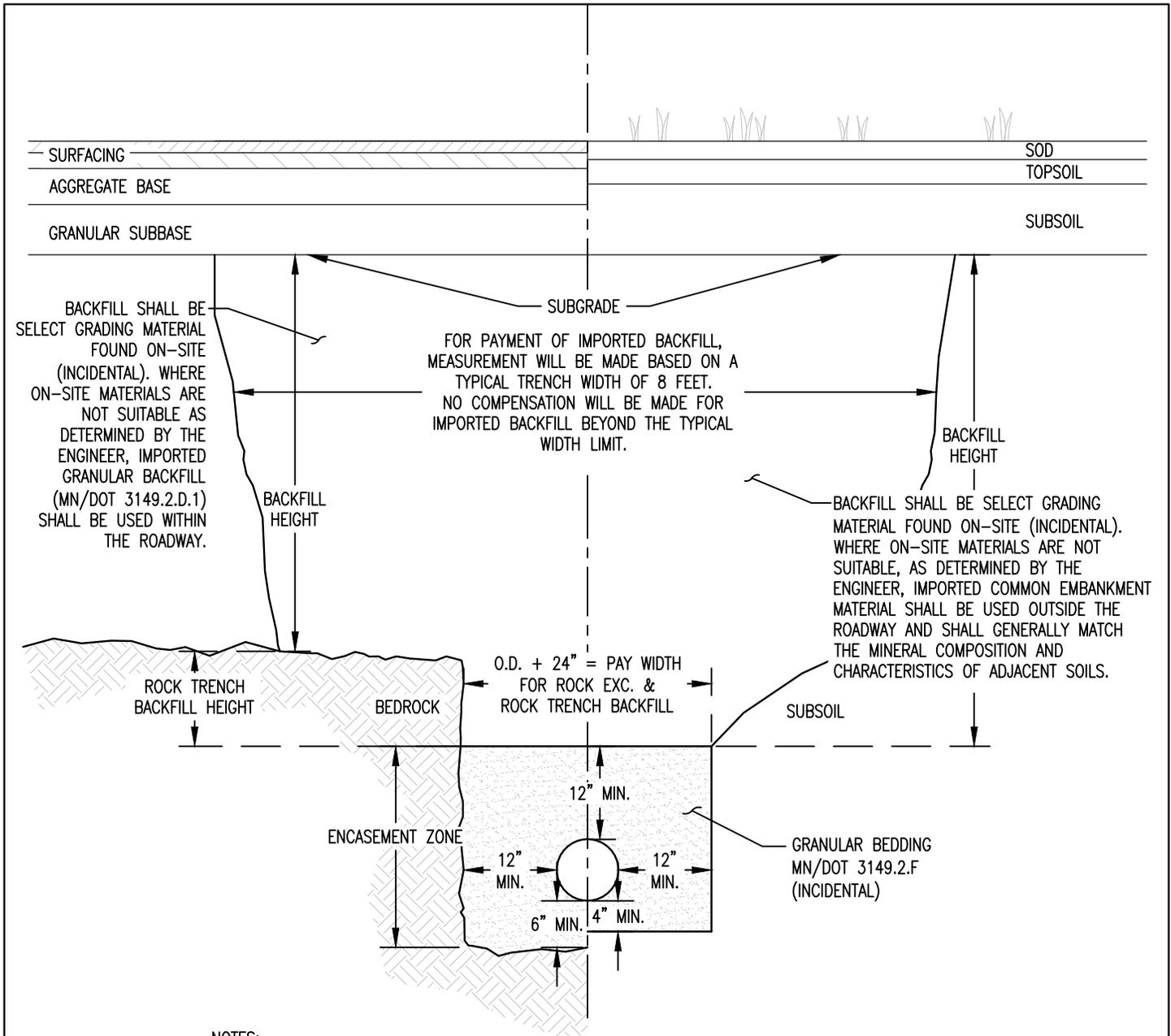


LEAD SERVICE LINE REPLACEMENT DETAILS

- LSLR-1 HDPE WATER MAIN ENCASEMENT & BACKFILL
- LSLR-2 HDPE WATER SERVICE ENCASEMENT & BACKFILL
- LSLR-3 REMOVE & REPLACE STREET SECTION TYPE 'A'
- LSLR-4 REMOVE & REPLACE STREET SECTION TYPE 'B'
- LSLR-5 REMOVE & REPLACE STREET SECTION TYPE 'C'
- LSLR-6 REMOVE & REPLACE STREET SECTION TYPE 'D'
- LSLR-7 REMOVE & REPLACE STREET SECTION TYPE 'E'
- LSLR-8 REMOVE & REPLACE STREET SECTION TYPE 'F'
- LSLR-9 REMOVE & REPLACE STREET SECTION TYPE 'G'
- LSLR-10 REPLACE CURB STOP
- LSLR-11 CONNECT TO EXISTING COPORATION STOP
- LSLR-12 ACCEPTABLE WATER SERVICE CONNECTION LAYOUTS
- LSLR-13 CONNECT TO EXISTING INDOOR PLUMBING
- LSLR-13A INTERIOR ABANDONMENT OF LEAD WATER SERVICE
- LSLR-14A WATER SERVICE INSULATION
- LSLR-14B WATER SERVICE INSULATION EXTENTS
- LSLR-15 PUBLIC SIDE LEAD WATER SERVICE REPLACEMENT
- LSLR-16 PRIVATE SIDE LEAD WATER SERVICE REPLACEMENT
- LSLR-17 FULL LEAD WATER SERVICE REPLACEMENT
- LSLR-18 BRACH AND OPPOSING LEAD WATER SERVICE REPLACEMENT
- LSLR-19 HDPE EXTRA BRANCH LAYOUT



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 EXCAVATION - ROCK 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. 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'.

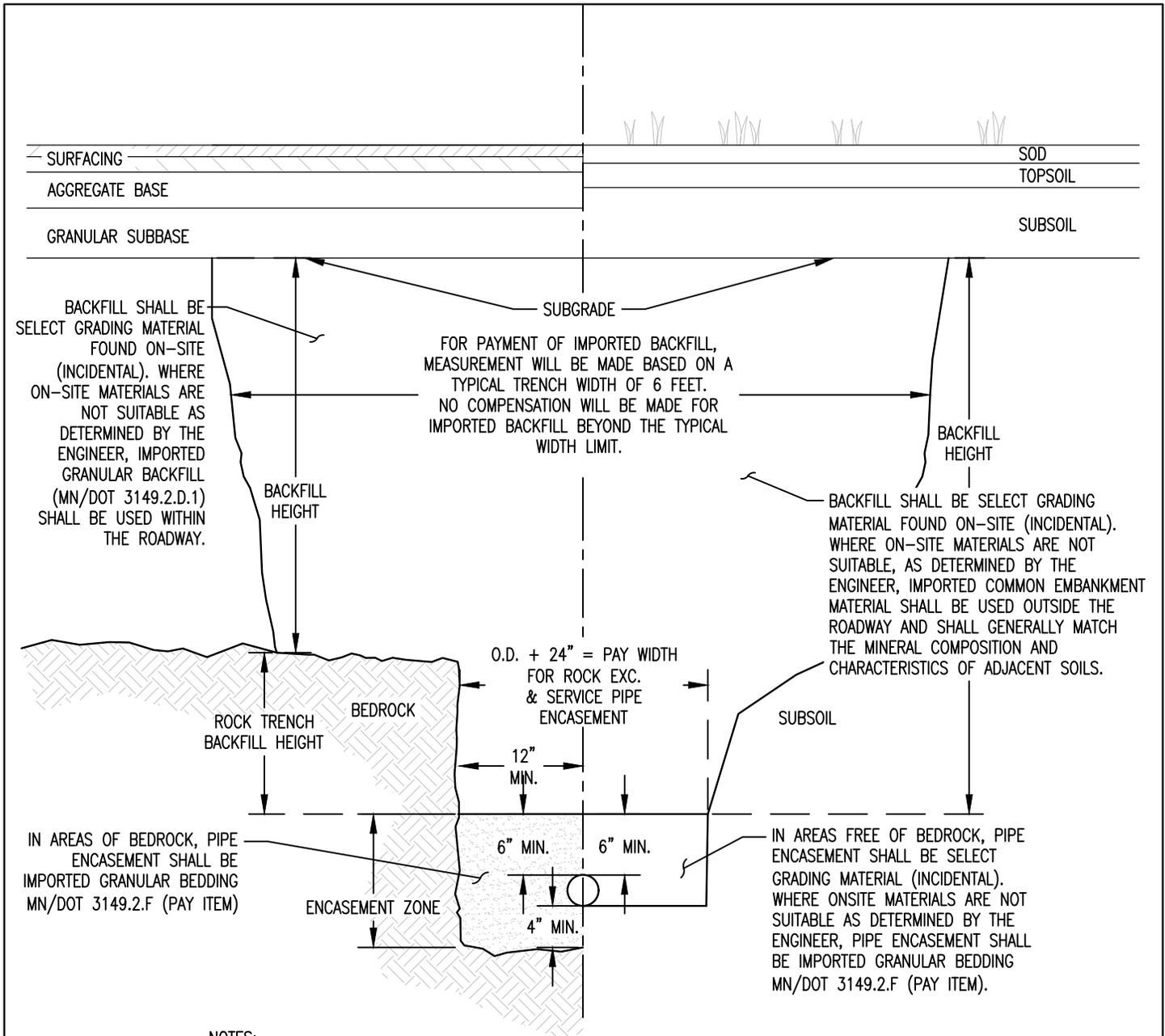
HDPE WATER MAIN ENCASEMENT & BACKFILL

LSLR-1

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



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 EXCAVATION - ROCK 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. 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'.

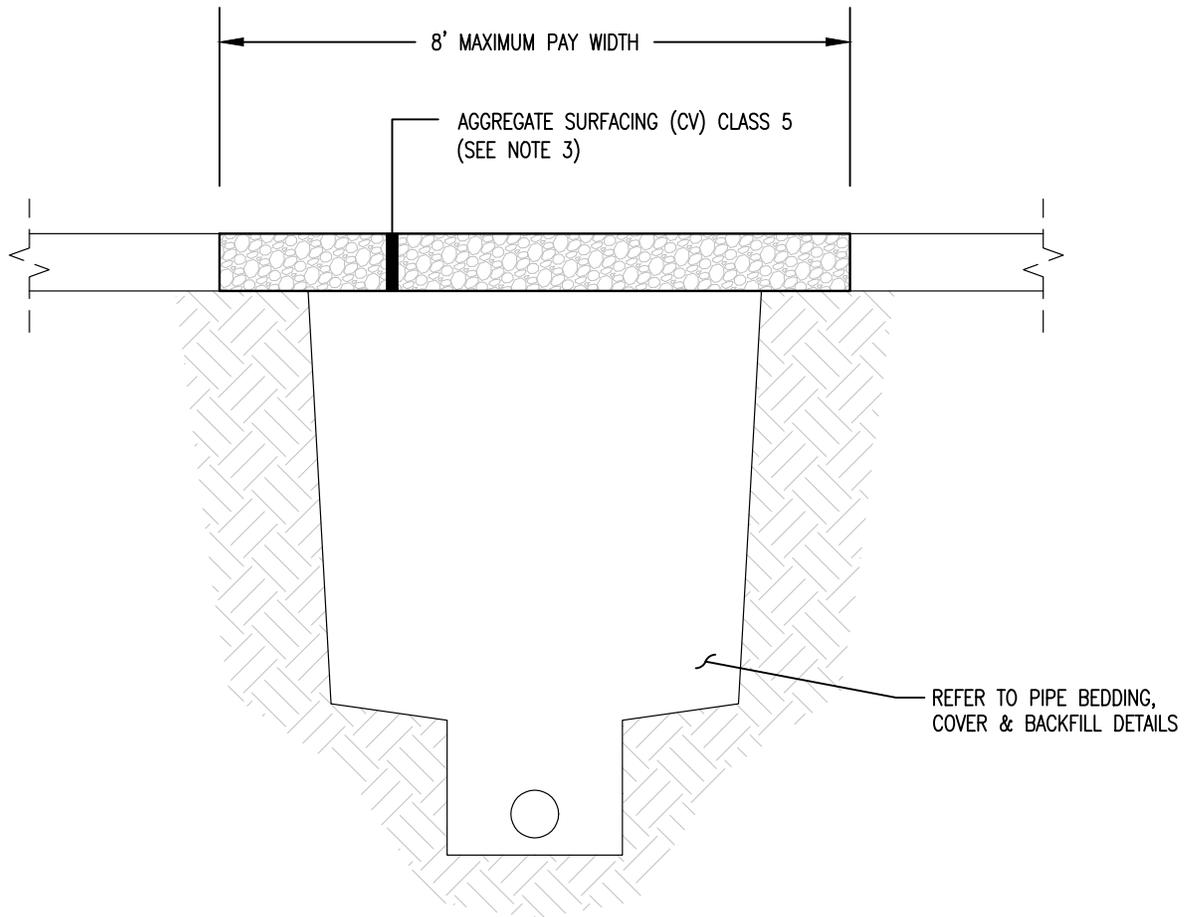
HDPE WATER SERVICE ENCASEMENT & BACKFILL

LSLR-2

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "A" SHALL BE CONSTRUCTED WHERE EXISTING STREET SURFACE IS AGGREGATE SURFACING.
2. MAXIMUM PAY LENGTH AND WIDTH SHALL BE DETERMINED BY THE MAXIMUM PAY LIMITS DETAILS.
3. AGGREGATE SURFACING (CV) CLASS 5 SHALL MATCH THE EXISTING SURFACING THICKNESS OR 12", WHICHEVER IS GREATER.
4. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
5. INCLUDES PROTECTING, REPAIRING OR REPLACING CURB DRAIN IF PRESENT (INCIDENTAL).
6. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET RESTORATION TYPE 'A'" PAY ITEM.

