City of Hermantown, Minnesota

Public Works Department

Standard Specifications for Construction

2022 Edition

APPENDIX A

Standard Detail Drawings

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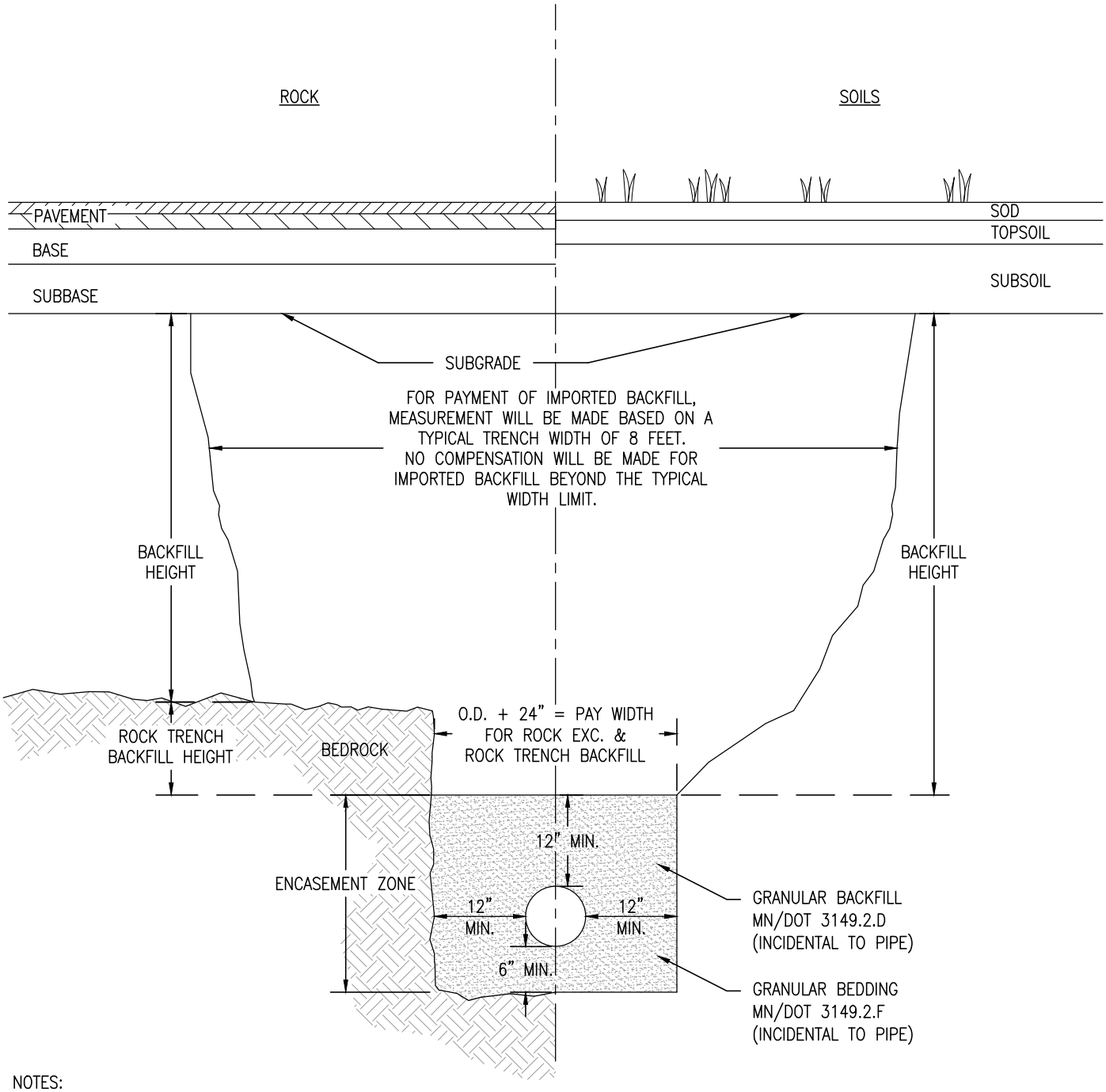
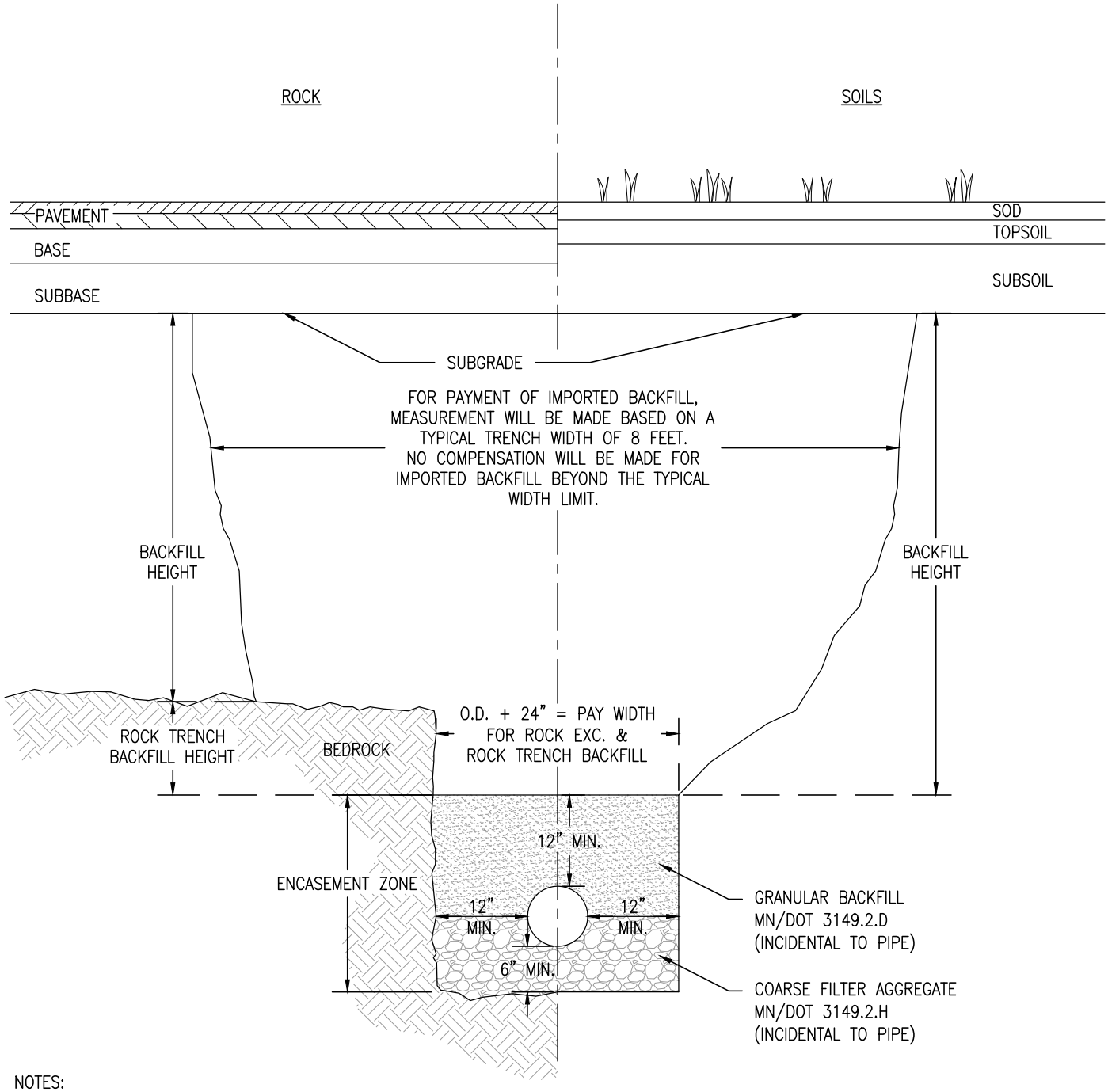


NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

City of Hermantown Minnesota	DUCTILE IRON, PE WATER MAIN, PRESSURE SEWER, & FORCE MAIN BEDDING	EX-1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
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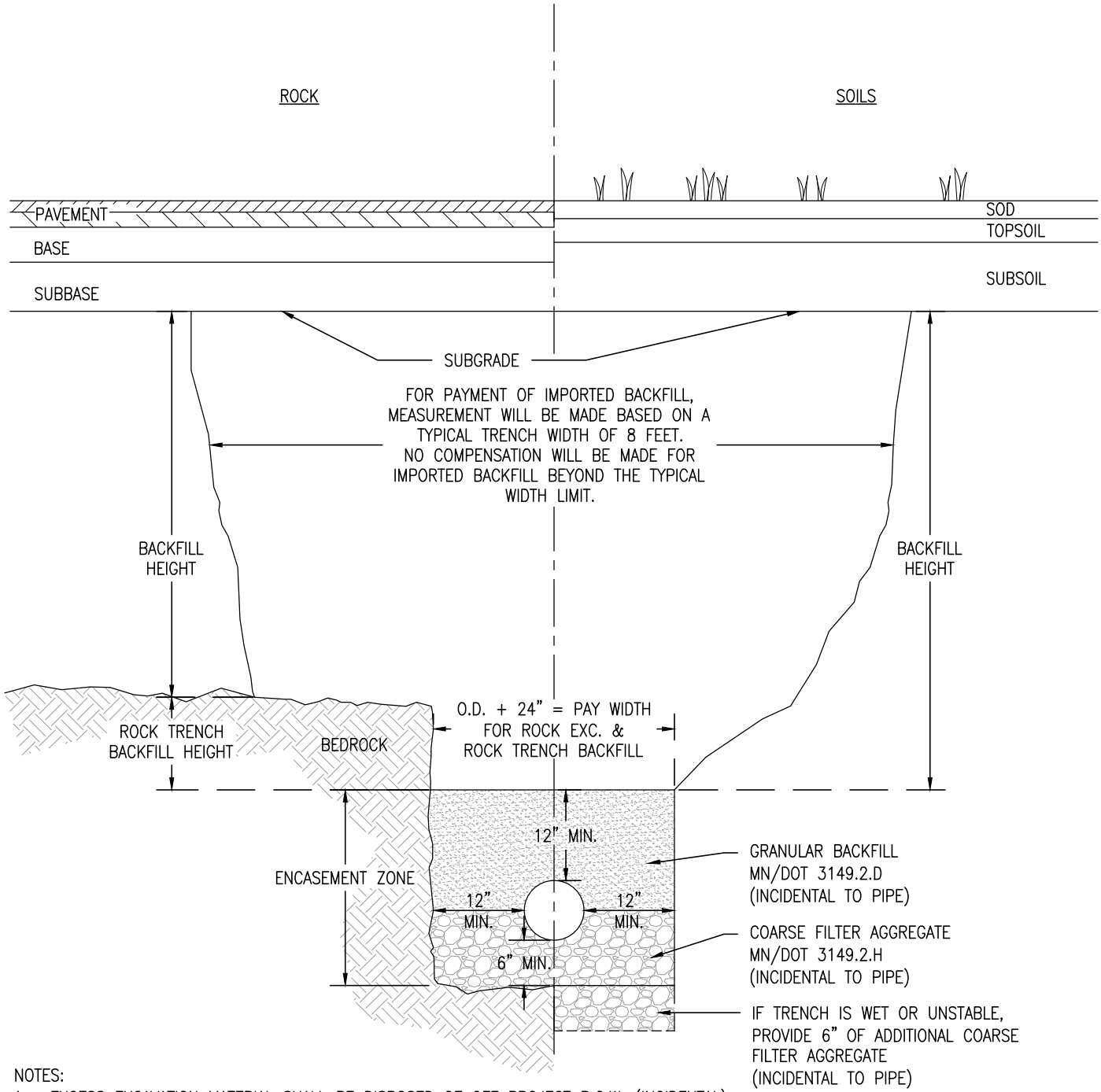
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

City of Hermantown Minnesota	PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING DETAIL	EX-2	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



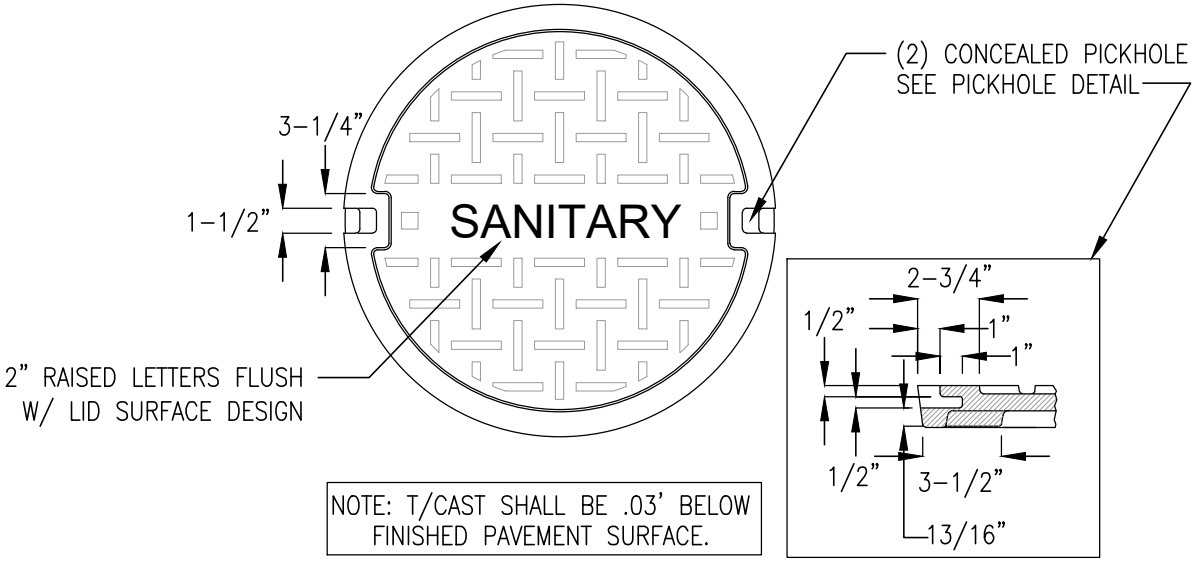
NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

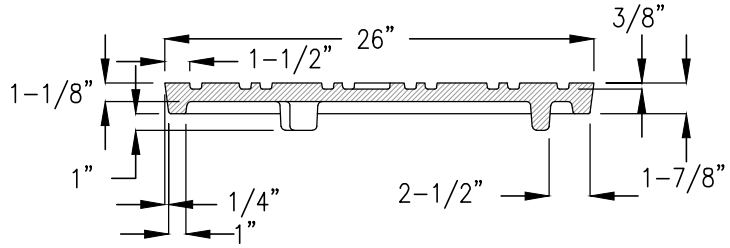
City of Hermantown Minnesota	CONCRETE STORM SEWER BEDDING	EX-3	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

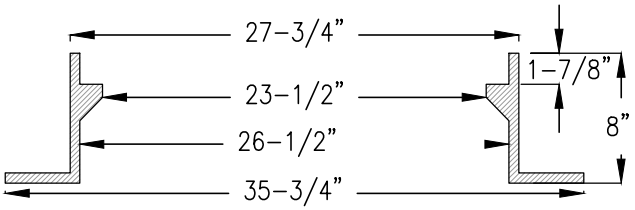
WGT. 298 LBS		MATERIAL: GRAY IRON CLASS 35B
WGT. 122 LBS	TOTAL WEIGHT 420 LBS.	SPEC.: ASTM A-48-74

NOTE: SUITABLE FOR HS25 WHEEL LOADS

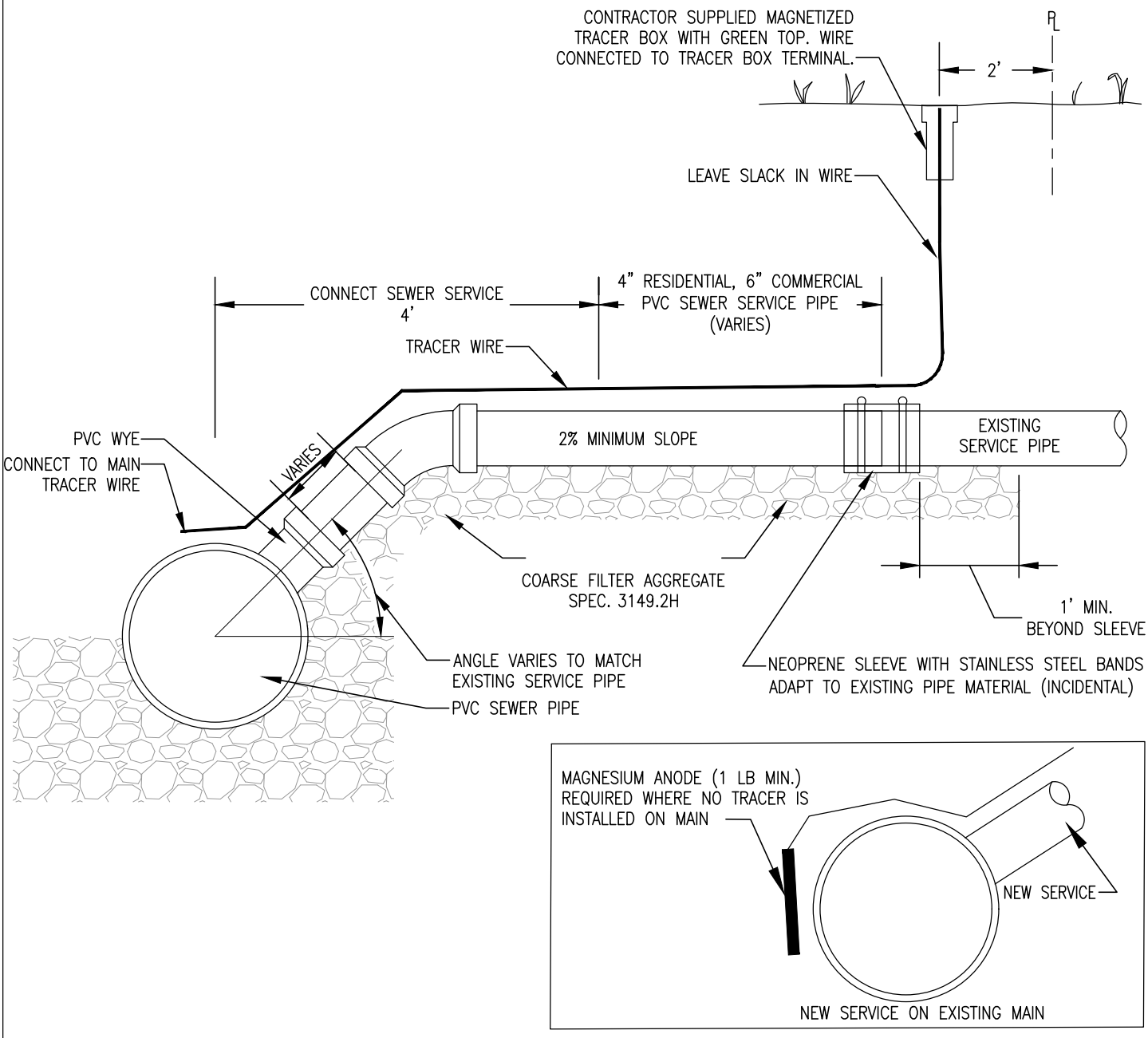


NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.





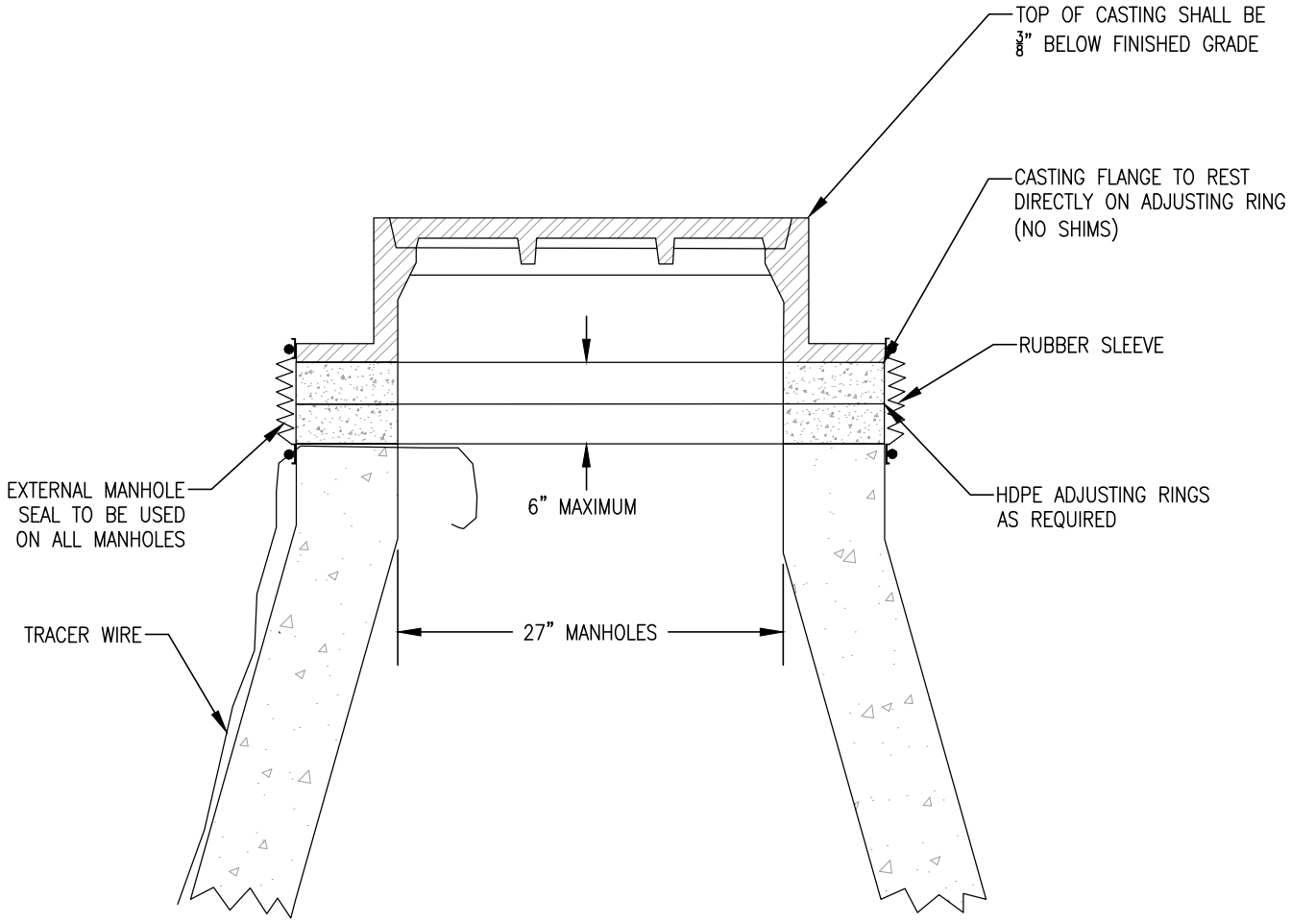
City of Hermantown Minnesota	SANITARY CASTING DETAIL	SAN-1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES

