

CITY OF GOSHEN STANDARD WATER DETAILS

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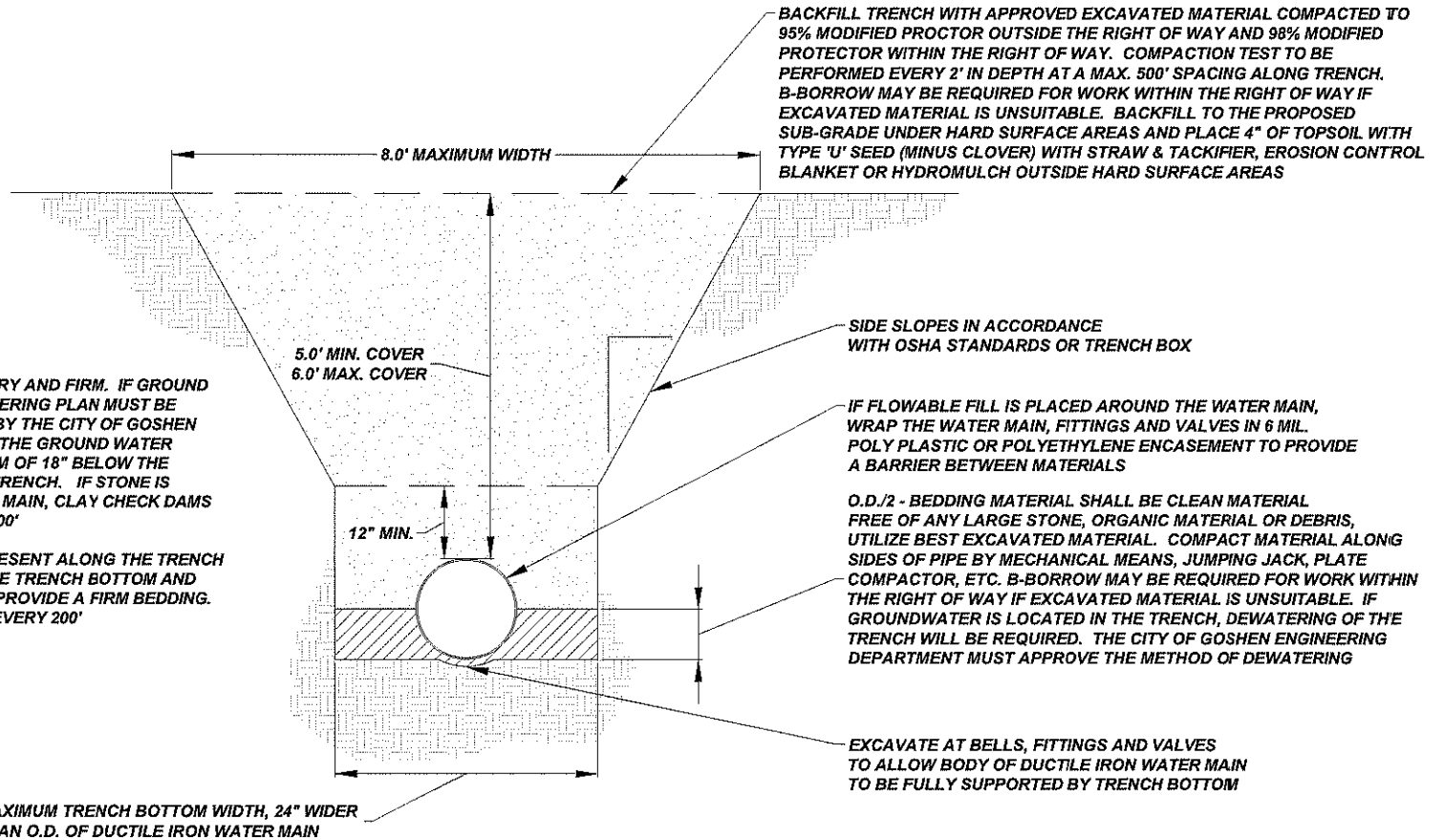
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NOTES:

1. TRENCH BOTTOM SHALL BE DRY AND FIRM. IF GROUND WATER IS PRESENT, A DEWATERING PLAN MUST BE PRESENTED AND APPROVED BY THE CITY OF GOSHEN ENGINEERING DEPARTMENT. THE GROUND WATER MUST BE LOWERED A MINIMUM OF 18" BELOW THE BOTTOM OF THE PROPOSED TRENCH. IF STONE IS PLACED AROUND THE WATER MAIN, CLAY CHECK DAMS MUST BE INSTALLED EVERY 200'
2. IF UNSUITABLE SOILS ARE PRESENT ALONG THE TRENCH BOTTOM, OVER EXCAVATE THE TRENCH BOTTOM AND PLACE No. 8 AGGREGATE TO PROVIDE A FIRM BEDDING. INSTALL CLAY CHECK DAMS EVERY 200'

WATER MAIN TRENCH

NOT TO SCALE

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 Office of Engineering

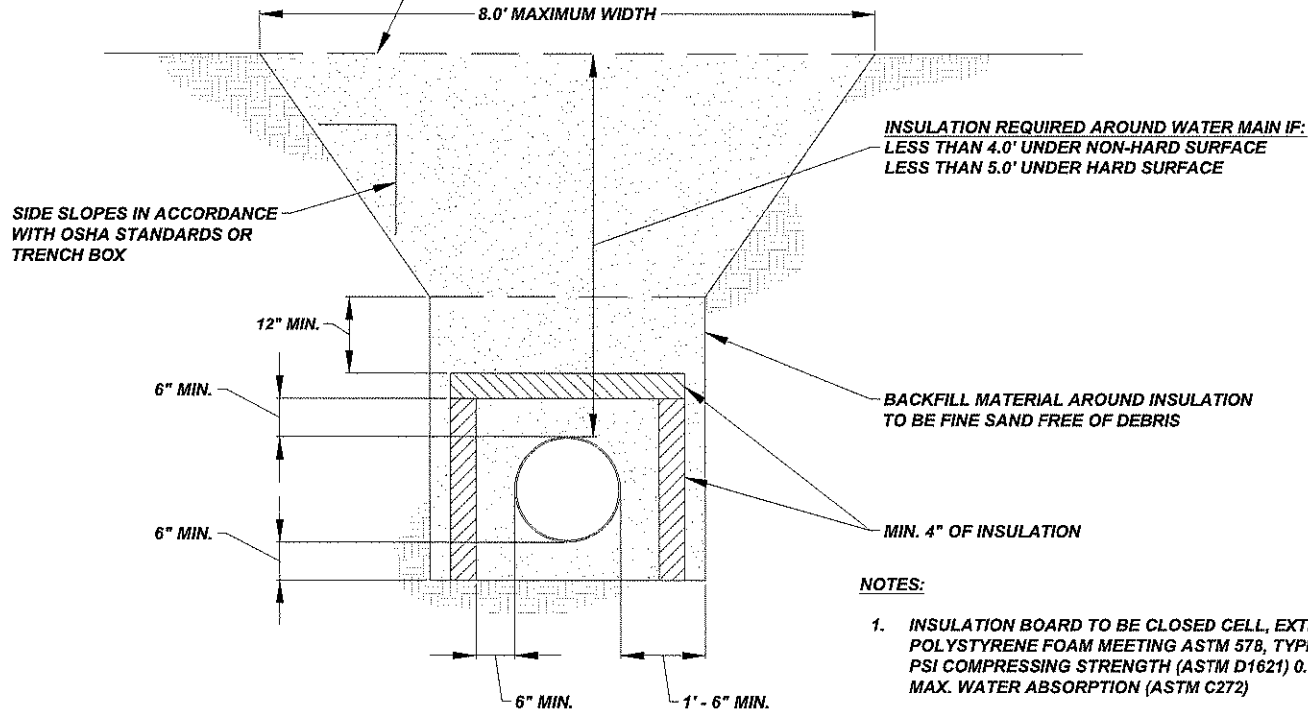
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-101	

BACKFILL TRENCH WITH APPROVED EXCAVATED MATERIAL COMPACTED TO 95% MODIFIED PROCTOR OUTSIDE THE RIGHT OF WAY AND 98% MODIFIED PROCTOR WITHIN THE RIGHT OF WAY. COMPACTION TEST TO BE PERFORMED EVERY 2' IN DEPTH AT A MAX. 500' SPACING ALONG TRENCH. B-BORROW MAY BE REQUIRED FOR WORK WITHIN THE RIGHT OF WAY IF EXCAVATED MATERIAL IS UNSUITABLE. BACKFILL TO THE PROPOSED SUBGRADE UNDER HARD SURFACE AREAS AND PLACE 4" OF TOPSOIL WITH TYPE 'U' SEED (MINUS CLOVER) WITH STRAW & TACKIFIER, EROSION CONTROL BLANKET OR HYDROMULCH OUTSIDE HARD SURFACE AREAS



INSULATED WATER MAIN TRENCH

NOT TO SCALE

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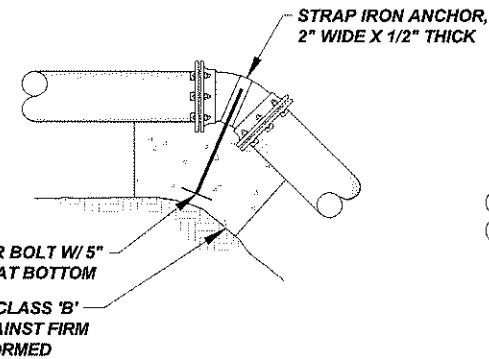
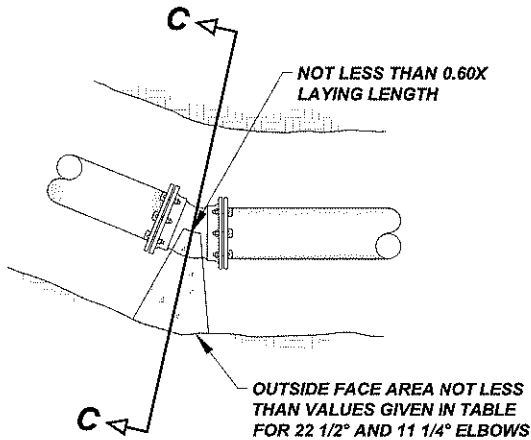
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**CITY OF GOSHEN, INDIANA
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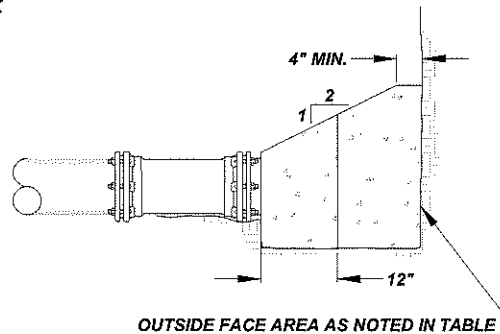
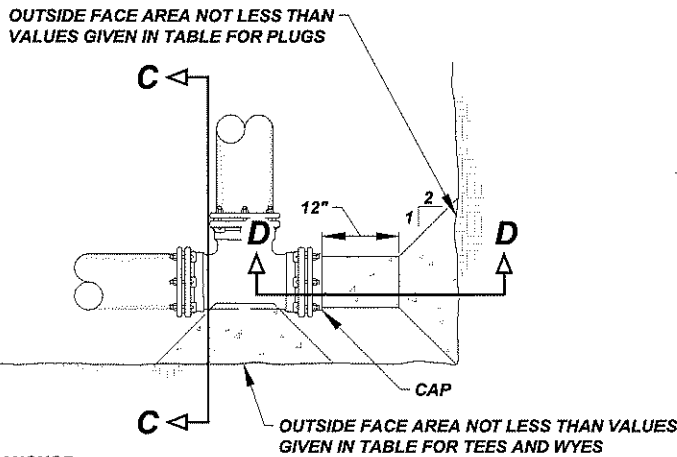
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WA-102

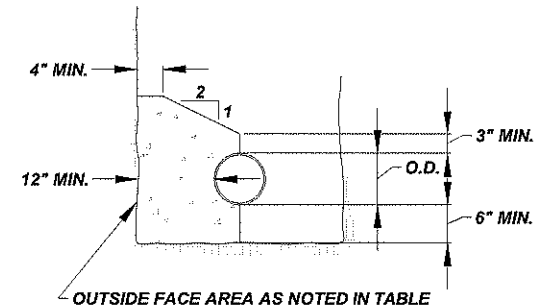
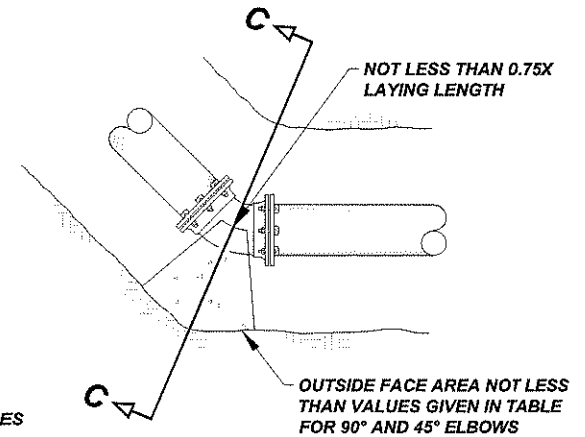


3/4" X 18" LONG ANCHOR BOLT W/ 5" DIA. WASHER, 1" THICK AT BOTTOM
 ANCHOR BLOCK TO BE CLASS 'B' CONCRETE PLACED AGAINST FIRM EARTH AND MUST BE FORMED

DOWNWARD BEND



SECTION D - D



SECTION C - C

BLOCKING FOR PLUGS AND ELBOWS					
OUTSIDE FACE AREA (SQ. FT.)					
PIPE SIZE (IN.)	PLUG	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW
20	16	25	14	7*	4*
16	12	16	9	5*	3*
12	7	9	5	3*	2*
10	4	7	4	2*	1*
8	3	5	3	2*	1*
6	2	3	2	1*	1*

* NOT REQUIRED UNLESS SPECIFIED

BLOCKING FOR TEES AND WYES		
SIZE OF RUN (IN.)	SIZE OF BRANCH (IN.)	OUTSIDE FACE AREA (SQ. FT.)
20 OR 16	16	12
	12	7
	10	6
	8	5
12 OR LESS	12	7
	10	6
	8	4
	6	2

NOTES:

1. USE CLASS 'B' CONCRETE FOR ALL THRUST BLOCKS
2. THRUST BLOCKS ARE INCIDENTAL TO THE INSTALLATION OF WATER MAIN
3. FOLLOW DIPA PIPE RESTRAINT REQUIREMENTS FOR PIPE LENGTH INTO AND OUT OF A FITTING
4. MECHANICAL RESTRAINTS ARE REQUIRED WITH THRUST BLOCKS

WATER MAIN RESTRAINT/THRUST BLOCKS

NOT TO SCALE

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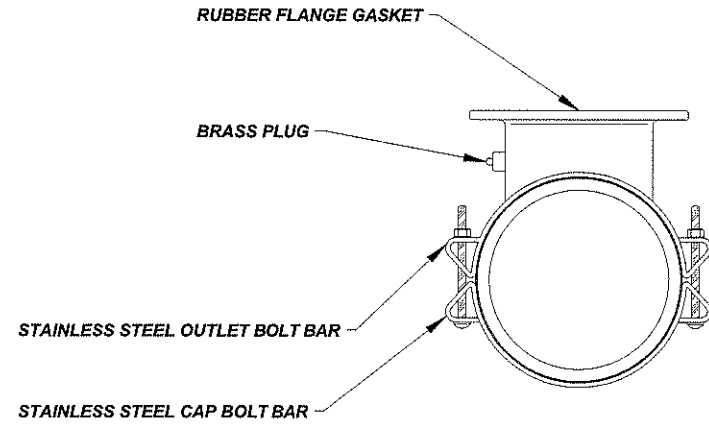
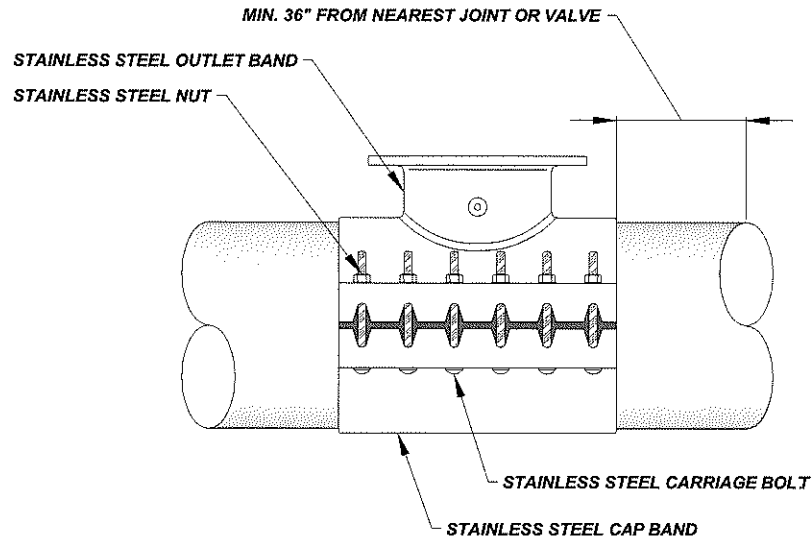
**CITY OF GOSHEN, INDIANA
 STANDARD DETAIL**