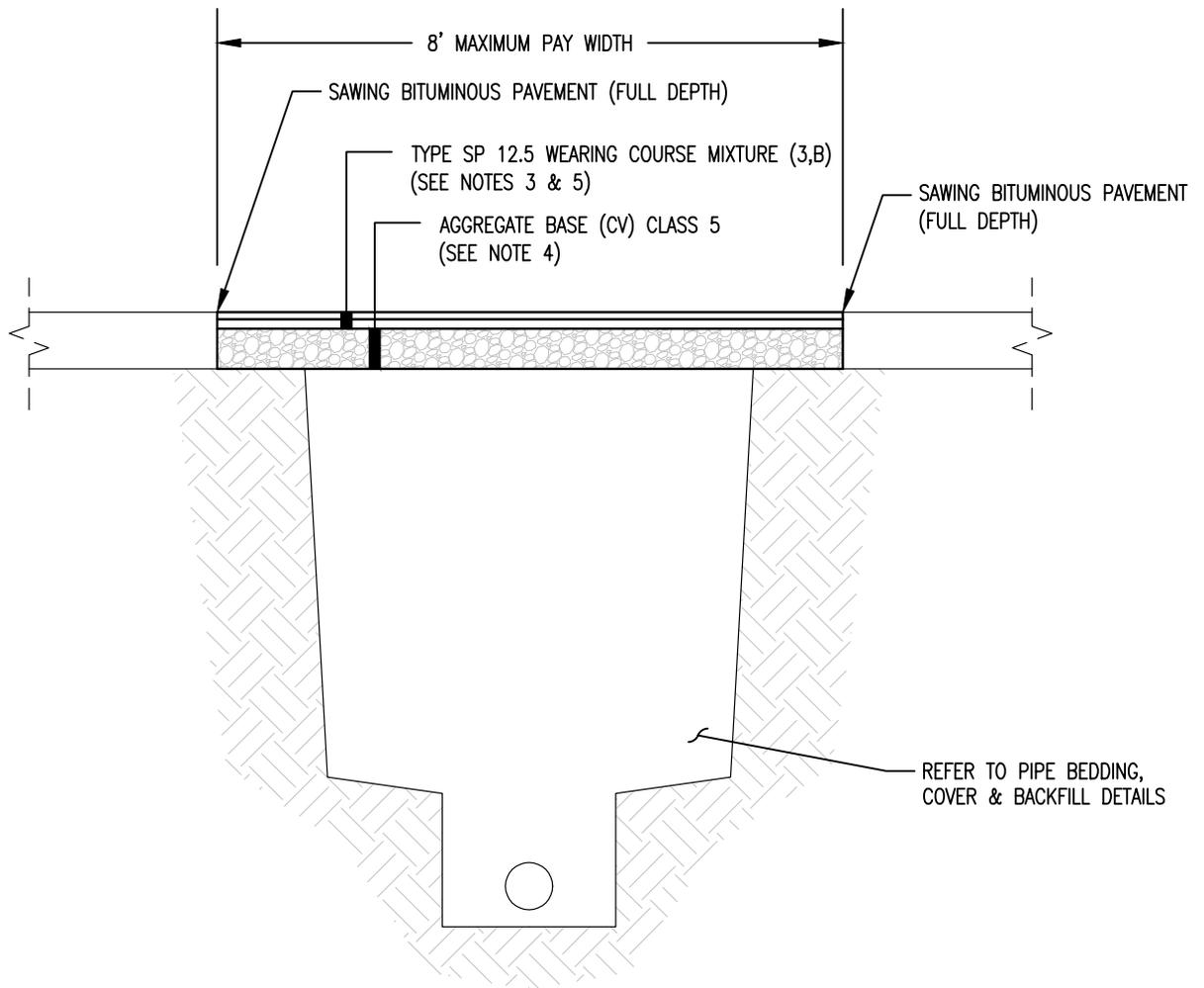
REMOVE & REPLACE STREET SECTION TYPE 'A'

LSLR-3

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "B" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF BITUMINOUS OVER AGGREGATE BASE WITH NO GRANULAR SUBBASE LAYER.
2. MAXIMUM PAY LENGTH AND WIDTH SHALL BE DETERMINED BY THE MAXIMUM PAY LIMITS DETAILS.
3. BITUMINOUS PAVEMENT SHALL MATCH EXISTING PAVEMENT THICKNESS OR 3.5", WHICHEVER IS GREATER.
4. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
5. BITUMINOUS SHALL BE PLACED AT 2" MAXIMUM LIFT THICKNESS.
6. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
7. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
8. INCLUDES PROTECTING, REPAIRING OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
9. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE 'B'" PAY ITEM.

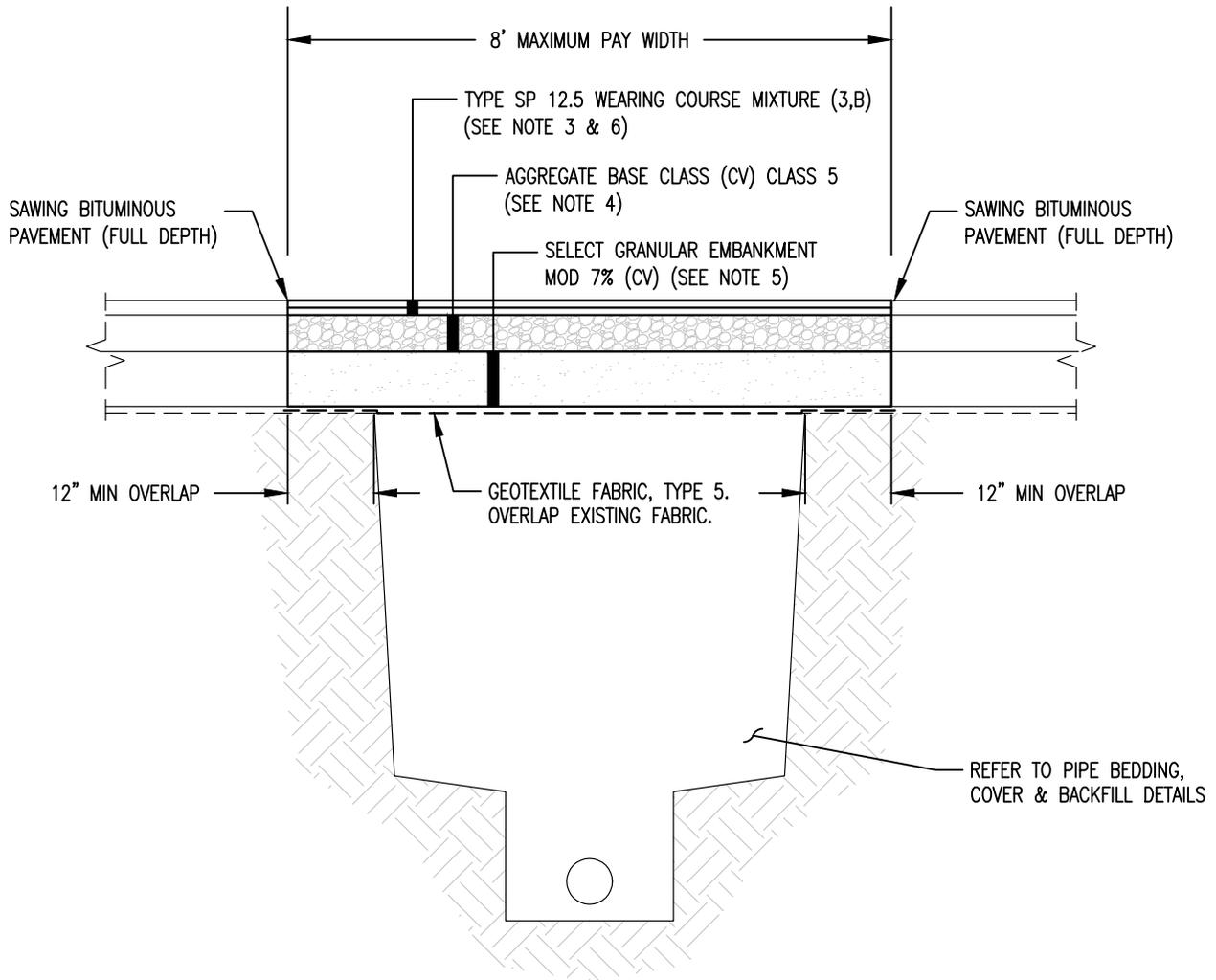
REMOVE & REPLACE STREET SECTION TYPE 'B'

LSLR-4

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "C" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF BITUMINOUS WITH AGGREGATE BASE & GRANULAR SUBBASE LAYERS.
2. MAXIMUM PAY LENGTH AND WIDTH SHALL BE DETERMINED BY THE MAXIMUM PAY LIMITS DETAILS.
3. BITUMINOUS PAVEMENT SHALL MATCH EXISTING PAVEMENT THICKNESS OR 3.5", WHICHEVER IS GREATER.
4. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
5. SELECT GRANULAR EMBANKMENT MOD 7% (CV) SHALL MATCH EXISTING SUBBASE THICKNESS OR 12", WHICHEVER IS GREATER.
6. BITUMINOUS SHALL BE PLACED AT 2" MAXIMUM LIFT THICKNESS.
7. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
8. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
9. INCLUDES PROTECTING AND/OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
10. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE "C" PAY ITEM.

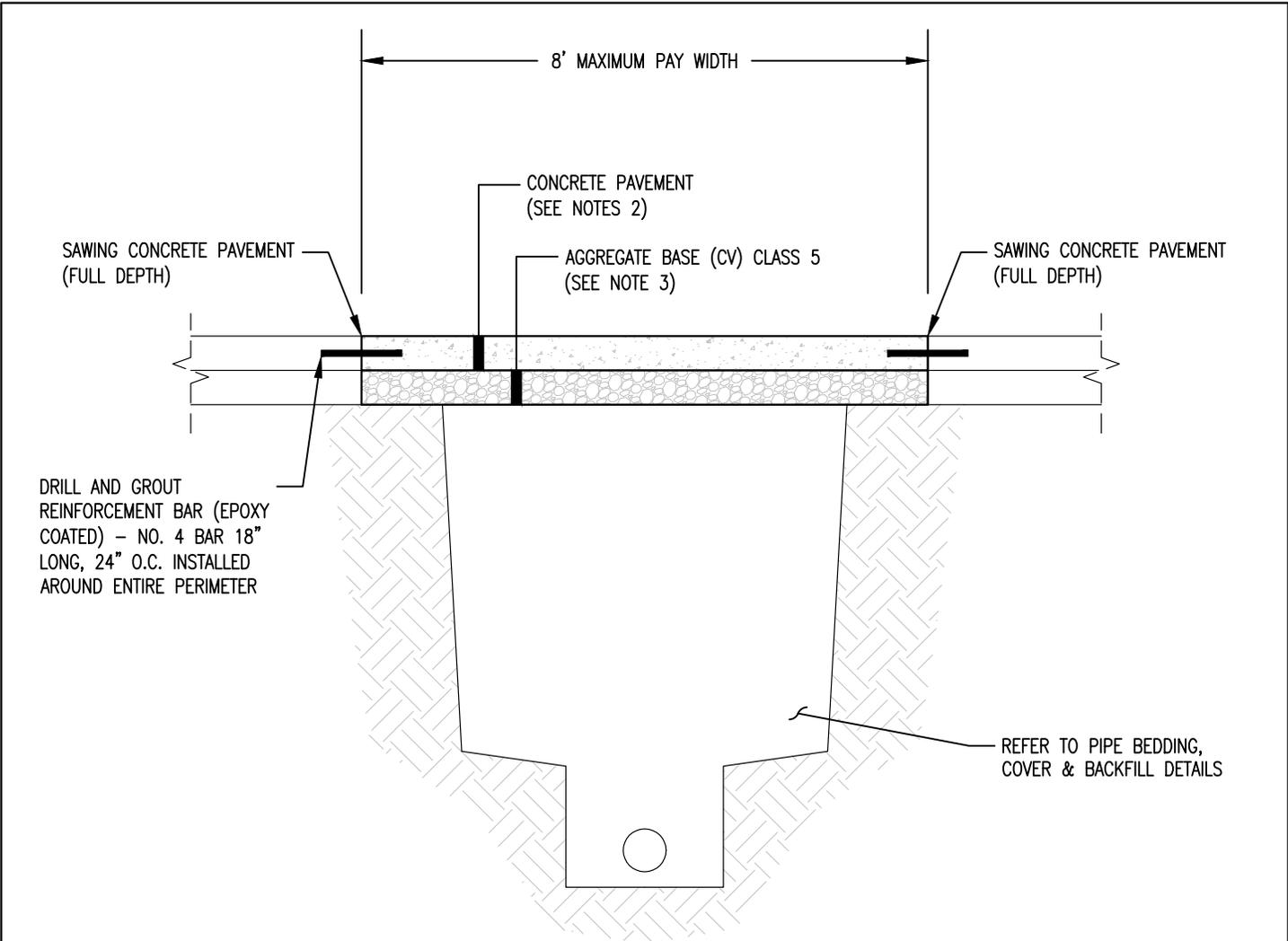
REMOVE & REPLACE STREET SECTION TYPE 'C'

LSLR-5

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "D" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF UP TO 8" OF CONCRETE PAVEMENT WITH AGGREGATE BASE, & NO GRANULAR SUBBASE LAYER.
2. FULL CONCRETE PANELS SHALL BE REPLACED TO EXISTING JOINTS. THE MAXIMUM PAY LIMIT WILL BE ADJUSTED TO PROVIDE COMPENSATION FOR REPLACEMENT OF FULL PANELS.
3. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
4. FOR CONCRETE PATCHES THAT FALL ON EXISTING CONTRACTION JOINTS, DOWEL BARS WILL BE PAID UNDER SEPARATE ITEMS.
5. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND/OR GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
6. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
7. INCLUDES PROTECTING AND/OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
10. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE 'D'" PAY ITEM.