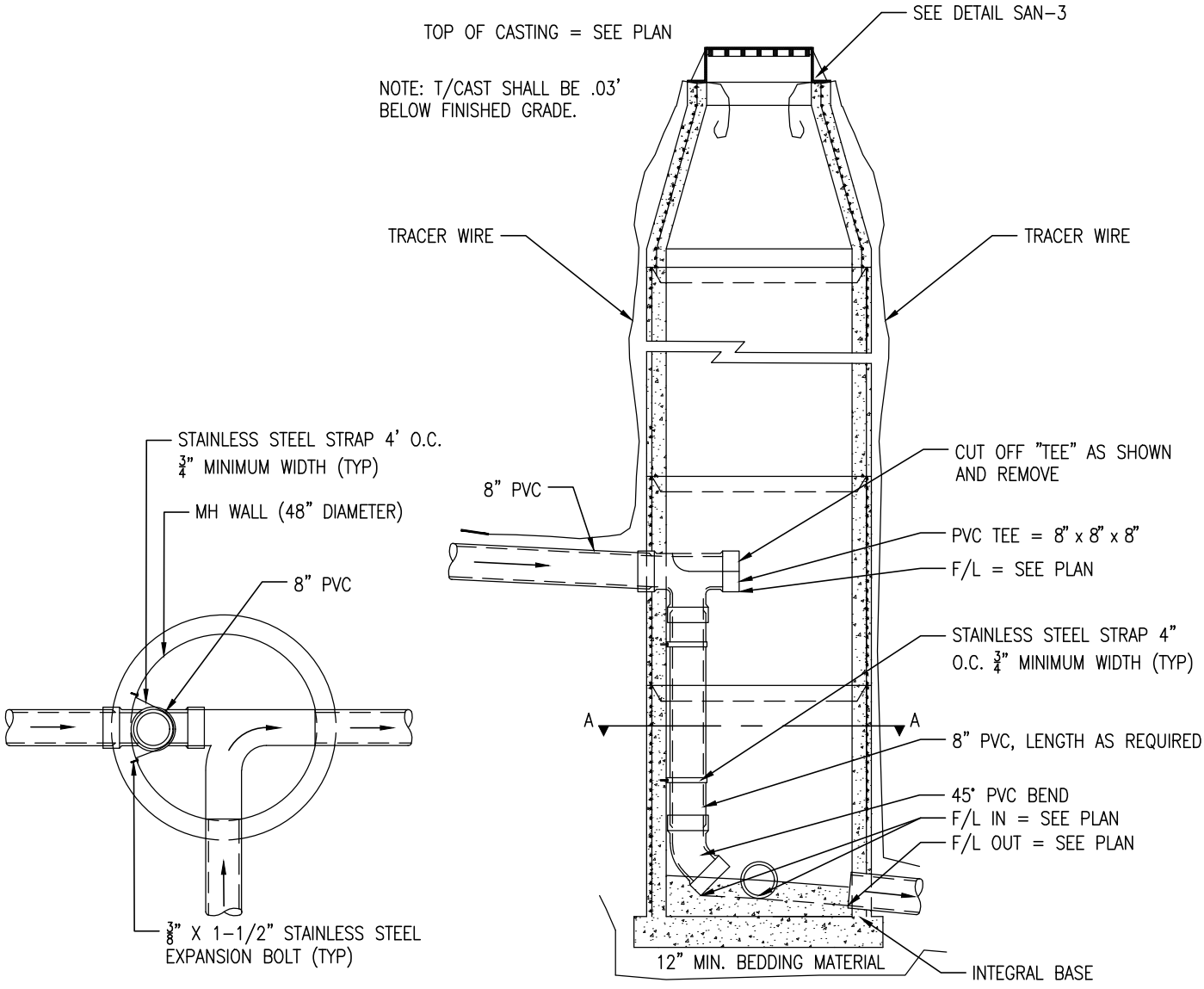
1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
2. CONNECT SEWER SERVICE INCLUDES 6" PVC SEWER SERVICE PIPE (TO 4' FROM C/L) AND ALL FITTINGS
3. 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SANITARY SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

City of Hermantown Minnesota	TYPICAL SEWER SERVICE CONNECTION	SAN-2	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTE:
1. ALL SEALS SHALL EXTEND FROM THE CASTING TO THE CONE
2. TRACER WIRE REQUIRED ON ALL SANITARY SEWER MAINS

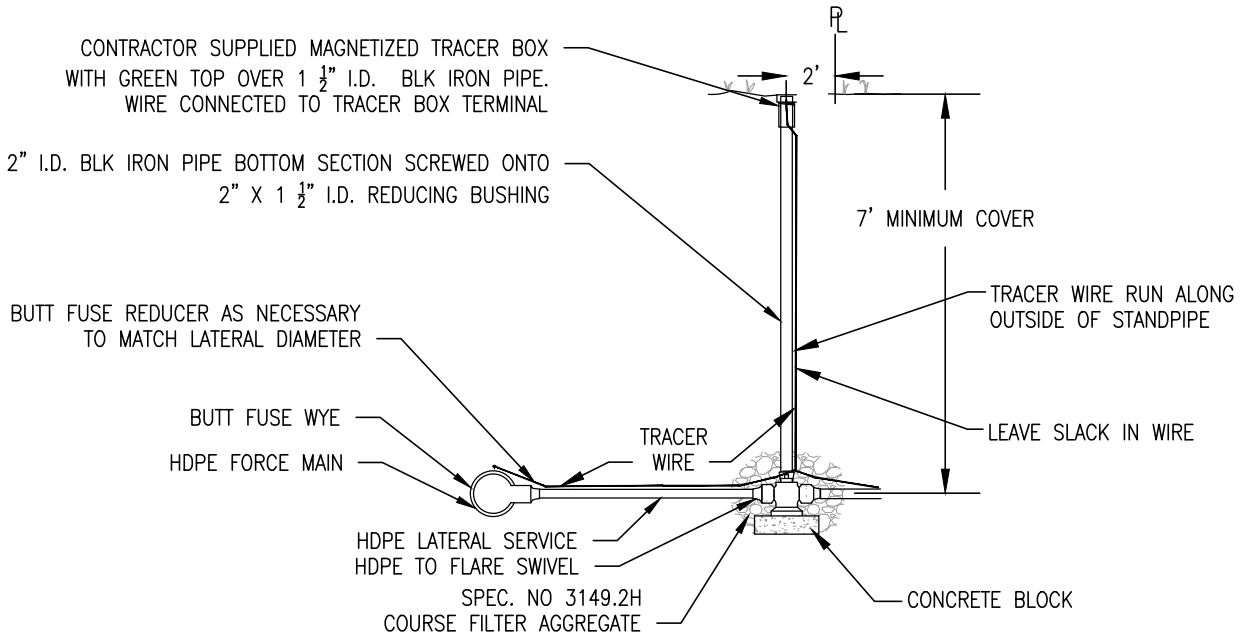
City of Hermantown Minnesota	EXTERNAL MANHOLE FRAME SEAL	SAN–3	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

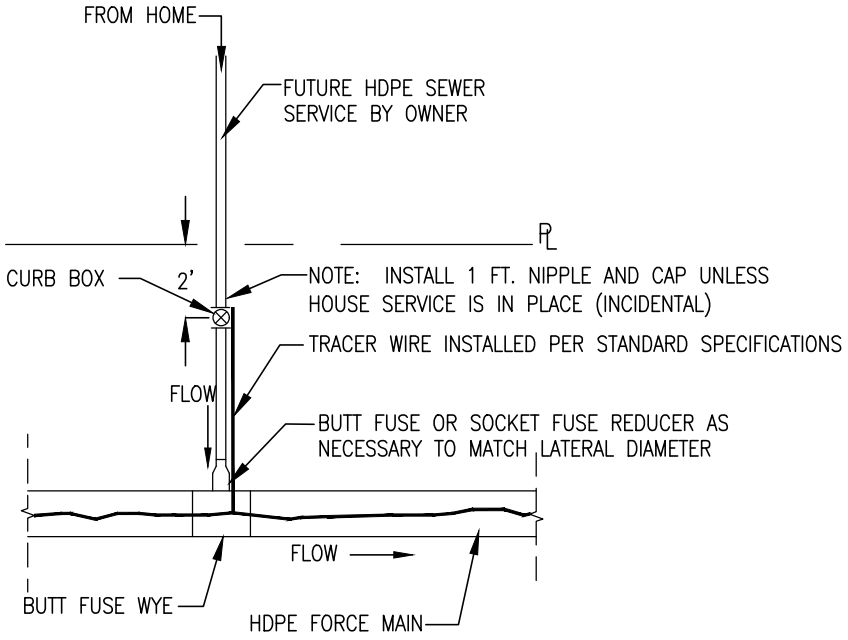


SECTION AA

NOTES: REFER TO PLAN/PROFILES FOR ELEVATIONS

City of Hermantown Minnesota	CONSTRUCT INSIDE DROP STRUCTURE	SAN-4	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

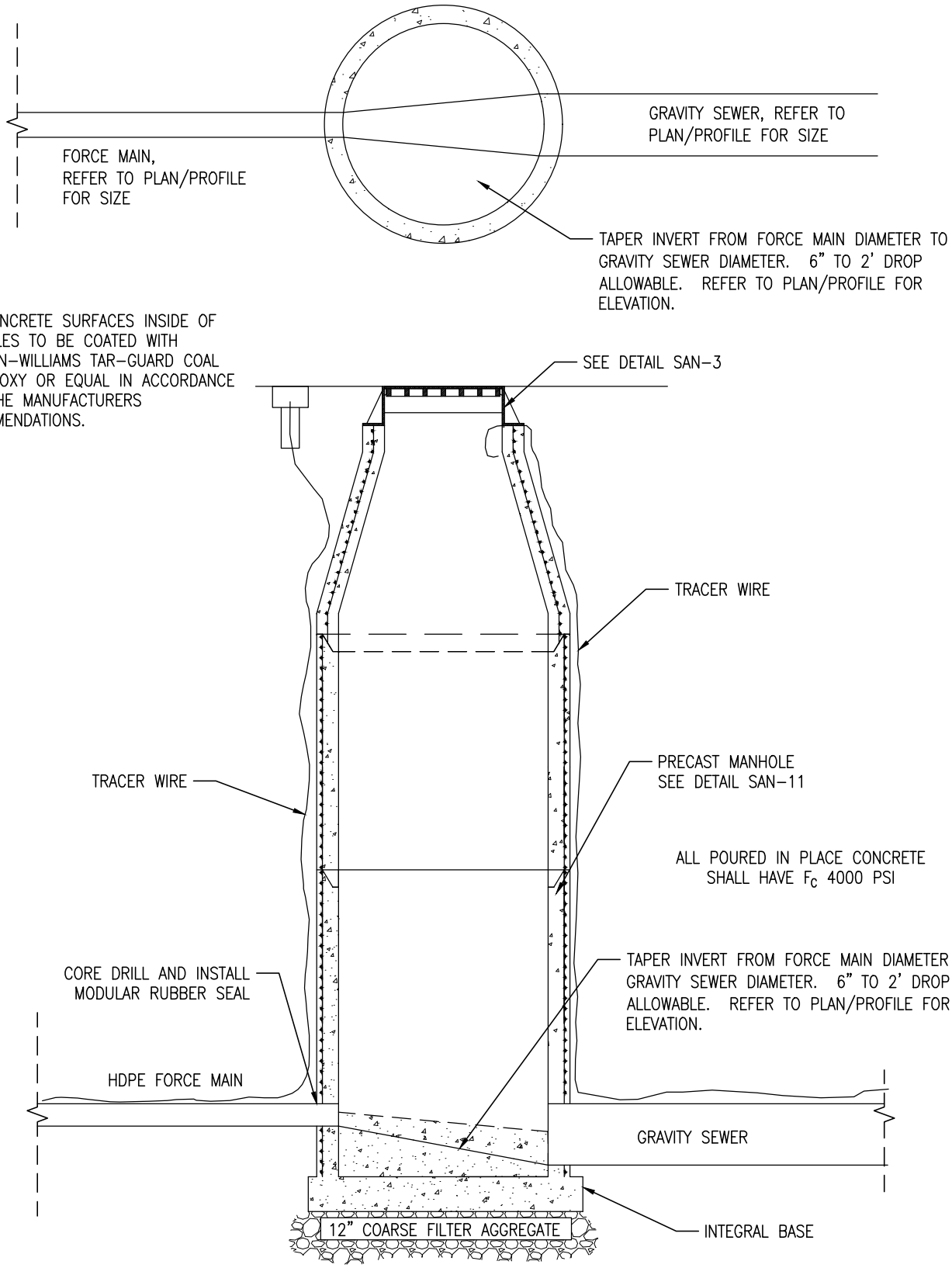




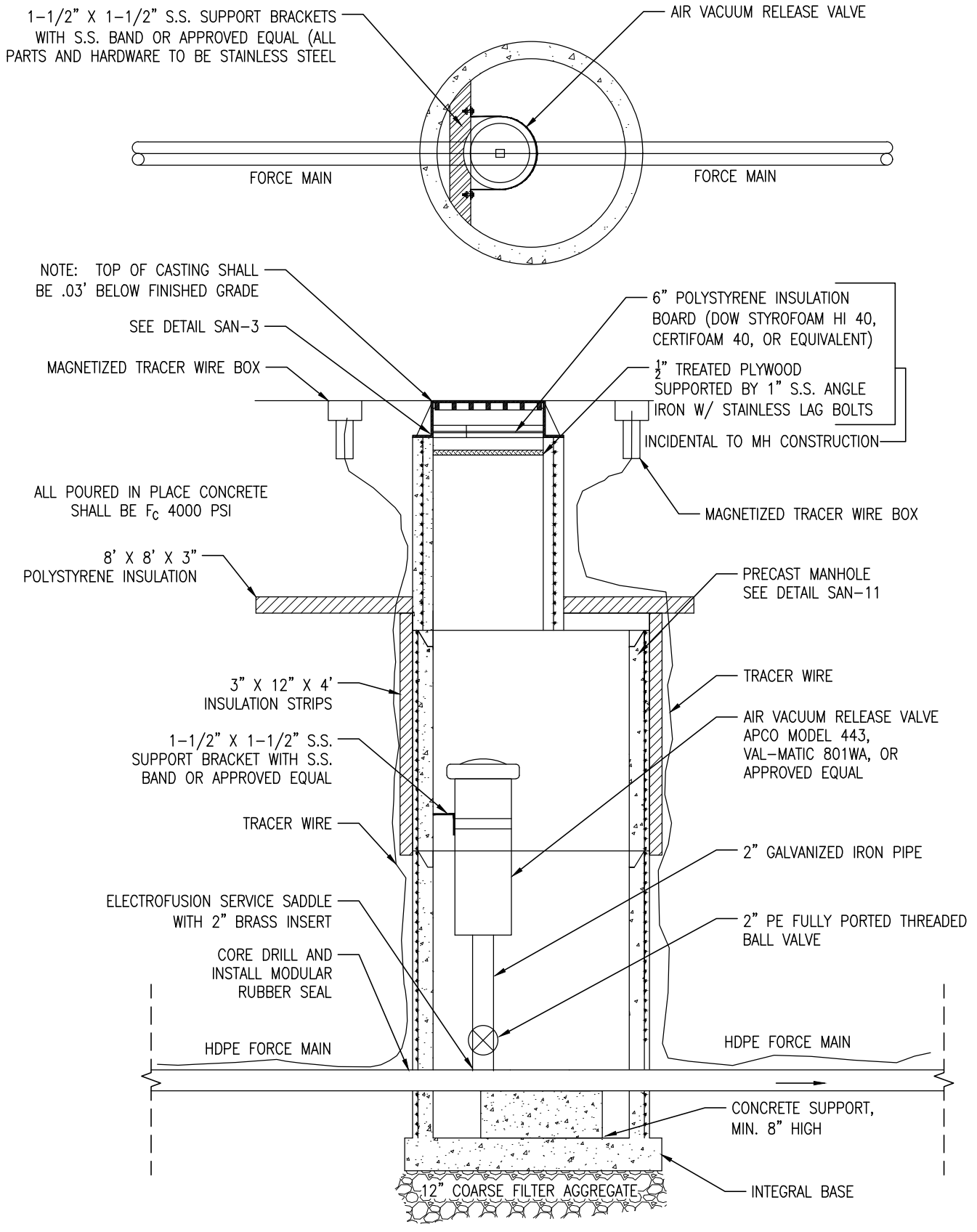
NOTES:

1. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH THE NON-CONDUCTIVE SERVICE PIPE. TRACER WIRE INSTALLATION REQUIRES ACCESS POINTS AT LEAST EVERY 300 FEET.
2. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.
3. TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON TOP.

City of Hermantown Minnesota	HDPE SANITARY SEWER PRESSURE LATERAL CONNECTION	SAN-5	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

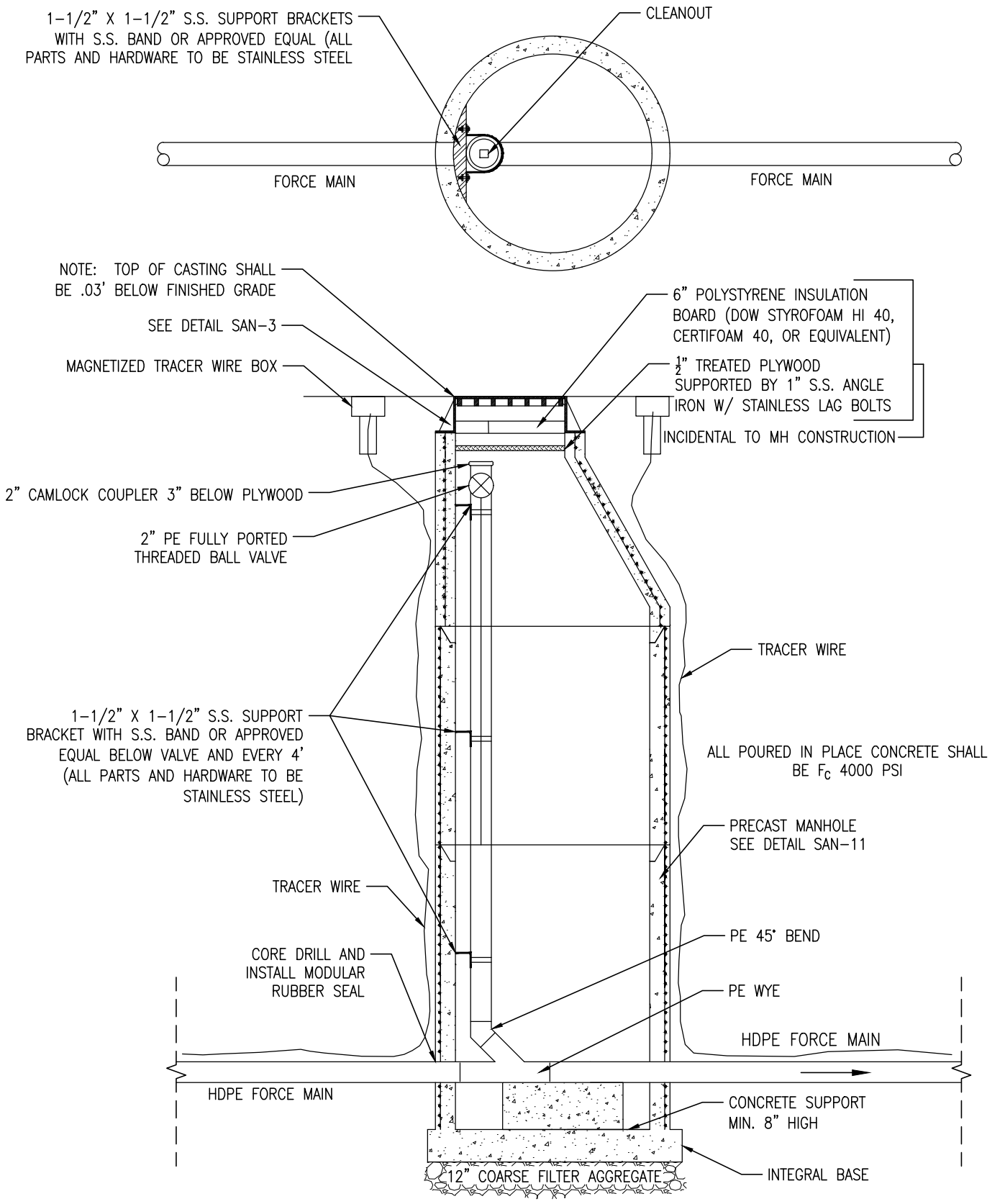


City of Hermantown Minnesota	HDPE FORCE MAIN TO GRAVITY MAIN MANHOLE	SAN-6	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

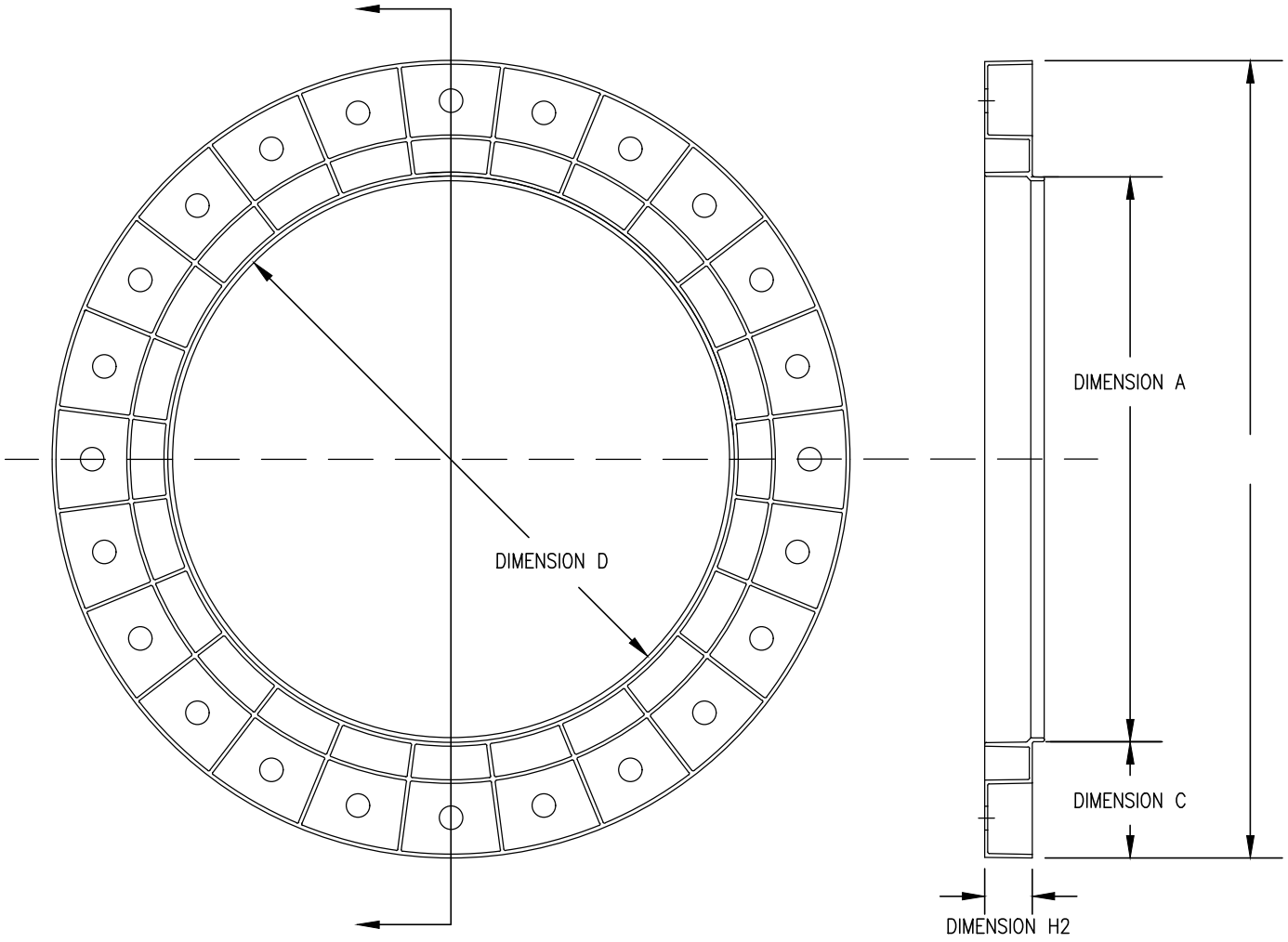


NOTE: MANHOLE TO MEET ALL REQUIREMENTS OF SAN-11

City of Hermantown Minnesota	AIR-RELEASE MANHOLE	SAN-7	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