Drafted By: J. Hoffman
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NOTES:

1. A MINIMUM OF 36" BETWEEN TAPPING SLEEVES, WATER MAIN JOINTS, FIRE PROTECTION AND DOMESTIC SERVICES
2. IF THE CITY INSTALLS THE TAPPING SLEEVE, THE CONTRACTOR IS RESPONSIBLE TO EXPOSE THE WATER MAIN AND PREPARE THE AREA FOR THE CREW
3. IF THE CONTRACTOR INSTALLS THE TAPPING SLEEVE, SHOP DRAWINGS MUST BE PROVIDED AND APPROVED BY THE CITY ENGINEERING DEPARTMENT PRIOR TO INSTALLATION. THE INSTALLATION MUST BE INSPECTED BY A CITY REPRESENTATIVE PRIOR TO BACKFILLING

STAINLESS STEEL TAPPING SLEEVE

NOT TO SCALE

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**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

PAGE 1 OF 2

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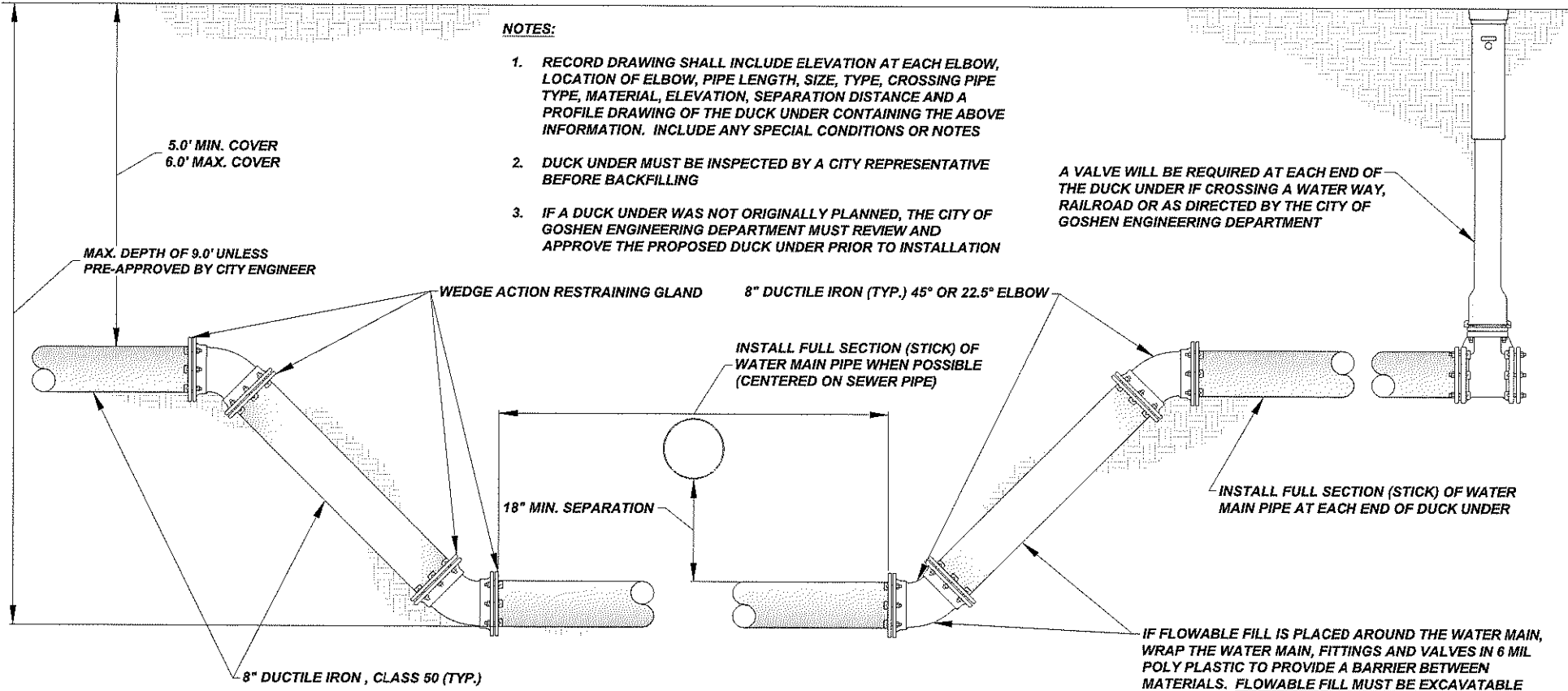
Drawing Number:

WA-104

NOTES:

1. RECORD DRAWING SHALL INCLUDE ELEVATION AT EACH ELBOW, LOCATION OF ELBOW, PIPE LENGTH, SIZE, TYPE, CROSSING PIPE TYPE, MATERIAL, ELEVATION, SEPARATION DISTANCE AND A PROFILE DRAWING OF THE DUCK UNDER CONTAINING THE ABOVE INFORMATION. INCLUDE ANY SPECIAL CONDITIONS OR NOTES
2. DUCK UNDER MUST BE INSPECTED BY A CITY REPRESENTATIVE BEFORE BACKFILLING
3. IF A DUCK UNDER WAS NOT ORIGINALLY PLANNED, THE CITY OF GOSHEN ENGINEERING DEPARTMENT MUST REVIEW AND APPROVE THE PROPOSED DUCK UNDER PRIOR TO INSTALLATION

A VALVE WILL BE REQUIRED AT EACH END OF THE DUCK UNDER IF CROSSING A WATER WAY, RAILROAD OR AS DIRECTED BY THE CITY OF GOSHEN ENGINEERING DEPARTMENT



WATER MAIN DUCK UNDER

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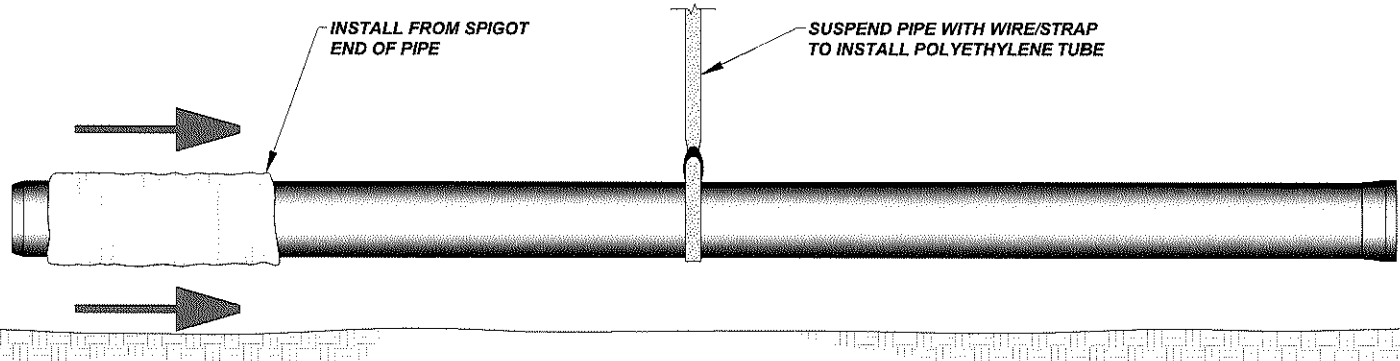
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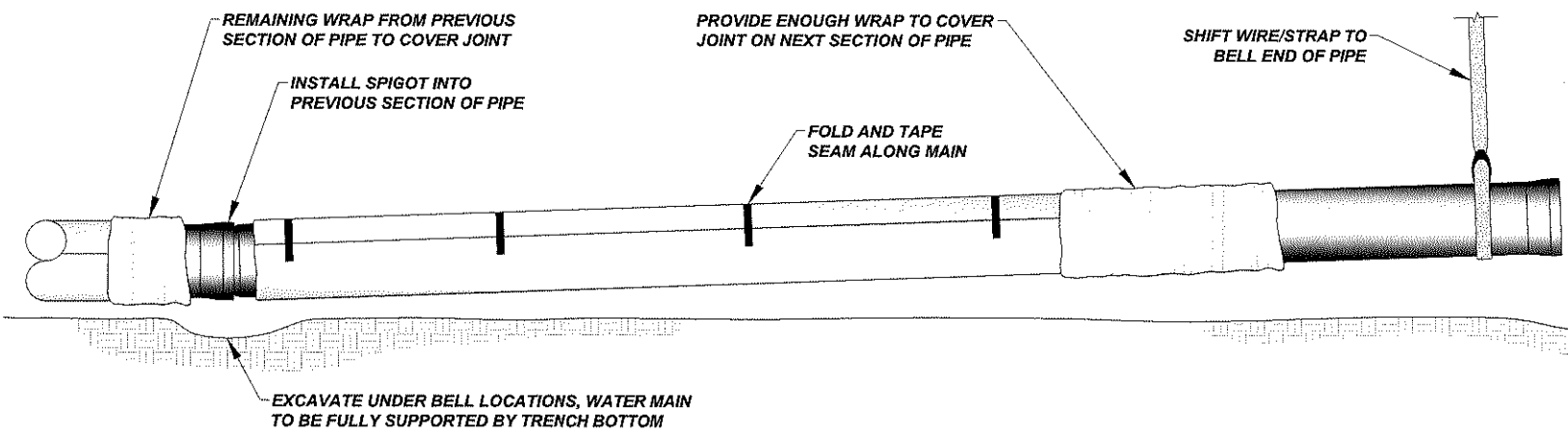
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STANDARD DETAIL

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INSTALL FROM SPIGOT
END OF PIPE

SUSPEND PIPE WITH WIRE/STRAP
TO INSTALL POLYETHYLENE TUBE



REMAINING WRAP FROM PREVIOUS
SECTION OF PIPE TO COVER JOINT

PROVIDE ENOUGH WRAP TO COVER
JOINT ON NEXT SECTION OF PIPE

SHIFT WIRE/STRAP TO
BELL END OF PIPE

INSTALL SPIGOT INTO
PREVIOUS SECTION OF PIPE

FOLD AND TAPE
SEAM ALONG MAIN

EXCAVATE UNDER BELL LOCATIONS, WATER MAIN
TO BE FULLY SUPPORTED BY TRENCH BOTTOM

POLYETHYLENE ENCASEMENT

NOT TO SCALE

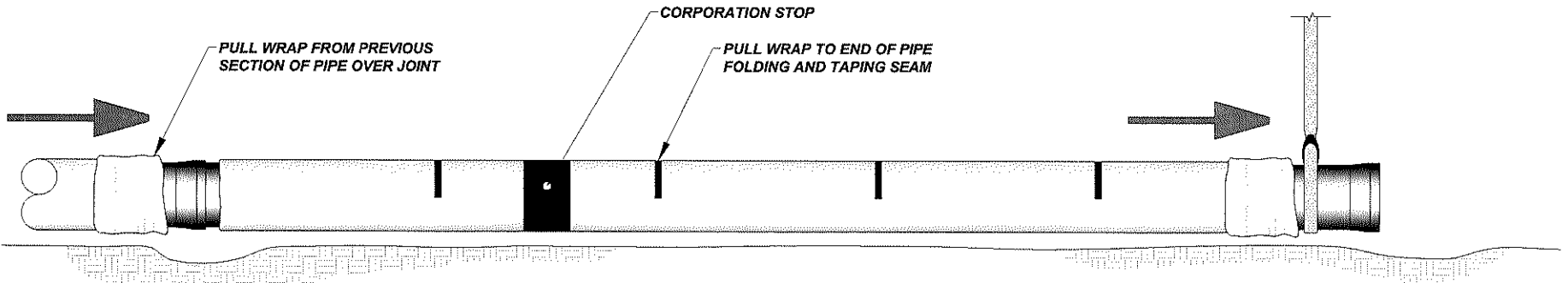
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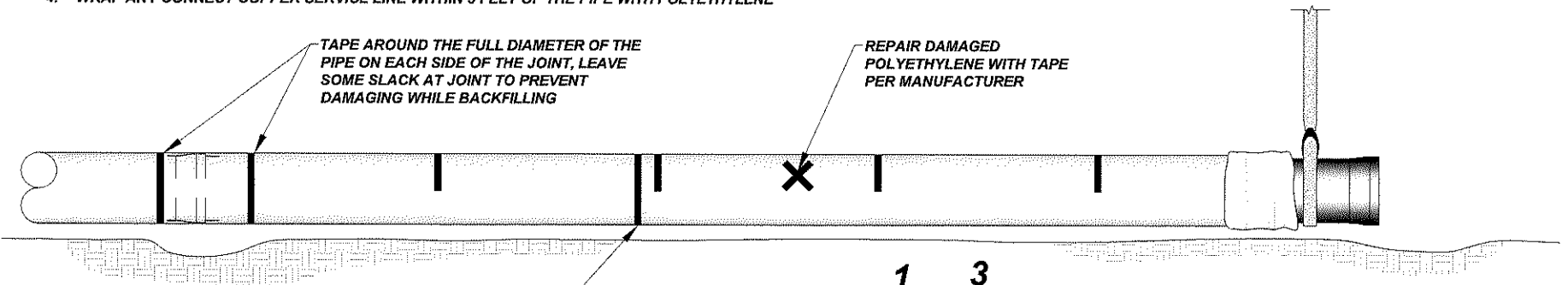
CITY OF GOSHEN, INDIANA
STANDARD DETAIL

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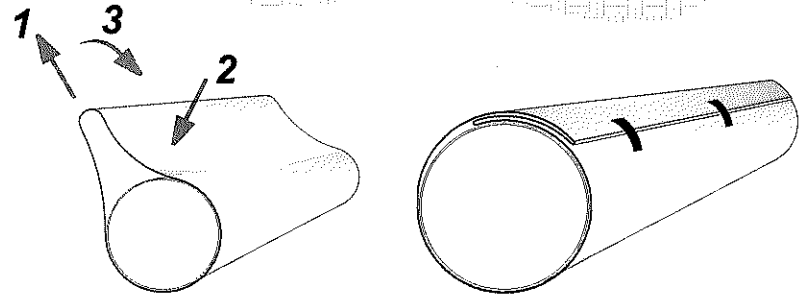


CORPORATION STOP INSTALLATION:

1. WRAP 2 TO 3 LAYERS OF POLYETHYLENE ADHESIVE TAPE COMPLETELY AROUND THE PIPE TO COVER THE AREA THE TAPPING MACHINE AND CHAIN WILL BE MOUNTED
2. MOUNT THE TAPPING MACHINE, MAKE THE TAP AND INSTALL THE CORPORATION STOP
3. REMOVE THE TAPPING MACHINE AND CHECK FOR DAMAGE TO THE TAPE AND POLYETHYLENE, MAKE NECESSARY REPAIRS
4. WRAP ANY CONNECT COPPER SERVICE LINE WITHIN 3 FEET OF THE PIPE WITH POLYETHYLENE



TAPE AROUND THE FULL DIAMETER OF THE PIPE WITHIN A WET TRENCH



SEAM FOLD AND TAPE SEQUENCE

NOTE:

1. GO TO DIPRA.ORG FOR INSTALLATION DETAILS INCLUDING TAPS AND SEALING AROUND APPARATUS

POLYETHYLENE ENCASEMENT

NOT TO SCALE

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

PAGE 2 OF 3

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DRY TRENCH INSTALLATION:

1. CUT A SECTION OF POLYETHYLENE TUBE APPROXIMATELY 24" LONGER THAN THE PIPE SECTION. CLEAN DEBRIS FROM THE SURFACE OF THE PIPE. SLIP THE POLYETHYLENE TUBE AROUND THE PIPE, STARTING AT THE SPIGOT END. BUNCH THE TUBE ACCORDION FASHION ON THE END OF THE PIPE. PULL BACK THE OVERHANGING END OF THE TUBE AND CIRCUMFERENTIALLY TAPE IT TO THE BARREL OF THE PIPE BEHIND THE INSERTION LINE. AFTER ASSEMBLY OF THE JOINT, THE TAPE SHOULD BE AS CLOSE TO THE FACE OF THE BELL AS POSSIBLE, BUT NOT SO CLOSE TO THE SPIGOT END THAT IT INTERFERES WITH THE GASKET
2. TAKE UP THE SLACK IN THE TUBE ALONG THE BARREL TO MAKE A SNUG, BUT NOT TIGHT, FIT. FOLD EXCESS POLYETHYLENE BACK OVER THE TOP OF THE PIPE AND USE PIECES OF TAPE ACROSS THE FOLD TO SECURELY HOLD IT. THIS STEP IS EXTREMELY IMPORTANT TO AVOID THE SAGGING OF THE FILM AT THE BOTTOM OF THE PIPE
3. DIG A SHALLOW BELL HOLE IN THE TRENCH BOTTOM AT THE JOINT LOCATION TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE. LOWER THE PIPE INTO THE TRENCH AND MAKE UP THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE
4. MOVE THE CABLE/STRAP TO THE BELL END OF THE PIPE AND LIFT THE PIPE SLIGHTLY TO PROVIDE ENOUGH CLEARANCE TO EASILY SLIDE THE TUBE OVER THE REMAINING BARREL OF THE PIPE. SNUGLY FOLD OVER THE EXCESS WRAP USING TAPE TO HOLD IT IN PLACE. MAKE SURE THAT NO DIRT OR OTHER BEDDING MATERIALS BECOME TRAPPED BETWEEN THE WRAP AND PIPE
5. SECURE THE POLYETHYLENE IN PLACE BEHIND THE PRECEDING BELL BY USING A CIRCUMFERENTIAL WRAP OF TAPE. MAKE THE OVERLAP OF THE POLYETHYLENE TUBE BY PULLING BACK THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE AND ENSURE THERE IS AT LEAST A 24" OVERLAP
6. PLACE ANOTHER CIRCUMFERENTIAL WRAP OF TAPE ON THE OVERLAPPING POLYETHYLENE, SECURING IT TO THE SPIGOT SIDE OF THE JOINT
7. REPAIR ALL SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE. IF THE POLYETHYLENE IS BADLY DAMAGED, REPAIR THE DAMAGED AREA WITH A SHEET OF POLYETHYLENE AND SEAL THE EDGES OF THE REPAIR WITH ADHESIVE TAPE
8. CAREFULLY BACKFILL THE TRENCH ACCORDING TO THE PROCEDURES IN AWWA C600 STANDARDS. TO PREVENT DAMAGE DURING BACKFILLING, ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. BACKFILL SHOULD BE FREE OF CINDERS, ROCKS, BOULDERS, NAILS, STICKS OR OTHER MATERIALS THAT MIGHT DAMAGE THE POLYETHYLENE. AVOID DAMAGING THE POLYETHYLENE WHEN USING TAMPING DEVICES