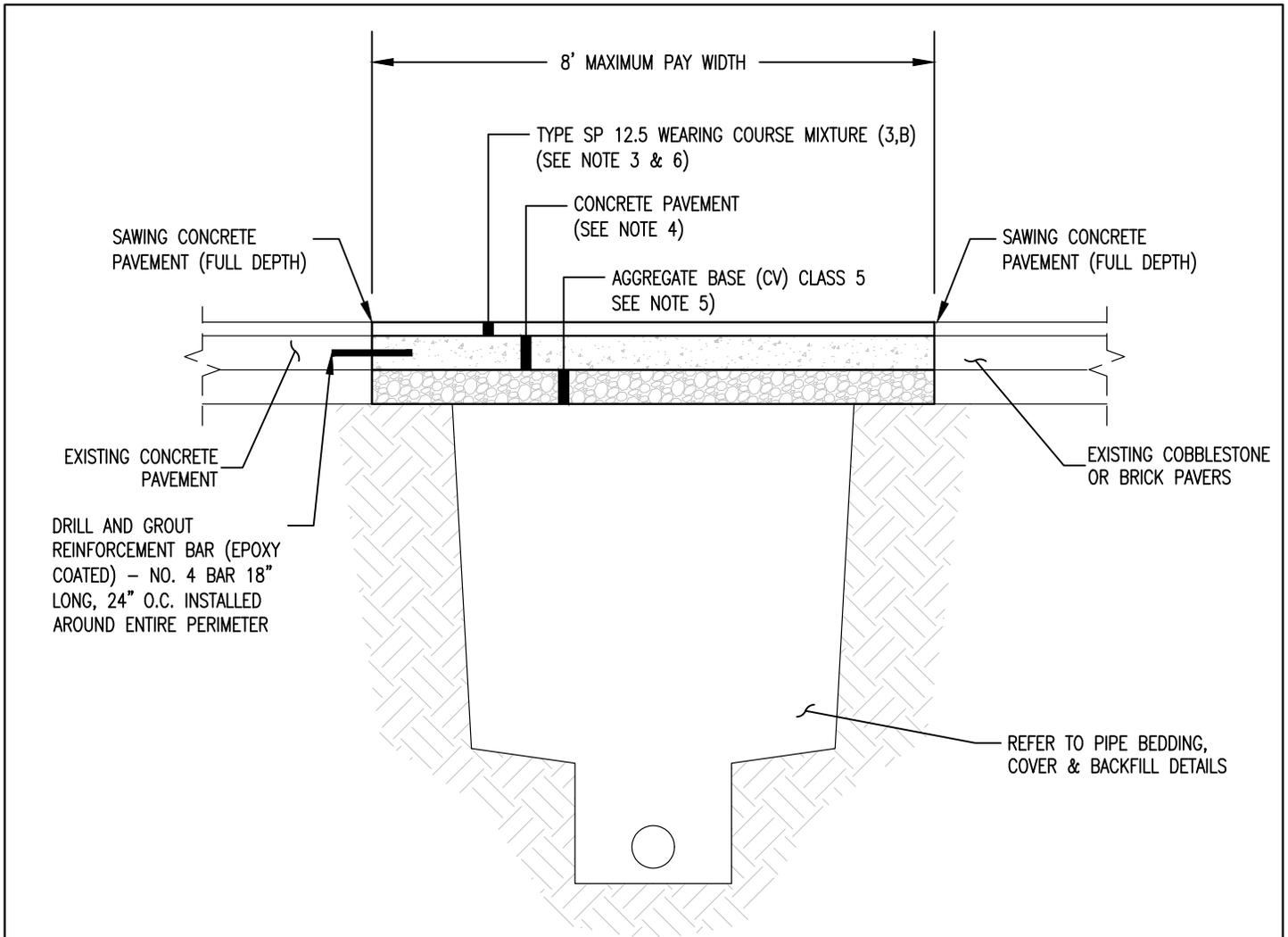
REMOVE & REPLACE STREET SECTION TYPE 'D'

LSLR-6

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

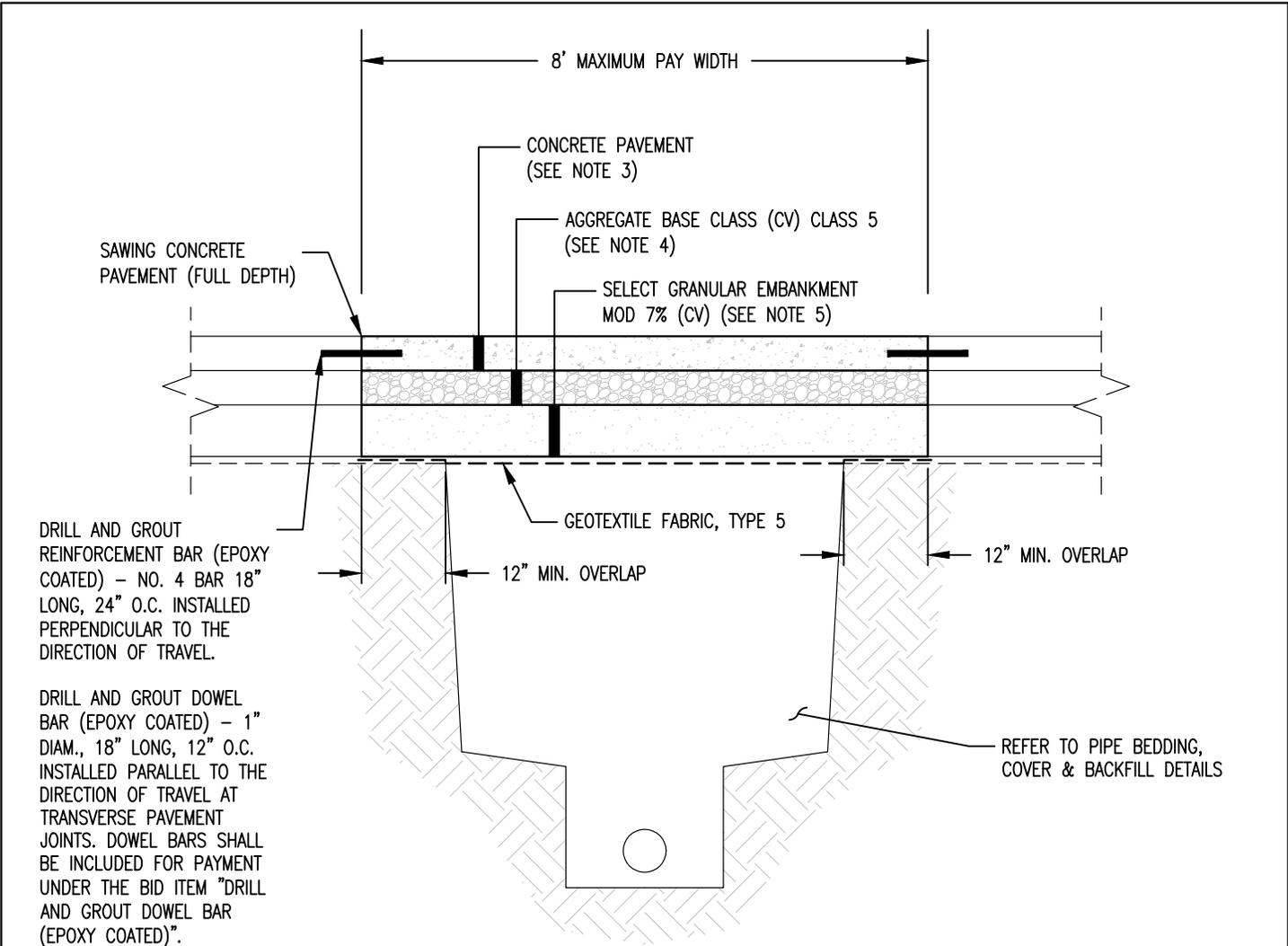
NO SCALE



NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "E" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF BITUMINOUS BITUMINOUS OVERLAY ATOP CONCRETE BASE PAVEMENT WITH AGGREGATE BASE & NO GRANULAR SUBBASE LAYER.
2. MAXIMUM PAY LENGTH AND WIDTH SHALL BE DETERMINED BY THE MAXIMUM PAY LIMITS DETAILS.
3. BITUMINOUS OVERLAY SHALL MATCH EXISTING OVERLAY THICKNESS.
4. CONCRETE PAVEMENT SHALL BE THE GREATER OF 7" OR EXISTING PAVEMENT THICKNESS.
5. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
6. BITUMINOUS SHALL BE PLACED AT 2" MAXIMUM LIFT THICKNESS.
7. FOR CONCRETE PATCHES THAT FALL ON EXISTING CONTRACTION JOINTS, DOWEL BARS WILL BE PAID UNDER SEPARATE ITEMS.
8. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
9. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
10. INCLUDES PROTECTING AND/OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
11. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE 'E'" PAY ITEM.
12. THIS DETAIL SHALL APPLY WHERE COBBLESTONE OR BRICK PAVERS ARE ENCOUNTERED INSTEAD OF UNDERLYING EXISTING CONCRETE PAVEMENT.

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| REMOVE & REPLACE STREET SECTION TYPE 'E' | | LSLR-7 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