City of Hermantown Minnesota	CLEANOUT MANHOLE	SAN-8	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

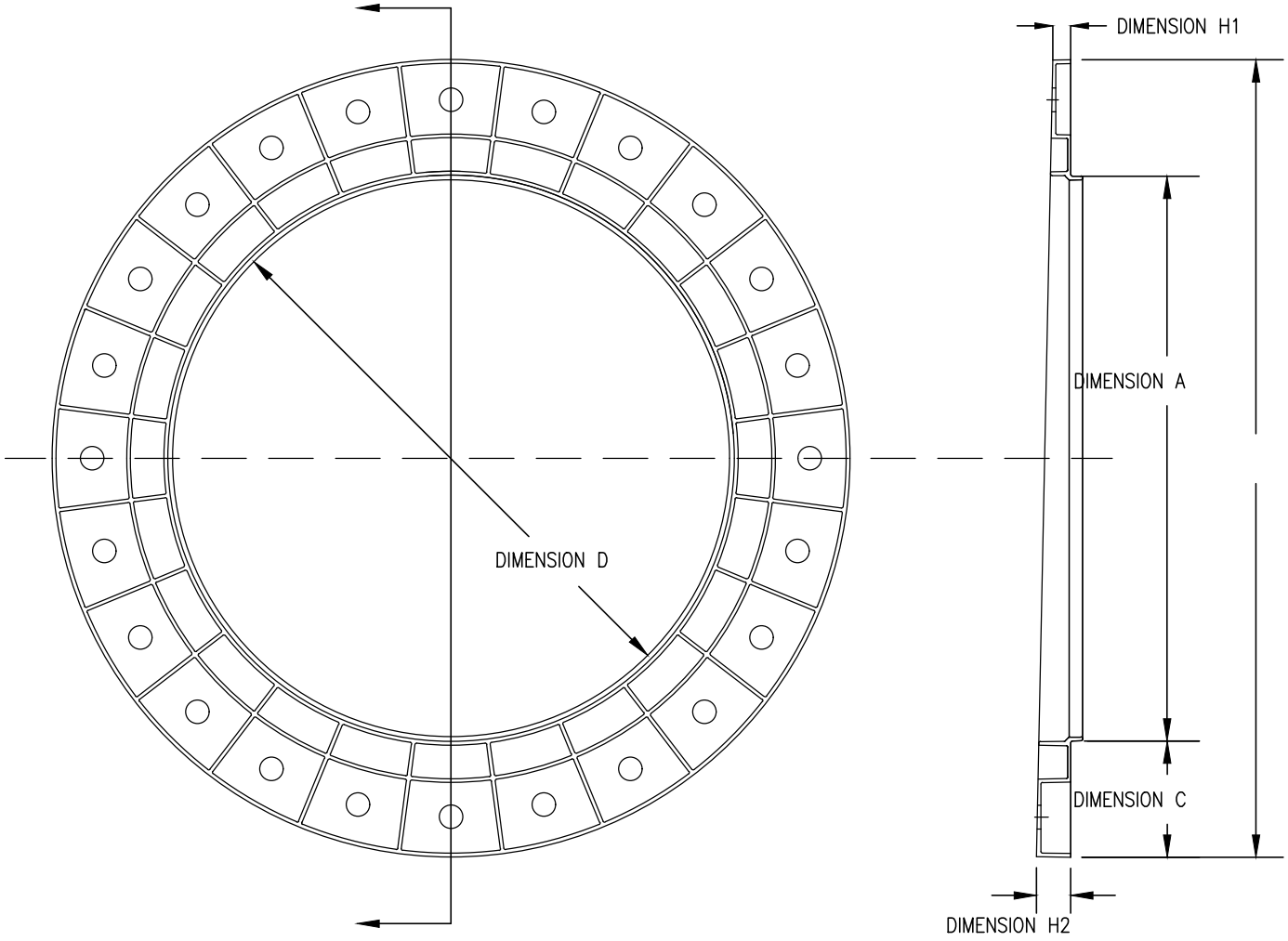


DIMENSION SCHEDULE					
CONE SIZE	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION H1
27.00	26.75	36.50	5.00	26.25	1.20, 1.50, 2.00, 4.00

DESCRIPTION

1. PLASTIC INJECTION MOLDED ADJUSTMENT RING
2. MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION D1248
3. ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF A MAXIMUM PERCENT OF RECYCLED MATERIAL
4. THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS
5. COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS
6. DIMENSIONS SHOWN ARE NOMINAL – ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

City of Hermantown Minnesota	POLYETHYLENE MH ADJUSTING RING – FLAT	SAN–9	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

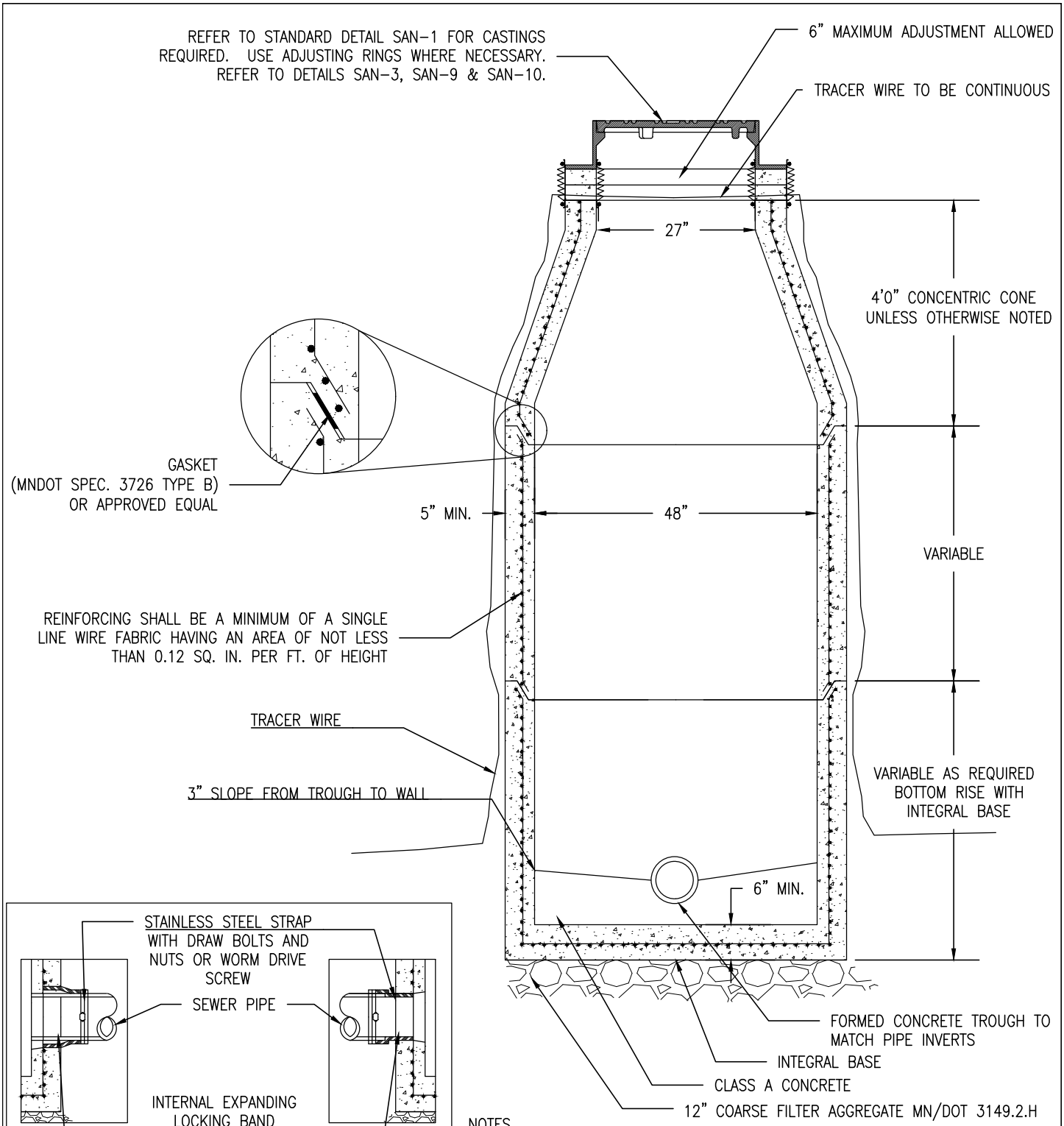


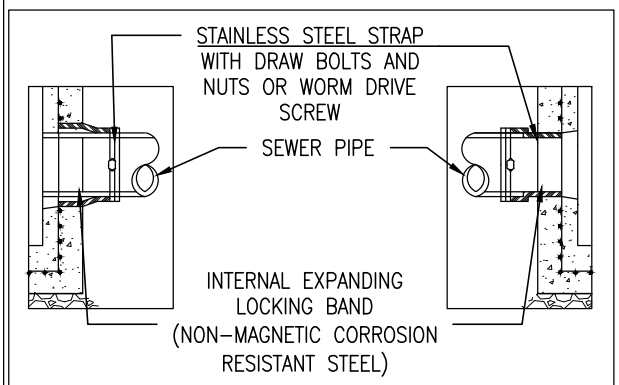
DIMENSION SCHEDULE					
CONE SIZE	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D	DIMENSION H1–H2
27.00	26.75	36.50	5.00	26.25	0.75 – 1.50

DESCRIPTION

1. PLASTIC INJECTION MOLDED ADJUSTMENT RING
2. MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION D1248
3. ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF A MAXIMUM PERCENT OF RECYCLED MATERIAL
4. THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS
5. COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS
6. DIMENSIONS SHOWN ARE NOMINAL – ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

City of Hermantown Minnesota	POLYETHYLENE MH ADJUSTING RING – WEDGE	SAN–10	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	





PIPE SLEEVE DETAIL

1. ALL PIPE SLEEVES MUST BE WATER TIGHT

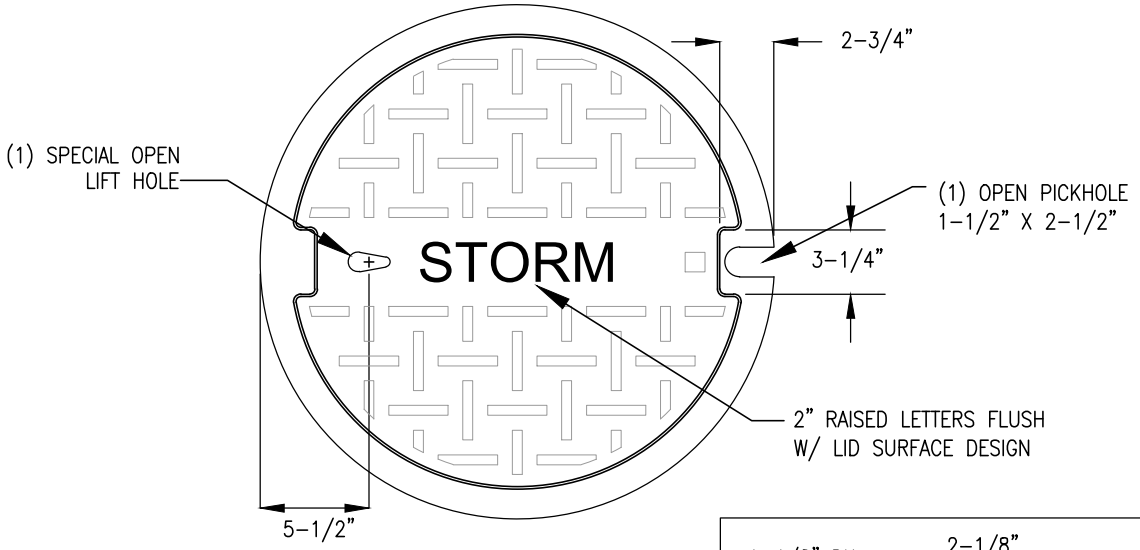
NOTES

1. SANITARY MANHOLES SHALL NOT HAVE STEPS.
2. ALL SANITARY MANHOLES SHALL BE VACUUM TESTED.
3. ALL SANITARY MANHOLES SHALL BE WATERTIGHT. ANY OBSERVABLE WATER SEEPAGE THROUGH THE END OF THE WARRANTY PERIOD SHALL BE CAUSE TO REJECT MANHOLES.
4. AN INSIDE DROP IS REQUIRED PER DETAIL SAN-4 ANYTIME THE DROP IS GREATER THAN 2.0'.

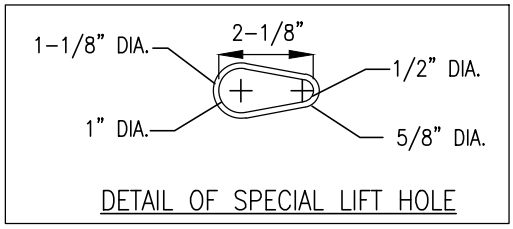
City of Hermantown Minnesota	PRECAST MECHANICAL JOINT SEWER MANHOLE	SAN-11	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

WEIGHT 298 LBS		MATL. GRAY IRON CLASS 35B
WEIGHT 122 LBS	TOTAL WEIGHT 420 LBS.	SPEC. ASTM A-48-74

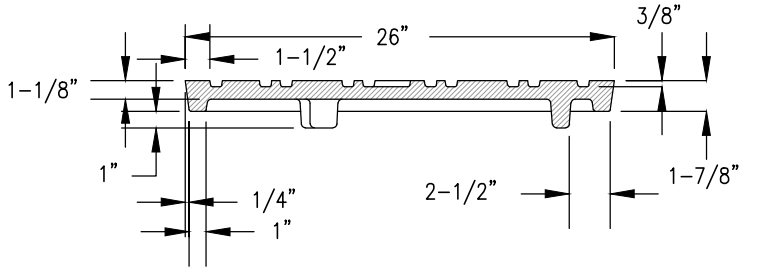
NOTE: SUITABLE FOR HS25 WHEEL LOADS

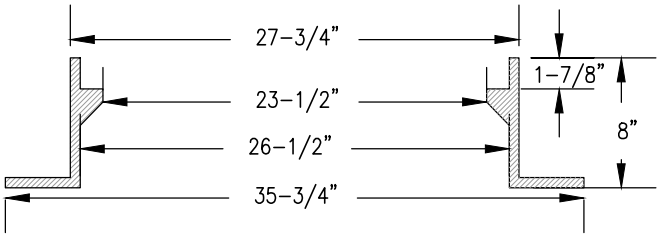


NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.

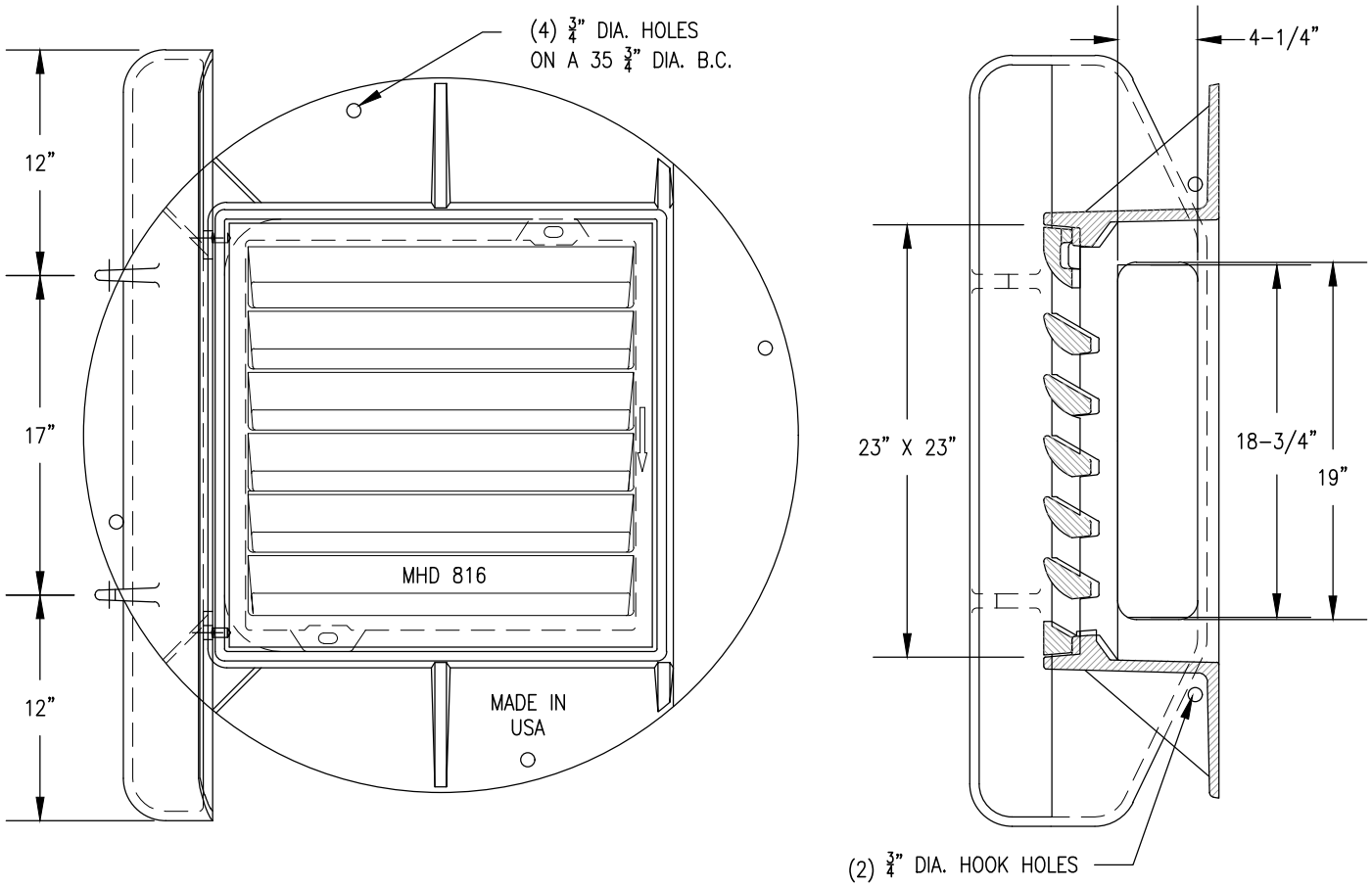


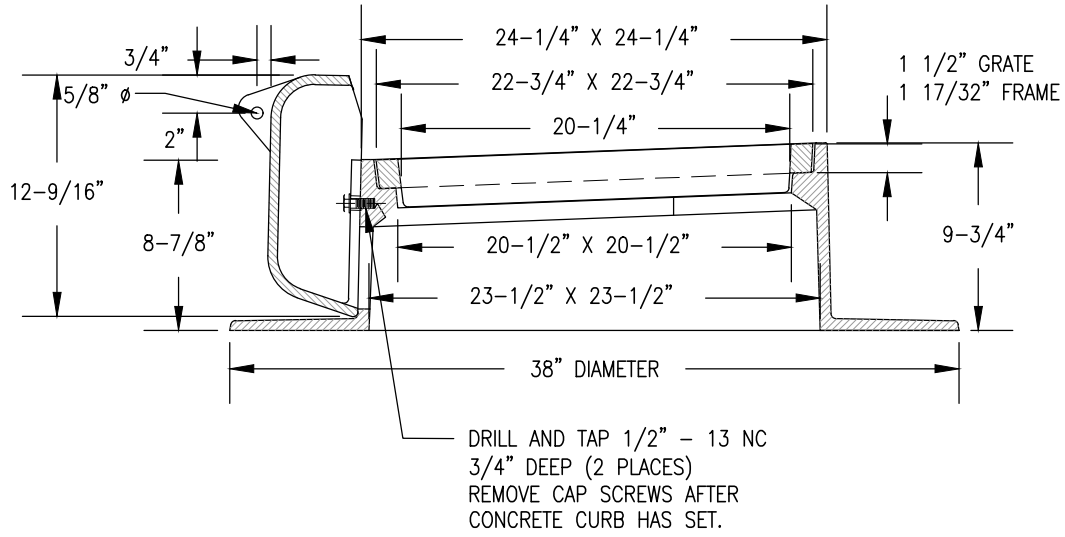
DETAIL OF SPECIAL LIFT HOLE





City of Hermantown Minnesota	STORM MANHOLE CASTING	STORM-1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

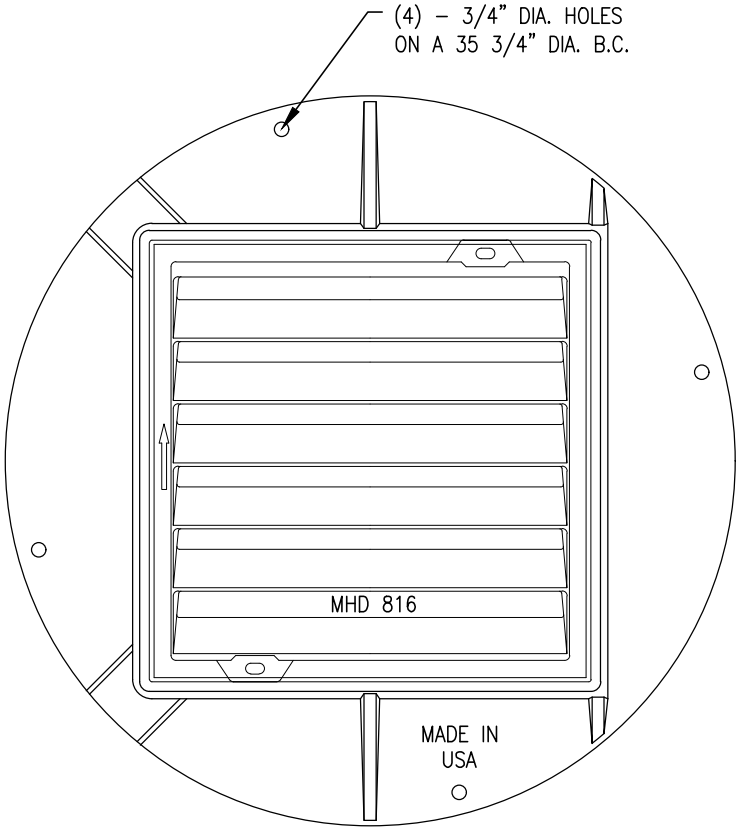


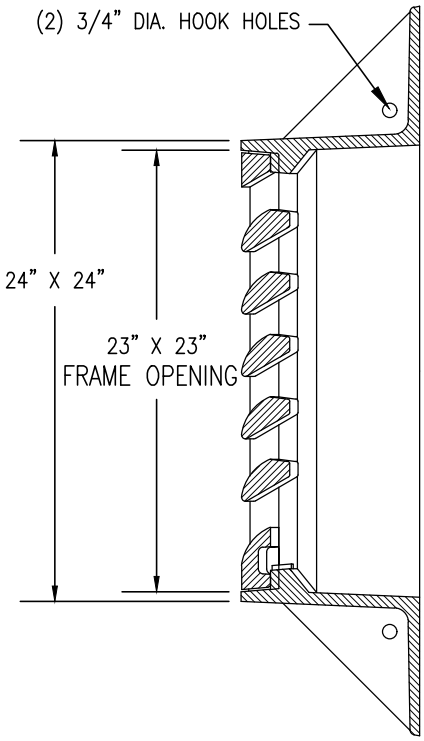


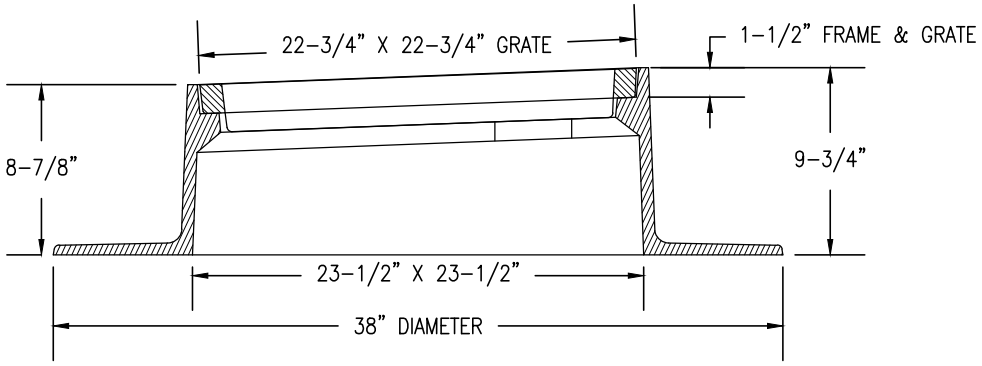
NOTES:

1. COMPONENT NO'S: FRAME 5002, GRATE MHD 816 (STD PLATE 4154), CURB BOX 823A (STD PLATE 4160).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME APPROX. 257#, GRATE 131#, CURB BOX 105#.
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE".