WET TRENCH INSTALLATION:

1. CUT A SECTION OF POLYETHYLENE TUBE APPROXIMATELY 24" LONGER THAN THE PIPE SECTION. CLEAN DEBRIS FROM THE SURFACE OF THE PIPE. SLIP THE POLYETHYLENE TUBE AROUND THE PIPE, STARTING AT THE SPIGOT END. BUNCH THE TUBE ACCORDION FASHION ON THE END OF THE PIPE. PULL BACK THE OVERHANGING END OF THE TUBE AND CIRCUMFERENTIALLY TAPE IT TO THE BARREL OF THE PIPE BEHIND THE INSERTION LINE. AFTER ASSEMBLY OF THE JOINT, THE TAPE SHOULD BE AS CLOSE TO THE FACE OF THE BELL AS POSSIBLE, BUT NOT SO CLOSE TO THE SPIGOT END THAT IT INTERFERES WITH THE GASKET
2. TAKE UP THE SLACK IN THE TUBE ALONG THE BARREL TO MAKING A SNUG FIT AND FOLD OVER THE EXCESS POLYETHYLENE. APPLY CIRCUMFERENTIAL WRAPS OF TAPE EVERY 24" INCHES UNTIL YOU RUN OUT OF ROOM. THIS IS EXTREMELY IMPORTANT TO AVOID THE SAGGING OF THE FILM AT THE BOTTOM OF THE PIPE
3. DIG A SHALLOW BELL HOLE IN THE TRENCH BOTTOM, LOWER THE PIPE AND MAKE UP THE JOINT. SLIDE THE WIRE/STRAP TO THE BELL END AND LIFT SLIGHTLY TO PROVIDE CLEARANCE TO SLIDE THE ENCASEMENT TO THE END. CONTINUE TO SNUGLY FOLD OVER AND TAPE AT 24" INTERVALS TO SECURE THE POLYETHYLENE
4. MAKE THE OVERLAP OF THE POLYETHYLENE TUBE BY PULLING BACK THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE AND ENSURE THERE IS AT LEAST A 12" OVERLAP. SECURE THE POLYETHYLENE WITH A CIRCUMFERENTIAL WRAP OF TAPE AT THE OVERLAP AND BEHIND THE PRECEDING BELL
5. REPAIR ALL SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE. IF THE POLYETHYLENE IS BADLY DAMAGED, REPAIR THE DAMAGED AREA WITH A SHEET OF POLYETHYLENE AND SEAL THE EDGES OF THE REPAIR WITH ADHESIVE TAPE
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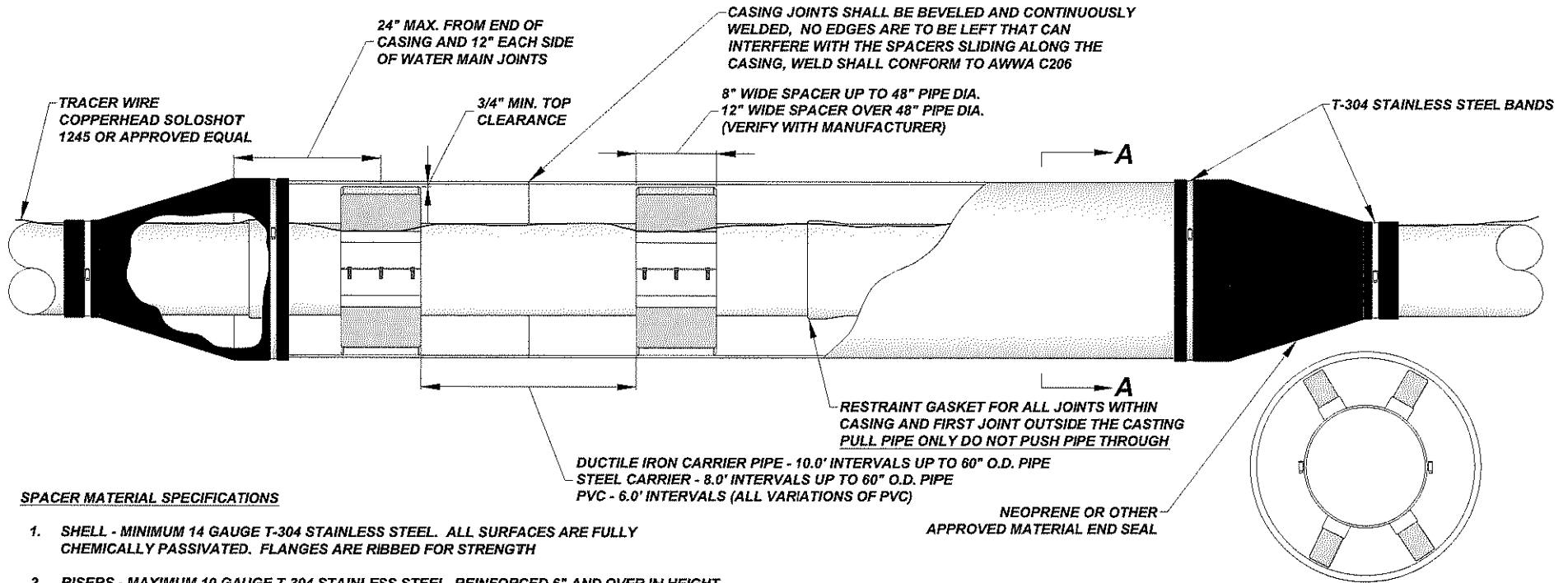
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CITY OF GOSHEN, INDIANA
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Drawing Number: WA-106	



SPACER MATERIAL SPECIFICATIONS

1. SHELL - MINIMUM 14 GAUGE T-304 STAINLESS STEEL. ALL SURFACES ARE FULLY CHEMICALLY PASSIVATED. FLANGES ARE RIBBED FOR STRENGTH
2. RISERS - MAXIMUM 10 GAUGE T-304 STAINLESS STEEL, REINFORCED 6" AND OVER IN HEIGHT
3. FASTENERS - 5/16 - 18 T-304 STAINLESS STEEL
4. LINER - PVC, 0.90 THICK, 85-90 DUROMETER (ASTM D1706 - 61T) MAX. CONSTANT OPERATING TEMPERATURE - 150 DEGREES (F) ELECTRICAL PROPERTIES - (ASTM - D149 - 61) 1380 V/min. RESISTANCE - SALT SPRAY (ASTM - B117) EXCELLENT - ACIDS GOOD
5. RUNNERS - ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE LOW COEFFICIENT OF FRICTION HIGH RESISTANCE TO ABRASION AND SLIDING WEAR TOUGHNESS UNDER IMPACT LOW DEFLECTION UNDER COMPRESSION DIELECTRIC INSULATION

CASCADE CASING SPACERS MODEL CCS AS MANUFACTURED BY CASCADE WATERWORKS MFG. OR APPROVED EQUAL

CASING SPECIFICATIONS		
WATER MAIN SIZE	CASING SIZE	CASING WALL THICKNESS
20"	36"	0.750"
16"	30"	0.688"
12"	24"	0.688"
8"	16"	0.500"
6"	12"	0.500"

WATER MAIN CASING

NOT TO SCALE

CENTERED AND RESTRAINED SECTION A-A

NOTES:

1. TRACER WIRE SHALL BE INSTALLED THROUGH CASING WITH LOCATION STATION AT EACH END, SEE DETAIL SA-406
2. 5.0' MINIMUM COVER MEASURED FROM SUB-GRADE TO TOP OF CASING
3. SUBMIT SHOP DRAWINGS TO THE CITY ENGINEERING DEPARTMENT FOR APPROVAL
4. ALL CHANGES TO MATERIALS OR MODIFICATIONS TO PLANS MUST BE PRE-APPROVED BY THE CITY ENGINEERING DEPARTMENT
5. RECORD DRAWING SHALL INCLUDE ELEVATION AT EACH END OF THE PIPE AND CASING, LOCATION OF EACH OF THE CASING, CASING LENGTH, SIZE, TYPE, A PROFILE DRAWING OF THE CASING CONTAINING THE ABOVE INFORMATION. INCLUDE ANY SPECIAL CONDITIONS OR NOTES

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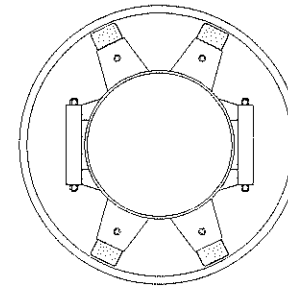
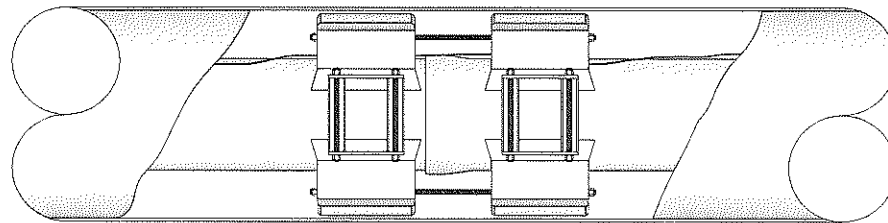
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 Drawing Number: **WA-107**



**WATER MAIN CASING WITH
RESTRAINED CASING SPACERS**

NOT TO SCALE

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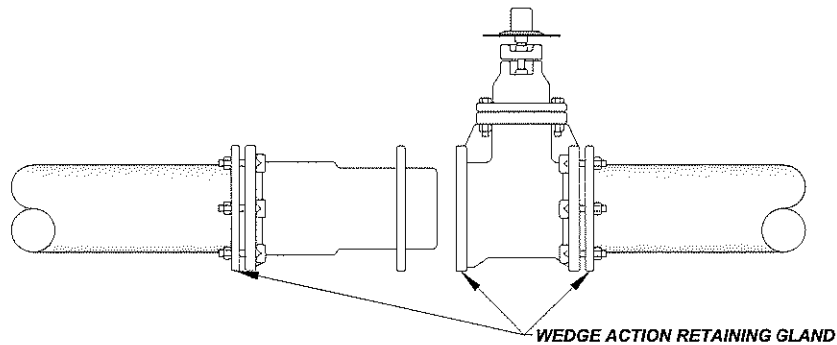
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CUT-IN-VALVE WITH MECHANICAL
JOINT CUTTING-IN-SLEEVE

NOT TO SCALE

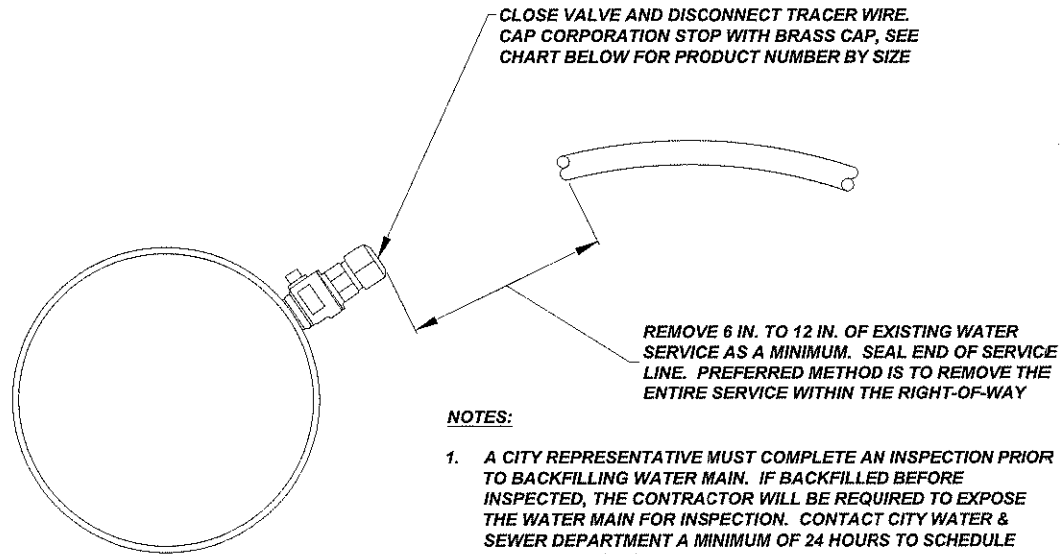
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Drawing Number: WA-108	



NOTES:

1. A CITY REPRESENTATIVE MUST COMPLETE AN INSPECTION PRIOR TO BACKFILLING WATER MAIN. IF BACKFILLED BEFORE INSPECTED, THE CONTRACTOR WILL BE REQUIRED TO EXPOSE THE WATER MAIN FOR INSPECTION. CONTACT CITY WATER & SEWER DEPARTMENT A MINIMUM OF 24 HOURS TO SCHEDULE INSPECTION, (574) 534-5306
2. INCLUDE LOCATION OF RETIRED SERVICE ON RECORD DRAWING

CORPORATION STOP CAP WITH COPPER SHUT OFF DISC			
SERVICE SIZE	FORD PART NO.	AY MCDONALD PART NO.	MUELLER CO. PART NO.
5/8"	FB1000-4-TW-Q-NL	74742LFCAP 5/8 XS LF-NL	-
3/4"	CAP-24-3-NL	74742LFCAP 3/4 XS LF-NL	H-15545N (CTS 110 THREAD) H-15540N (COPPER FLARE THREAD)
1"	CAP-4-4-NL	74742LFCAP 1 XS LF-NL	H-15545N (CTS 110 THREAD) H-15540N (COPPER FLARE THREAD)
1 1/2"	-	-	H-15545N (CTS 110 THREAD) H-15540N (COPPER FLARE THREAD)
2"	-	-	H-15545N (CTS 110 THREAD) H-15540N (COPPER FLARE THREAD)

WATER SERVICE RETIREMENT

NOT TO SCALE

The City Of Goshen

Department of Public Works & Safety
Office of Engineering

204 East Jefferson, Suite 1 Street, Goshen, Indiana 46528
Phone: 574-534-2201 Fax: 574-533-8626
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**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

Drafted By: J. Hoffman	Approved By: D. Sallor, P.E.
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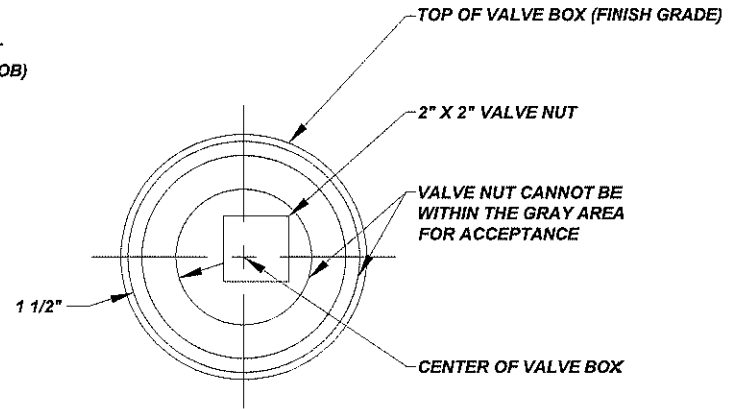
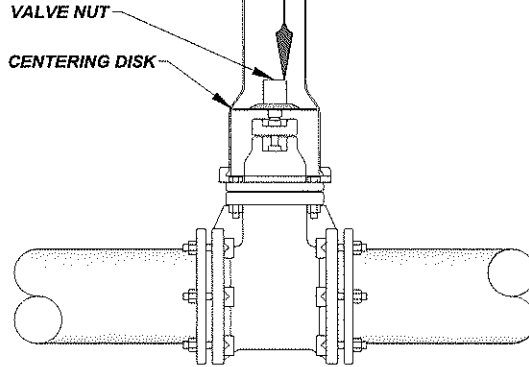
Drawing Number:
WA-109

CHECK FOR COMPLIANCE BY MEASURING FROM THE VALVE NUT SIDE OR CORNER CLOSES TO THE VALVE BOX BODY

PLUMB LINE FROM VALVE NUT (ESTABLISHED WITH PLUMB BOB)