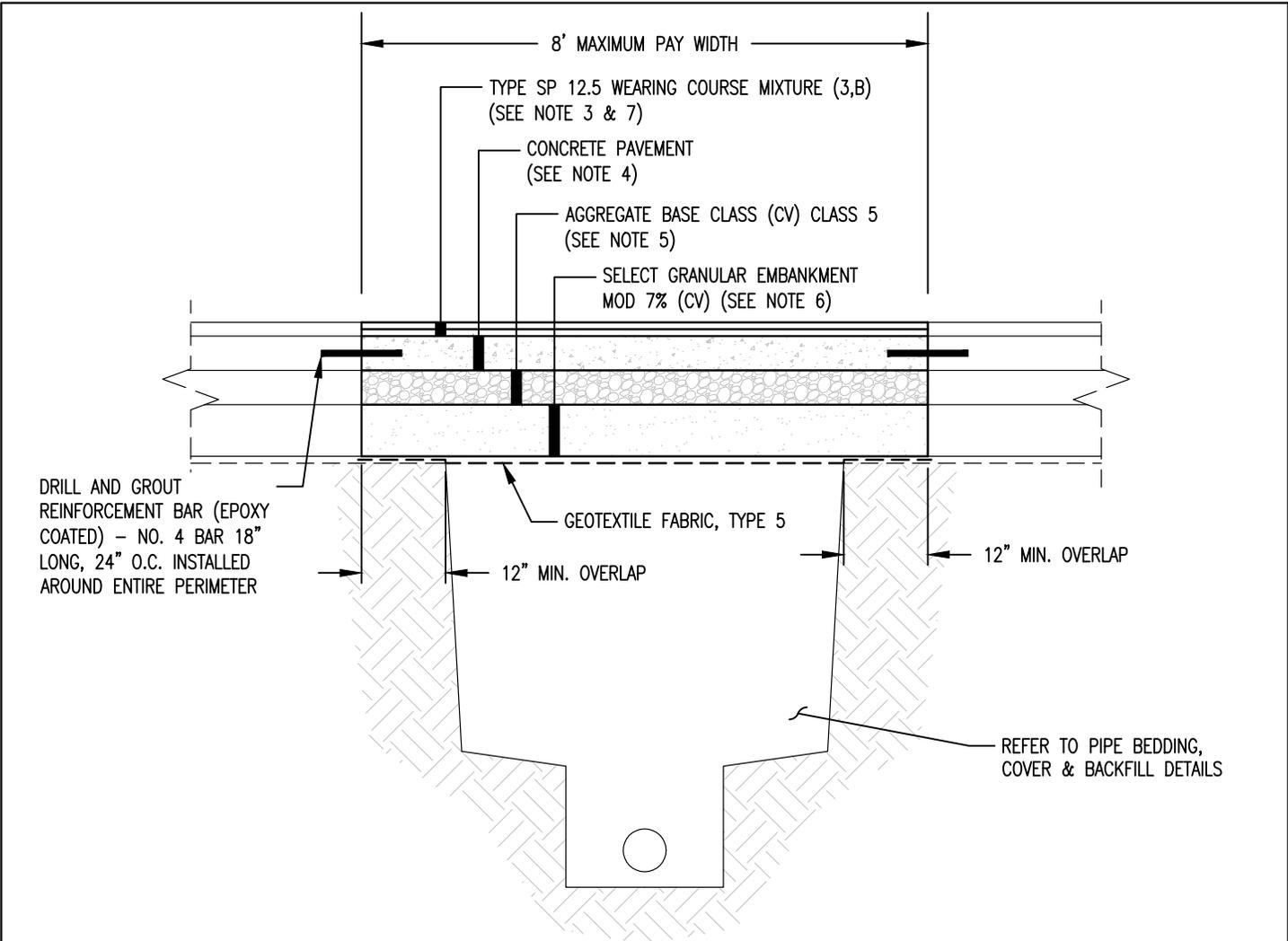
DRILL AND GROUT REINFORCEMENT BAR (EPOXY COATED) – NO. 4 BAR 18" LONG, 24" O.C. INSTALLED PERPENDICULAR TO THE DIRECTION OF TRAVEL.

DRILL AND GROUT DOWEL BAR (EPOXY COATED) – 1" DIAM., 18" LONG, 12" O.C. INSTALLED PARALLEL TO THE DIRECTION OF TRAVEL AT TRANSVERSE PAVEMENT JOINTS. DOWEL BARS SHALL BE INCLUDED FOR PAYMENT UNDER THE BID ITEM "DRILL AND GROUT DOWEL BAR (EPOXY COATED)".

NOTES:

1. REMOVE AND REPLACE STREET SECTION TYPE "F" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF UP TO 8" OF CONCRETE PAVEMENT WITH AGGREGATE BASE AND GRANULAR SUBBASE LAYER.
2. FULL CONCRETE PANELS SHALL BE REPLACED TO EXISTING JOINTS. THE MAXIMUM PAY LIMIT WILL BE ADJUSTED TO PROVIDE COMPENSATION FOR REPLACEMENT OF FULL PANELS.
3. CONCRETE PAVEMENT SHALL MATCH EXISTING PAVEMENT THICKNESS.
4. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
5. SELECT GRANULAR EMBANKMENT MOD 7% (CV) SHALL MATCH EXISTING SUBBASE THICKNESS OR 12", WHICHEVER IS GREATER.
6. FOR CONCRETE PATCHES THAT FALL ON CONTRACTION JOINTS, DOWEL BARS WILL BE PAID UNDER SEPARATE ITEMS.
7. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
8. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
9. INCLUDES PROTECTING AND/OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
11. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE 'F'" PAY ITEM.

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| REMOVE & REPLACE STREET SECTION TYPE 'F' | | LSLR-8 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



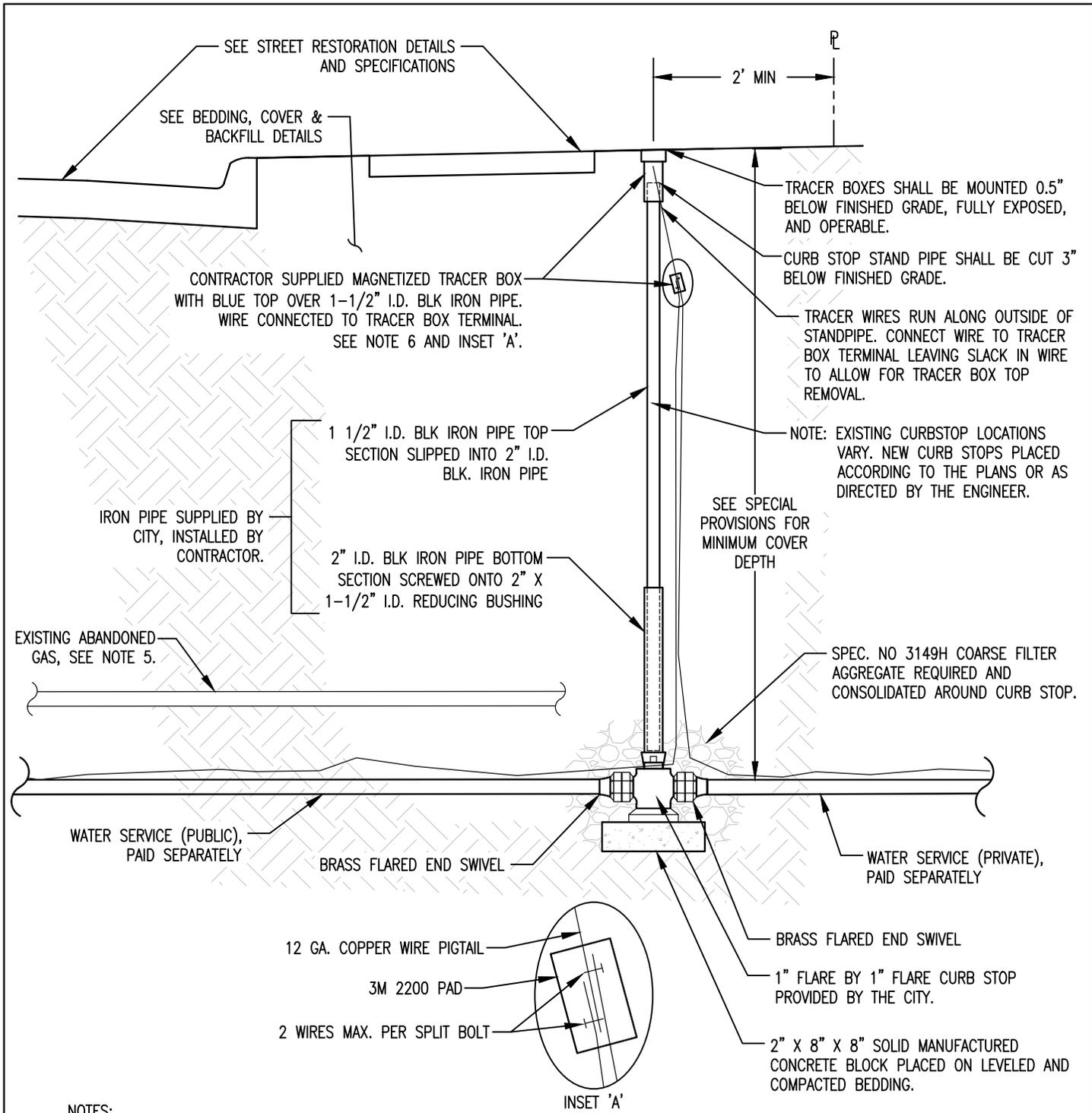
DRILL AND GROUT REINFORCEMENT BAR (EPOXY COATED) – NO. 4 BAR 18" LONG, 24" O.C. INSTALLED AROUND ENTIRE PERIMETER

REFER TO PIPE BEDDING, COVER & BACKFILL DETAILS

NOTES:

1. REMOVE & REPLACE STREET SECTION TYPE "G" SHALL BE CONSTRUCTED WHERE EXISTING STREET CONSISTS OF BITUMINOUS BITUMINOUS OVERLAY ATOP CONCRETE BASE PAVEMENT WITH AGGREGATE BASE AND GRANULAR SUBBASE LAYER.
2. MAXIMUM PAY LENGTH AND WIDTH SHALL BE DETERMINED BY THE MAXIMUM PAY LIMITS DETAILS.
3. BITUMINOUS OVERLAY SHALL MATCH EXISTING OVERLAY THICKNESS.
4. CONCRETE PAVEMENT SHALL MATCH EXISTING PAVEMENT THICKNESS.
5. AGGREGATE BASE (CV) CLASS 5 SHALL MATCH EXISTING BASE THICKNESS OR 8.5", WHICHEVER IS GREATER.
6. SELECT GRANULAR EMBANKMENT MOD 7% (CV) SHALL MATCH EXISTING SUBBASE THICKNESS OR 12", WHICHEVER IS GREATER.
7. BITUMINOUS SHALL BE PLACED AT 2" MAXIMUM LIFT THICKNESS.
3. FOR CONCRETE PATCHES THAT FALL ON CONTRACTION JOINTS, DOWEL BARS WILL BE PAID UNDER SEPARATE ITEMS.
4. EXISTING STREET SECTION MAY OR MAY NOT INCLUDE CURB AND GUTTER. REPLACEMENT OF CURB AND GUTTER SHALL BE PAID FOR UNDER SEPARATE BID ITEMS.
5. INCLUDES ANY NECESSARY AGGREGATE SHOULDER RESTORATION (INCIDENTAL).
6. INCLUDES PROTECTING AND/OR REPLACING CURB DRAIN, IF PRESENT (INCIDENTAL).
7. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REMOVE & REPLACE STREET SECTION TYPE 'G'" PAY ITEM.

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| REMOVE & REPLACE STREET SECTION TYPE 'G' | | LSLR-9 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



NOTES:

1. INCLUDES REMOVAL OR ABANDONMENT OF EXISTING CURB STOP AT THE DIRECTION OF THE ENGINEER.
2. THE LOCATION OF THE NEW CURB STOP MAY BE MOVED UP TO 4' TO AVOID DISTURBANCE OF EXISTING SANITARY SEWER SERVICE.
3. ALL WATER SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE STREET RIGHT OF WAY FROM THE WATER MAIN TO THE CURB STOP.
4. TRACER WIRE SHALL BE CONTINUOUS FROM ANODE TO TRACER BOX AND FROM TRACER BOX TO INSIDE BUILDING.
5. ABANDONED LOW PRESSURE GAS PIPE MAY BE PRESENT NEAR THE WATER SERVICE. SHOULD THE CONTRACTOR REMOVE ANY ABANDONED LOW PRESSURE GAS SERVICES, ALL REMAINING PIPE ENDS SHALL BE FITTED WITH WATER TIGHT CAPS OR PLUGS.
6. INSTALL 12 GA. COPPER WIRE PIGTAIL TO TRACER BOX IN A CONFIGURATION WHEREBY TWO WIRES AND ONE SPLIT BOLT & 3M 2200 PAD IS USED PER ELECTRICAL CONNECTION.
7. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "REPLACE CURB STOP" PAY ITEM.