City of Hermantown Minnesota	CATCH BASIN/CURB BOX CASTINGS	STORM-2	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



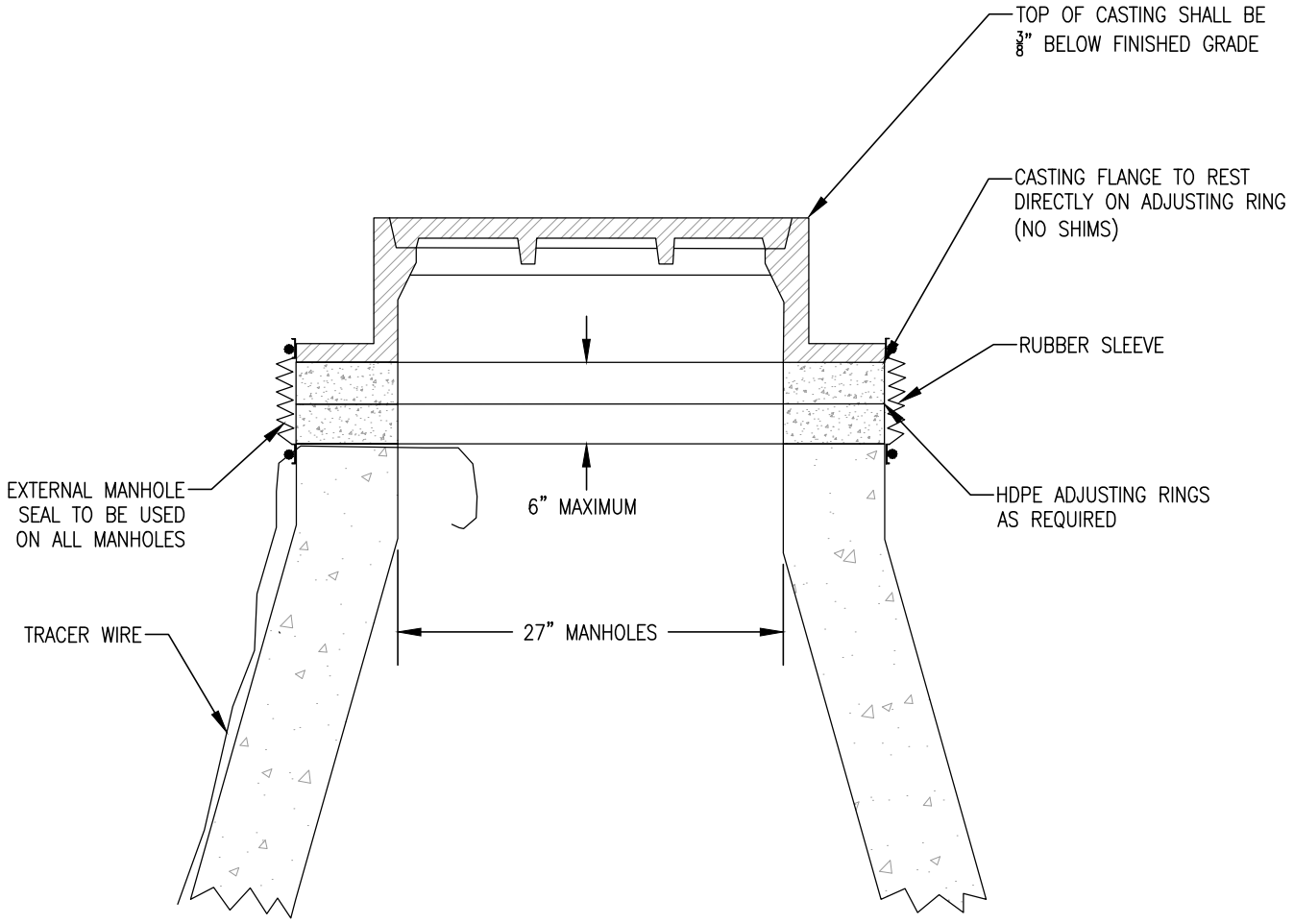




NOTES:

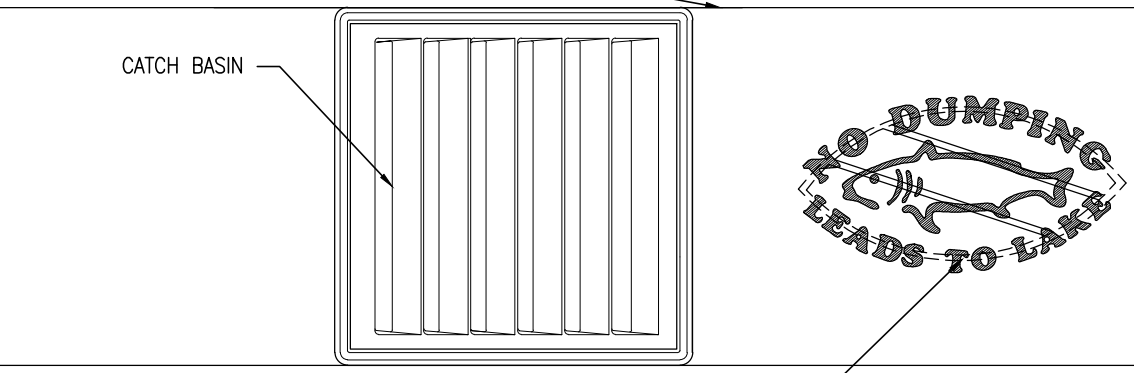
1. COMPONENT NO'S: FRAME 5005, GRATE 816 (STD PLATE 4154B).
2. MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE".

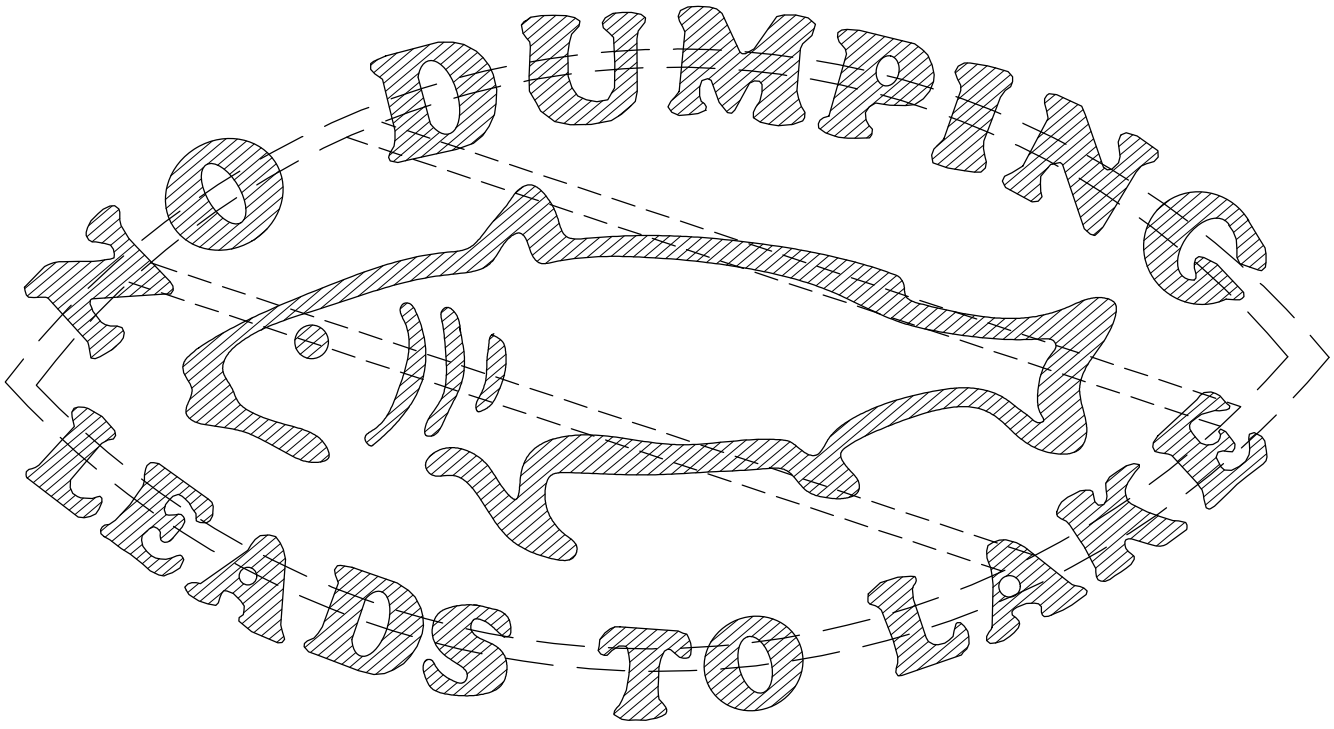
City of Hermantown Minnesota	CATCH BASIN CASTINGS	STORM–3	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



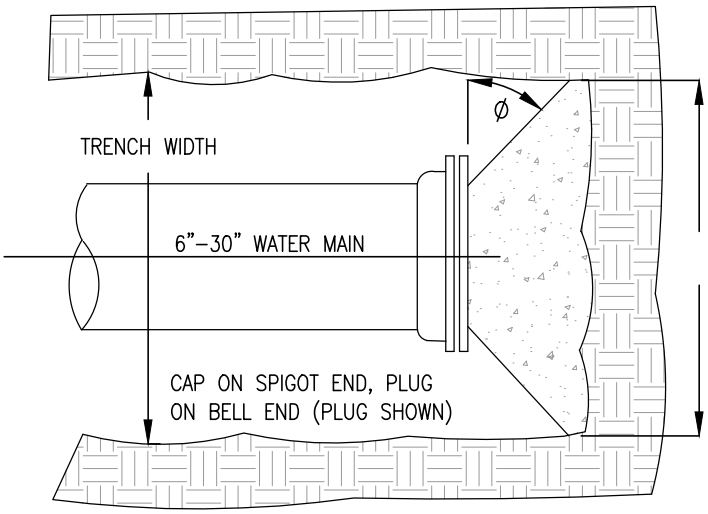
NOTE:
TRACER WIRE REQUIRED ON ALL PLASTIC STORM SEWER PIPE

City of Hermantown Minnesota	STORM MANHOLE	STORM–4	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

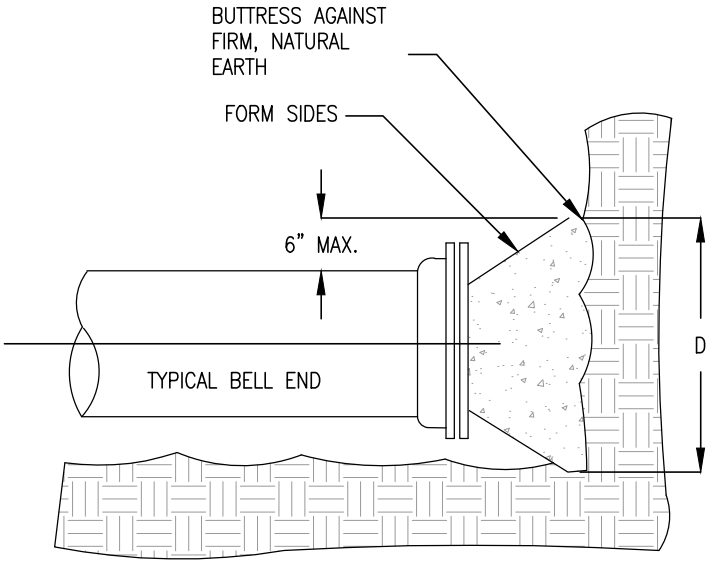




City of Hermantown Minnesota	GUTTER STAMP	STORM–5	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



PLAN

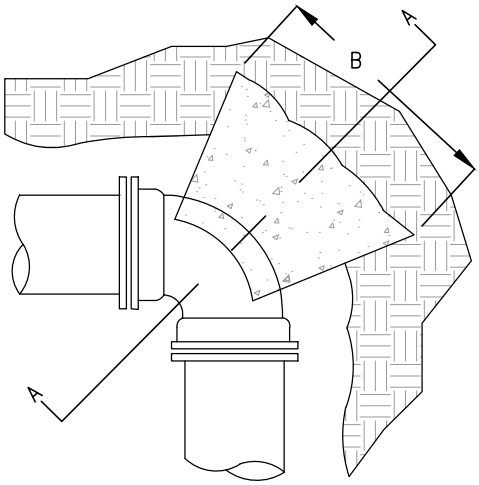


ELEVATION

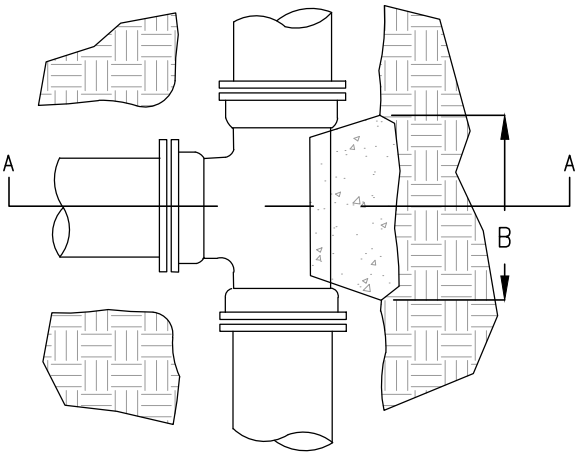
BLOCKING DIMENSIONS		
PLUG SIZE	B	D
6"	12"	15"
8"	24"	15"
10"	24"	20"
12"	30"	22"
16"	40"	28"
20"	50"	34"
24"	62"	40"
30"	80"	48"

NOTES:
1. BLOCKING DIMENSIONS BASED ON EARTH RESISTANCE OF 2 TONS PER SQ. FT. WHERE, IN THE OPINION OF THE ENGINEER, EARTH IS POOR, BLOCKING SHALL BE INCREASED IN SIZE AS DIRECTED OR STRAPPING MAY BE NECESSARY.
2. ANGLEØ SHALL BE EQUAL TO OR LARGER THAN 45°.
3. BLOCKING SHALL BE CENTERED ON MAIN.
4. CONCRETE SHALL BE MIX 3G52 – MNDOT 2461.
5. POLYETHYLENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

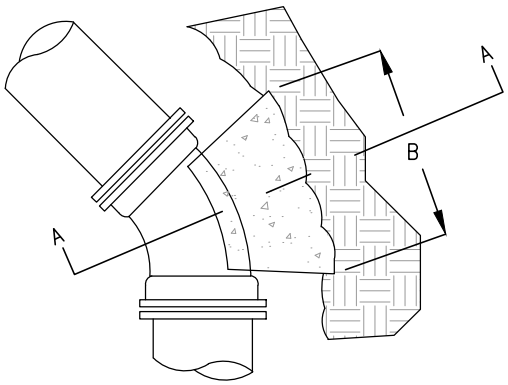
City of Hermantown Minnesota	PLUG BLOCKING FOR WATER MAIN	W–1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



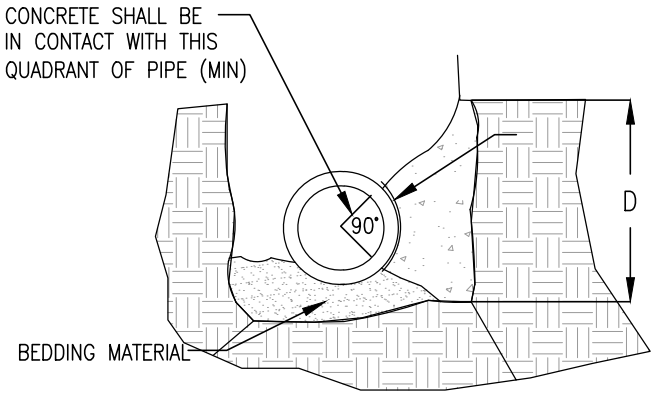
PLAN – 90° BEND



PLAN – TEE



PLAN – 45° BEND



SECTION A–A

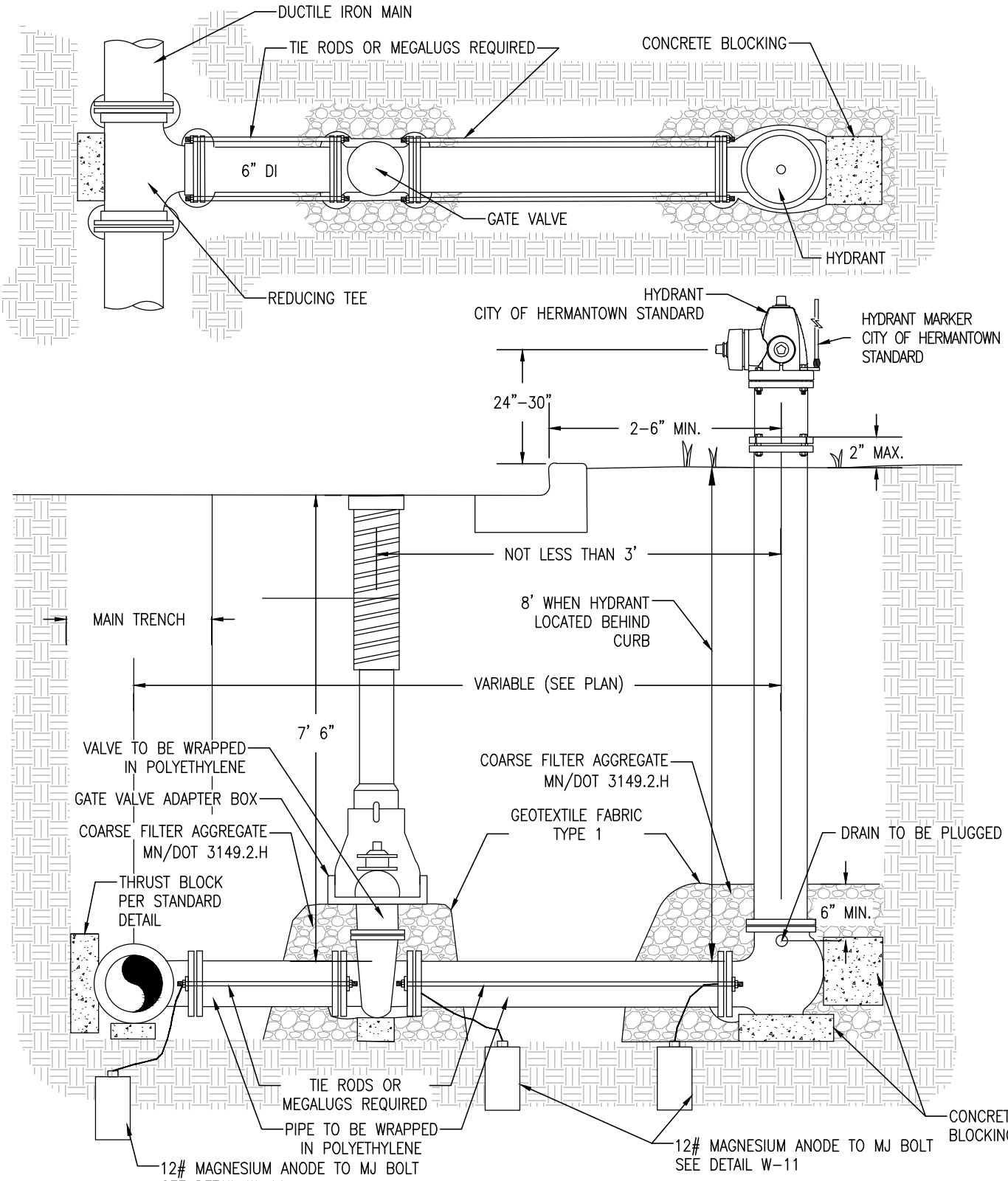
NOTES

1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 P.S.I. & AN EARTH RESISTANCE OF 2 TONS/S.F.
2. BLOCKING TO BE SET AGAINST UNDISTURBED SOIL
3. CONCRETE SHALL BE MIX 3G52. (MNDOT SPEC. 2461) CONCRETE SHALL NOT INTERFERE WITH MECHANICAL JOINTS
4. POLYETHLYENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