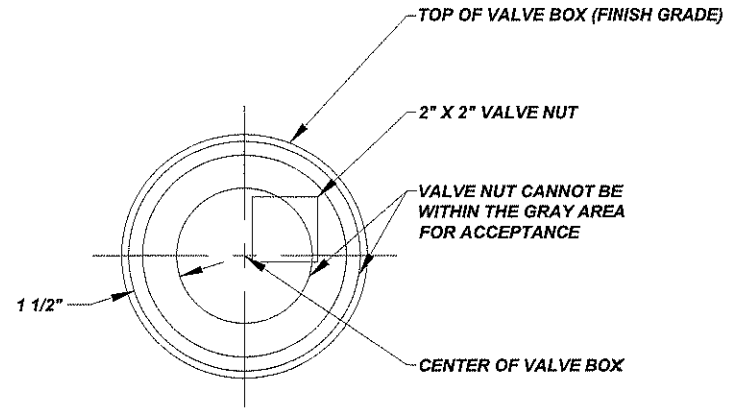
NOTES:

1. CITY REPRESENTATIVE WILL INSPECT WATER VALVE BOXES FOR ACCEPTANCE PRIOR TO PATCHING OR PAVING
2. CONTRACTOR MAY USE OTHER METHODS TO CHECK FOR PLUMB DURING INSTALLATION. THE METHOD SHOWN IS FOR AN EXAMPLE
3. CLEAN ASPHALT FROM LID AND CASTING. INSURE THE LIFTING NOTCHES ARE CLEAN AND THE LID SITS FLUSH WITH THE CASTING
4. REMOVE ALL DEBRIS THAT HAS FALLEN INTO THE VALVE BOX BEFORE FINAL INSPECTION



ACCEPTABLE VALVE BOX ALIGNMENT

PLAN VIEW



UNACCEPTABLE VALVE BOX ALIGNMENT

PLAN VIEW

WATER VALVE BOX ACCEPTANCE STANDARD

NOT TO SCALE

The City Of Goshen
 Department of Public Works & Safety
 Office of Engineering

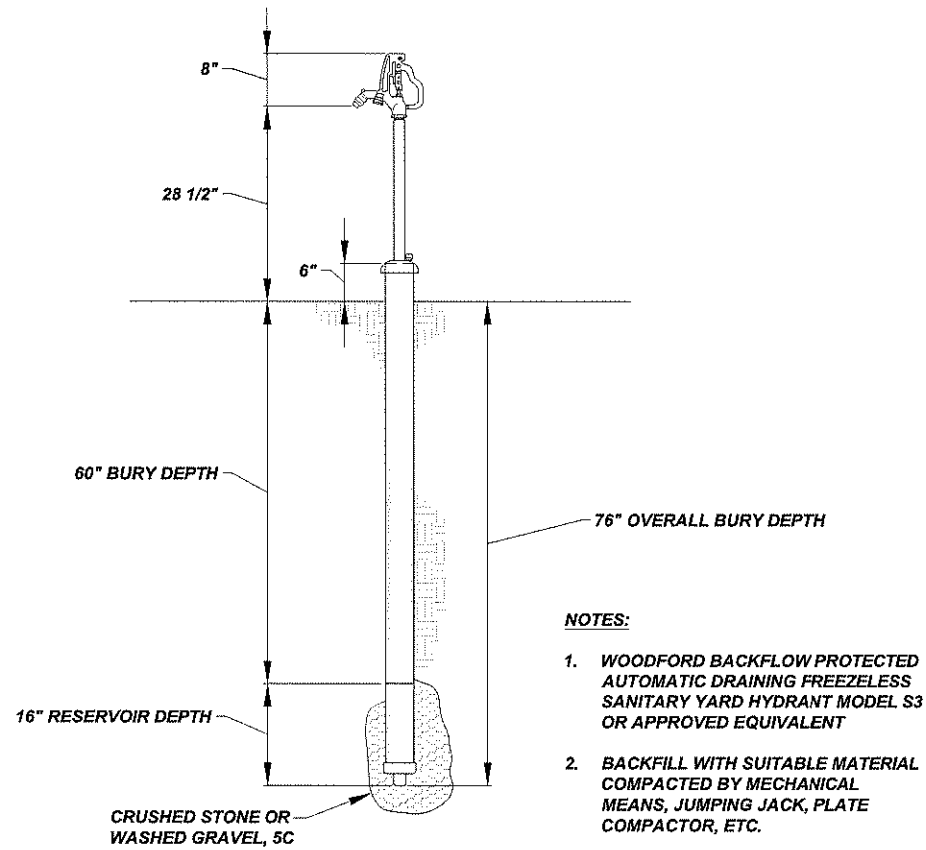
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-110	



FROST FREE YARD HYDRANT ASSEMBLY

NOT TO SCALE

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Office of Engineering

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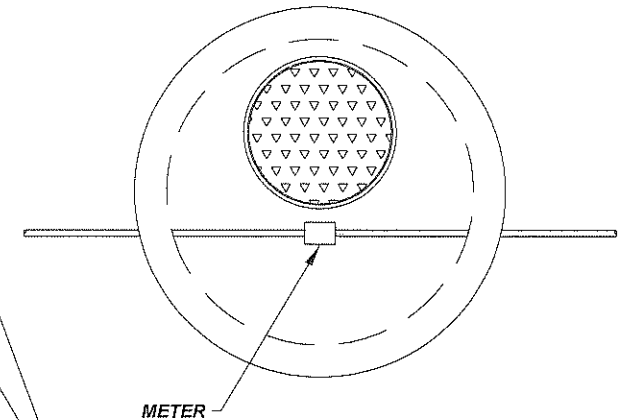
Date Approved By The City Of Goshen Board Of Public Works & Safety and Approved Revisions

**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

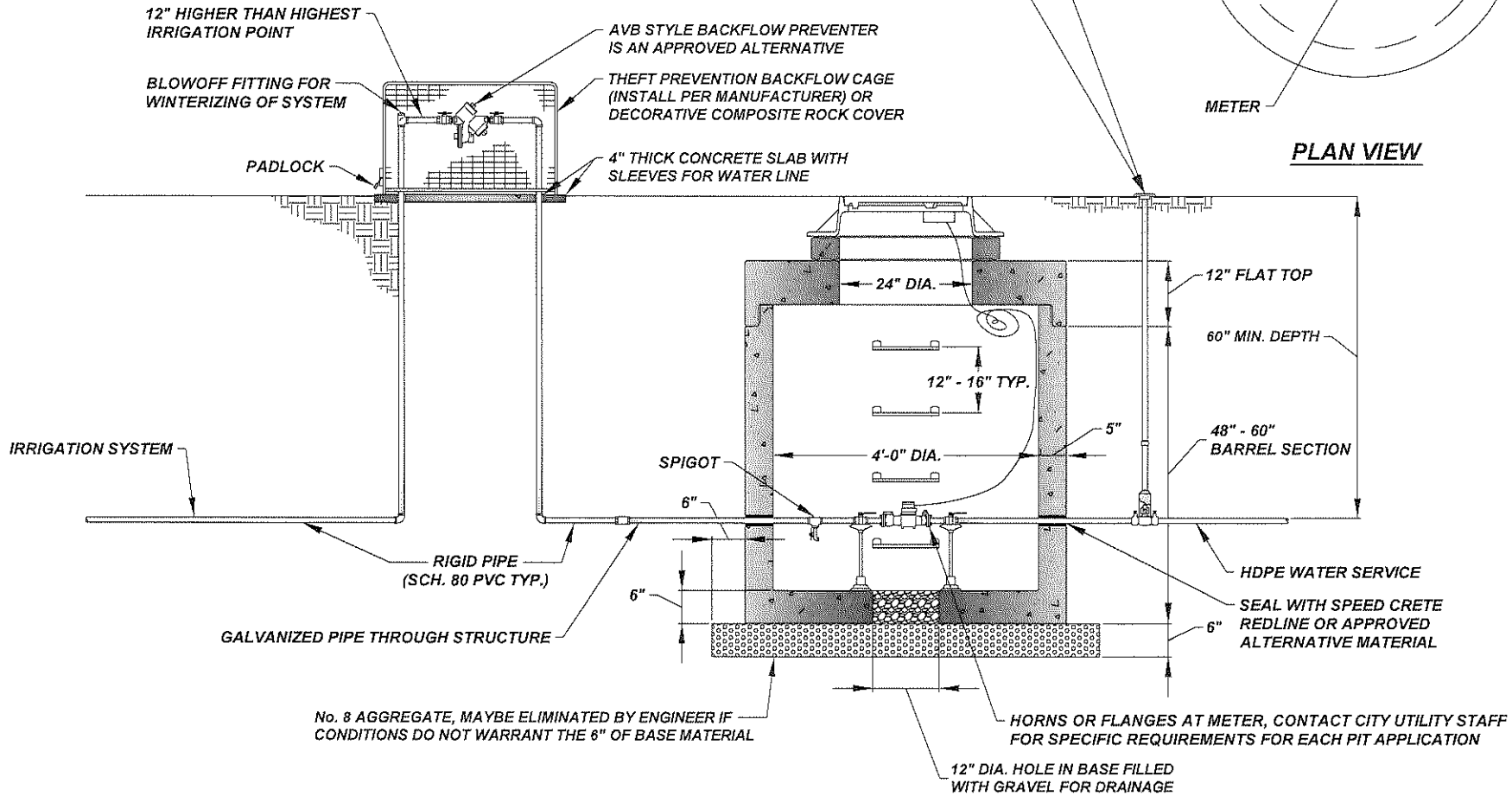
Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-111	

CURB BOX TO BE ORDERED 6" LONGER THAN SERVICE LINE BURY DEPTH WITH 1" EXTENSION ROD SMALL BASE PATTERN BOX FOR 1" CURB STOP LARGE BASE PATTERN BOX FOR 1.5" AND 2" CURB STOP. NO LESS THAN 6" OF ADJUSTMENT MUST BE MAINTAINED, ADD EXTENSION ROD IF REQUIRED. CHECK FOR PLUMB, IF NOT PLUMB, CONTRACTOR WILL BE REQUIRED TO CORRECT BEFORE ACCEPTED

CURB STOP AND BOX WITH 1" EXTENSION ROD 18" SHORTER THAN THE MAXIMUM EXTENSION OF THE CURB BOX. SET TOP AT FINISH GRADE TO ELIMINATE TRIP HAZARD. USE PENTAGON PLUG STYLE LID TOP WITHIN A HARD SURFACE AREA WITHOUT EXPANSION MATERIAL AROUND CASTING



PLAN VIEW



METER PIT AND BACKFLOW PREVENTER W/ CASTING

NOT TO SCALE

Date Approved By The City Of Goshen Board Of Public Works & Safety and Approved Revisions

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**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

Drafted By: J. Hoffman
Approved By: D. Sailor, P.E.
Drawing Number: **WA-112**

The City Of Goshen
Department of Public Works & Safety
Office of Engineering

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Web: goshenindiana.org

NOTE: CONNECT TRACER WIRE TO CORPORATION STOP AND CURB STOP, ANODE NUTS ON BOTH

SERVICE SIZE	CORPORATION STOP		CURB STOP		CONNECTION TO EXISTING SERVICE	
	FORD PART NO.	AY MCDONALD PART NO.	FORD PART NO.	AY MCDONALD PART NO.	FORD PART NO.	AY MCDONALD PART NO.
1"	FB1000-4-TW-Q-NL	74701BQA	B44-444-TW-Q-NL	76100QA	B41-444-TW-Q-NL	76102QA
1.5"	FB1000-6-TW-Q-NL	74701BQA	B44-666-TW-Q-NL	76100QA	B41-666-TW-Q-NL	76102QA
2"	FB1000-7-TW-Q-NL	74701BQA	B44-777-TW-Q-NL	76100QA	B41-777-TW-Q-NL	76102QA

CURB STOP LID STYLE: GREEN SPACE - ERIE STYLE HARD SURFACE - PENTAGON PLUG STYLE

CURB BOX TO BE ORDERED 6" LONGER THAN SERVICE LINE BURY DEPTH WITH 1" EXTENSION ROD
 SMALL BASE PATTERN BOX FOR 1" CURB STOP LARGE BASE PATTERN BOX FOR 1.5" AND 2" CURB STOP.
 NO LESS THAN 6" OF ADJUSTMENT MUST BE MAINTAINED, ADD EXTENSION ROD IF REQUIRED. CHECK
 FOR PLUMB, IF NOT PLUMB, CONTRACTOR WILL BE REQUIRED TO CORRECT BEFORE ACCEPTED

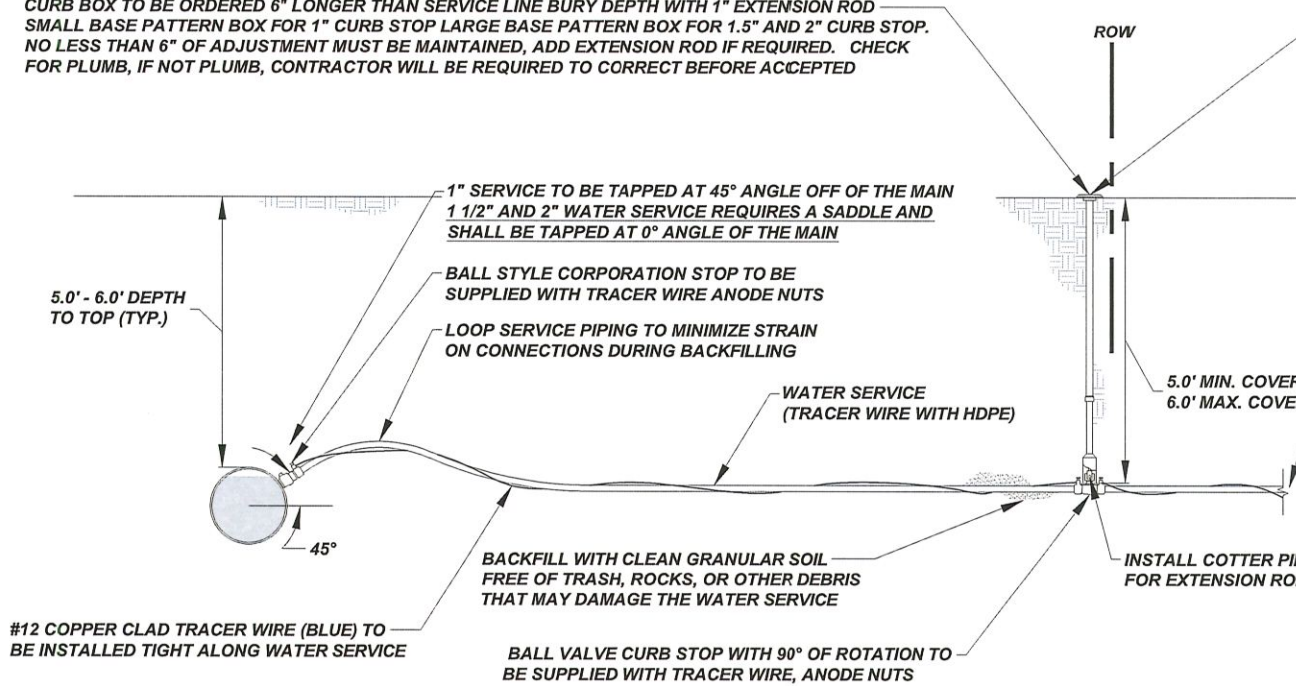
CURB STOP AND BOX WITH 1" EXTENSION ROD 18" SHORTER THAN THE MAXIMUM EXTENSION OF THE CURB BOX. SET TOP AT FINISH GRADE TO ELIMINATE TRIP HAZARD. USE PENTAGON PLUG STYLE LID TOP WITHIN A HARD SURFACE AREA WITHOUT EXPANSION MATERIAL AROUND CASTING

SPECIAL NOTE:
 IF THE EXISTING SERVICE IS LEAD, GALVANIZED, OR HAS A LEAD GOOSE NECK, NOTIFY THE CITY AS THEY MUST BE REPLACED

EXTEND WATER SERVICE TO RIGHT OF WAY, CONNECT TO EXISTING SERVICE WITH HDPE COMPRESSION TO COPPER COUPLING OR HDPE COMPRESSION TO IRON COMPRESSION TYPE ADAPTOR. SEE SPECIAL NOTE

NOTES:

1. WATER SERVICE SIZE - 1" MINIMUM. REQUIRED SERVICE SIZE WILL BE DETERMINED BY CITY ENGINEERING DEPARTMENT AS A PART OF THE PERMITTING PROCESS
2. WATER SERVICE SIZE - 1 1/2" OR 2" REQUIRES STAINLESS STEEL DOUBLE STRAP SADDLE
3. ALL SERVICE PIPE FITTINGS REQUIRE STAINLESS STEEL INSERTS
4. NO SPLICES ARE ALLOWED BETWEEN FITTINGS. THE ENTIRE LENGTH WILL REQUIRE REPLACEMENT IF DAMAGED, INCLUDING EXISTING WATER SERVICES
5. OPEN CUT INSTALLATION - TRACER WIRE (BLUE) TO BE COPPERHEAD HIGH STRENGTH 1245 OR APPROVED EQUAL
6. DIRECTIONAL BORING - TRACER WIRE (BLUE) TO BE COPPERHEAD SOLOSHOT 1245 OR APPROVED EQUAL
7. TRACER WIRE SPLICES TO BE MADE WITH SNAKEBITE OR 3M DBR CONNECTORS
7. ALLOWED WATER SERVICE MATERIAL TYPE:
 - HDPE, DR 9, CTS WITH TRACER WIRE
 - COPPER, TYPE K (NO ELBOWS ALLOWED)