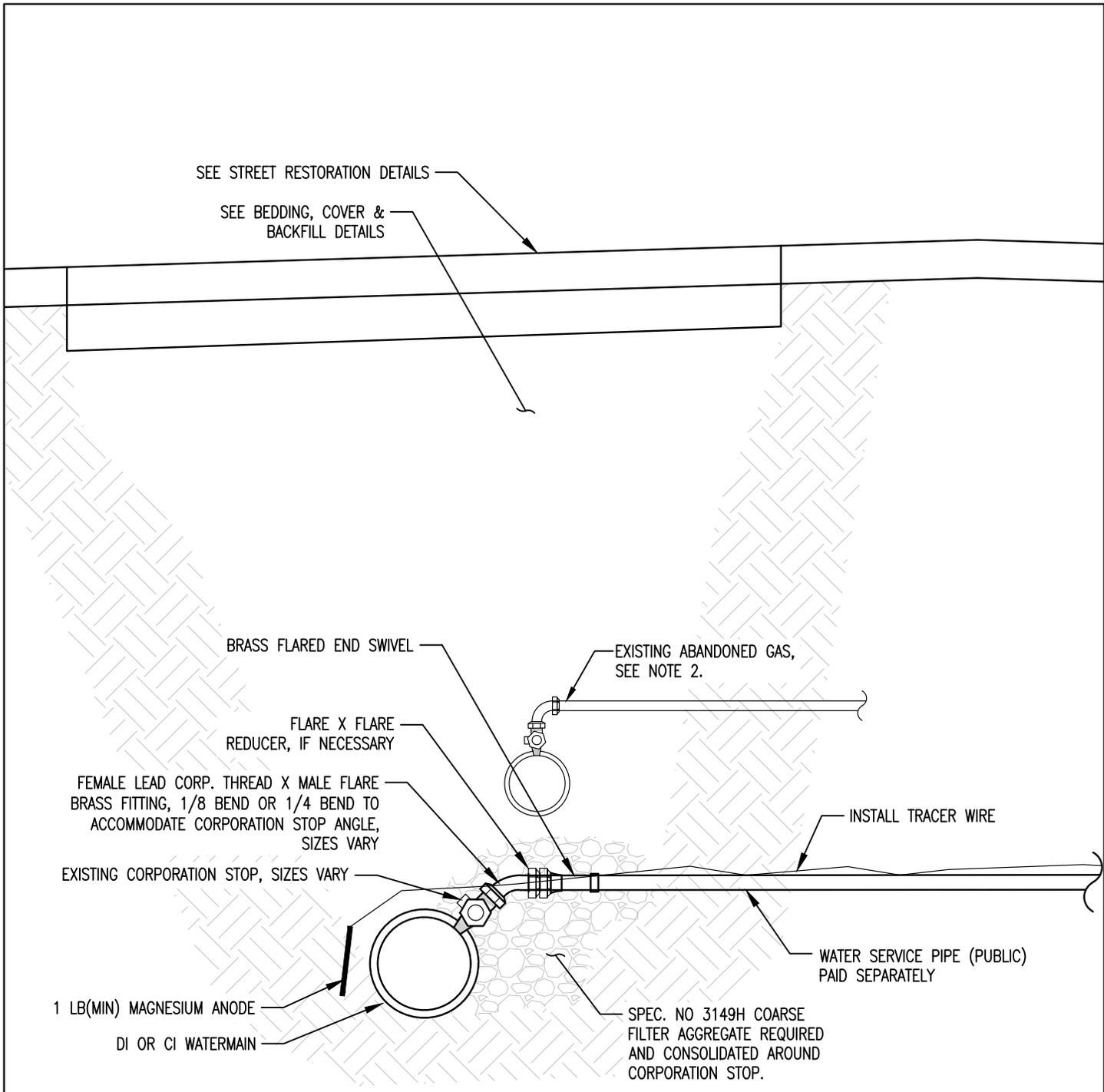
REPLACE CURB STOP

LSLR-10

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

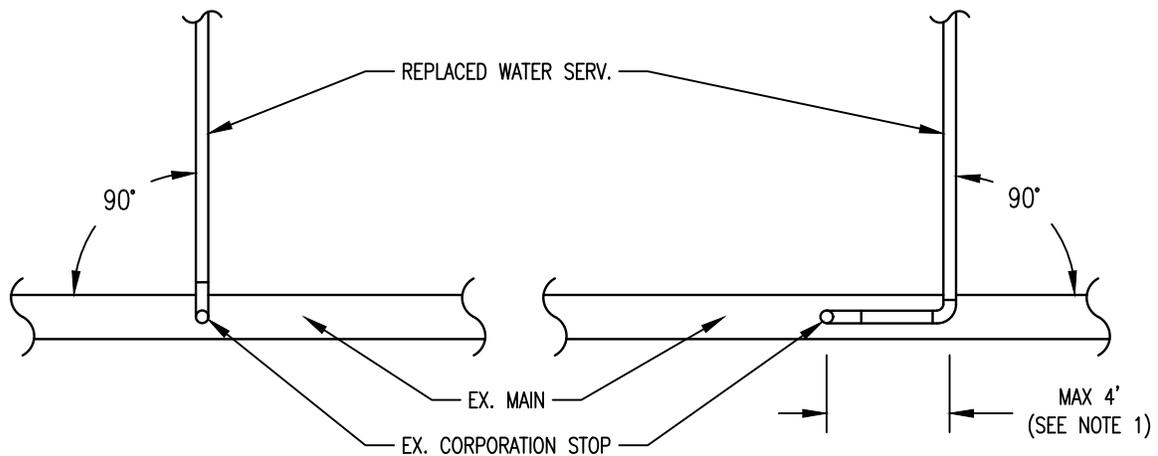
NO SCALE



NOTES:

1. PROVIDE 1 LB ANODE FOR TRACER WIRE AT WATER MAIN. TRACER WIRE SHALL BE CONTINUOUS FROM ANODE TO TRACER BOX AND FROM TRACER BOX TO INSIDE HOUSE.
2. ABANDONED LOW PRESSURE GAS PIPE MAY BE PRESENT NEAR THE WATER SERVICE. SHOULD THE CONTRACTOR REMOVE ANY ABANDONED LOW PRESSURE GAS SERVICES, ALL REMAINING PIPE ENDS SHALL BE FITTED WITH WATER TIGHT CAPS OR PLUGS.
3. SEE SPECIAL PROVISIONS FOR LEAD THREAD FITTINGS & PARTS SUPPLIED BY THE CITY. ALL OTHER FITTINGS AND PARTS REQUIRED SHALL BE SUPPLIED BY THE CONTRACTOR
4. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "CONNECT TO EXISTING CORPORATION STOP" PAY ITEM.

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| CONNECT TO EXISTING CORPORATION STOP | | LSLR-11 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



NOTES:

1. WHERE THE INPLACE SANITARY SERVICE CONFLICTS WITH THE PERPENDICULAR PLACEMENT OF THE WATER SERVICE FROM THE EXISTING CORPORATION STOP, THE LOCATION OF THE REPLACED WATER SERVICE SHALL BE SHIFTED UP TO 4' TO AVOID DISTURBING THE EXISTING SEWER SERVICE AS SHOWN AT NO ADDITIONAL EXPENSE TO THE CITY.
2. ALL WATER SERVICES SHALL BE INSTALLED PERPENDICULAR TO THE RIGHT OF WAY FROM THE WATER MAIN TO THE CURB STOP.
3. IF A WATER SERVICE ALIGNMENT IS SHIFTED, THE OFFSET SHALL BE ACCOUNTED FOR WITH 90 DEGREE BENDS AT THE MAIN TO KEEP THE SERVICE ORIENTED PERPENDICULAR TO THE MAIN.
4. PROVIDE 1 LB ANODE FOR TRACER WIRE AT WATER MAIN. TRACER WIRE SHALL BE CONTINUOUS FROM ANODE TO TRACER BOX AND FROM TRACER BOX TO INSIDE HOUSE.
5. ADJUSTING THE LOCATION OF THE WATER SERVICE AS REQUIRED TO AVOID DISTURBING AN EXISTING SEWER SERVICE SHALL BE CONSIDERED INCIDENTAL WITH NO ADDITIONAL PAYMENT THEREFORE.

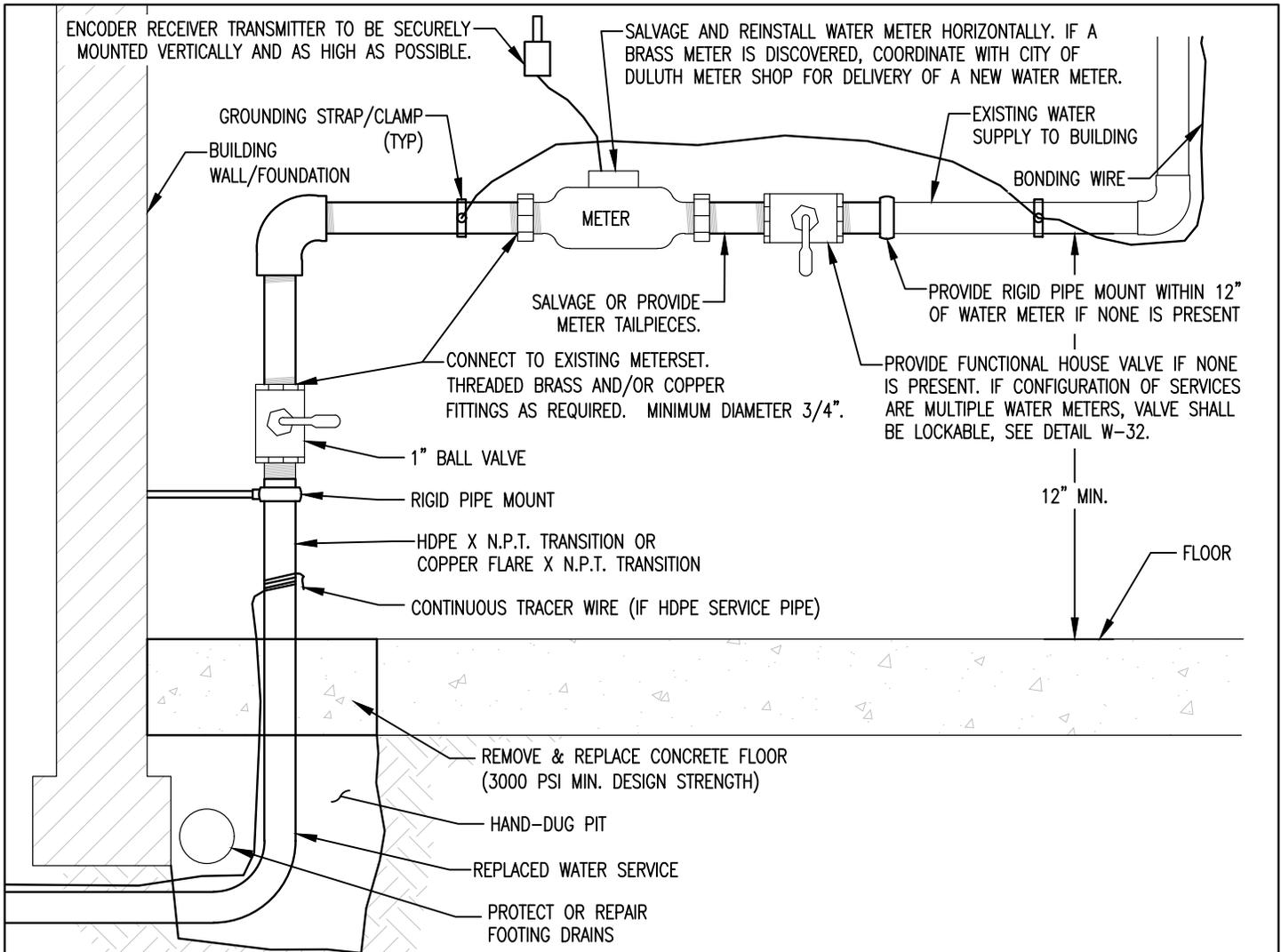
ACCEPTABLE WATER SERVICE CONNECTION LAYOUTS

LSLR-12

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. CONTRACTOR SHALL CHECK ALL PIPING FOR ELECTRICAL CURRENT PRIOR TO CUTTING OR DISCONNECTING PIPES.
2. CONCRETE SHALL BE BROKEN AND REMOVED IN A CONTROLLED MANNER TO PREVENT WAYWARD CRACKING. REMOVE MINIMUM AMOUNT OF CONCRETE NECESSARY TO REPLACE THE WATER SERVICE. CONCRETE PATCH SHALL BE 3" THICK OR MATCH THE EXISTING FLOOR, WHICHEVER IS GREATER, BE WATERTIGHT, HAVE A SMOOTH TROWELED FINISH, AND BE FLUSH WITH THE SURROUNDING FLOOR SURFACE.
3. THE WATER SERVICE PIPE SHALL BE INSTALLED WITH SMOOTH BENDS ONLY. NO FITTINGS OR ELBOWS SHALL BE INSTALLED UPSTREAM OF THE THREADED TRANSITION TO BUILDING PLUMBING.
4. THE WATER METER MAY NEED TO BE MOVED AND/OR RAISED TO ACCOMMODATE THE LOCATION OF REPLACED WATER SERVICE. IF NECESSARY, "CONNECT TO EXISTING INDOOR PLUMBING" ITEM INCLUDES RAISING THE METER, MOVING THE METER UP TO 5' HORIZONTALLY AND MODIFYING/REPLACING THE CONNECTION TO THE DOWNSTREAM BUILDING SUPPLY PIPE.
5. PIPE AND FITTINGS BETWEEN BUILDING VALVE AND METER SHALL BE THREADED BRASS OR BRAZED COPPER OF NOT LESS THAN 3/4" DIAMETER.
6. WATER METER AND ADJACENT PIPING SHALL BE RIGIDLY MOUNTED. PIPE SHALL BE SUPPORTED TO COMPLY WITH PLUMBING CODES.
7. VALVES SHALL BE GATE OR FULL PORT BALL VALVES.
8. BUILDING WATER PRESSURE SHALL BE CHECKED BEFORE THE SERVICE REPLACEMENT AND AFTER RECONNECTION TO EXISTING INDOOR PLUMBING. THE PRESSURE READINGS SHALL BE RECORDED.
9. WHERE PRESENT, PRESSURE REDUCING VALVES SHALL BE SALVAGED, REINSTALLED, AND RESET TO PREVIOUS RECORDED EXISTING PRESSURE.
10. THE AREA AROUND THE WATER METER SHALL BE PROTECTED, CLEANED, AND RESTORED TO THE PRE-EXISTING CONDITION.
11. THE SERVICE PIPE ENTRANCE, METER, AND BUILDING PLUMBING SHALL BE INSTALLED AS NEAR AS POSSIBLE TO THE EXISTING CONFIGURATION. WHEN SITE CONDITIONS REQUIRE THE SERVICE ENTRANCE TO BE MOVED, NOTIFY BUILDING OWNER AND ENGINEER AND MOVE THE SERVICE ENTRANCE TO AN AGREEABLE ALTERNATIVE LOCATION.
12. SERVICE PIPES, WATER METERS, AND BUILDING PLUMBING SHALL BE INSTALLED/MOUNTED OUT OF THE WAY AND AS CLOSE AS POSSIBLE TO WALLS OR OTHER FIXED OBJECTS.
13. CONTRACTOR SHALL MAINTAIN OR RE-ESTABLISH FUNCTIONALITY OF ELECTRICAL BONDING BETWEEN THE INTERIOR WATER AND ELECTRICAL SYSTEMS.
14. UNLESS OTHERWISE INDICATED, ALL WORK SHOWN ON THIS DETAIL SHALL BE CONSIDERED AS INCLUDED FOR PAYMENT UNDER THE "CONNECT TO EXISTING INDOOR PLUMBING" PAY ITEM.