BLOCKING DIMENSIONS								
BEND OR BRANCH SIZE	22–1/2" BENDS		45° BENDS		90° BENDS		TEES	
	B	D	B	D	B	D	B	D
0'–6"	1'–0"	1'–0"	1'–0"	1'–0"	1'–4"	1'–2"	1'–3"	1'–0"
0'–8"	1'–0"	1'–0"	1'–4"	1'–2"	1'–10"	1'–6"	1'–6"	1'–4"
1'–0"	1'–4"	1'–4"	1'–10"	1'–10"	2'–8"	2'–3"	2'–3"	2'–0"
1'–4"	1'–10"	1'–8"	2'–6"	2'–4"	3'–10"	2'–10"	3'–2"	2'–4"
1'–8"	2'–4"	2'–0"	3'–3"	2'–10"	5'–0"	3'–4"	4'–0"	3'–0"
2'–0"	2'–10"	2'–4"	4'–0"	3'–3"	6'–4"	3'–10"	5'–3"	3'–4"
2'–6"	3'–6"	3'–0"	5'–4"	3'–10"	8'–0"	4'–8"	6'–3"	4'–3"

City of Hermantown Minnesota

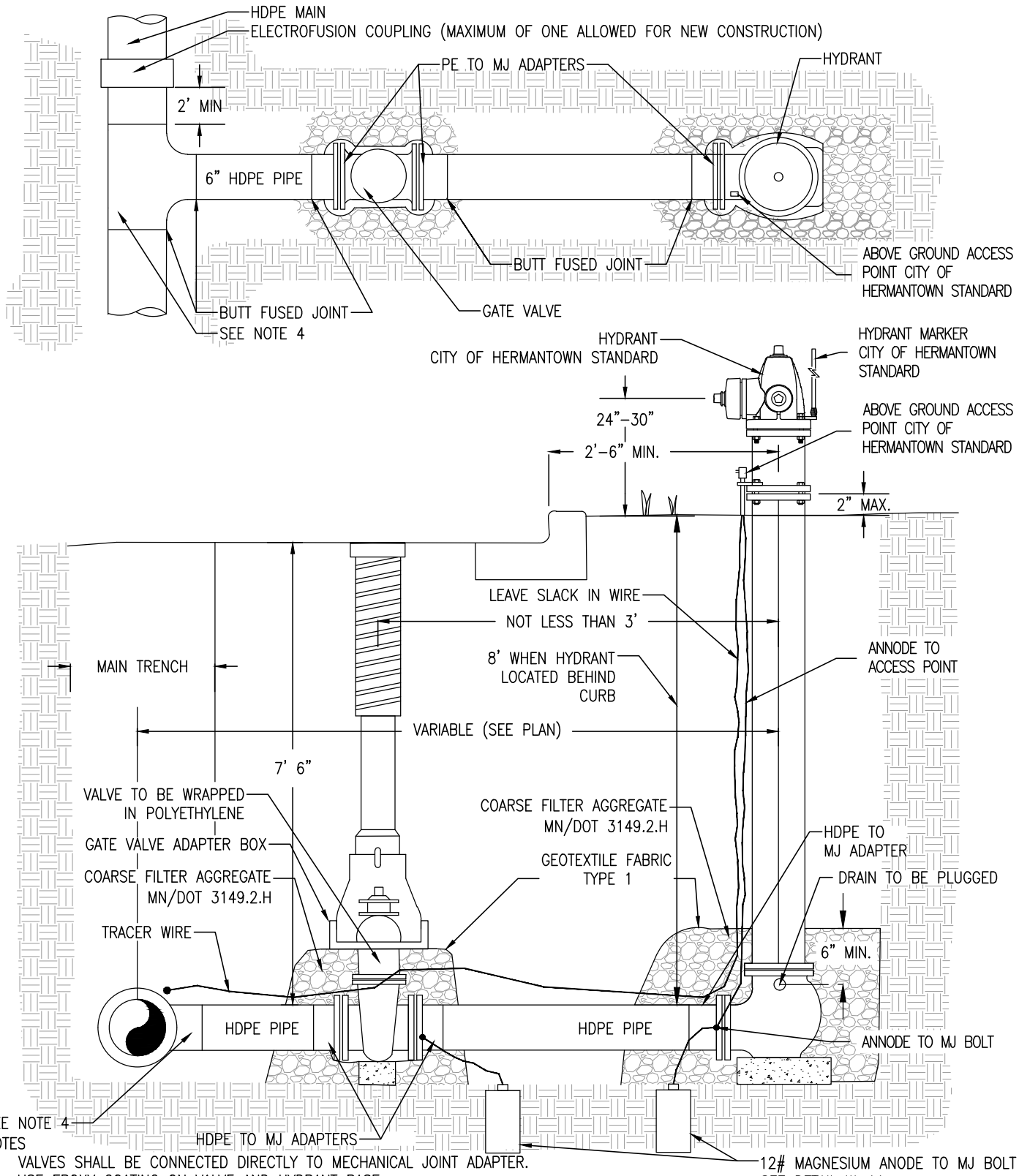
THRUST BLOCKING FOR WATER MAIN	W–2	NO SCALE
CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES:

1. VALVES SHALL BE CONNECTED DIRECTLY TO AN ANCHORING TEE. WHENEVER DIRECT CONNECTION IS NOT POSSIBLE, TIE RODS OR MEGALUGS SHALL BE USED. TIE RODS SHALL BE GALVANIZED.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE.
3. ALL BOLTS SHALL BE COR–TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B–418 FOR ALL MECHANICAL JOINT FITTINGS.

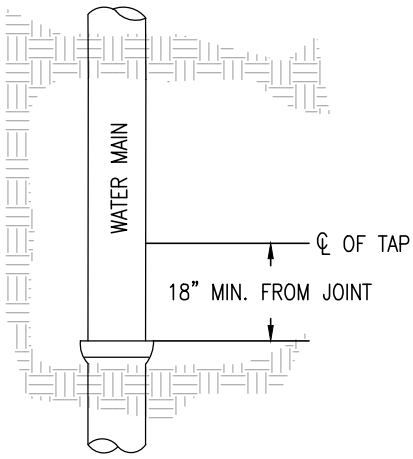
City of Hermantown Minnesota	FIRE HYDRANT SETTING DETAIL – DUCTILE IRON	W–3	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES

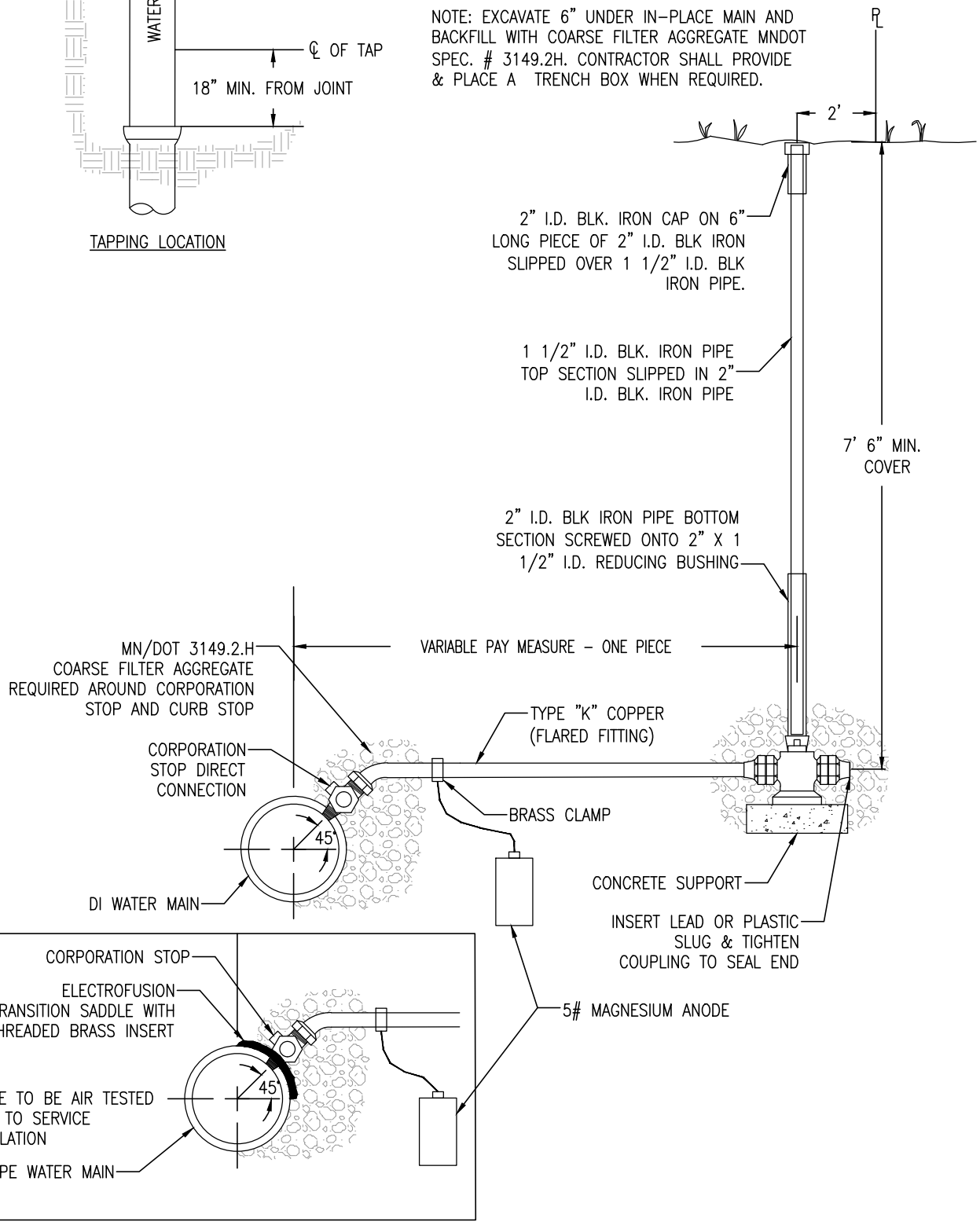
1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Hermantown Minnesota	FIRE HYDRANT SETTING DETAIL – HDPE	W-3A	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



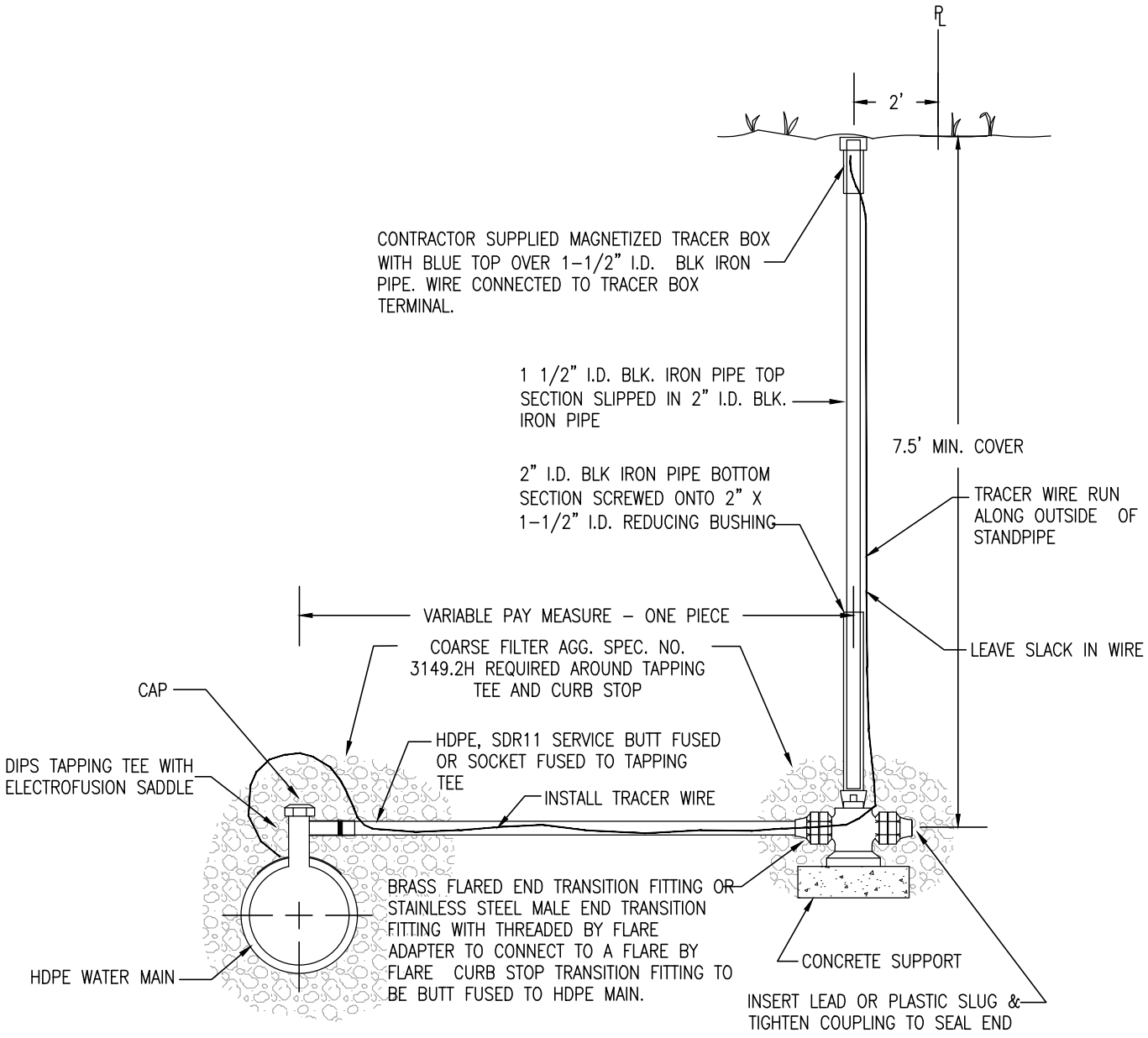
TAPPING LOCATION

NOTE: EXCAVATE 6" UNDER IN-PLACE MAIN AND BACKFILL WITH COARSE FILTER AGGREGATE MNDOT SPEC. # 3149.2H. CONTRACTOR SHALL PROVIDE & PLACE A TRENCH BOX WHEN REQUIRED.



City of Hermantown Minnesota	TYPICAL COPPER WATER SERVICE - 3/4", 1", 1-1/4", AND 2"	W-4	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

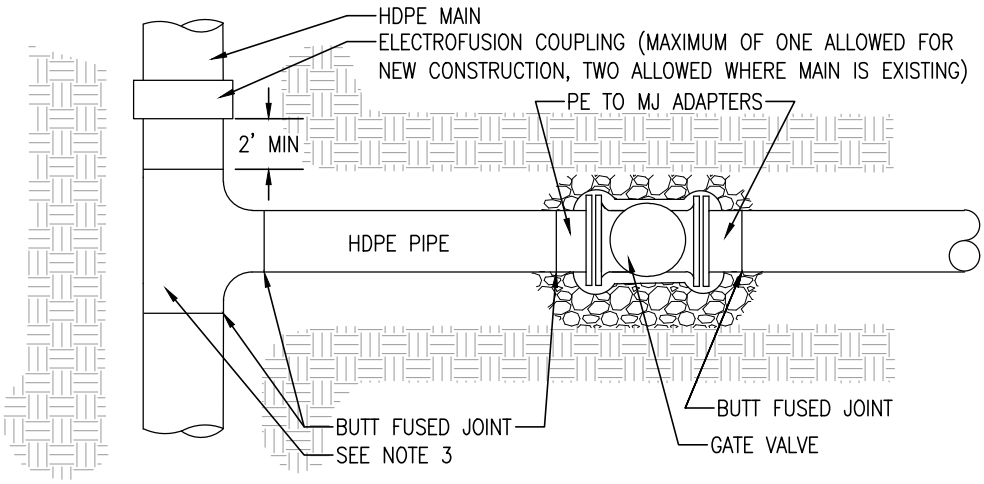
NOTE: EXCAVATE 6" UNDER IN-PLACE MAIN AND BACKFILL WITH COURSE FILTER AGGREGATE MNDOT SPEC. # 3149.2H. CONTRACTOR SHALL PROVIDE & PLACE A TRENCH BOX WHEN REQUIRED.

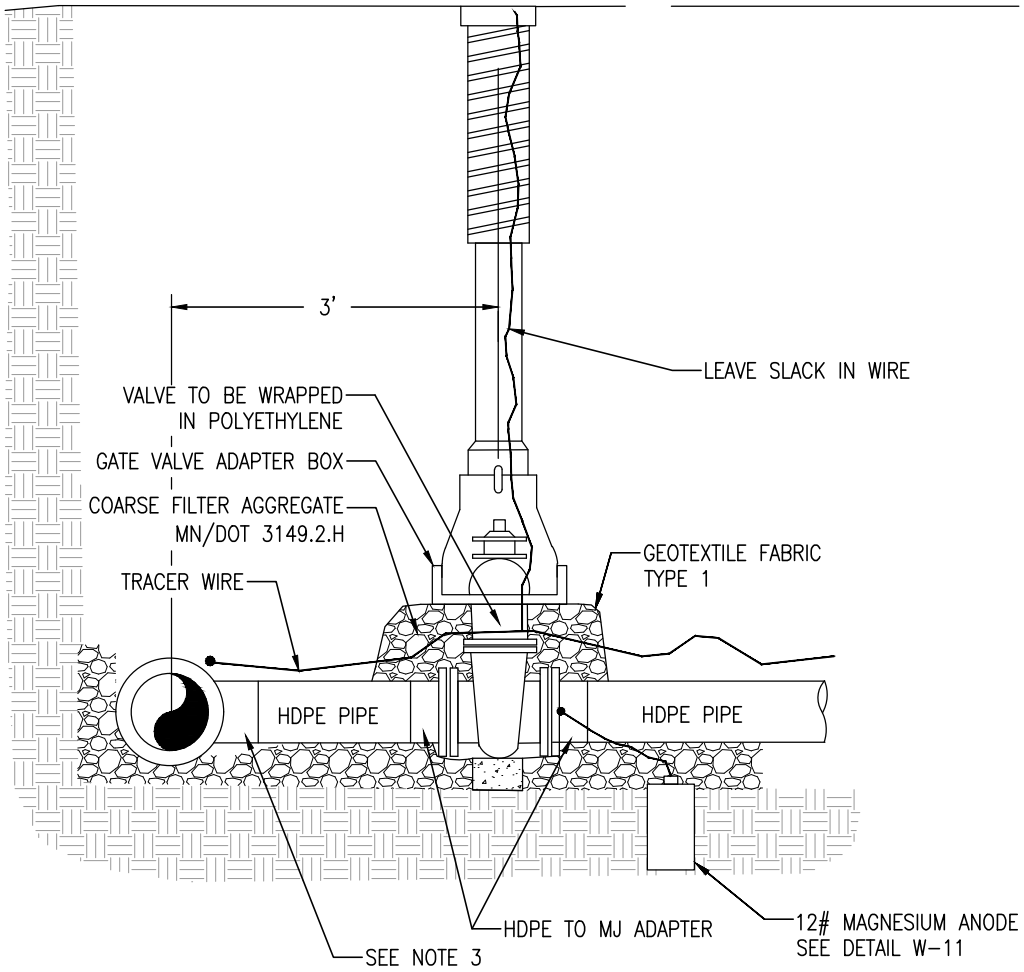


NOTE: SERVICE TO BE AIR TESTED PRIOR TO TAPPING MAIN

THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTOR SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

City of Hermantown Minnesota	TYPICAL HDPE WATER SERVICE – 1", 1-1/4", AND 2"	W-4A	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



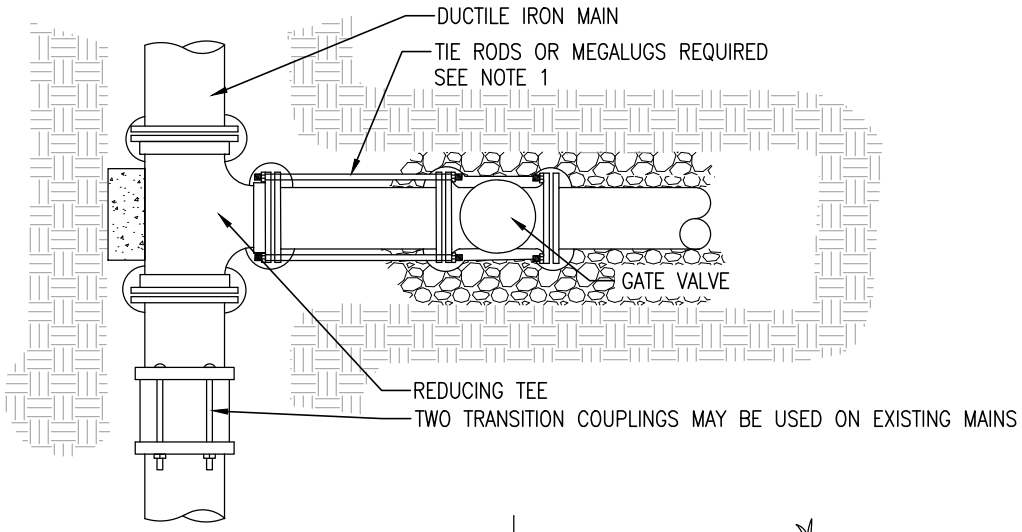


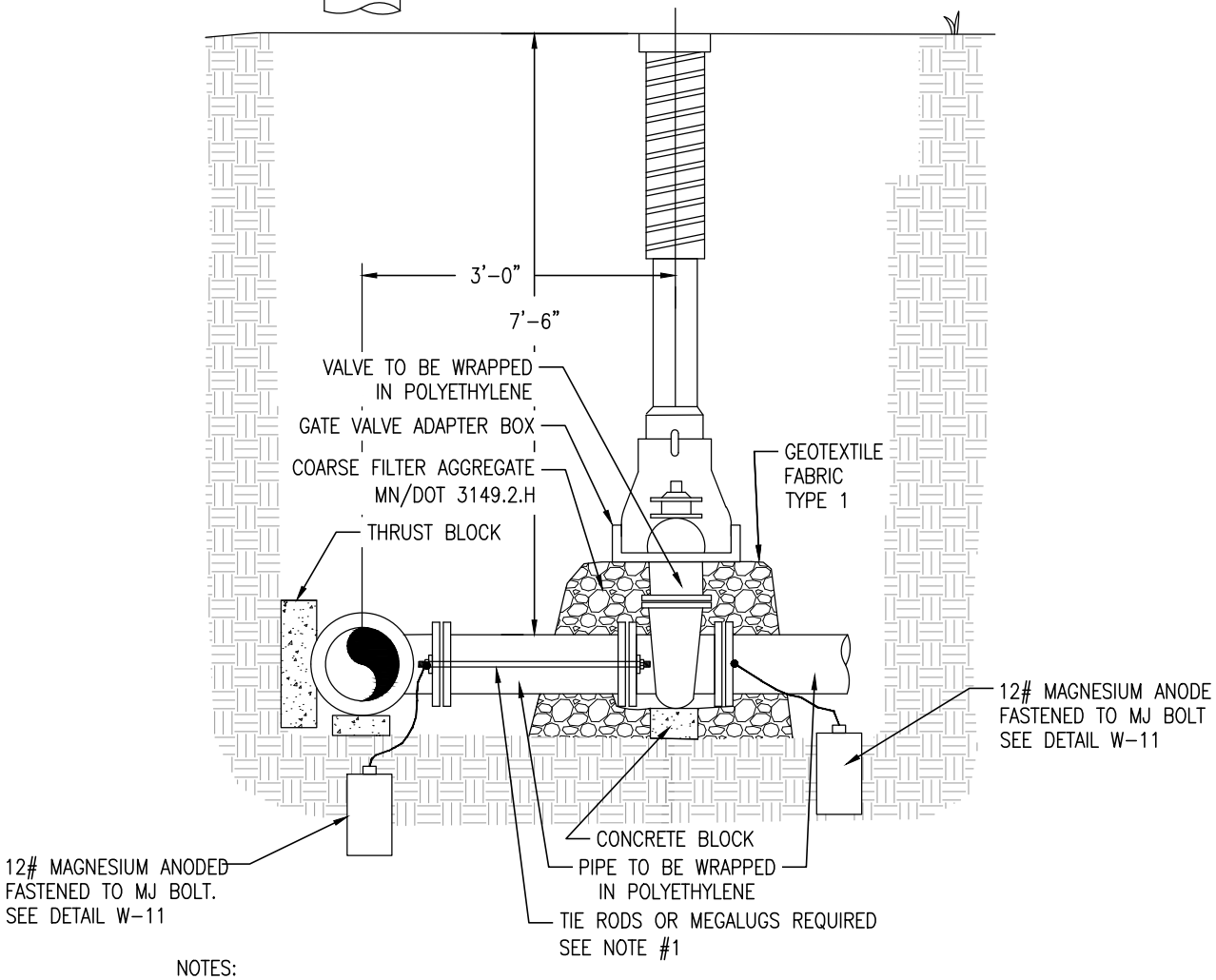
NOTES

1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
3. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
4. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Hermantown Minnesota	4" & LARGER WATER SERVICE – HDPE	W-4B	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

NOTE: ON EXISTING WATER MAINSS, HOT TAPS SHALL BE PERFORMED FOR NEW SERVICES WHEN POSSIBLE.