1" SERVICE TO BE TAPPED AT 45° ANGLE OFF OF THE MAIN
 1 1/2" AND 2" WATER SERVICE REQUIRES A SADDLE AND SHALL BE TAPPED AT 0° ANGLE OF THE MAIN

BALL STYLE CORPORATION STOP TO BE SUPPLIED WITH TRACER WIRE ANODE NUTS
 LOOP SERVICE PIPING TO MINIMIZE STRAIN ON CONNECTIONS DURING BACKFILLING

WATER SERVICE (TRACER WIRE WITH HDPE)

BACKFILL WITH CLEAN GRANULAR SOIL FREE OF TRASH, ROCKS, OR OTHER DEBRIS THAT MAY DAMAGE THE WATER SERVICE

BALL VALVE CURB STOP WITH 90° OF ROTATION TO BE SUPPLIED WITH TRACER WIRE, ANODE NUTS

#12 COPPER CLAD TRACER WIRE (BLUE) TO BE INSTALLED TIGHT ALONG WATER SERVICE

1" TO 2" COMMERCIAL/RESIDENTIAL WATER SERVICE

NOT TO SCALE

The City Of Goshen
 Department of Public Works & Safety
 Office of Engineering

204 East Jefferson, Suite 1 Street, Goshen, Indiana 46528
 Phone: 574-534-2201 Fax: 574-533-8626
 Web: goshenindiana.org

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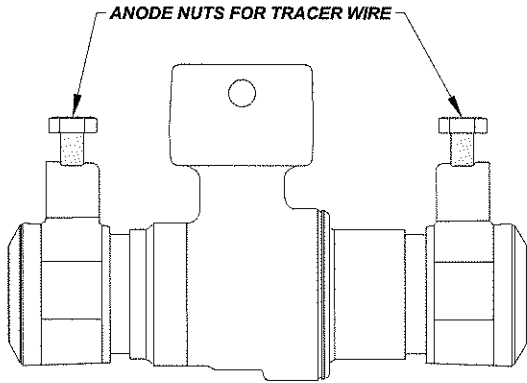
CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman
 Approved By: D. Sailor, P.E.
 Drawing Number: **WA-201**

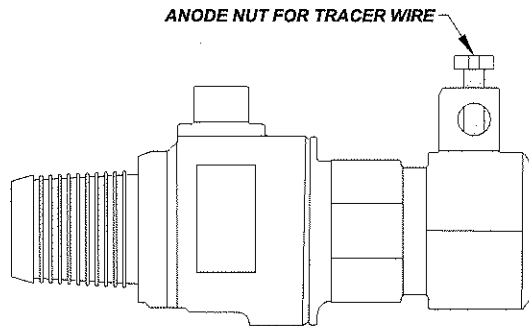
NOTE: CONNECT TRACER WIRE TO CORPORATION STOP AND CURB STOP, ANODE NUTS ON BOTH

SERVICE SIZE	CORPORATION STOP		CURB STOP		CONNECTION TO EXISTING SERVICE	
	FORD PART NO.	AY MCDONALD PART NO.	FORD PART NO.	AY MCDONALD PART NO.	FORD PART NO.	AY MCDONALD PART NO.
1"	FB1000-4-TW-Q-NL	74701BQA	B44-444-TW-Q-NL	76100QA	B41-444-TW-Q-NL	76102QA
1.5"	FB1000-6-TW-Q-NL	74701BQA	B44-666-TW-Q-NL	76100QA	B41-666-TW-Q-NL	76102QA
2"	FB1000-7-TW-Q-NL	74701BQA	B44-777-TW-Q-NL	76100QA	B41-777-TW-Q-NL	76102QA

CURB STOP LID STYLE: GREEN SPACE - ERIE STYLE HARD SURFACE - PENTAGON PLUG STYLE



CURB STOP WITH ANODE NUT



CORPORATION STOP WITH ANODE NUT

CORPORATION STOP AND CURB STOP

NOT TO SCALE

NOTES:

1. RESIDENTIAL SERVICE CONNECTIONS TO BE 1"
2. COMMERCIAL SERVICE CONNECTIONS TO BE 1 1/2" OR 2" WITH SADDLE (ENGINEER TO DETERMINE)
3. ALL HDPE SERVICE PIPE CONNECTION POINTS REQUIRE STAINLESS STEEL INSERTS
4. TRACER WIRE TO BE COPPERHEAD, 12 AWG, 452 POUNDS BREAK LOAD, OPEN CUT
5. TRACER WIRE TO BE COPPERHEAD, 12 AWG, 1,150 POUNDS BREAK LOAD, DIRECTIONAL BORE. 2 WIRES REQUIRED
6. WIRE SPLICES TO BE MADE WITH SNAKEBITE OR 3M DBR CONNECTORS

The City Of Goshen
 Department of Public Works & Safety
 Office of Engineering

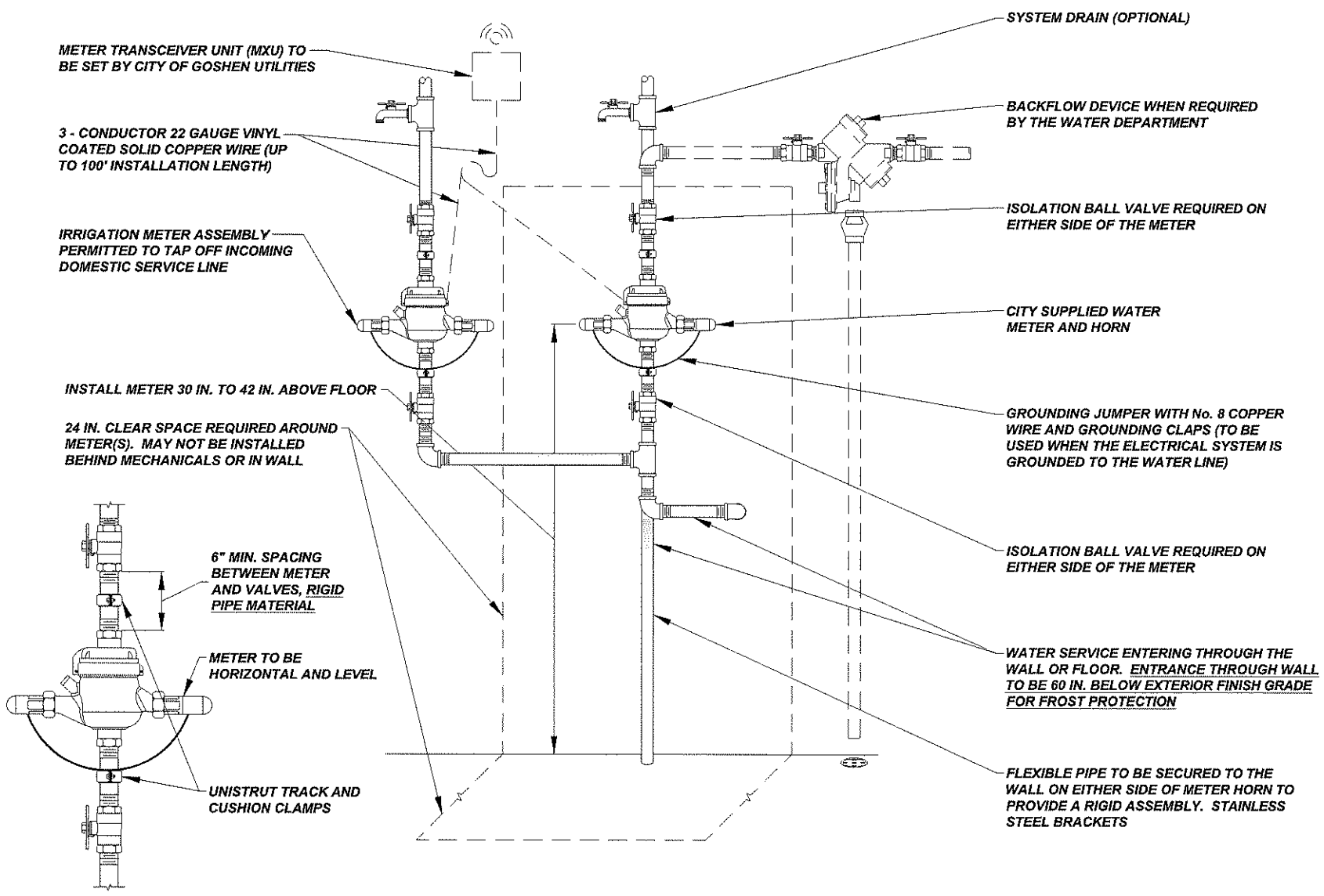
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-202	



5/8", 3/4" & 1" WATER DOMESTIC METER

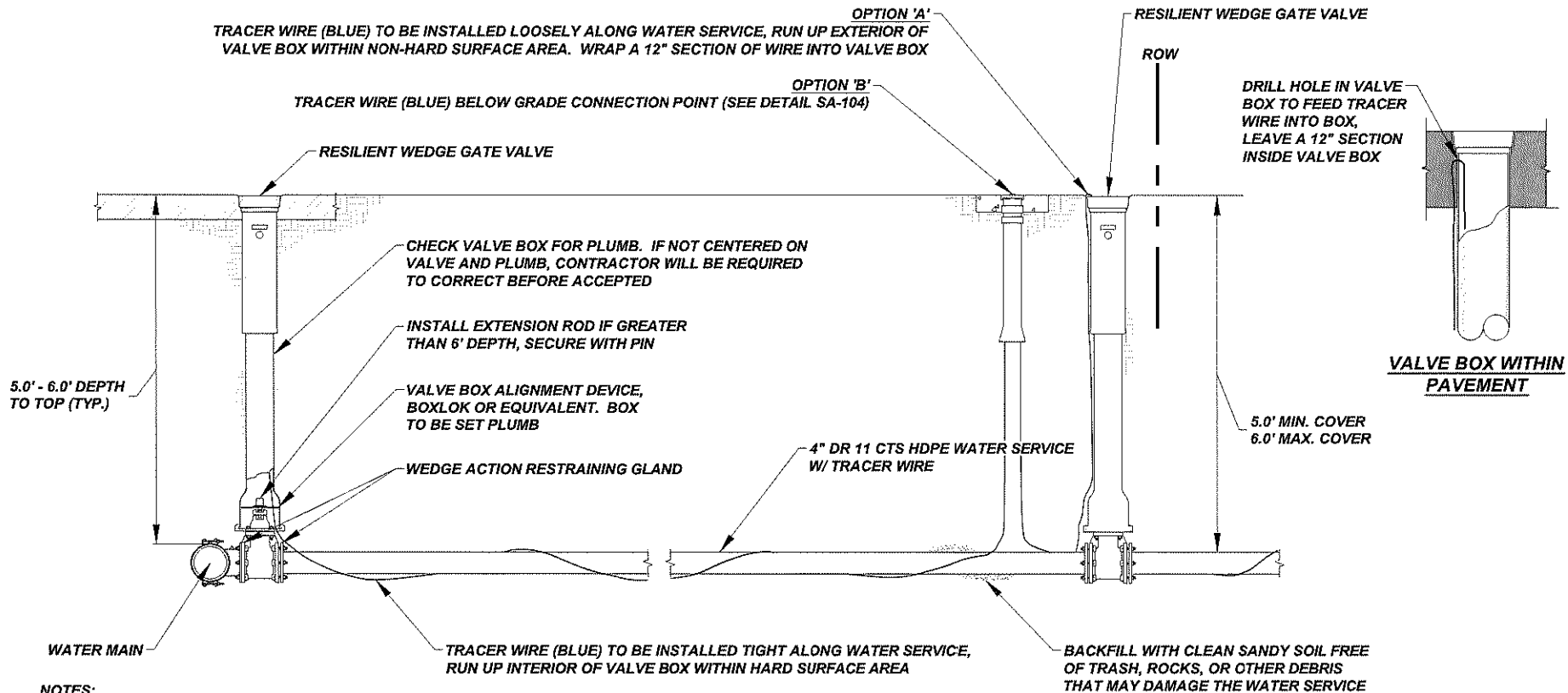
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**CITY OF GOSHEN, INDIANA
 STANDARD DETAIL**

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-203	



NOTES:

1. OPEN CUT INSTALLATION - TRACER WIRE (BLUE) TO BE COPPERHEAD HIGH STRENGTH 1245 OR APPROVED EQUAL
2. DIRECTIONAL BORING - TRACER WIRE (BLUE) TO BE COPPERHEAD SOLOSHOT 1245 OR APPROVED EQUAL
3. WIRE SPLICES TO BE MADE WITH SNAKEBITE OR 3M DBR CONNECTORS
4. FUSED MECHANICAL FITTINGS REQUIRED
5. LIVE TAP FOR WATER MAINS, LESS THAN OR EQUAL TO 12" DIA., TO BE INSTALLED BY CITY. MATERIAL SUPPLIED BY CONTRACTOR. CONTRACTOR TO EXPOSE WATER MAIN AND PREPARE THE AREA FOR CITY TAP EQUIPMENT (SEE DETAIL WA-101)

4" COMMERCIAL HDPE WATER SERVICE

NOT TO SCALE

The City Of Goshen
 Department of Public Works & Safety
 Office of Engineering

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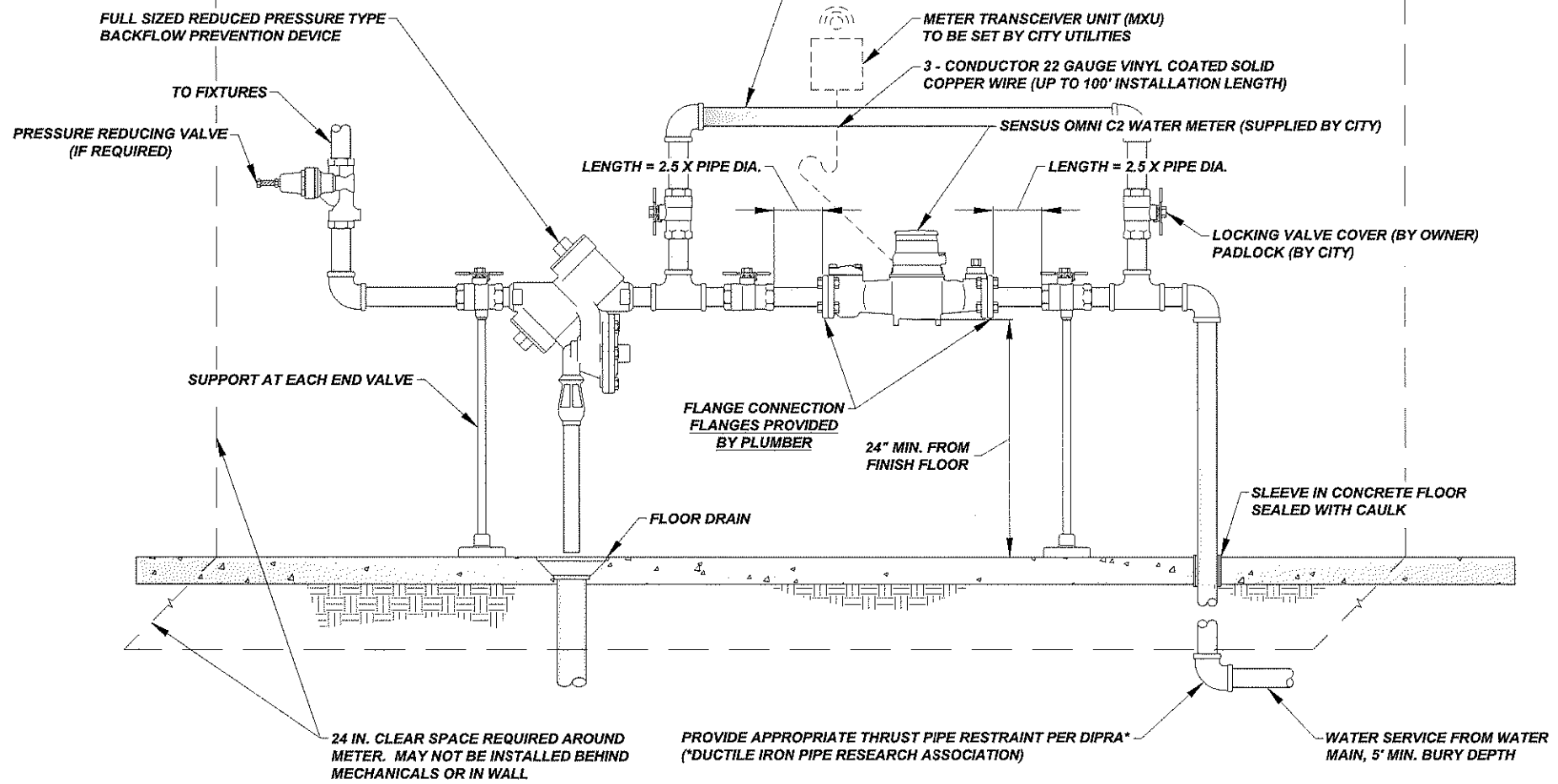
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**CITY OF GOSHEN, INDIANA
 STANDARD DETAIL**