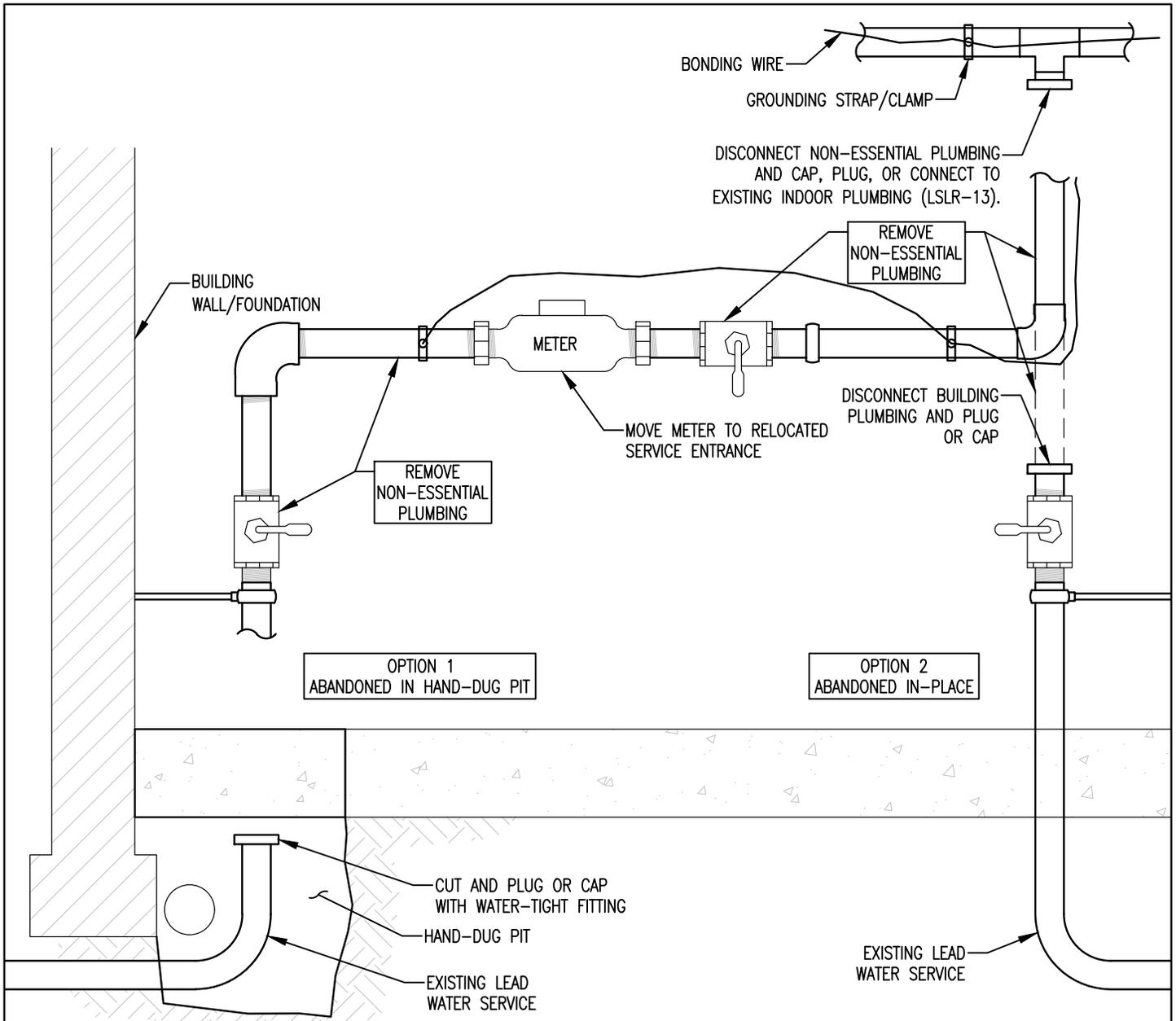
CONNECT TO EXISTING INDOOR PLUMBING

LSLR-13

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



NOTES:

1. THE CONTRACTOR SHALL CHECK ALL PIPING FOR ELECTRICAL CURRENT PRIOR TO CUTTING OR DISCONNECTING PIPES.
2. CONTRACTOR SHALL MAINTAIN OR RE-ESTABLISH FUNCTIONALITY OF ELECTRICAL BONDING BETWEEN THE INTERIOR WATER AND ELECTRICAL SYSTEMS.
3. THE CONTRACTOR SHALL ABANDON AND CAP THE LEAD WATER SERVICE AT THE MAIN OR CURB STOP PRIOR AND VERIFY THE WATER SERVICE IS DEPRESSURIZED BEFORE ABANDONING THE SERVICE IN THE BUILDING.
4. IF THE NEW WATER SERVICE ENTERS WITHIN 3' OF THE EXISTING LEAD SERVICE, THE LEAD SERVICE SHALL BE SEALED WATER-TIGHT AND ABANDONED BELOW THE FLOOR IN A HAND-DUG PIT NEXT TO THE NEW SERVICE, SEE OPTION 1.
5. IF THE NEW WATER SERVICE ENTERS MORE THAN 3' FROM THE EXISTING LEAD SERVICE, THE EXISTING SERVICE MAY BE ABANDONED IN PLACE WITH THE VALVE CLOSED, ALL NON-ESSENTIAL DOWNSTREAM PIPING REMOVED, AND A PLUG OR CAP INSTALLED ON THE EXISTING VALVE. REMAINING ESSENTIAL PIPING SHALL BE FITTED WITH AN APPROPRIATE PLUG OR CAP, SEE OPTION 2.
6. PLUMBING PIPE EITHER NEWLY INSTALLED OR ALTERED BY THE CONTRACTOR SHALL BE RIGIDLY MOUNTED.

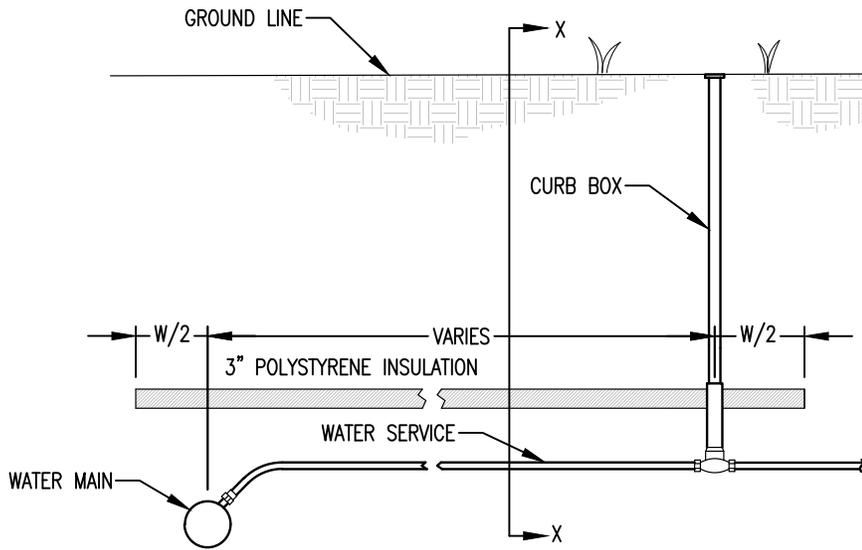
INTERIOR ABANDONMENT OF LEAD WATER SERVICE

LSLR-13A

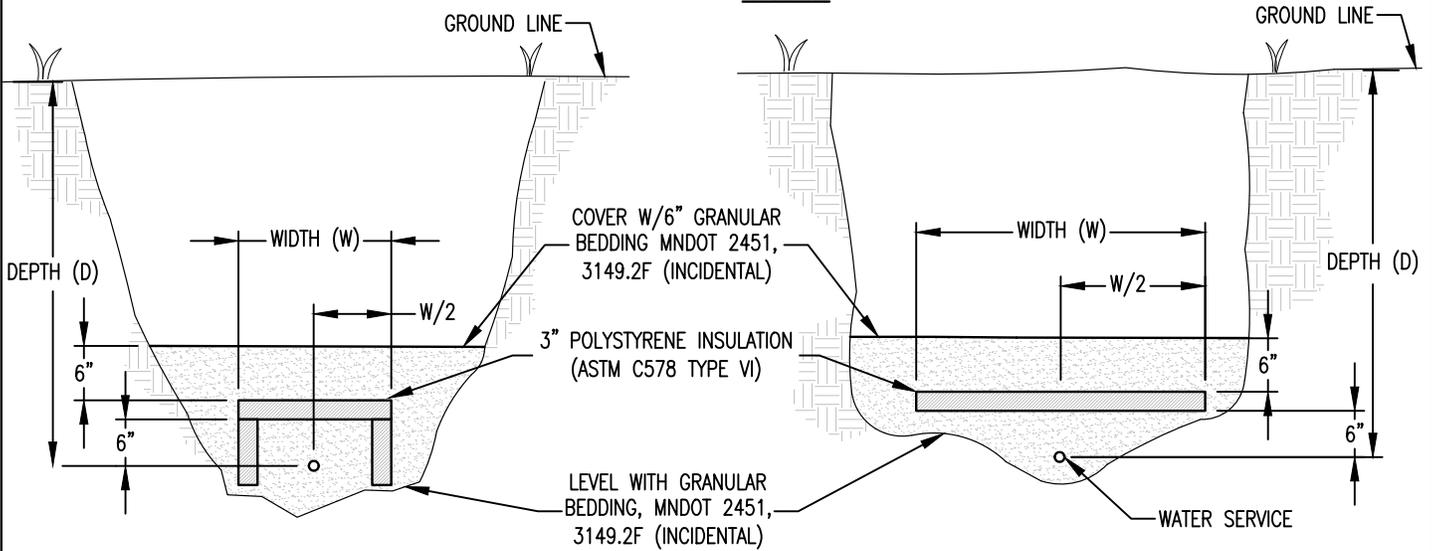
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CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



ELEVATION



SECTION X-X BOX INSTALLATION

SECTION X-X FLAT INSTALLATION

NOTES:

1. AT THE DISCRETION OF THE ENGINEER, RIGID INSULATION MAY BE ADDED TO ANY TRENCH EXCAVATION FOR THE PURPOSE OF PROTECTING WATER MAINS AND SERVICES FROM FREEZING.
2. POLYSTYRENE SHALL BE AS SPECIFIED IN THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES STANDARD CONSTRUCTION SPECIFICATIONS.
3. LAYERING OF 2 OR 3 SHEETS TO ARRIVE AT A MINIMUM OF 3" IS REQUIRED WITH JOINTS OFFSET A MINIMUM OF 6".
4. JOINTS BETWEEN INSULATION BOARDS SHALL BE TIGHT, UNIFORM, AND GAPLESS. INSULATION BOARDS SHALL BE HELD IN PLACE WITH WOOD SKEWERS OR METAL PINS.
5. WHERE SITE CONDITIONS AND/OR TRENCH WIDTH DO NOT ALLOW FLAT INSULATION AT THE SPECIFIED WIDTH, THE ENGINEERS MAY APPROVE THE USE OF BOX INSULATION.
6. BOX INSULATION JOINTS SHALL OVERLAP 6" AND BE TIGHT, UNIFORM, AND GAPLESS. BOX INSULATION SHALL BE FASTENED TOGETHER WITH METAL PINS OR AS APPROVED BY THE ENGINEER.
7. PRIOR TO PLACEMENT OF INSULATION, GRANULAR BEDDING SHALL BE UNIFORMLY GRADED AND COMPACTED TO PROVIDE CONSISTENT BEARING SURFACE FOR INSULATION.
8. INSULATION THAT IS BROKEN DURING INSTALLATION OR BACKFILLING OPERATIONS SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST.