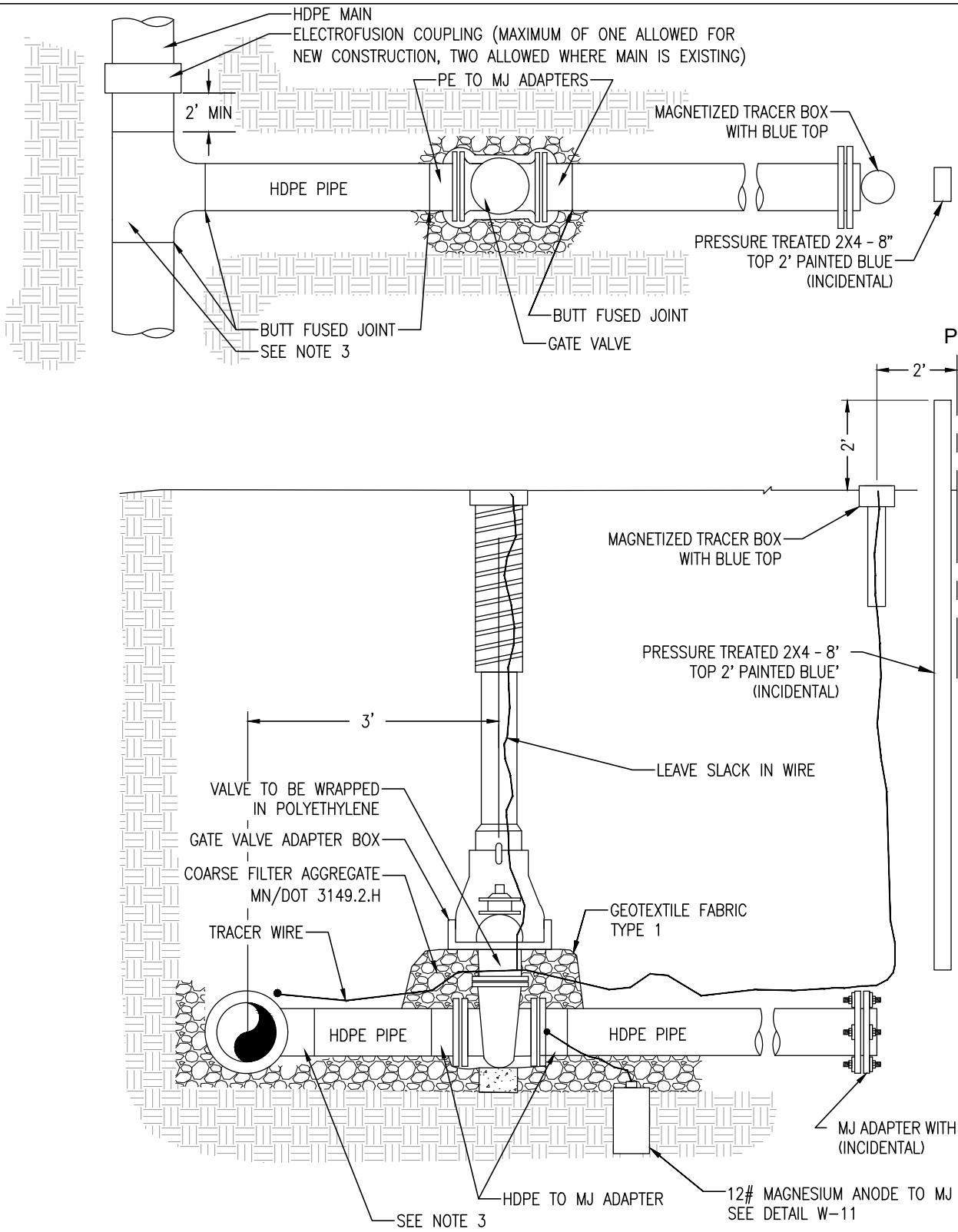




NOTES:

1. VALVES SHALL BE CONNECTED DIRECTLY TO AN ANCHORING TEE. WHENEVER DIRECT CONNECTION IS NOT POSSIBLE, TIE RODS OR MEGALUGS SHALL BE USED. TIE RODS SHALL BE GALVANIZED.
2. USE EPOXY COATING ON VALVE.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.

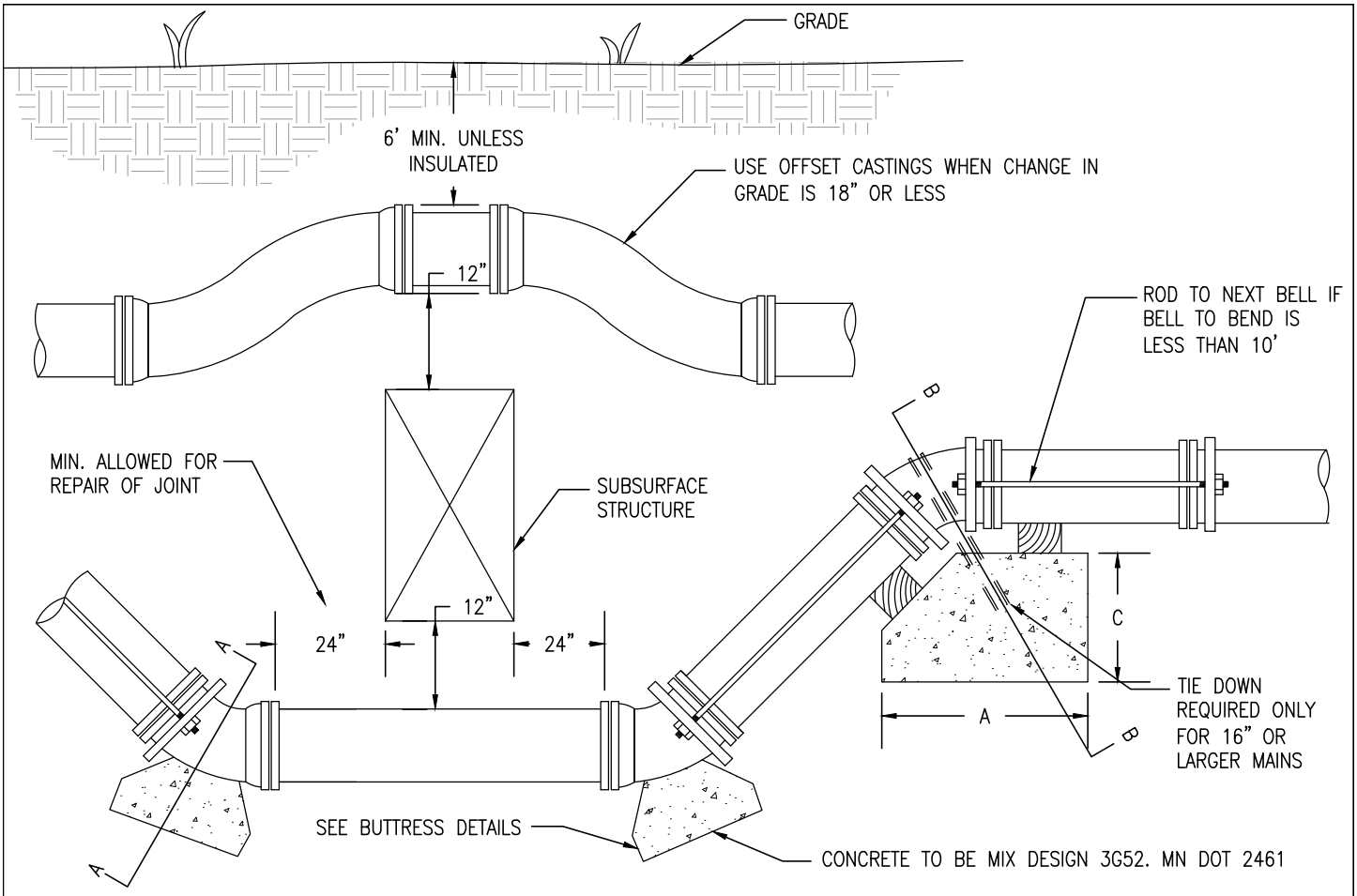
City of Hermantown Minnesota	4" & LARGER WATER SERVICE – DUCTILE IRON	W-4C	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

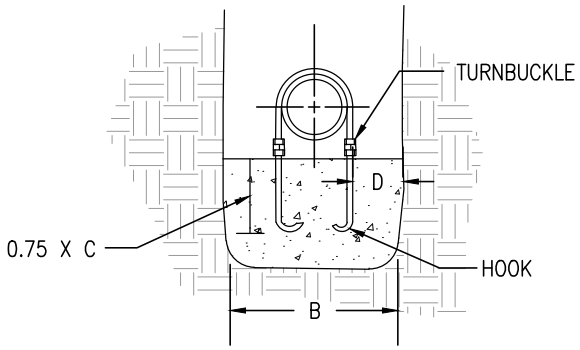


NOTES

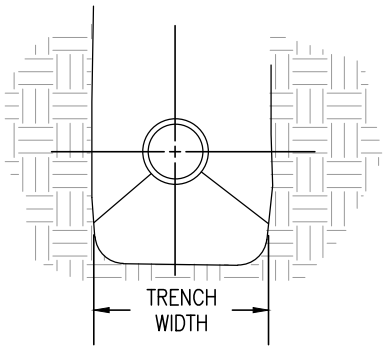
1. VALVES SHALL BE CONNECTED DIRECTLY TO MECHANICAL JOINT ADAPTER.
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
3. FOR 8" MAINS, CONTRACTOR SHALL USE AN 8 X 8 TEE WITH A MACHINED 8 X 6 REDUCER OR AN 8 X 6 ELECTROFUSION BRANCH SADDLE. FOR LARGER DIMENSION MAINS A FABRICATED TEE WITH A 6" BRANCH OUTLET MAY BE USED.
4. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODES SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

City of Hermantown Minnesota	4" & LARGER WATER SERVICE WITH CAP – HDPE	W-4D	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022





SECTION B–B



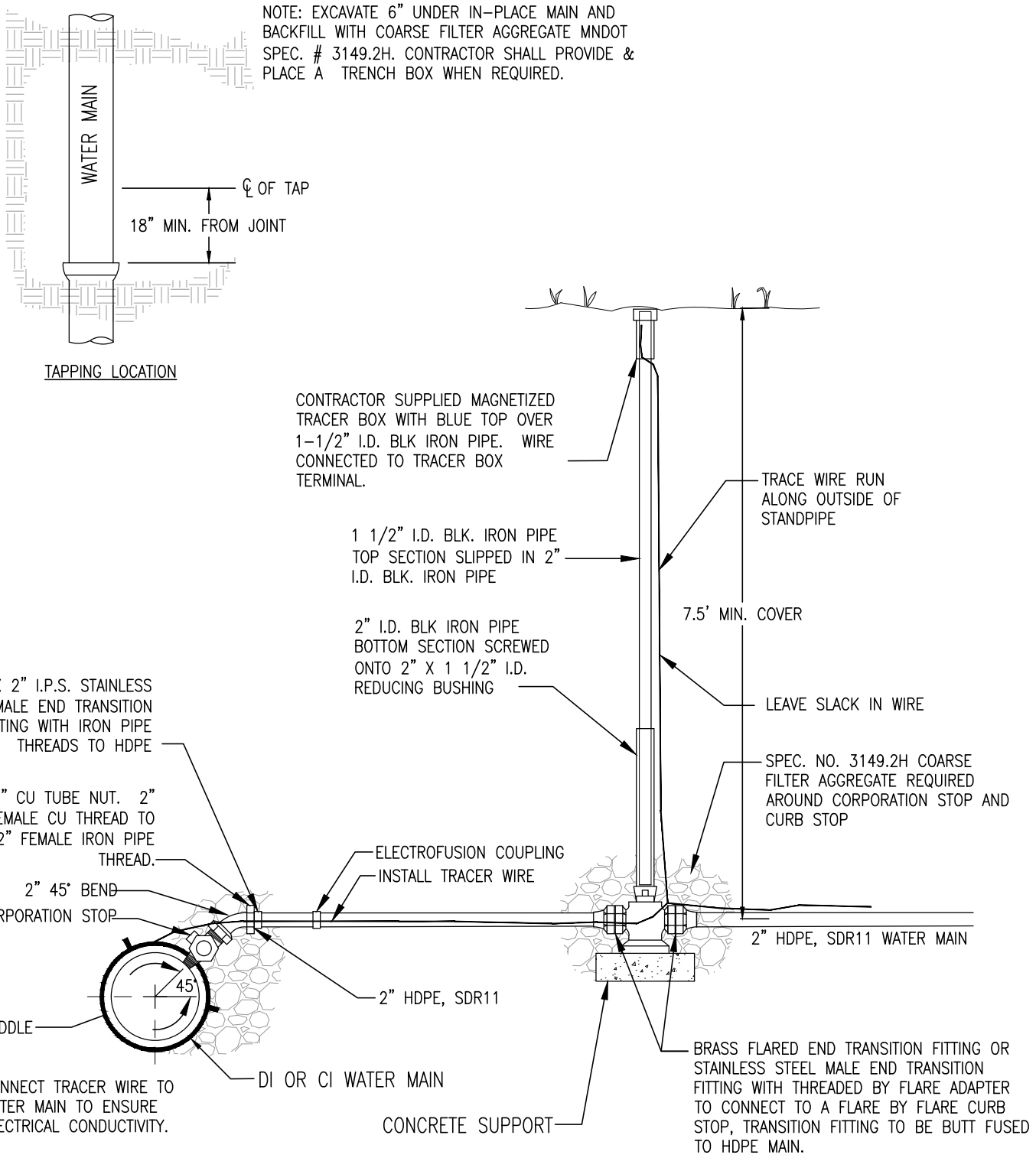
SECTION A–A

NOTES:

1. TIE RODS, BOLTS, NUTS, BANDS, AND WASHERS TO BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY CONTRACTOR. ALL RODS AND CONNECTING HARDWARE SHALL BE GALVANIZED. ALL BOLTS SHALL BE COR–TEN WITH ZINC ANODE CAPS
2. STRAPPING MATERIAL:
   - 2.1. NO. RODS 2 PER TIE
   - 2.2. DIA. RODS 1 INCH
   - 2.3. STRAP SIZE 1/2" X 2"
   - 2.4. BOLT DIA. 3/4"
   - 2.5. WASHER SIZE 1/2" X 3" X 5"
3. OFFSETS FOR 16" WATER MAIN AND LARGER, TIE DOWNS SHALL BE INSTALLED AS SHOWN. TURNBUCKLE AND BLOCK SIZES:

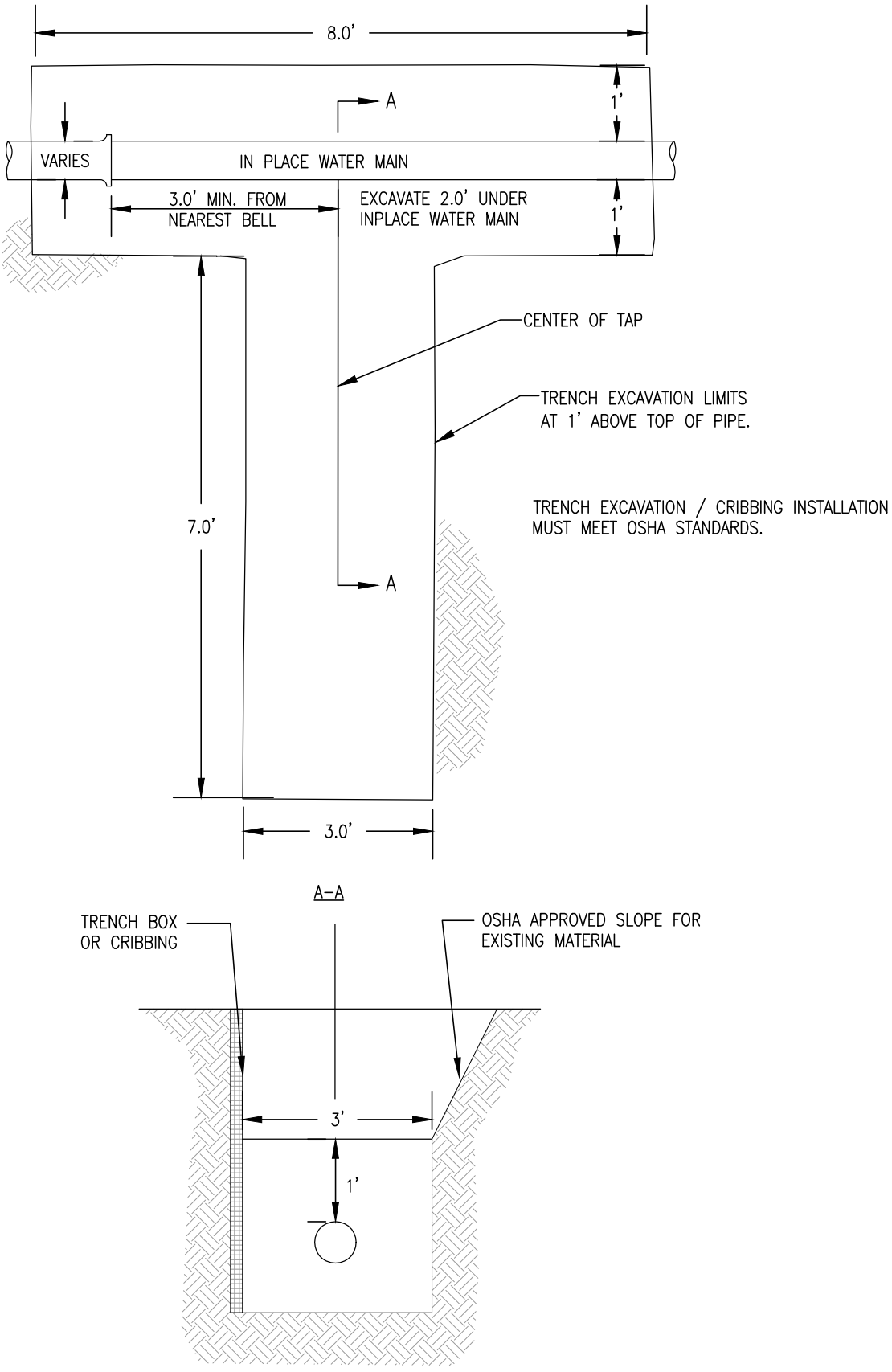
PIPE SIZE	A	B	C	D
16"	6'–0"	2'–6"	3'–0"	0'–1"
20"	8'–0"	3'–0"	3'–0"	0'–1 1/4"
24"	8'–0"	3'–0"	5'–0"	0'–1 1/2"
30"	8'–0"	5'–0"	5'–0"	0'–2"

City of Hermantown Minnesota	STRAPPING WATER MAIN VERTICAL OFFSETS	W–5	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

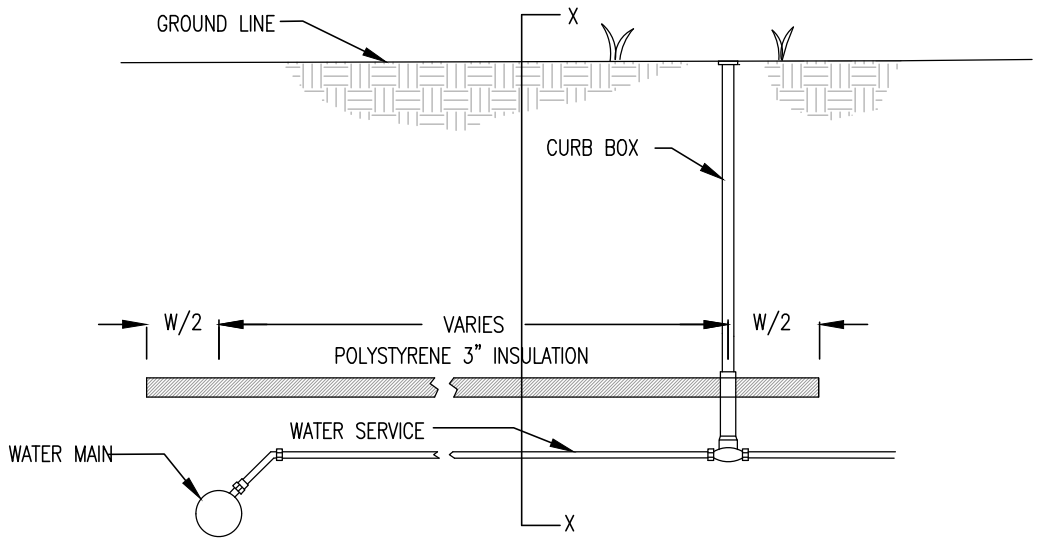


THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. THE NUMBER OF CONNECTIONS MUST BE KEPT TO A MINIMUM. ANY SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTORS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