Drafted By: J. Hoffman	Approved By: D. Saffor, P.E.
Drawing Number: WA-204	

METER BYPASS ALLOWED IN SITUATION WERE THE WATER SUPPLY CANNOT BE INTERRUPTED, WATER SUPERINTENDENT TO DETERMINE WHICH SITE QUALIFIES



COMMERCIAL 1 1/2" OR LARGER DIA. WATER METER WITH BACKFLOW PREVENTER

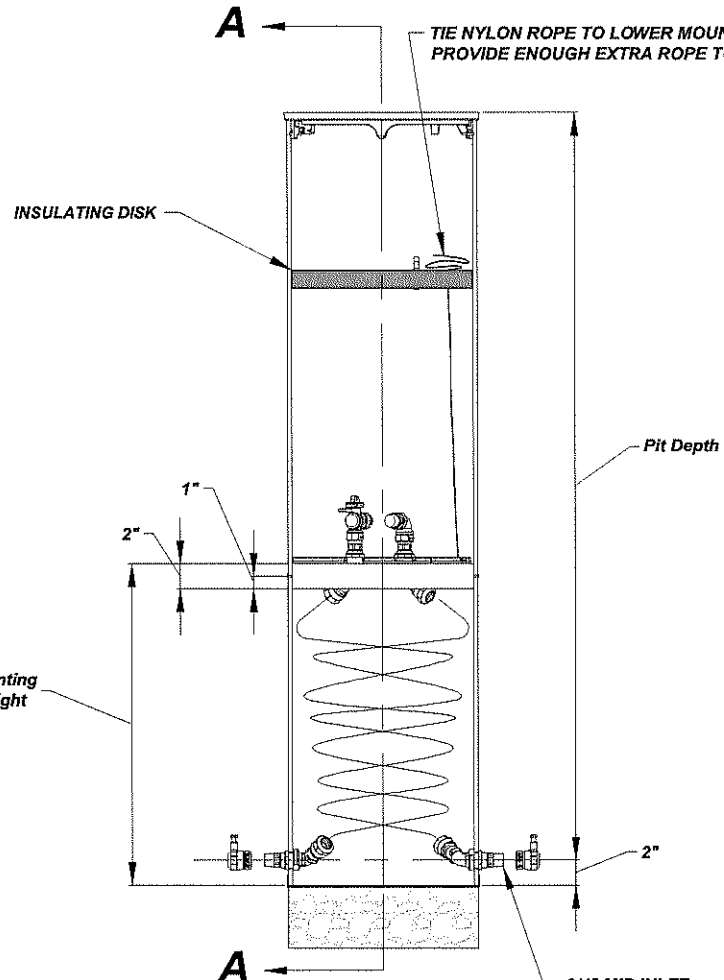
NOT TO SCALE

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

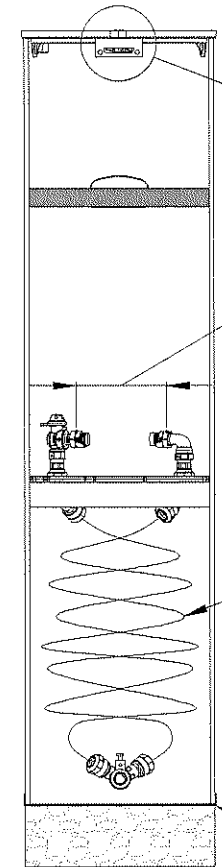
Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-205	



TIE NYLON ROPE TO LOWER MOUNTING BRACKET AND THRU INSULATION DISC. PROVIDE ENOUGH EXTRA ROPE TO PULL BRACKET UP FROM OUTSIDE THE PIT

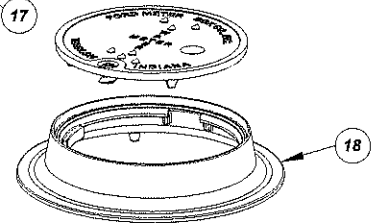
BRACKET MUST BE INSTALLED FLUSH WITH TOP TILE
MUST BE ALIGNED WITH INLET/OUTLET CENTERLINE

PIT DEPTH	LOWER MOUNTING BRACKET HEIGHT
36"	14"
42"	20"
48"	26"
54"	26"
60"	26"
66"	26"
72"	26"
78"	26"
84"	26"
90"	26"
96"	26"



LID LOCKING BRACKET

7 1/2" SPACE FOR 5/8" METER



CASTING FOR HARD SURFACE AREAS

Detail and information from The Ford Meter Box Company, Inc., an equivalent product may be provided to the City of Goshen for approval

STRUCTURE DETAIL			
PIT DIAMETER AND DEPTH	LOWER MOUNTING BRACKET HEIGHT	MANUFACTURER	CATALOG NUMBER
15" X 60"	26"	THE FORD METER BOX, INC.	PFCBL-144-15-60-NA-TW-QNL

* The angle ball valve is a one way directional valve designed for the inlet side of the meter and should not be used as a customer shut-off on the customer side of the meter

The City Of Goshen
Department of Public Works & Safety
Office of Engineering

DOMESTIC WATER METER PIT

NOT TO SCALE

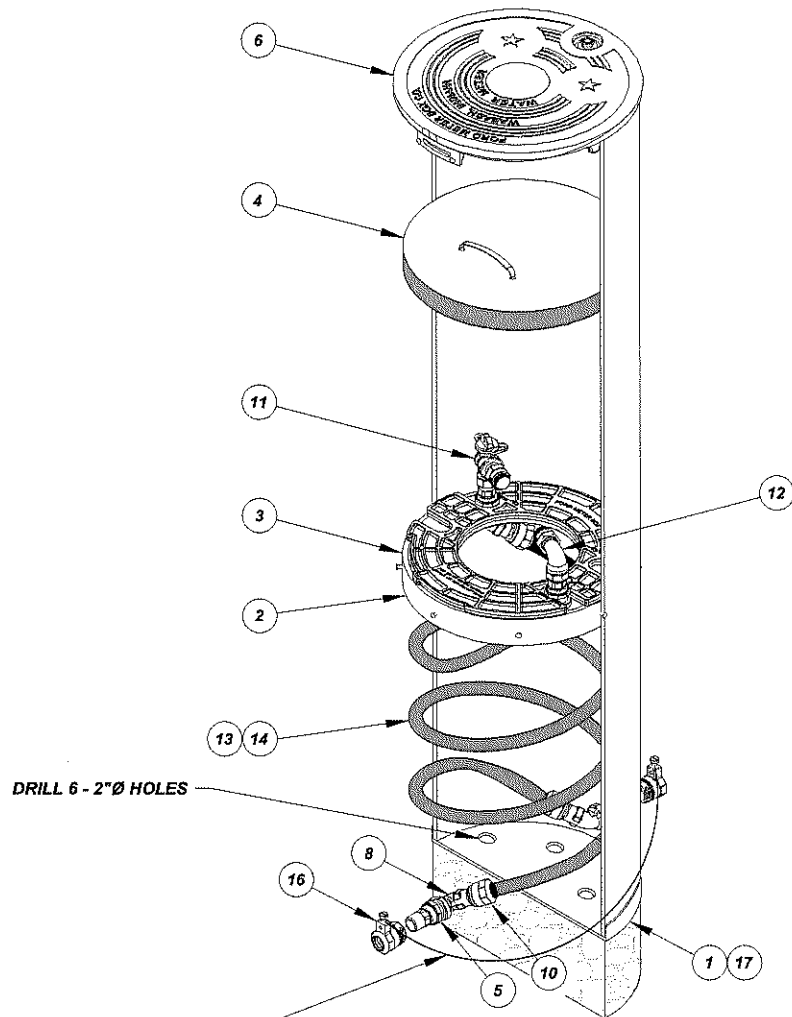
PAGE 1 OF 2

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman
Approved By: D. Sailor, P.E.
Drawing Number: **WA-206**



DRILL 6 - 2"Ø HOLES

INSTALL TRACER WIRE
FROM SET SCREW TO SET
SCREW ALONG EXTERIOR

SECTION A-A

METER PIT PART LIST			
ITEM NO.	DESCRIPTION	QUANTITY	PART NUMBER
1	15" TILE (0.300 THICK WALL)	1	300372
2	LOWER PLATE STOP	1	CPS-INRSTOP-15-2
3	MOUNTING PLATE	1	PFCPLATE-300374
* 4	INSULATING DISK	1	CCID-15
5	NUT	2	YLN-2-001
* 6	LOCKING LID	1	PPSC-15-L-T
7	LID LOCKING BRACKET	2	PFCBRACKET-300373
8	60 DEGREE END PIECE	2	PSIOL84-33-60-002-NL
9	INSERT, 3/4" CTS #51 (NOT SHOWN)	4	INSERT-51
10	QUICK JOINT NUT	2	QJN4-3
11	70 DEGREE INLET ASSEMBLY	1	PC1-B-95663-003-NL
12	70 DEGREE OUTLET ASSEMBLY	1	PC1-L-95663-041-NL
13	3/4" COIL TUBE (OUTLET)	1	COILTUBE-300671
14	3/4" COIL TUBE (INLET)	1	COILTUBE-300675
15	METER GASKET	2	GT-108
16	COUPLING	2	C14-33-TW-Q-NL
17	SOLID PLASTIC BOTTOM PLATE	1	PPSBP-15-P
CASTING FOR HARD SURFACE AREAS			
* 18	15" FRAME/LID ASSEMBLY, LOCKING	1	A51H-T

* ORDERED SEPARATELY ° SHIPPED UNASSEMBLED

NOTES:

- ALL BRASS THAT COMES IN CONTACT WITH POTABLE WATER CONFORMS TO AWWA STANDARD C800 (ASTM B584, UNS C89833)
- LIGHTWEIGHT BODY IS MADE FROM 15" PVC TILE, PER ASTM D 2241
- 3/4" HDPE COIL TUBING, PER ASTM D 2737, SDR 9 CTS SIZED
- COIL COMPLIES WITH AWWA C901
- COIL IS NSF STANDARD 61 APPROVED
- COIL RATED AT 200 PSIG WORKING PRESSURE
- *FLAT CAST IRON LOCKING COVER, PER ASTM A48, CLASS 25 (PART NUMBER: PPSC-15-L-T, ORDERED SEPARATELY)

The City Of Goshen
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Office of Engineering

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

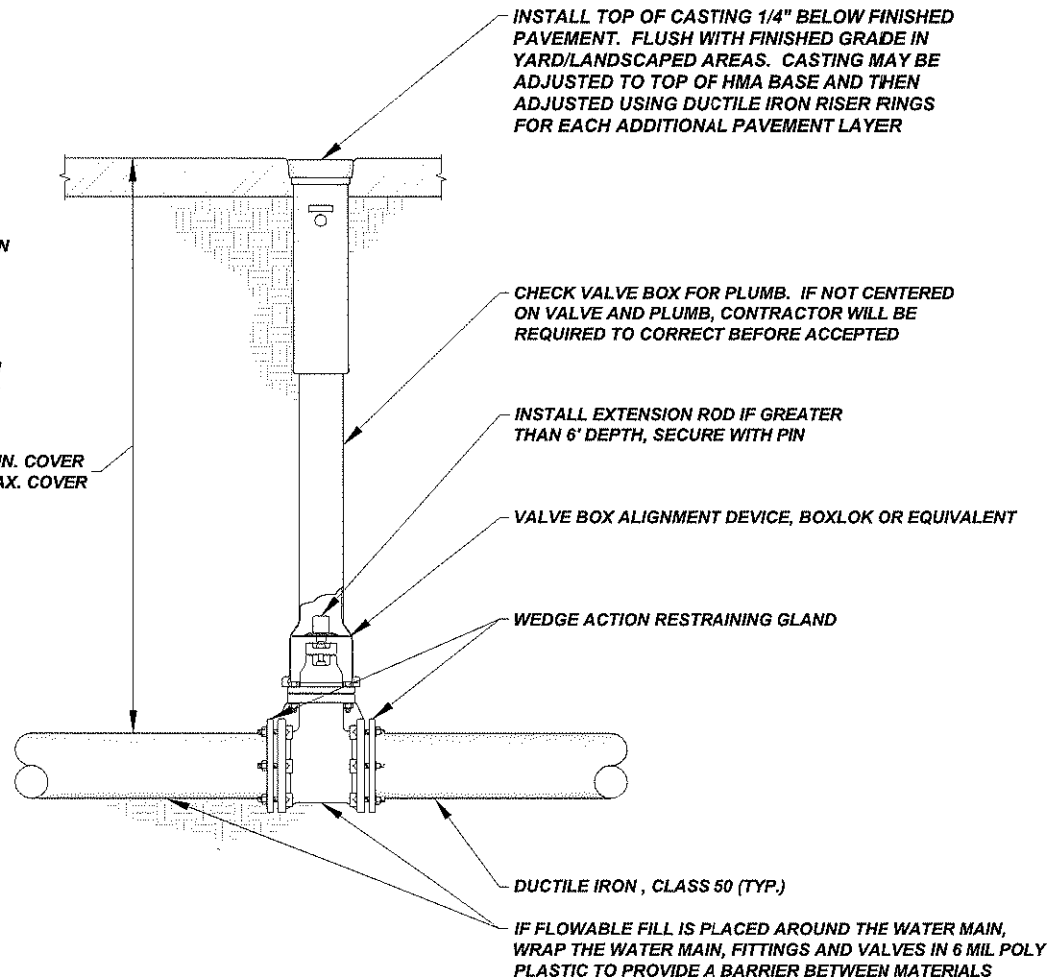
PAGE 2 OF 2

Drafted By: J. Hoffman
Approved By: D. Sailor, P.E.
Drawing Number: **WA-206**

NOTES:

1. USE RESILIENT WEDGE GATE VALVES ON WATER MAINS UNDER 12" IN DIAMETER
2. MATERIAL TO BE DUCTILE IRON
3. WATER VALVES GREATER THAN 6' IN DEPTH REQUIRE A 1" SHAFT EXTENSION WITH 2" TOP NUT, CENTERING RING AND BOTTOM SET SCREW OR PIN

5.0' MIN. COVER
6.0' MAX. COVER



RESILIENT WEDGE GATE VALVE

NOT TO SCALE

The City Of Goshen
Department of Public Works & Safety
Office of Engineering

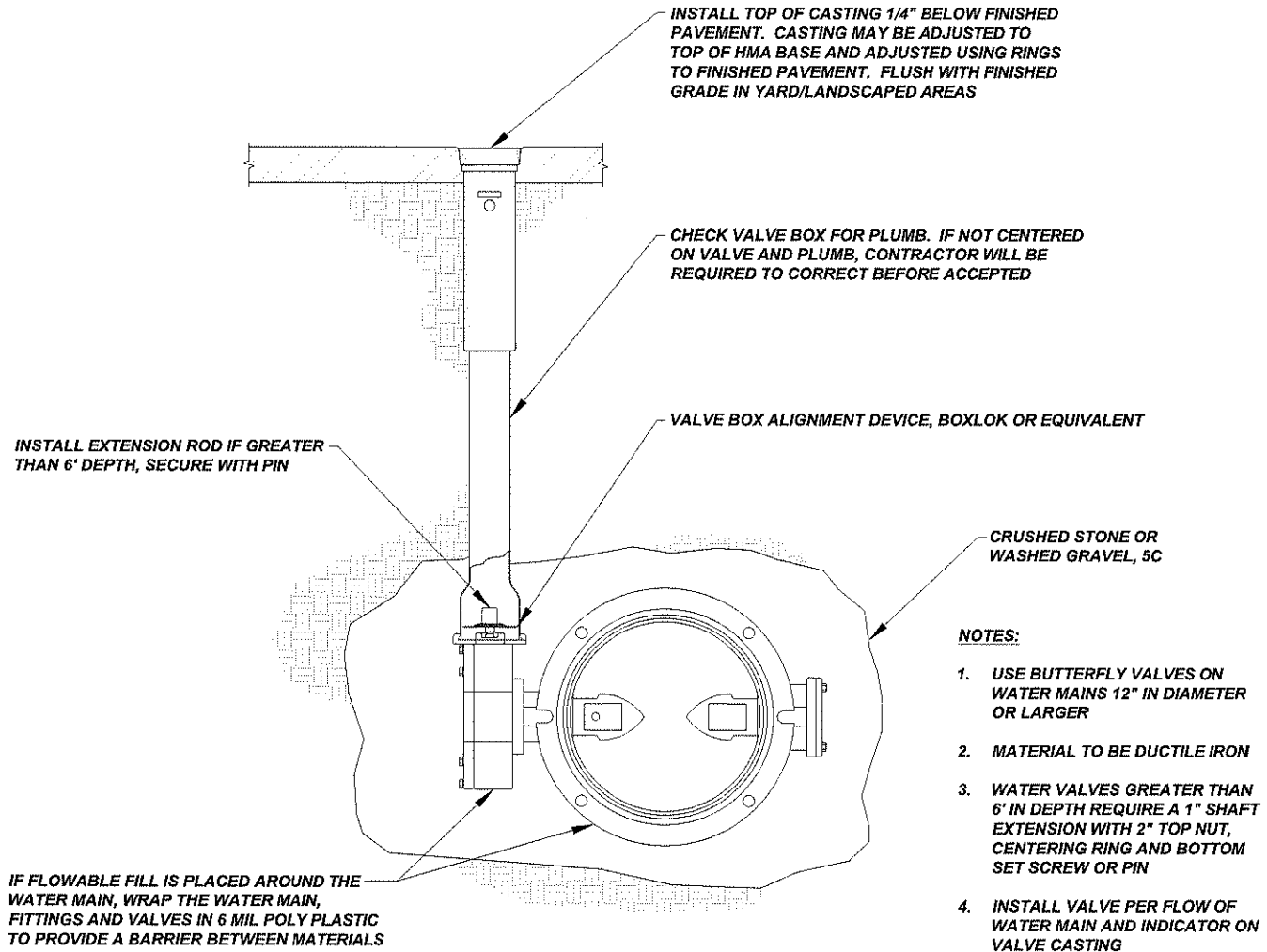
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-301	



