ON THE FIRST AND LAST JOINT OF PIPE. TWO (2) ADDITIONAL ANODES MUST BE INSTALLED ON THE EXISTING TIE-IN PIPE.
3. CONTRACTOR SHALL PROVIDE COORDINATES OR PIPE STATIONING FOR EACH ANODE INSTALLED.
4. TWO #2 AWG THAW WIRES ARE REQUIRED WHEN ANODE INSTALLATIONS ARE REQUIRED.
5. ALL CABLES SHALL BE SINGLE CONDUCTOR, STRANDED COPPER, WITH TYPE HMWPE INSULATION RATED FOR 600 VOLTS.
6. SPLIT-BOLT CONNECTIONS SHALL NOT BE ALLOWED ON ANY UNDERGROUND CONDUCTORS. IF SPLICES ARE REQUIRED, COMPRESSION CONNECTIONS (BURNDY OR APPROVED EQUAL) SHALL BE USED. COMPRESSION CONNECTIONS SHALL BE SEALED WITH A HEAT SHRINK SLEEVE RATED FOR BELOW GRADE USE.
7. EXOTHERMIC WELDS SHALL BE MADE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS (NOTE: COPPER CONDUCTOR SLEEVES ARE REQUIRED FOR #10 WIRE BY SOME MANUFACTURERS). THE EXOTHERMIC WELD AREA SHALL BE COATED WITH HANDICAP IP OR EQUAL AND AN BASE METAL EXPOSED AFTER INSTALLATION OF HANDICAP IP MUST BE COATED WITH COAL TAR MASTIC.
8. AT FIRE HYDRANT LOCATIONS, INSTALL ONE ANODE (12"-36" AWAY FROM THE PIPE) AT THE MIDPOINT BETWEEN THE TEE FROM THE MAIN LINE PIPE AND THE HYDRANT SHOE.

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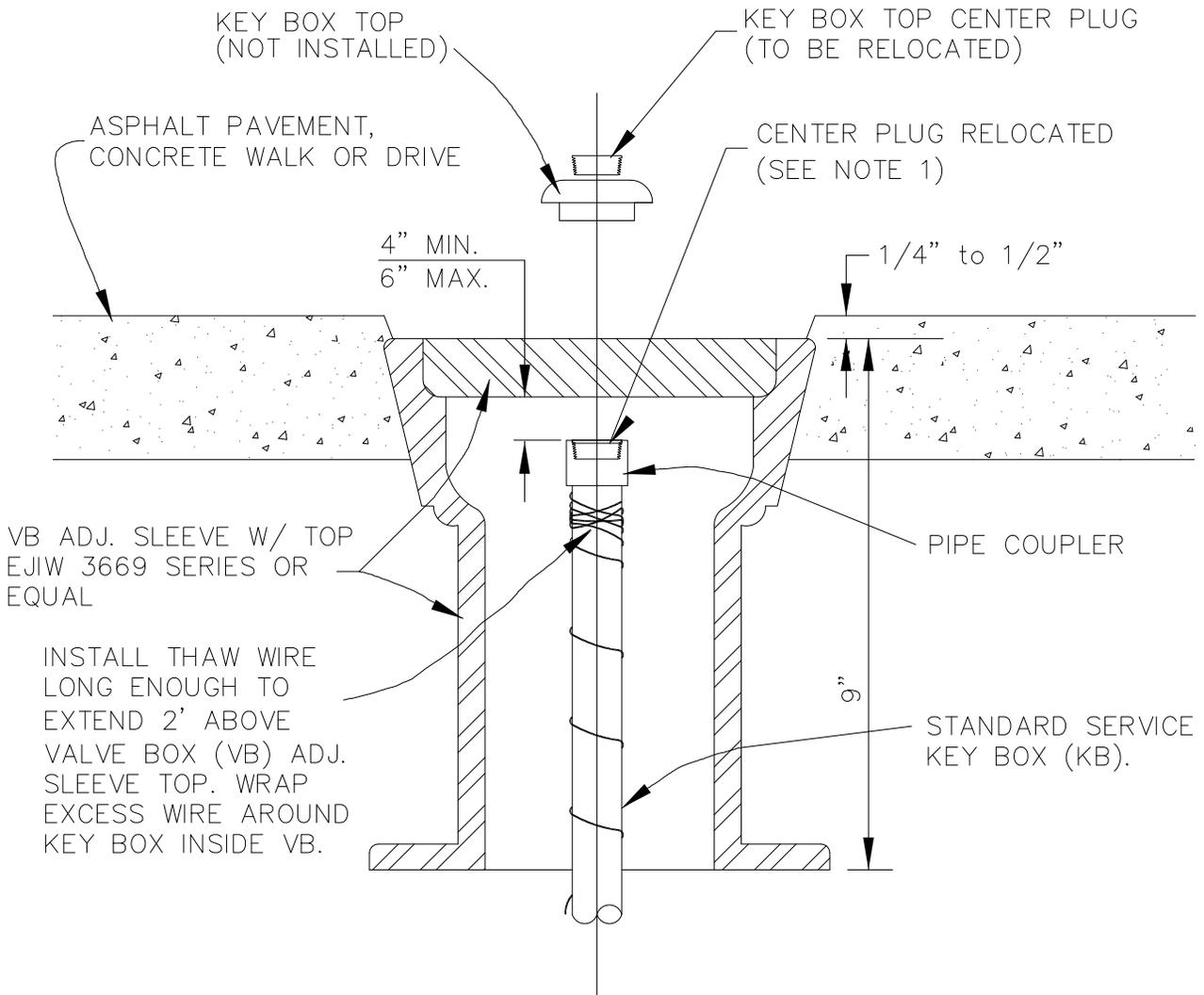
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ANODE DETAIL