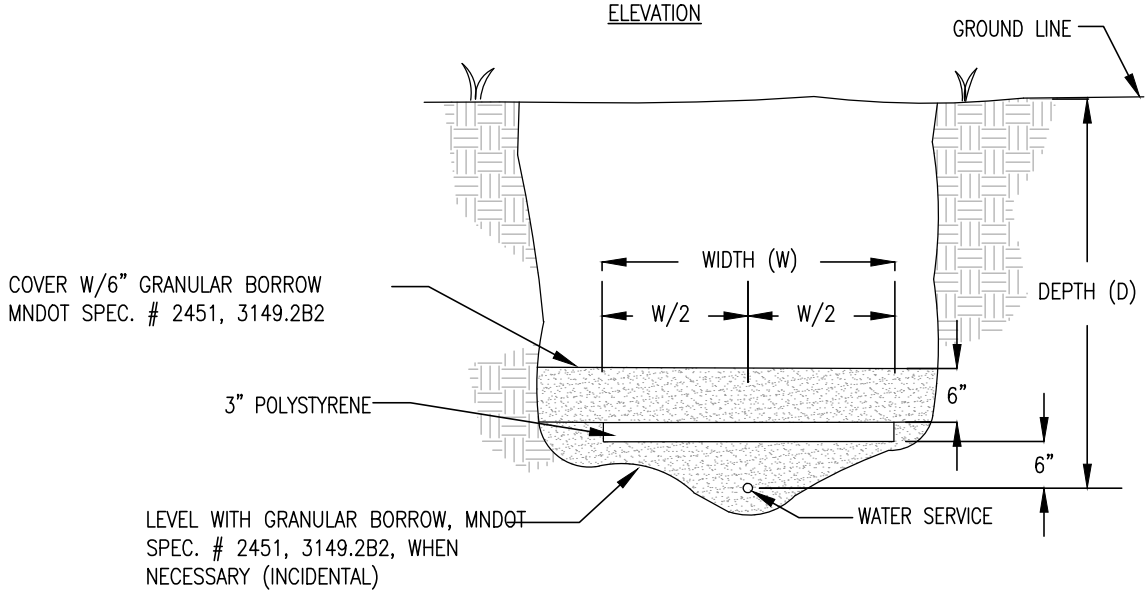
City of Hermantown Minnesota	2" HDPE WATER MAIN CONNECTION TO DI OR CI	W-6	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



City of Hermantown Minnesota	EXCAVATION FOR TAPPING SLEEVE AND VALVE	W–7	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



ELEVATION



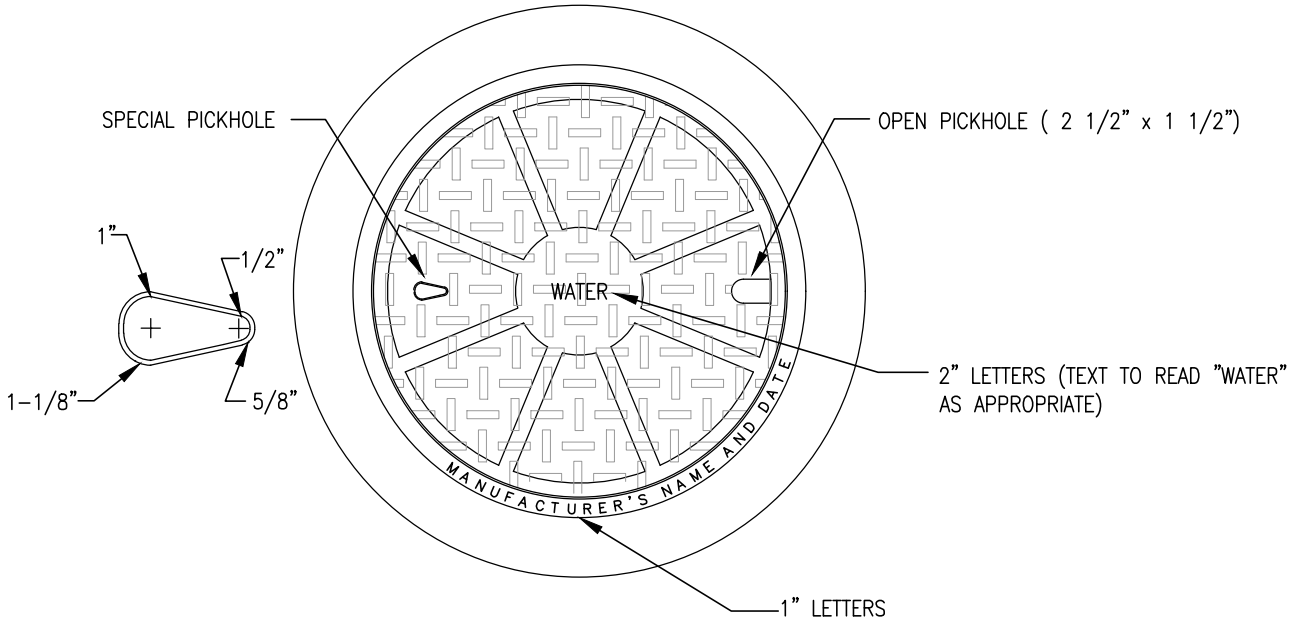
SECTION X–X

NOTES:

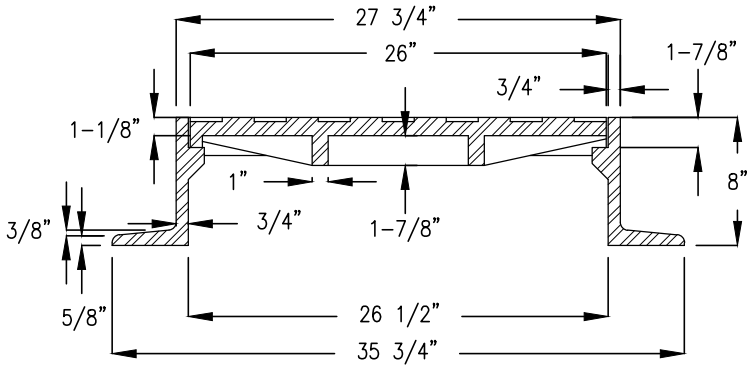
1. LAYERING OF 2 OR 3 SHEETS TO ARRIVE AT 3" IS PERMITTED WITH JOINTS OFFSET A MINIMUM OF 6".
2. POLYSTYRENE SHALL BE AS SPECIFIED IN THE CITY OF HERMANTOWN PUBLIC WORKS AND UTILITIES STANDARD CONSTRUCTION SPECIFICATIONS.
3. INSULATION SHALL ONLY BE USED WHERE APPROVED BY THE ENGINEER.

DEPTH (D)	WIDTH (W)
7' OR MORE	NONE
5.2' TO 6.9'	4'–0"
4.3' TO 5.1'	6'–0"
3.0' TO 4.2'	8'–0"

City of Hermantown Minnesota	WATER SERVICE INSULATION	W–8	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



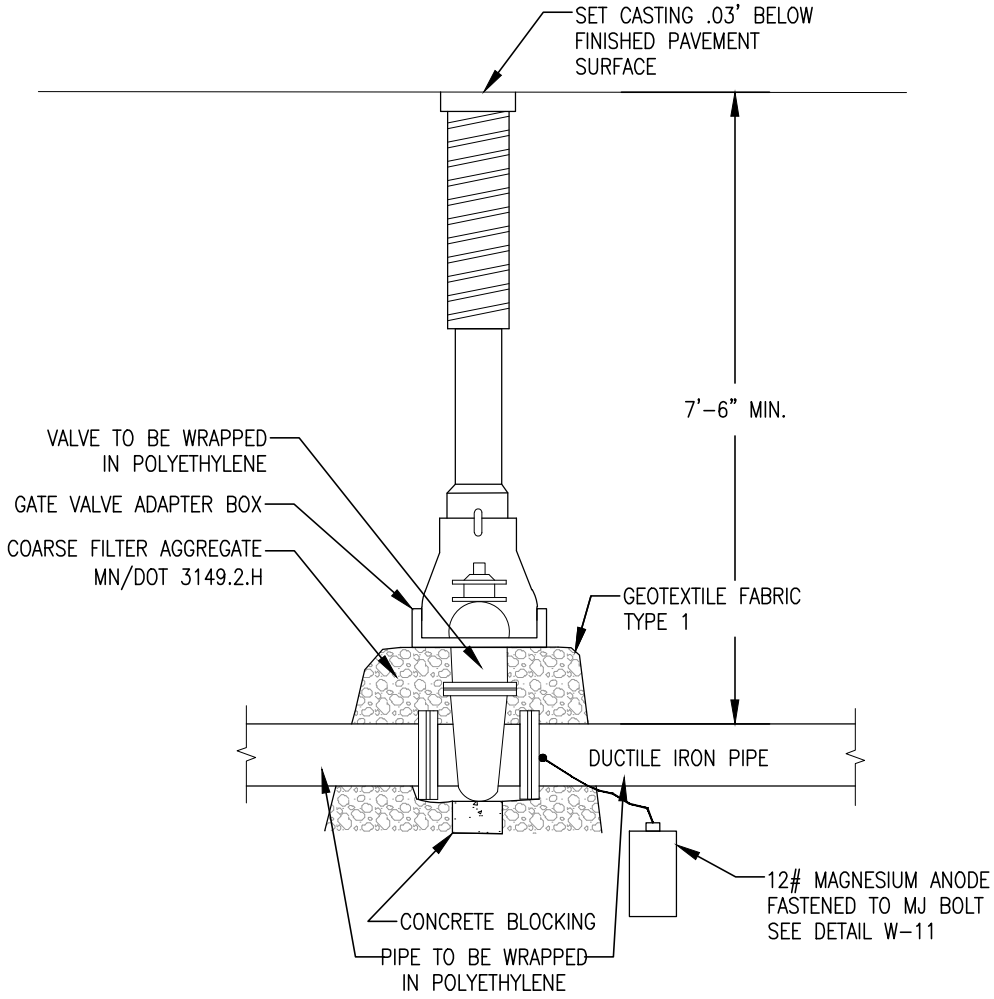
PLAN OF COVER



SECTION OF FRAME AND COVER

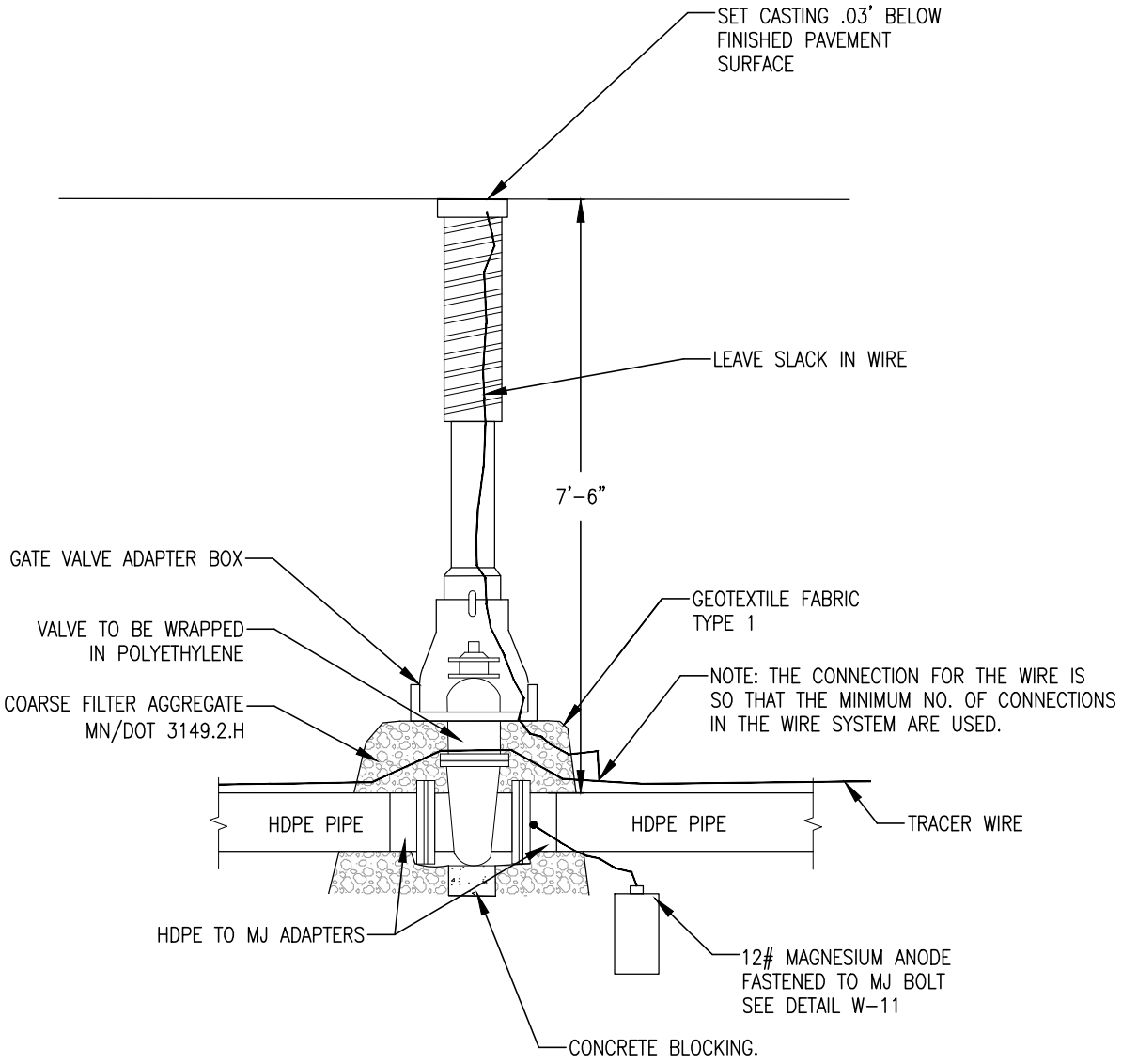
NOTE: ROUND OFF ALL EXPOSED EDGES FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
WEIGHT: RING–295 LBS. COVER – 162 LBS. SIMILAR OR EQUAL TO NEENAH FOUNDRY NQR–1723 (EXCEPT WITH LETTERING AS NOTED)

City of Hermantown Minnesota	CAST IRON WATER MANHOLE FRAME AND COVER	W–9	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES:
1. USE EPOXY COATING ON EXTERIOR OF VALVES
2. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.

City of Hermantown Minnesota	WATER VALVE BOX – DUCTILE IRON MAIN	W-10	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

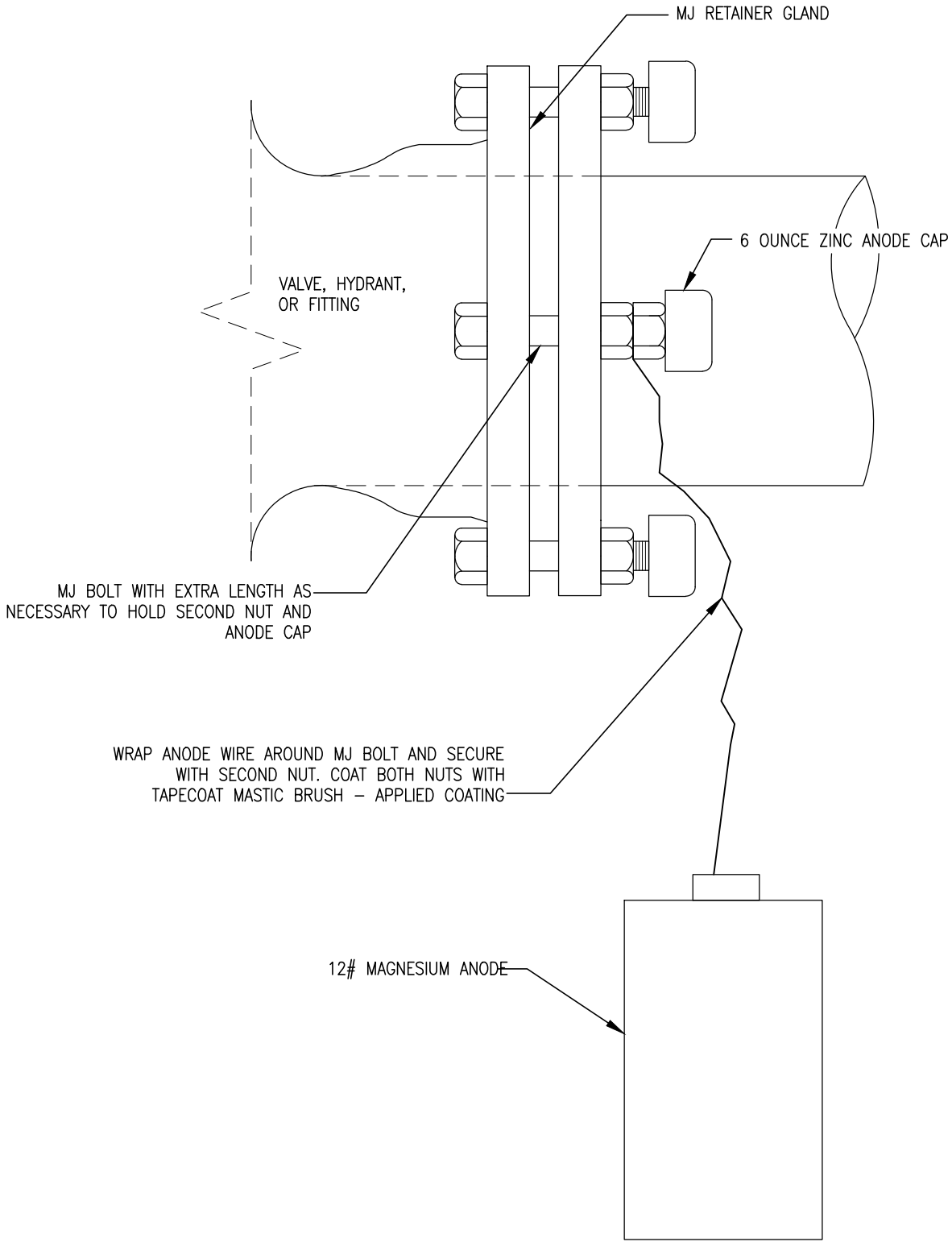


NOTES:

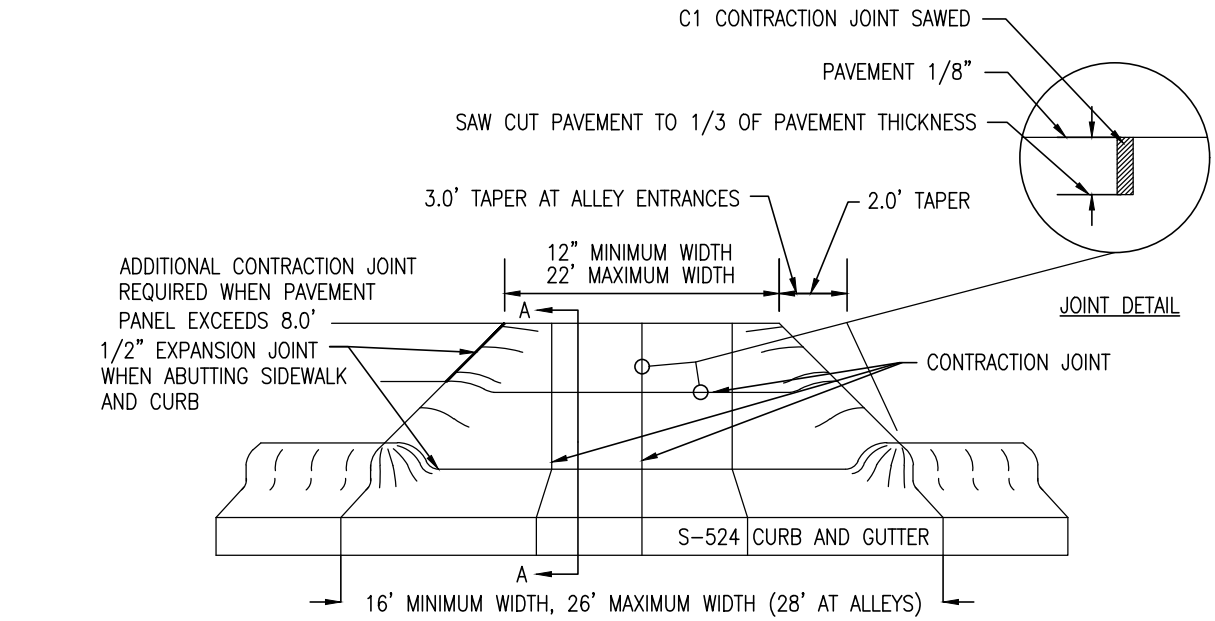
1. VALVES SHALL BE CONNECTED DIRECTLY TO HDPE WITH HDPE TO MECHANICAL JOINT ADAPTERS.
2. USE EPOXY COATING ON EXTERIOR OF VALVES.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR OPEN CUT PIPE INSTALLATIONS, ELECTROFUSION COUPLINGS ARE NOT ALLOWED FOR CONNECTION OF HDPE TO MJ ADAPTERS. FOR DIRECTIONAL DRILLED INSTALLATIONS, ONE ELECTROFUSION COUPLING MAY BE USED PER VALVE.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODE SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

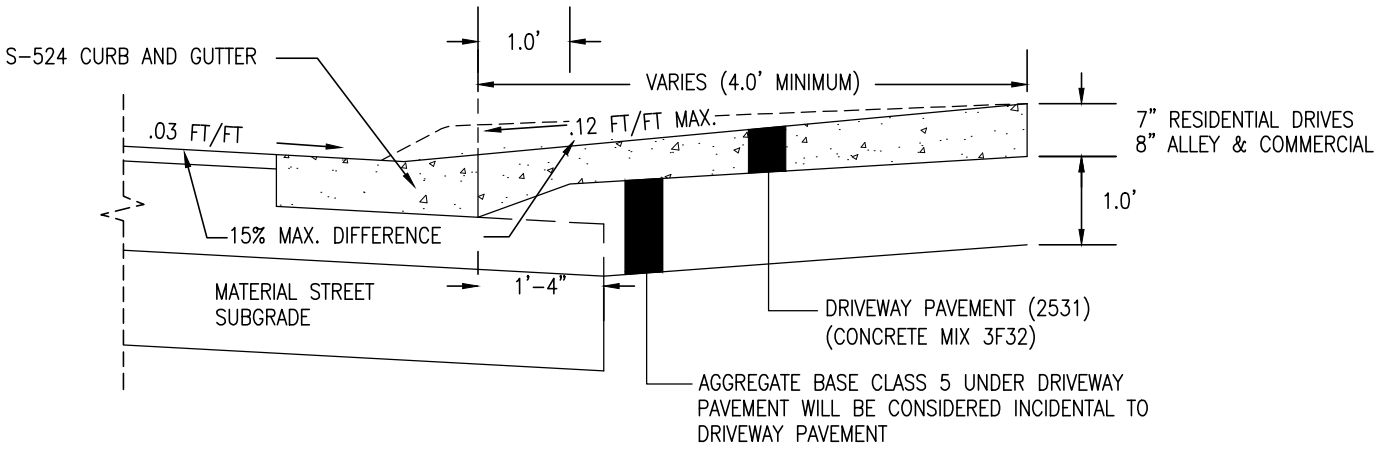
City of Hermantown Minnesota	WATER VALVE BOX – HDPE MAIN	W-10A	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

NOTE: ALL DUCTILE IRON VALVES, HYDRANTS, OR FITTINGS SHALL RECEIVE ANODES.