- NOTES:**
1. USE BUTTERFLY VALVES ON WATER MAINS 12" IN DIAMETER OR LARGER
 2. MATERIAL TO BE DUCTILE IRON
 3. WATER VALVES GREATER THAN 6' IN DEPTH REQUIRE A 1" SHAFT EXTENSION WITH 2" TOP NUT, CENTERING RING AND BOTTOM SET SCREW OR PIN
 4. INSTALL VALVE PER FLOW OF WATER MAIN AND INDICATOR ON VALVE CASTING

BUTTERFLY VALVE

NOT TO SCALE

The City Of Goshen
 Department of Public Works & Safety
 Office of Engineering

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-302	

KENNEDY K-81, OR APPROVED EQUAL, 5" HYDRANT WITH 1 1/4" SQUARE OPERATION NUT, NO CHAINS ON CAPS. DAMAGED PAINT MUST BE CORRECTED PRIOR TO ACCEPTANCE BY CITY OF GOSHEN

BREAKAWAY FLANGE SET MINIMUM 2" TO MAXIMUM 6" ABOVE FINISH GRADE, USE RISER AS REQUIRED

FIRE HYDRANT MUST BE STRAIGHT AND PLUMB. IF NOT, CONTRACTOR WILL BE REQUIRED TO CORRECT BEFORE ACCEPTED

1 CU. YD. WASHED CRUSHED STONE OR WASHED GRAVEL, 5C MIN. 6" ABOVE WEEP HOLE

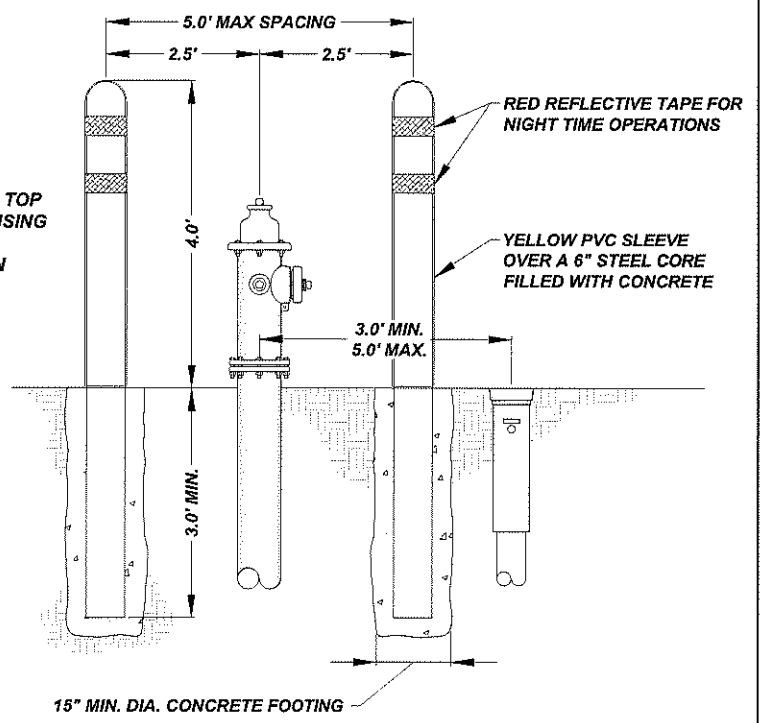
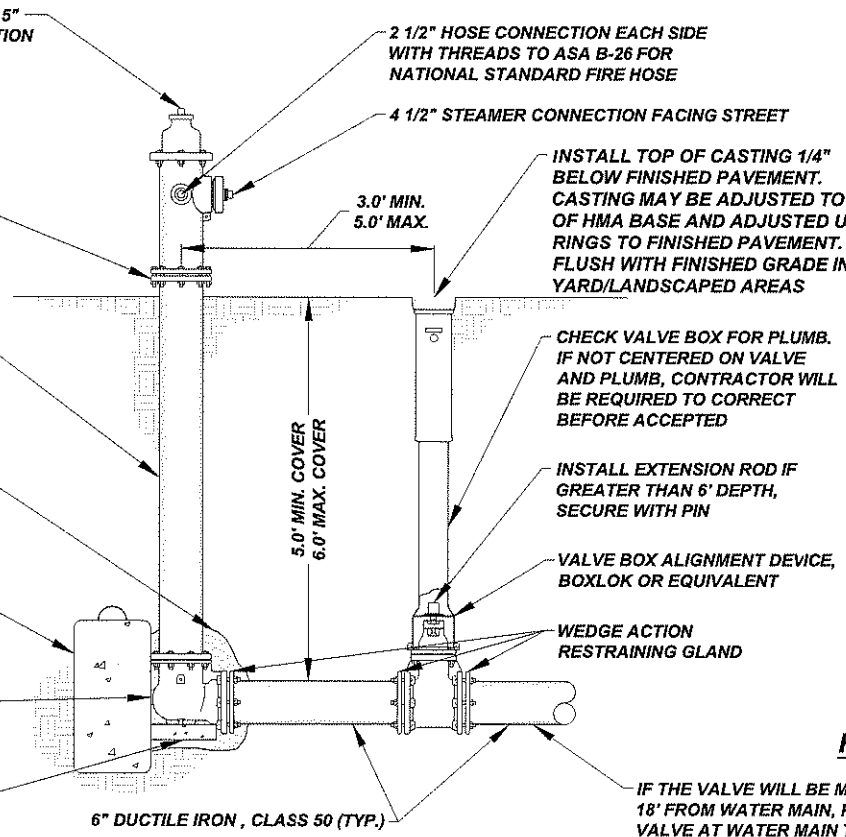
PRECAST CONCRETE THRUST BLOCK BEHIND HYDRANT AND TEE AT WATER MAIN

PLUG HYDRANT DRAIN IF BELOW ROUND WATER TABLE

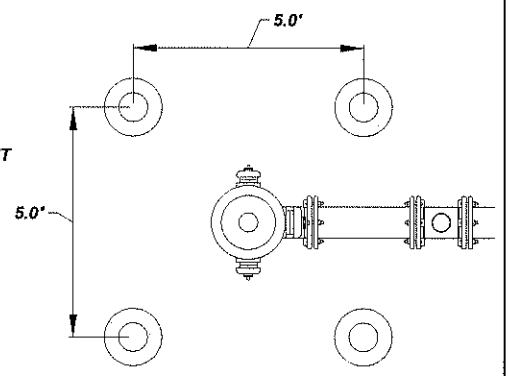
12" X 12" X 2" CONCRETE BLOCK

NOTES:

1. FIRE HYDRANT SHALL BE MIN. 1.0' FROM PROPERTY LINE, MIN. 3.0' FROM BACK OF CURB AND/OR MIN. 2.0' FROM SIDEWALK
2. FIRE HYDRANT ASSEMBLY TO INCLUDE TEE AT WATER MAIN, ALL CONNECTING PIPE AND FITTINGS, AUXILIARY GATE VALVE AND BOX AND FIRE HYDRANT
3. GUARD POSTS ARE TO PROTECT A FIRE HYDRANT IN AREAS WHERE VEHICULAR OR EQUIPMENT TRAFFIC MAY BE ENCOUNTERED. REQUIREMENT DETERMINED BY CITY OF GOSHEN
4. NO STRUCTURES, POLES, SIGN POSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN 4.0' OF FIRE HYDRANT
5. PRIVATE HYDRANT COLOR = RED
PUBLIC HYDRANT COLOR = YELLOW
6. ACCEPTED FIRE HYDRANTS: CLOW MEDALLION AND KENNEDY K81D
7. SEE DETAILS RD-206 AND RD-207 FOR FIRE HYDRANT LOCATION



FIRE HYDRANT ASSEMBLY WITH BOLLARDS



PLAN VIEW

The City Of Goshen
Department of Public Works & Safety
Office of Engineering

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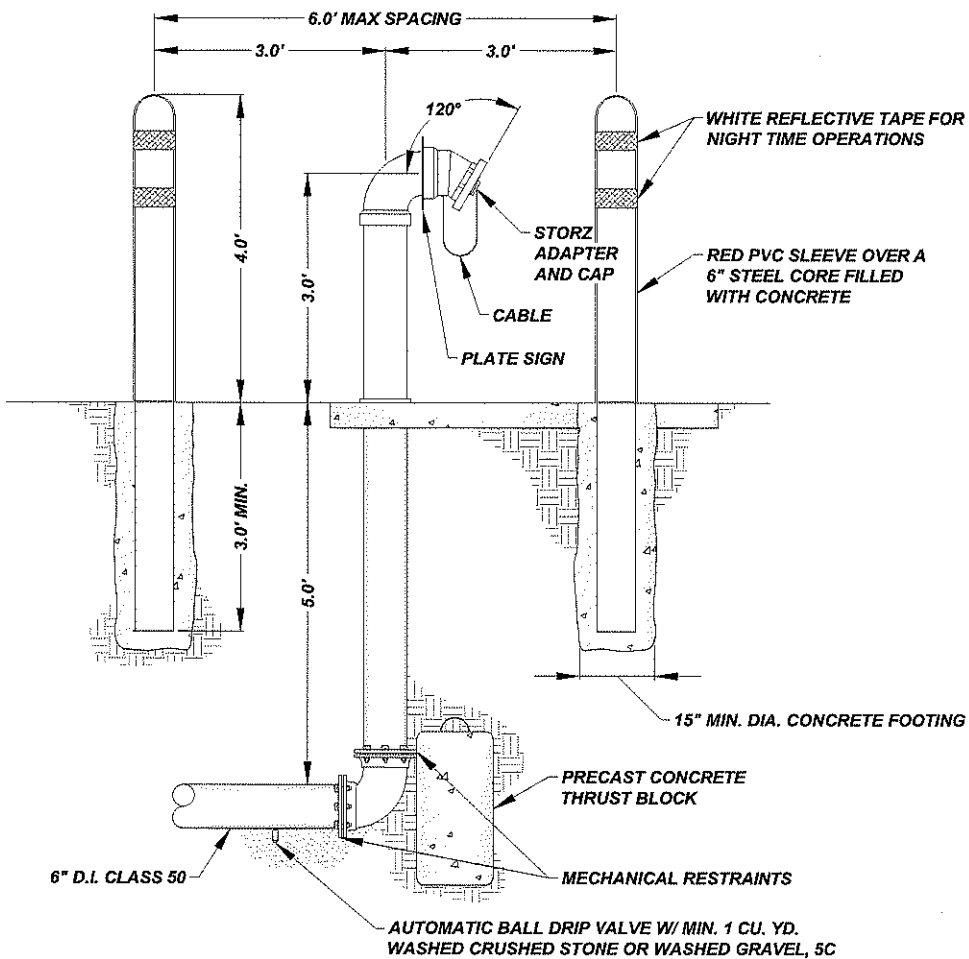
FIRE HYDRANT ASSEMBLY

NOT TO SCALE

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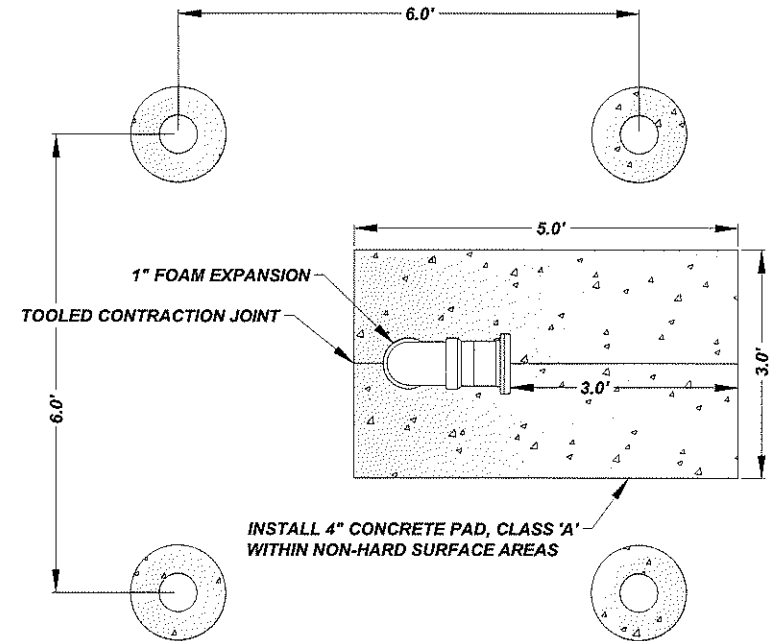
**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

Drafted By: J. Hoffman
Approved By: D. Saitor, P.E.
Drawing Number: **WA-401**



NOTE:

1. TYPICALLY, ONLY TWO BOLLARDS LOCATED AT THE FRONT ARE REQUIRED. FOUR BOLLARDS REQUIRED IF THE LOCATION WARRANTS (WITHIN PARKING AREAS WITH NO CURB AND/OR VEHICLES CAN MANEUVER AROUND THE FDC). CITY TO DETERMINE WHEN FOUR BOLLARDS ARE REQUIRED



PLAN VIEW

NOTES:

1. ALL EXPOSED PIPING SHALL BE GALVANIZED
2. 5" STORZ ADAPTER AND CAP
3. 10" X 10" RED PLATE SIGN WITH WHITE LETTERING 'AUTO SPKR FIRE DEPT. CONNECTION' CONFORMING WITH NFPA REQUIREMENTS SECTION 912 FOR THE CLEAR IDENTIFICATION OF STANDPIPE CONNECTIONS

REMOTE FDC ASSEMBLY

NOT TO SCALE

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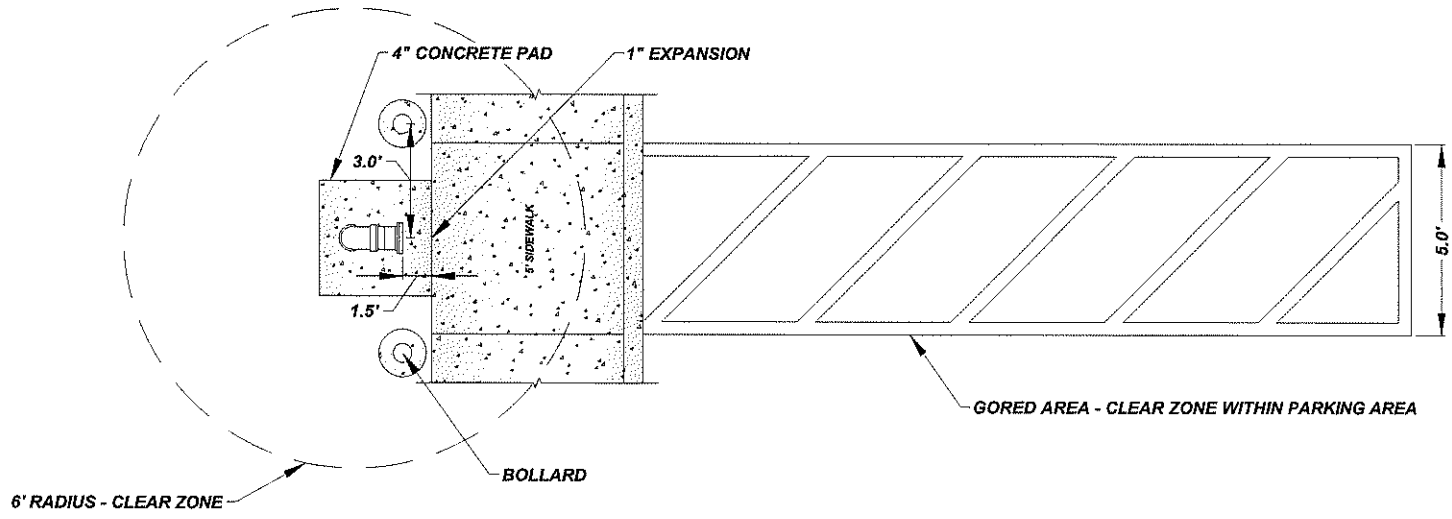
**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

PAGE 1 OF 2

Drafted By: J. Hoffman
Approved By: D. Sailor, P.E.