SECTION #
60.19

DETAIL #
60-13



NOTES:

1. REMOVE KEY BOX TOP AND INSTALL PIPE COUPLING ON STANDARD KEY BOX, REMOVE CENTER PLUG FROM KEY BOX TOP AND INSTALL INTO TOP OF PIPE COUPLER.
2. TYPICAL INSTALLATION WHEN KEY BOX FALLS WITHIN ASPHALT PAVEMENT, CONCRETE WALK OR DRIVEWAY.
3. TO BE INSTALLED AND APPROVED BY THE ENGINEER.
4. ALL BACKFILL MATERIAL AROUND VALVE BOX SHALL BE NFS AND COMPACTED TO 95% MAX. DENSITY.
5. WRAP VALVE BOX ADJUSTMENT SLEEVE WITH THREE LAYERS OF 8-MIL THICK POLYETHYLENE ENCASMENT MATERIAL.

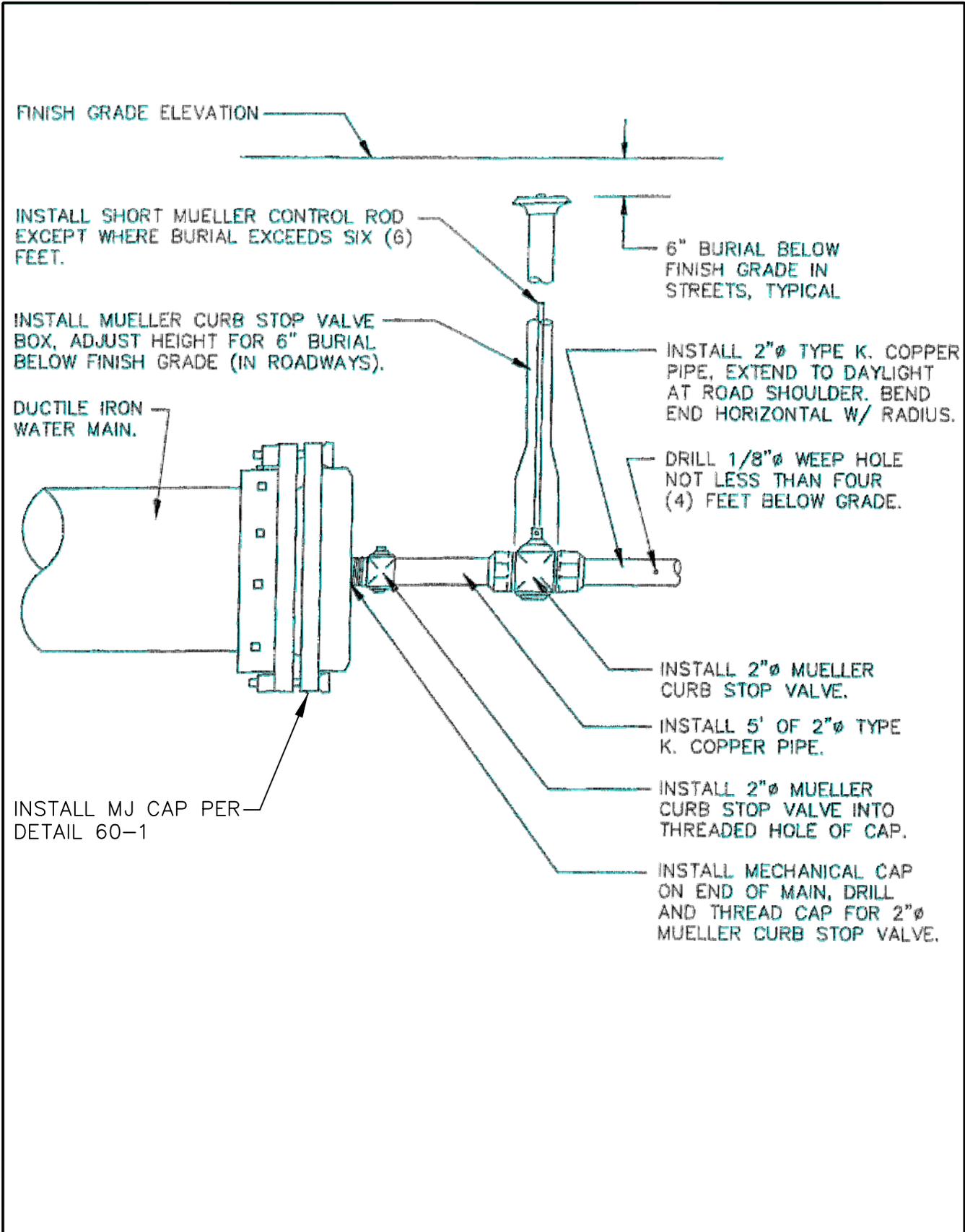


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ADJUST SERVICE KEY BOX

SECTION #
60.19

DETAIL #
60-14



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WATER WAIN BLOWOFF

SECTION #
MISC

DETAIL #
60-15