City of Hermantown Minnesota	ANODE CONNECTION	W–11	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



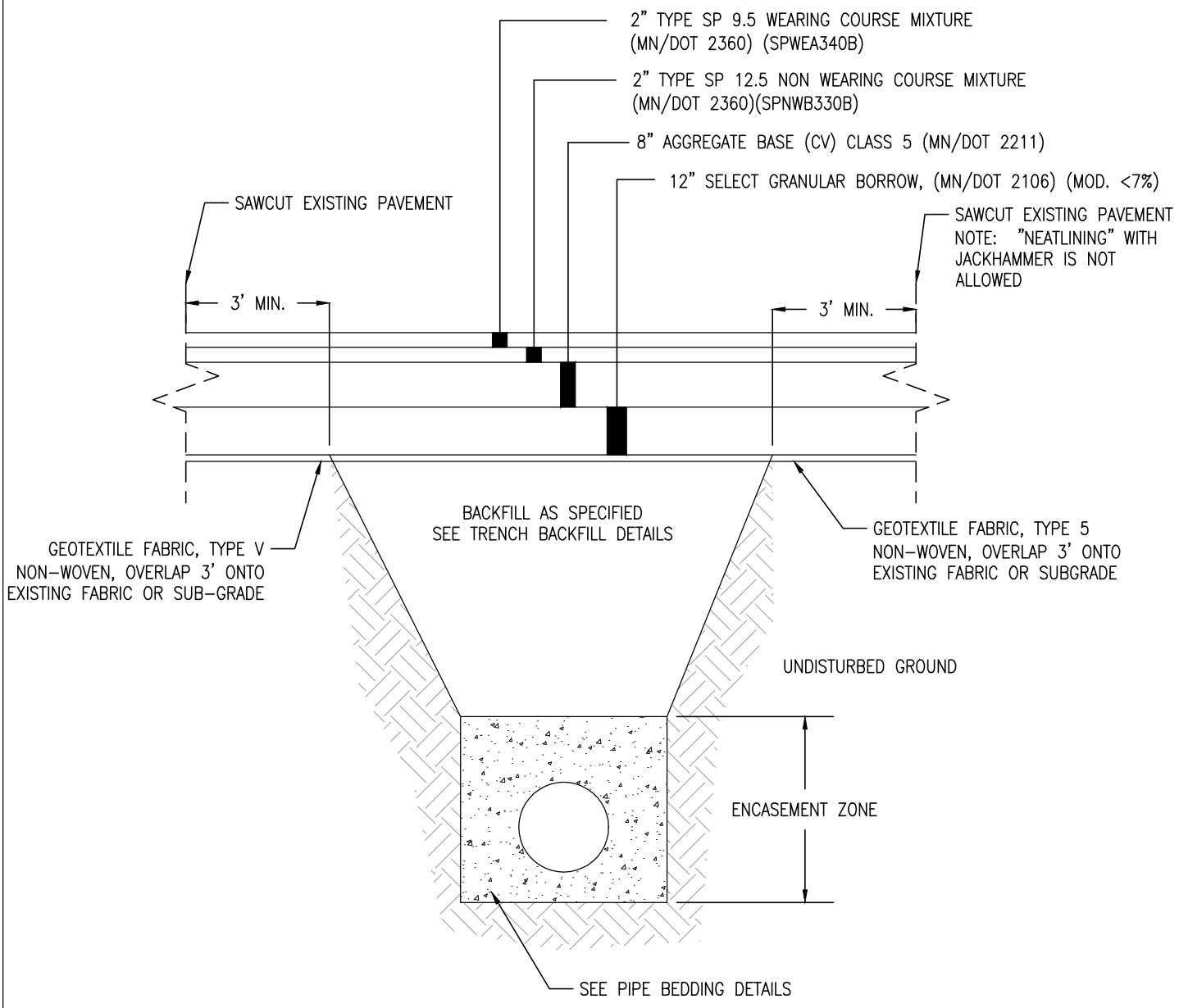


SECTION A-A

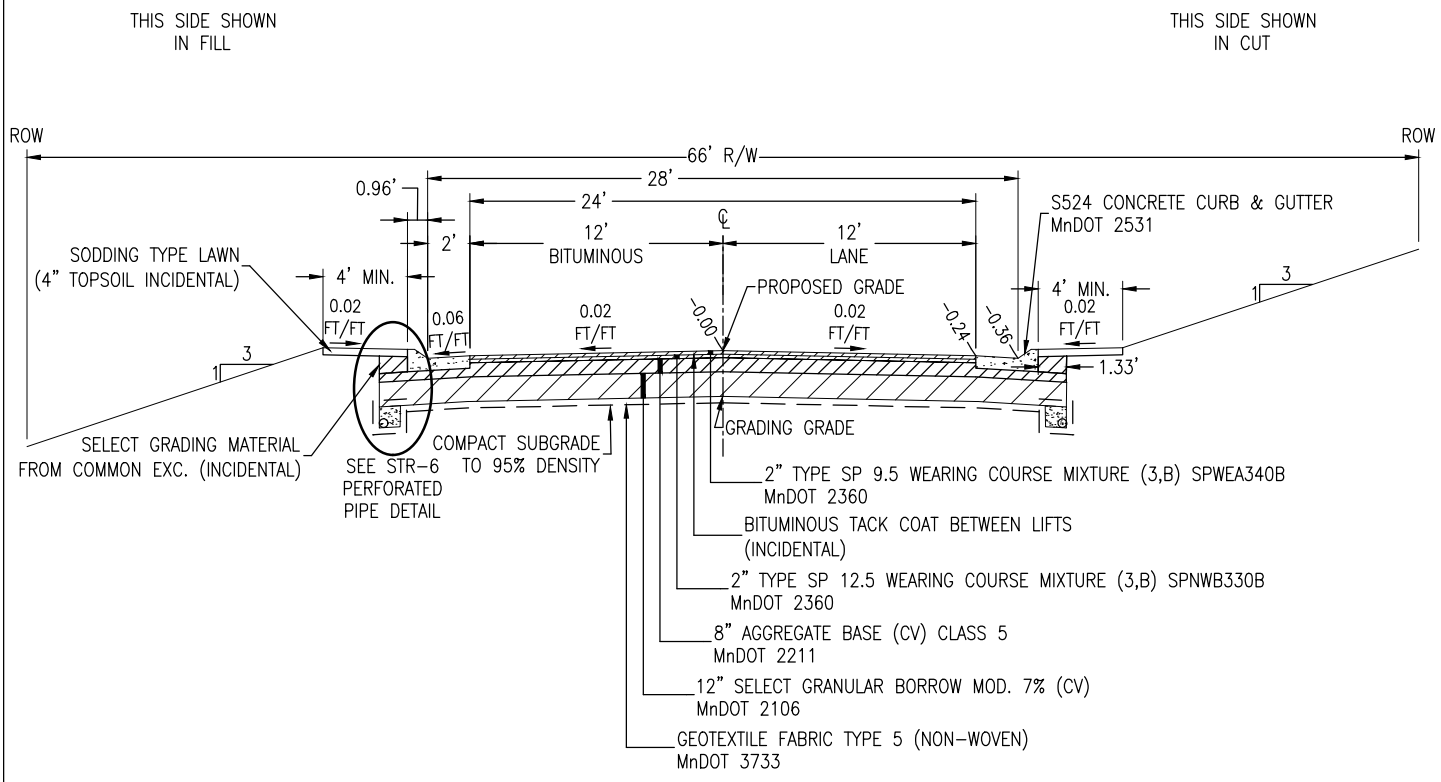
NOTES:

1. WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
2. WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS
3. WHEN SIDEWALK INTERSECTS WITH DRIVEWAY OR ALLEY ENTRANCE, SIDEWALK RAMPS MUST BE CONSTRUCTED WITH GRADE CHANGES AND CONSTRUCTION JOINTS BEING PERPENDICULAR TO THE PEDESTRIAN ACCESS ROUTE.

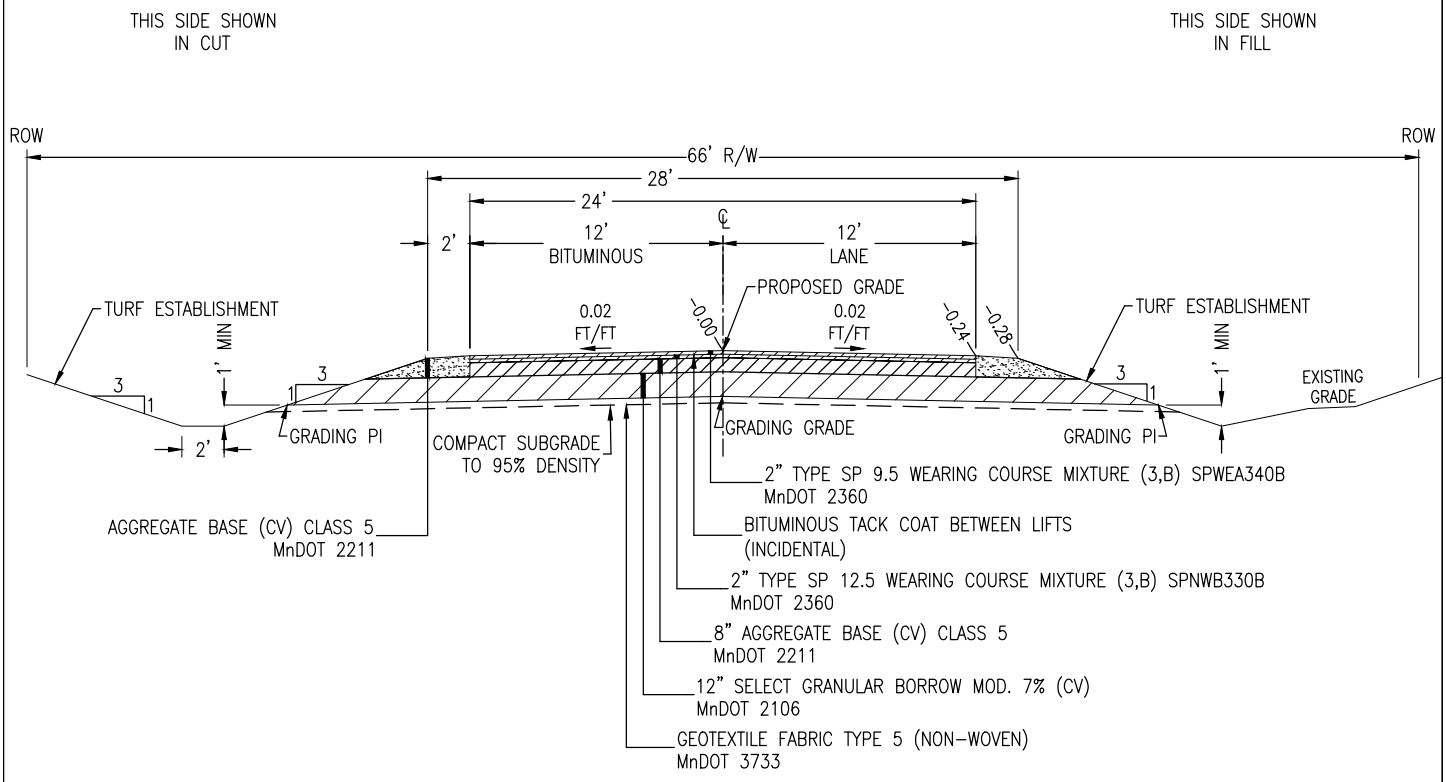
City of Hermantown Minnesota	DRIVEWAY & ALLEY ENTRANCES	STR-1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



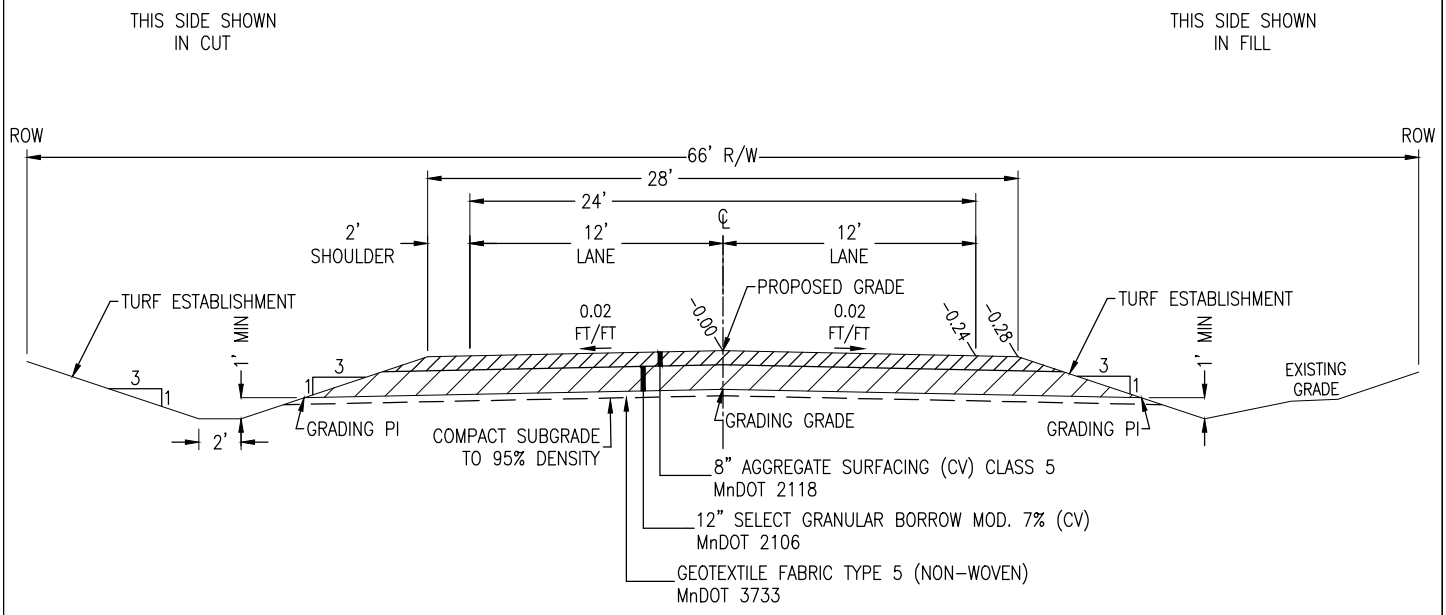
City of Hermantown Minnesota	TYPICAL STREET RESTORATION OVER TRENCH	STR-2	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



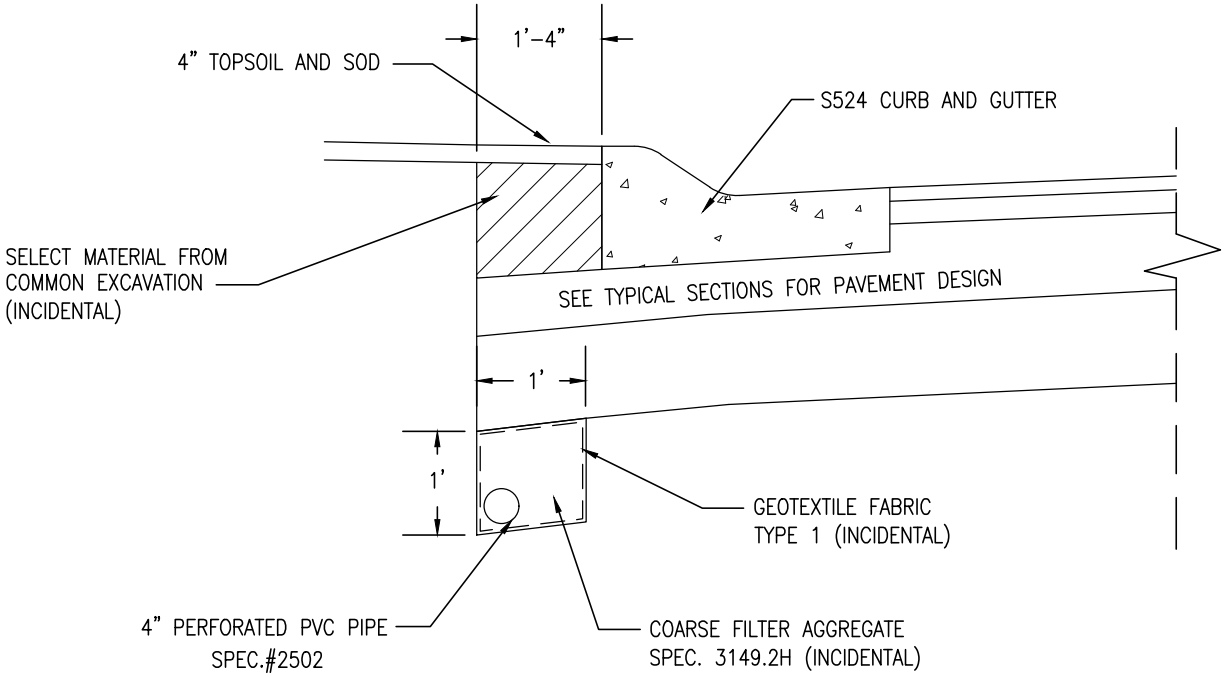
City of Hermantown Minnesota	TYPICAL URBAN STREET SECTION	STR-3	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022



City of Hermantown Minnesota	TYPICAL RURAL STREET BITUMINOUS SECTION	STR-4	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT		APPROVED 4/19/2022

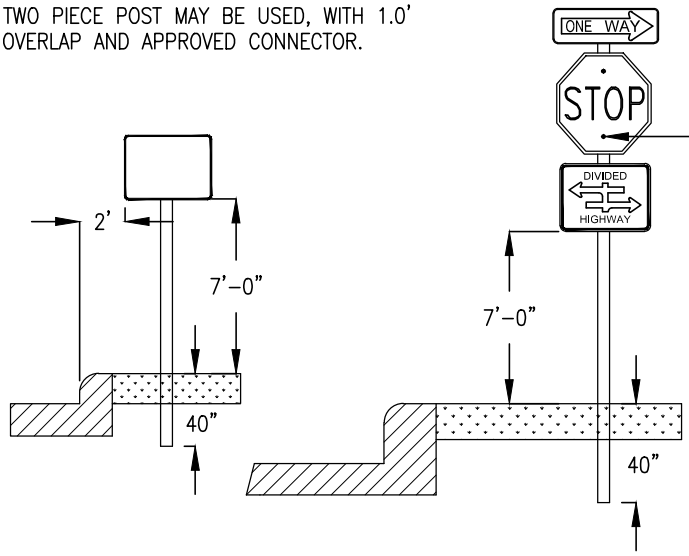


City of Hermantown Minnesota	TYPICAL RURAL STREET GRAVEL SECTION	STR-5	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

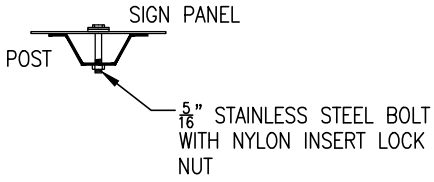


City of Hermantown Minnesota	PERFORATED PIPE DETAIL	STR-6	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	

NOTE: ALL DIMENSIONS ARE MINIMUMS. A TWO PIECE POST MAY BE USED, WITH 1.0' OVERLAP AND APPROVED CONNECTOR.



STAINLESS STEEL WASHER & NYLON WASHER (T=1/16" MIN., I.D.=3/8" MAX., O.D.=7/8" MAX.)

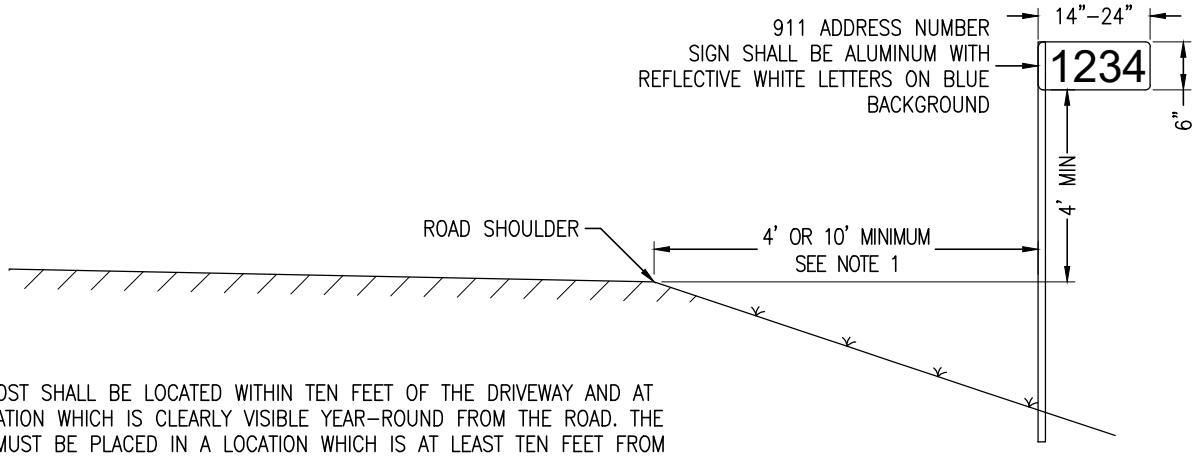


NOTE: SEE SPECIAL PROVISIONS FOR SIGN AND AND POST SPECIFICATIONS.

SIGN PANEL TO POST CONNECTION

ALL MATERIALS AND LABOR USED TO RELOCATE EXISTING SIGN AS SHOWN, SHALL BE INCLUDED IN THIS PAY ITEM:

City of Hermantown Minnesota	SIGN INSTALLATION DETAIL	T-1	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	



NOTES:

1. THE POST SHALL BE LOCATED WITHIN TEN FEET OF THE DRIVEWAY AND AT A LOCATION WHICH IS CLEARLY VISIBLE YEAR–ROUND FROM THE ROAD. THE POST MUST BE PLACED IN A LOCATION WHICH IS AT LEAST TEN FEET FROM THE EDGE OF THE ROAD SURFACE FOR ROADS WITH A DEFINED SHOULDER OR AT LEAST FOUR FEET FROM THE EDGE OF THE ROAD SURFACE FOR ROADS WITHOUT A DEFINED SHOULDER AND, IN ANY CASE, NOT FARTHER FROM THE ROAD THAN THE END OF THE RIGHT–OF–WAY.
2. POST SHALL BE 1.2#/FT GALVANIZED U–CHANNEL
3. ASSIGNED ADDRESS NUMBER MUST BE ON BOTH SIDES OF THE SIGN.
4. THE SIGN SHALL BE INSTALLED ON THE POST FROM ONE EDGE AND EXTEND PERPENDICULARLY AWAY FROM THE ROAD.

City of Hermantown Minnesota	911 ADDRESS SIGN	T–2	NO SCALE
	CITY OF HERMANTOWN STANDARD DETAIL PUBLIC WORKS DEPARTMENT	APPROVED 4/19/2022	