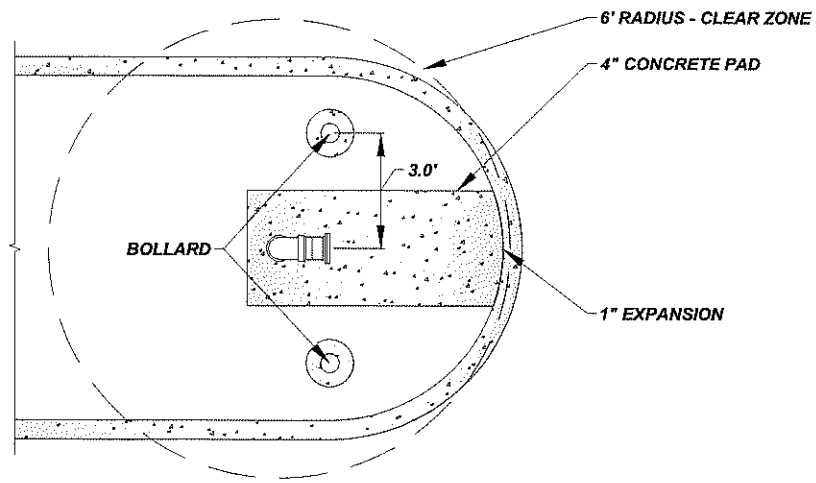
Drawing Number:

WA-402



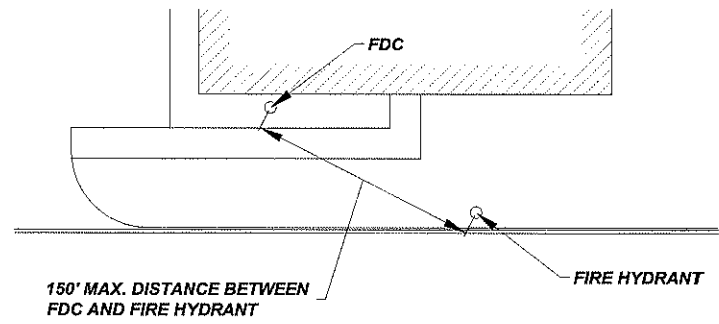
REMOTE FDC AT PARKING LOT

NOT TO SCALE



REMOTE FDC IN PARKING LOT ISLAND

NOT TO SCALE



NOTE:

1. IF THE FDC CANNOT BE POSITIONED WITHIN 150' OF A FIRE HYDRANT, AN ADDITIONAL FIRE HYDRANT WILL BE REQUIRED TO MEET THE REQUIREMENT

REMOTE FDC LOCATION

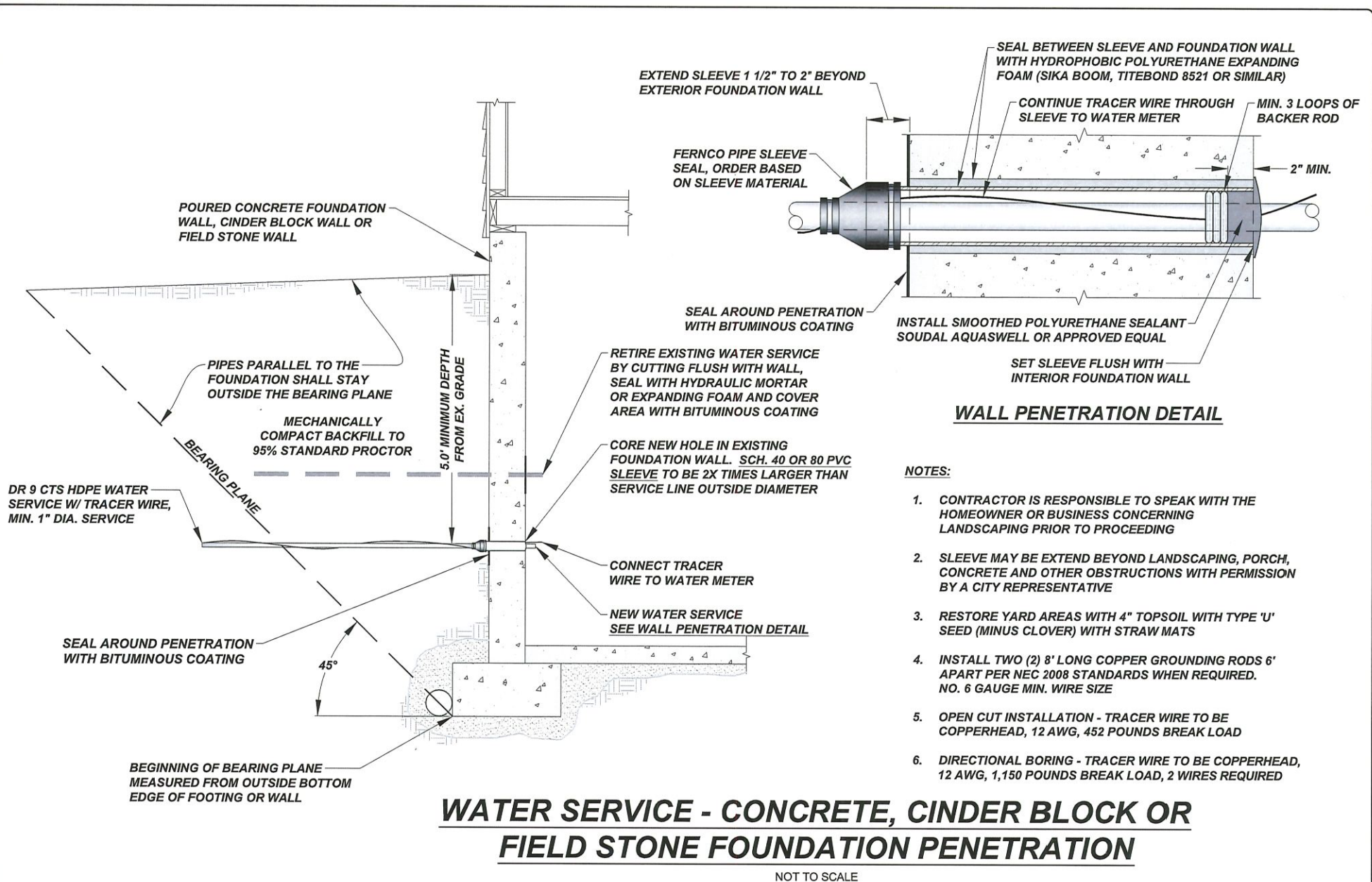
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

PAGE 2 OF 2
 Drafted By: J. Hoffman
 Approved By: D. Sailor, P.E.
 Drawing Number: **WA-402**



WALL PENETRATION DETAIL

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO SPEAK WITH THE HOMEOWNER OR BUSINESS CONCERNING LANDSCAPING PRIOR TO PROCEEDING
2. SLEEVE MAY BE EXTEND BEYOND LANDSCAPING, PORCH, CONCRETE AND OTHER OBSTRUCTIONS WITH PERMISSION BY A CITY REPRESENTATIVE
3. RESTORE YARD AREAS WITH 4" TOPSOIL WITH TYPE 'U' SEED (MINUS CLOVER) WITH STRAW MATS
4. INSTALL TWO (2) 8' LONG COPPER GROUNDING RODS 6' APART PER NEC 2008 STANDARDS WHEN REQUIRED. NO. 6 GAUGE MIN. WIRE SIZE
5. OPEN CUT INSTALLATION - TRACER WIRE TO BE COPPERHEAD, 12 AWG, 452 POUNDS BREAK LOAD
6. DIRECTIONAL BORING - TRACER WIRE TO BE COPPERHEAD, 12 AWG, 1,150 POUNDS BREAK LOAD, 2 WIRES REQUIRED

WATER SERVICE - CONCRETE, CINDER BLOCK OR FIELD STONE FOUNDATION PENETRATION

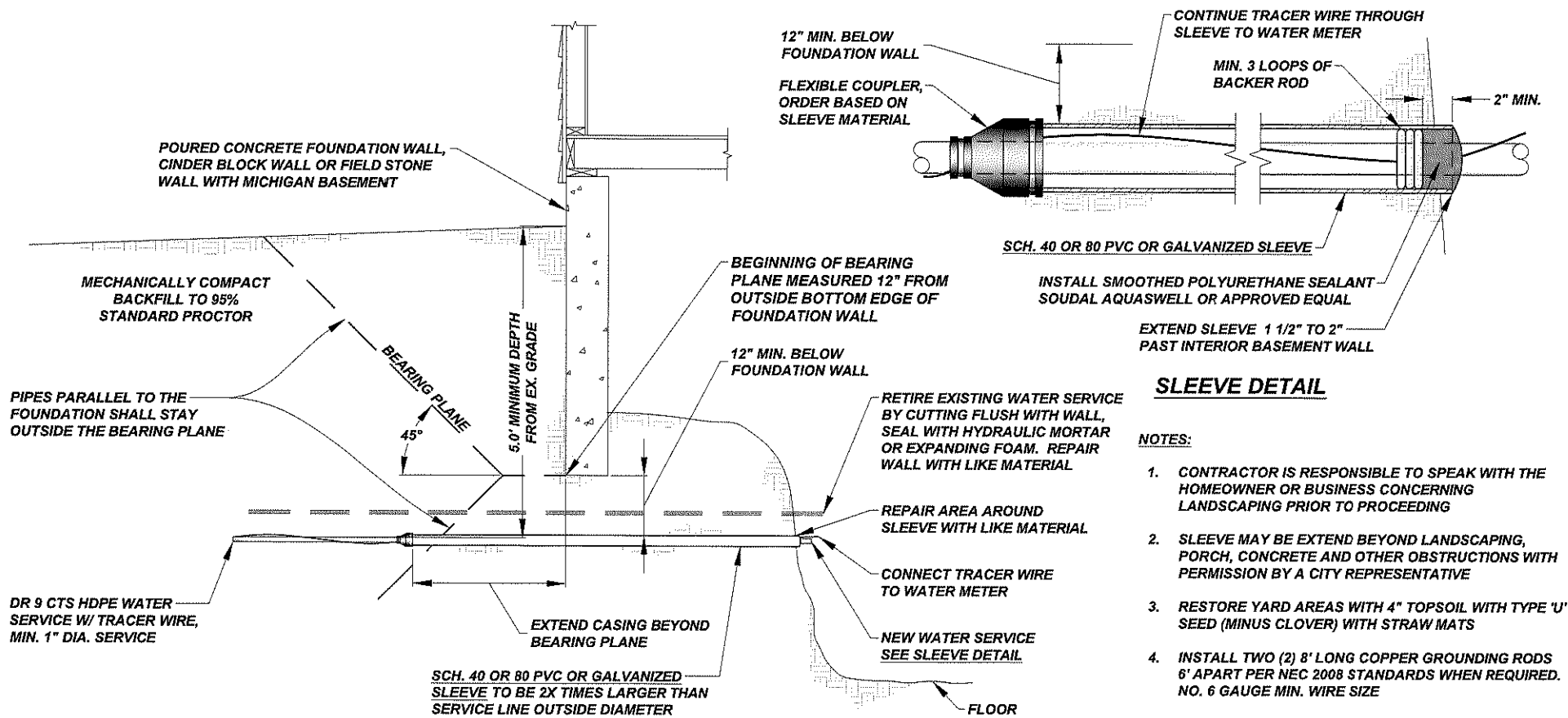
NOT TO SCALE

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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman	Approved By: D. Sailor, P.E.
Drawing Number: WA-501	



SLEEVE DETAIL

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO SPEAK WITH THE HOMEOWNER OR BUSINESS CONCERNING LANDSCAPING PRIOR TO PROCEEDING
2. SLEEVE MAY BE EXTEND BEYOND LANDSCAPING, PORCH, CONCRETE AND OTHER OBSTRUCTIONS WITH PERMISSION BY A CITY REPRESENTATIVE
3. RESTORE YARD AREAS WITH 4" TOPSOIL WITH TYPE 'U' SEED (MINUS CLOVER) WITH STRAW MATS
4. INSTALL TWO (2) 8' LONG COPPER GROUNDING RODS 6' APART PER NEC 2008 STANDARDS WHEN REQUIRED. NO. 6 GAUGE MIN. WIRE SIZE
5. OPEN CUT INSTALLATION - TRACER WIRE TO BE COPPERHEAD, 12 AWG, 452 POUNDS BREAK LOAD
6. DIRECTIONAL BORING - TRACER WIRE TO BE COPPERHEAD, 12 AWG, 1,150 POUNDS BREAK LOAD, 2 WIRES REQUIRED

WATER SERVICE - MICHIGAN BASEMENT PENETRATION

NOT TO SCALE

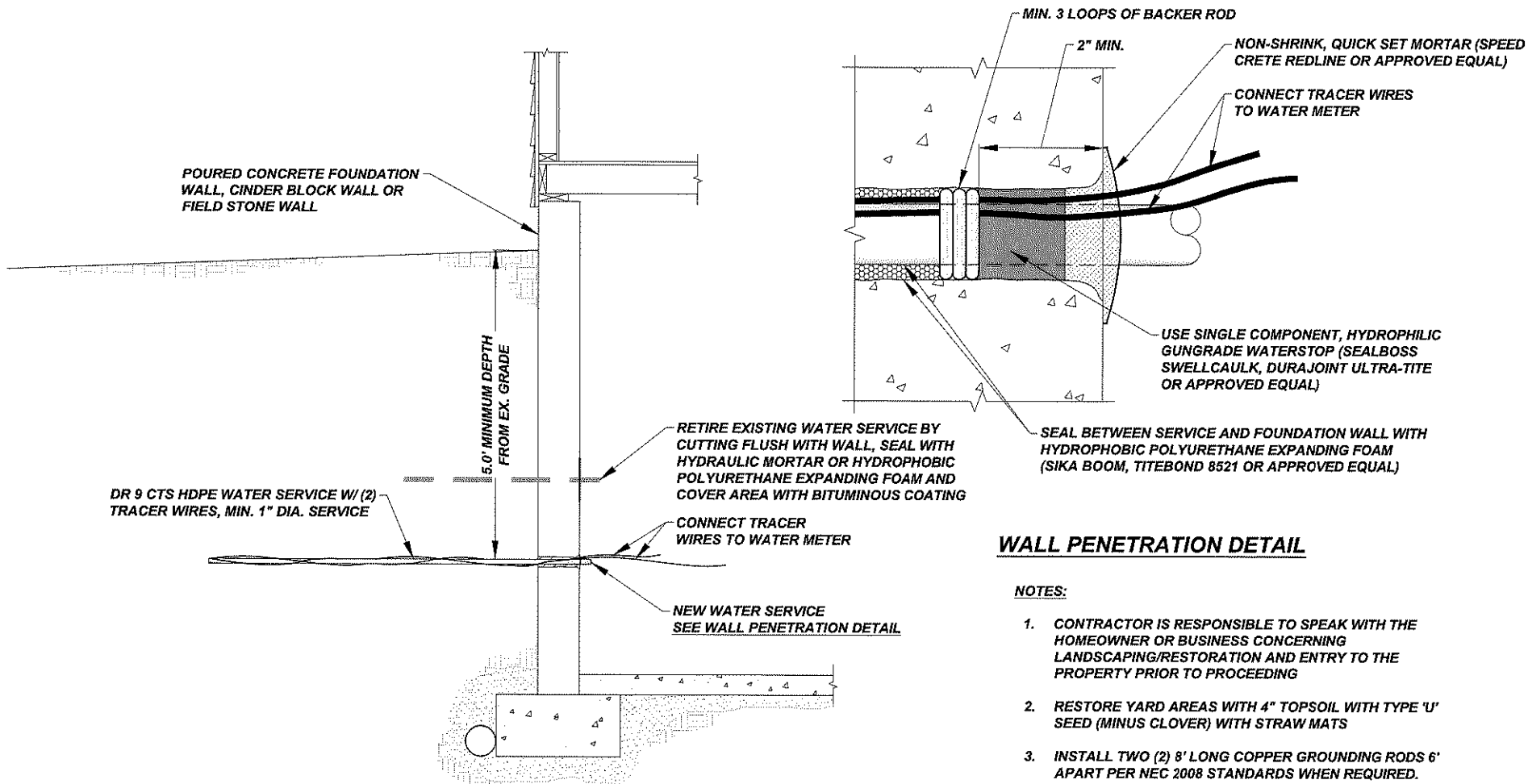
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CITY OF GOSHEN, INDIANA
STANDARD DETAIL

Drafted By: J. Hoffman
 Approved By: D. Sailor, P.E.
 Drawing Number: **WA-502**



WALL PENETRATION DETAIL

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO SPEAK WITH THE HOMEOWNER OR BUSINESS CONCERNING LANDSCAPING/RESTORATION AND ENTRY TO THE PROPERTY PRIOR TO PROCEEDING
2. RESTORE YARD AREAS WITH 4" TOPSOIL WITH TYPE 'U' SEED (MINUS CLOVER) WITH STRAW MATS
3. INSTALL TWO (2) 8' LONG COPPER GROUNDING RODS 6' APART PER NEC 2008 STANDARDS WHEN REQUIRED. NO. 6 GAUGE MIN. WIRE SIZE
4. DIRECTIONAL BORING - (2) TRACER WIRES TO BE COPPERHEAD, 12 AWG, 1,150 POUNDS BREAK LOAD, 2 WIRES REQUIRED

DIRECTIONAL BORED WATER SERVICE - CONCRETE, CINDER BLOCK OR FIELD STONE FOUNDATION PENETRATION

NOT TO SCALE

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**CITY OF GOSHEN, INDIANA
STANDARD DETAIL**

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