| | FLAT INSTALLATION | BOX INSTALLATION |
|--------------|-------------------|--------------------|
| DEPTH (D) | WIDTH (W) | WIDTH (W) |
| 7' OR MORE | NONE | NONE |
| 5.2' TO 6.9' | 4'-0" | 12" MIN. |
| 4.3' TO 5.1' | 6'-0" | 18" MIN. |
| 3.0' TO 4.2' | 8'-0" | ENGINEER TO DESIGN |

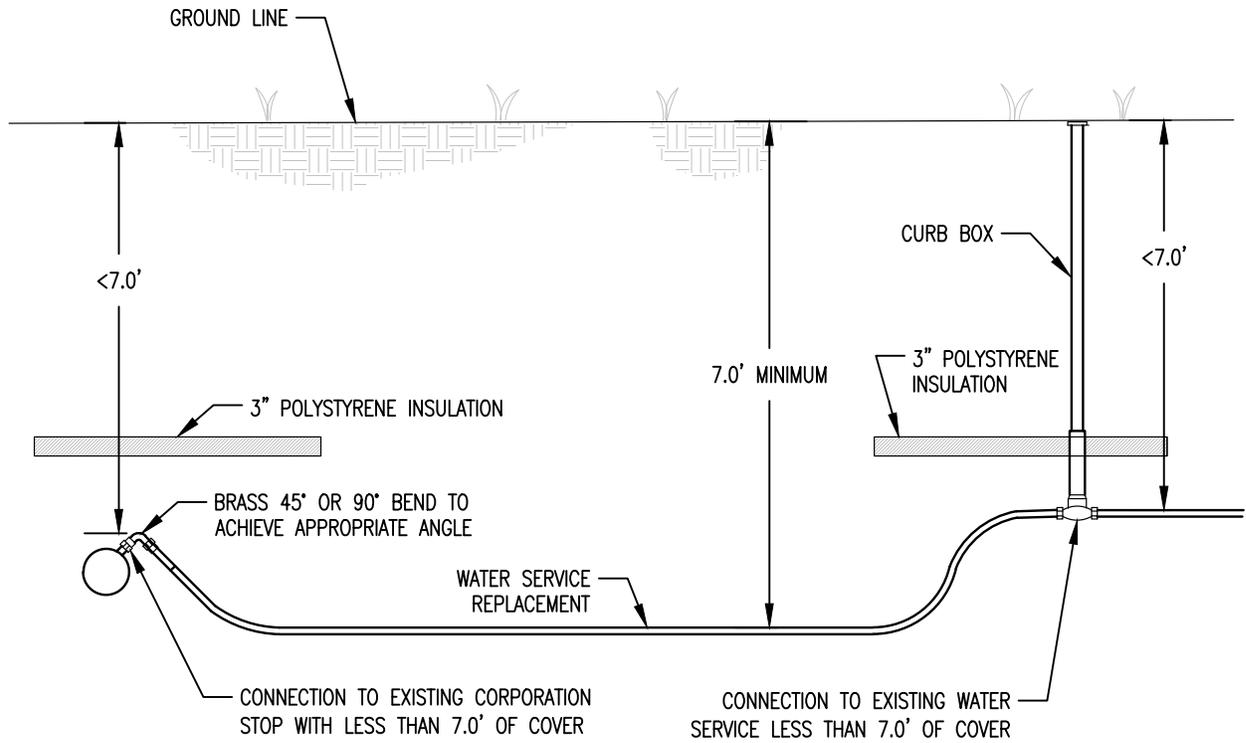
WATER SERVICE INSULATION

LSLR-14A

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



| MINIMUM DEPTH OF COVER FOR WATER SERVICES: | |
|---|--|
| SITE CONDITIONS | MINIMUM DEPTH OF COVER |
| AREAS CLEARED OF SNOW (STREETS, SIDEWALKS, DRIVE WAYS, PARKING LOTS) | 7.0' |
| AREAS NOT CLEARED OF SNOW (TURF, GARDENS, UNIMPROVED AREAS), BEDROCK IS NOT PRESENT | 6.0' |
| AREAS NOT CLEARED OF SNOW (TURF, GARDENS, UNIMPROVED AREAS), BEDROCK IS PRESENT | 6.0' OR AT/OR BELOW THE ELEVATION OF THE EXISTING SERVICE PIPE |

NOTES:

1. WHERE UNABLE TO ATTAIN THE MINIMUM DEPTH OF COVER DUE TO A FIXED OR IMMOVABLE OBJECT (SHALLOW WATER MAIN, CONNECTION TO EXISTING SHALLOW SERVICE OR BEDROCK) THE WATER SERVICE SHALL BE INSULATED ACCORDING TO DETAIL W-13. THE WATER SERVICE SHALL BE INSTALLED IN DOWNWARD SLOPING MANNER AS TO ACHIEVE 7.0' OF COVER AS CLOSE TO THE FIXED OBJECT AS POSSIBLE AND MINIMIZE THE EXTENTS OF INSULATION REQUIRED.
2. WHEN CONDITIONS ALLOW, THE CONTRACTOR SHALL INSTALL THE WATER SERVICE AT THE MINIMUM DEPTH OF COVER REGARDLESS OF THE EXISTING WATER SERVICE ELEVATION.
3. WHERE 7.0' OF COVER IS ACHIEVABLE, THE CONTRACTOR SHALL LOWER THE WATER SERVICE TO THE MINIMUM DEPTH OF 7.0'. IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY CHOOSE TO INSULATE SUCH A SERVICE AT NO COST TO THE CITY.
4. AT ANY TIME DURING CONSTRUCTION THE CONTRACTOR SHALL BE PREPARED TO PROVE DEPTH OF COVER BY STRING LINE OR OTHER APPROVED METHOD.
5. ALL INSULATION SHALL BE APPROVED, WITNESSED, AND MEASURED BY THE ENGINEER.

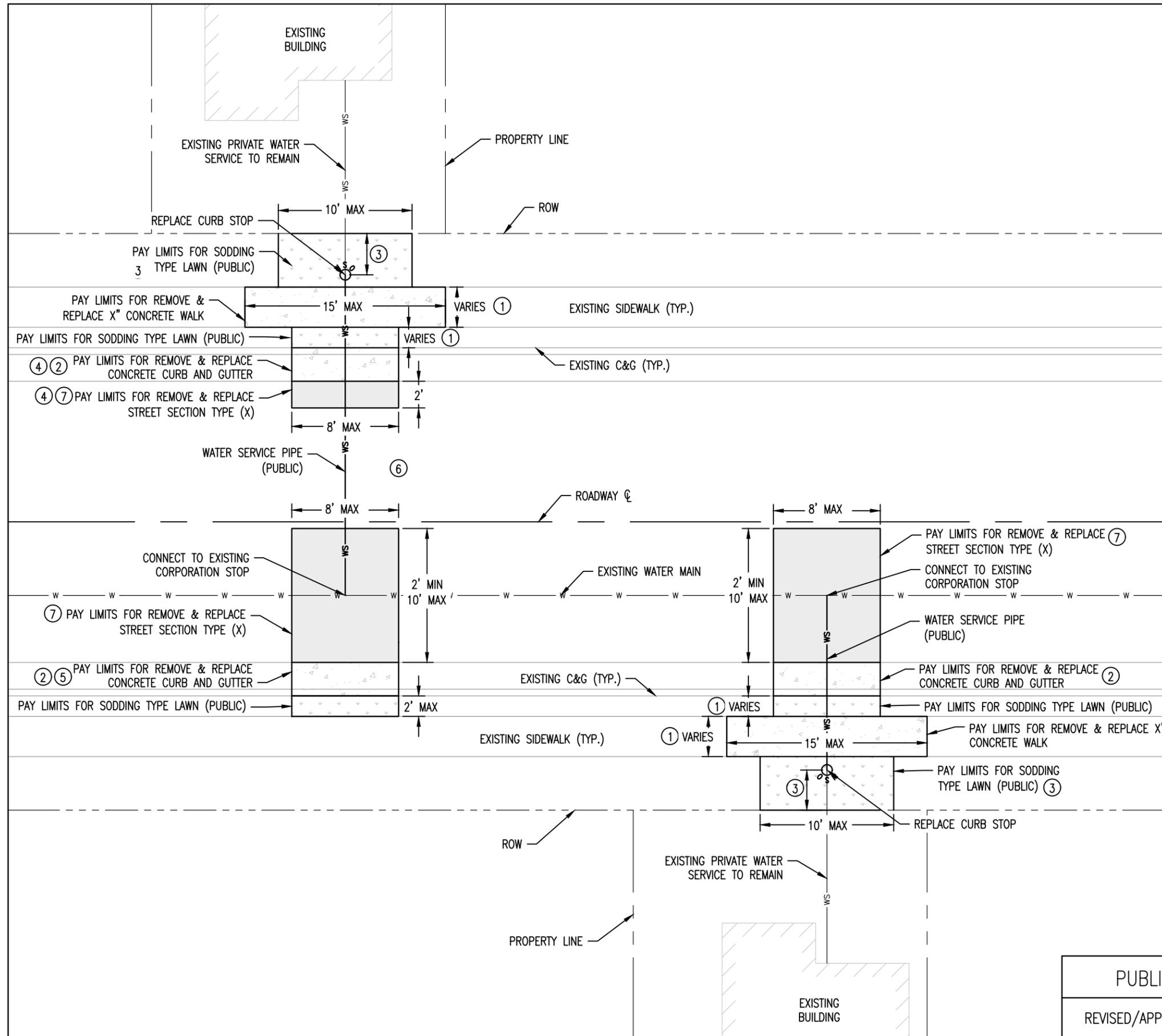
WATER SERVICE INSULATION EXTENTS

LSLR-14B

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



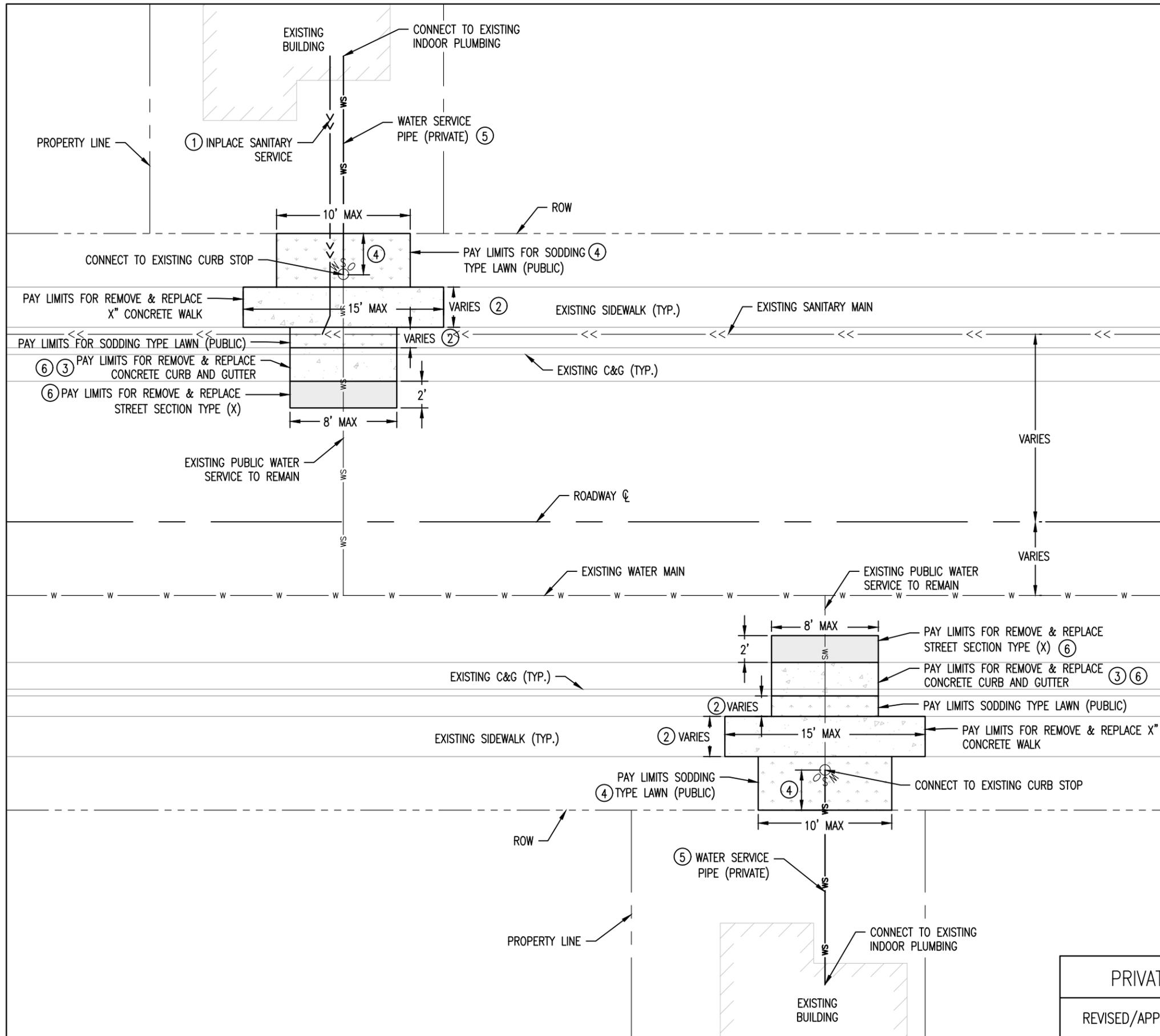
KEY NOTES:

- ① SHALL MATCH EXISTING WALK OR CURB TYPE GEOMETRY.
- ② LIMIT OF MEASUREMENT FOR REMOVE & REPLACE INTEGRANT CURB, WHERE PRESENT, SHALL BE LIMITED TO A 2-FIT OFFSET MEASURED FROM EXISTING FACE OF CURB.
- ③ LIMITS OF PAYMENT FOR SODDING TYPE LAWN AREAS SHALL BE A MAXIMUM OF 8-FIT BEHIND CURB STOP OR AS MEASURED TO THE RIGHT-OF-WAY, WHICHEVER IS LESS.
- ④ CURB AND GUTTER AND PAVEMENT REMOVALS SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE INPLACE CURB STOP IS LOCATED WITHIN 4-FIT OF THE INPLACE BACK OF CURB.
- ⑤ CURB AND GUTTER REMOVAL AND REPLACEMENT SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE PAY LIMITS FOR CONNECTING TO THE INPLACE WATER MAIN IS LOCATED WITHIN 2-FIT OF THE GUTTER/PAVEMENT EDGE OR WITHIN 4-FIT OF THE FACE OF INTEGRANT CURB.
- ⑥ THE MAXIMUM PAY LENGTH FOR RESTORATION WITHIN THE RIGHT OF WAY WILL BE EXTENDED WHEN THE ENGINEER DIRECTS OPEN CUT EXCAVATION TO PLACE INSULATION WHERE PUBLIC WATER SERVICES CANNOT BE INSTALLED WITH 7.0' OF COVER DUE TO BEDROCK. THE MAXIMUM PAY WIDTH SHALL REMAIN 8.0'.
- ⑦ ON FINISHED CONCRETE PAVED STREETS, FULL CONCRETE PANELS SHALL BE REPLACED TO EXISTING JOINTS. THE MAXIMUM PAY LIMIT WILL BE INCREASED TO PROVIDE COMPENSATION FOR REPLACEMENT OF FULL PANELS.

NOTES:

THE PAY LIMITS SHOWN REPRESENT THE MAXIMUM EXTENT OF REMOVAL AND RESTORATION THAT WILL BE MEASURED AND COMPENSATED AT EACH WATER SERVICE REPLACEMENT SITE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY IMPACTS BEYOND THESE LIMITS. ALL IMPACTS, REGARDLESS OF LOCATION, SHALL BE FULLY RESTORED BY THE CONTRACTOR, ACCORDING TO THE RESPECTIVE CONSTRUCTION REQUIREMENTS AND SPECIFICATIONS.

| | | |
|--|---|----------|
| PUBLIC SIDE LEAD WATER SERVICE REPLACEMENT | | LSLR-15 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



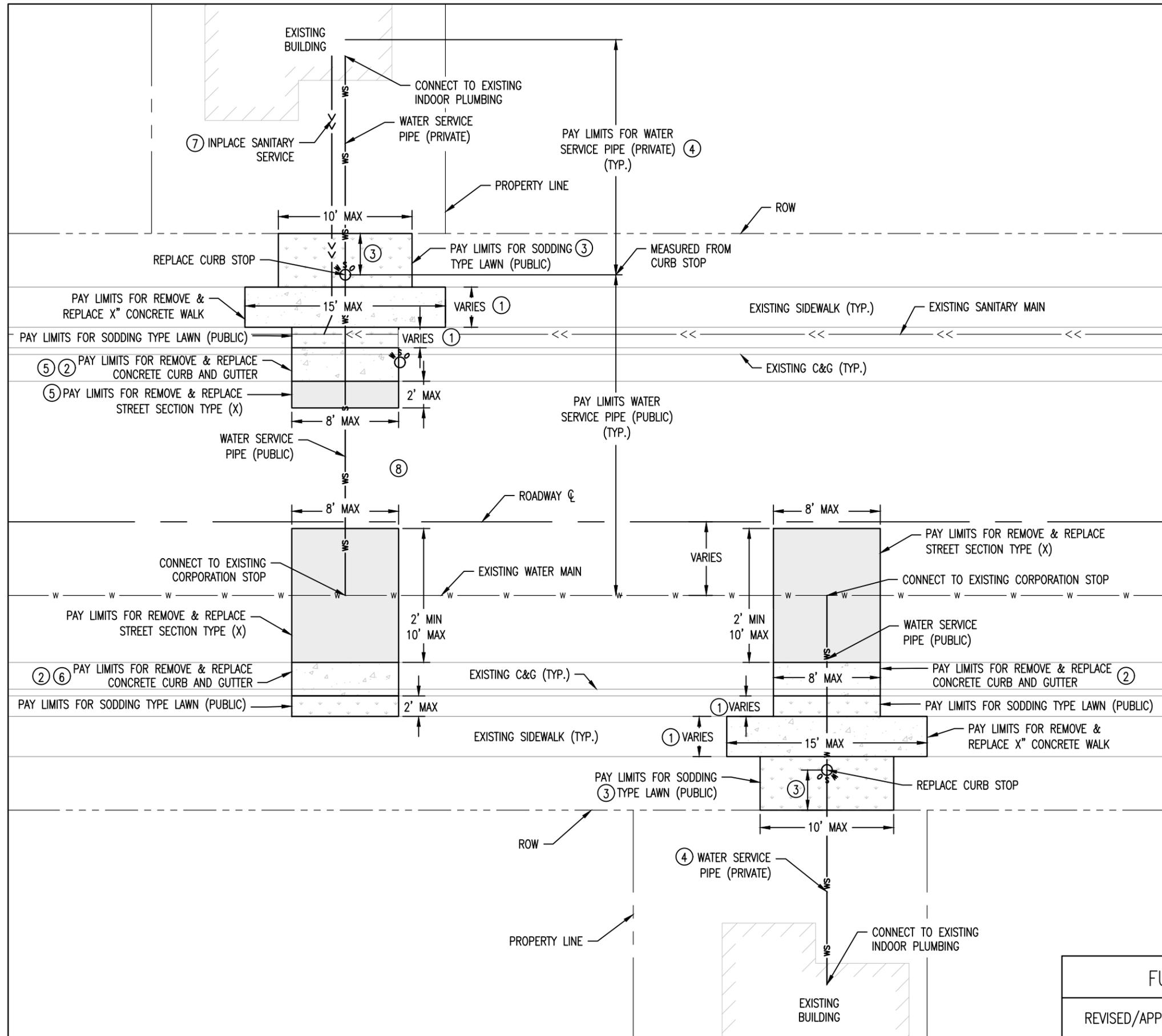
KEY NOTES:

- ① WHERE THE SUSPECTED PRESENCE OF BEDROCK IS INDICATED IN THE PLANS OR WHERE DIRECTED BY THE ENGINEER DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL BE PREPARED TO UTILIZE A TRENCHLESS METHOD UTILIZING THE INPLACE SANITARY SEWER SERVICE LINE TO COMPLETE THE WATER SERVICE REPLACEMENT. IN SUCH CASES, THE WORK SHALL INCLUDE FULLY REPLACING THE SANITARY SERVICE LINE. REFER TO SPECIAL PROVISIONS FOR REQUIREMENTS. UTILIZING THE SANITARY SERVICE TO PLACE THE WATER SERVICE LINE IS OTHERWISE NOT PERMITTED AND THE SANITARY SERVICE SHALL BE PROTECTED DURING THE WORK.
- ② SHALL MATCH EXISTING WALK OR CURB TYPE GEOMETRY.
- ③ LIMIT OF MEASUREMENT FOR REMOVE & REPLACE INTEGRANT CURB, WHERE PRESENT, SHALL BE LIMITED TO A 2-FT OFFSET MEASURED FROM EXISTING FACE OF CURB.
- ④ LIMITS OF PAYMENT FOR SODDING TYPE LAWN AREAS SHALL BE A MAXIMUM OF 8-FT BEHIND CURB STOP OR AS MEASURED TO THE RIGHT-OF-WAY, WHICHEVER IS LESS.
- ⑤ NO PAYMENT SHALL BE MADE FOR ANY REMOVALS OR RESTORATION ON A PRIVATE PROPERTY BUT ALL COSTS SHALL BE CONSIDERED INCLUDED FOR PAYMENT UNDER THE 1" HDPE SDR 9 SERVICE PIPE (PRIVATE) PAY ITEM. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
- ⑥ CURB AND GUTTER AND PAVEMENT REMOVALS SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE INPLACE CURB STOP IS LOCATED WITHIN 4-FT OF THE INPLACE BACK OF CURB.

NOTES:

THE PAY LIMITS SHOWN REPRESENT THE MAXIMUM EXTENT OF REMOVAL AND RESTORATION THAT WILL BE MEASURED AND COMPENSATED AT EACH WATER SERVICE REPLACEMENT SITE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY IMPACTS BEYOND THESE LIMITS. ALL IMPACTS, REGARDLESS OF LOCATION, SHALL BE FULLY RESTORED BY THE CONTRACTOR, ACCORDING TO THE RESPECTIVE CONSTRUCTION REQUIREMENTS AND SPECIFICATIONS.

| | | |
|---|---|----------|
| PRIVATE SIDE LEAD WATER SERVICE REPLACEMENT | | LSLR-16 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



KEY NOTES:

- ① SHALL MATCH EXISTING WALK OR CURB TYPE GEOMETRY.
- ② LIMIT OF MEASUREMENT FOR REMOVE & REPLACE INTEGRANT CURB, WHERE PRESENT, SHALL BE LIMITED TO A 2-FT OFFSET MEASURED FROM EXISTING FACE OF CURB.
- ③ LIMITS OF PAYMENT FOR SODDING TYPE LAWN AREAS SHALL BE A MAXIMUM OF 8-FT BEHIND CURB STOP OR AS MEASURED TO THE RIGHT-OF-WAY, WHICHEVER IS LESS.
- ④ NO PAYMENT SHALL BE MADE FOR ANY REMOVALS OR RESTORATION ON A PRIVATE PROPERTY BUT ALL COSTS SHALL BE CONSIDERED INCLUDED FOR PAYMENT UNDER THE APPROPRIATE WATER SERVICE PIPE (PRIVATE) PAY ITEM. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
- ⑤ CURB AND GUTTER AND PAVEMENT REMOVALS SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE INPLACE CURB STOP IS LOCATED WITHIN 4-FT OF THE INPLACE BACK OF CURB.
- ⑥ CURB AND GUTTER REMOVAL AND REPLACEMENT SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE PAY LIMITS FOR CONNECTING TO THE INPLACE WATER MAIN IS LOCATED WITHIN 2-FT OF THE GUTTER/PAVEMENT EDGE OR WITHIN 4-FT OF THE FACE OF INTEGRANT CURB.
- ⑦ WHERE THE SUSPECTED PRESENCE OF BEDROCK IS INDICATED IN THE PLANS OR WHERE DIRECTED BY THE ENGINEER DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL BE PREPARED TO UTILIZE A TRENCHLESS METHOD UTILIZING THE INPLACE SANITARY SEWER SERVICE LINE TO COMPLETE THE WATER SERVICE REPLACEMENT. IN SUCH CASES, THE WORK SHALL INCLUDE FULLY REPLACING THE SANITARY SERVICE LINE. REFER TO SPECIAL PROVISIONS FOR REQUIREMENTS. UTILIZING THE SANITARY SERVICE TO PLACE THE WATER SERVICE LINE IS OTHERWISE NOT PERMITTED AND THE SANITARY SERVICE SHALL BE PROTECTED DURING THE WORK.
- ⑧ THE MAXIMUM PAY LENGTH FOR RESTORATION WITHIN THE RIGHT OF WAY WILL BE EXTENDED WHEN THE ENGINEER DIRECTS OPEN CUT EXCAVATION TO PLACE INSULATION WHERE PUBLIC WATER SERVICES CANNOT BE INSTALLED WITH 7.0' OF COVER DUE TO BED ROCK. THE MAXIMUM PAY WIDTH SHALL REMAIN 8.0'.

NOTES:

THE PAY LIMITS SHOWN REPRESENT THE MAXIMUM EXTENT OF REMOVAL AND RESTORATION THAT WILL BE MEASURED AND COMPENSATED AT EACH WATER SERVICE REPLACEMENT SITE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY IMPACTS BEYOND THESE LIMITS. ALL IMPACTS, REGARDLESS OF LOCATION, SHALL BE FULLY RESTORED BY THE CONTRACTOR, ACCORDING TO THE RESPECTIVE CONSTRUCTION REQUIREMENTS AND SPECIFICATIONS.

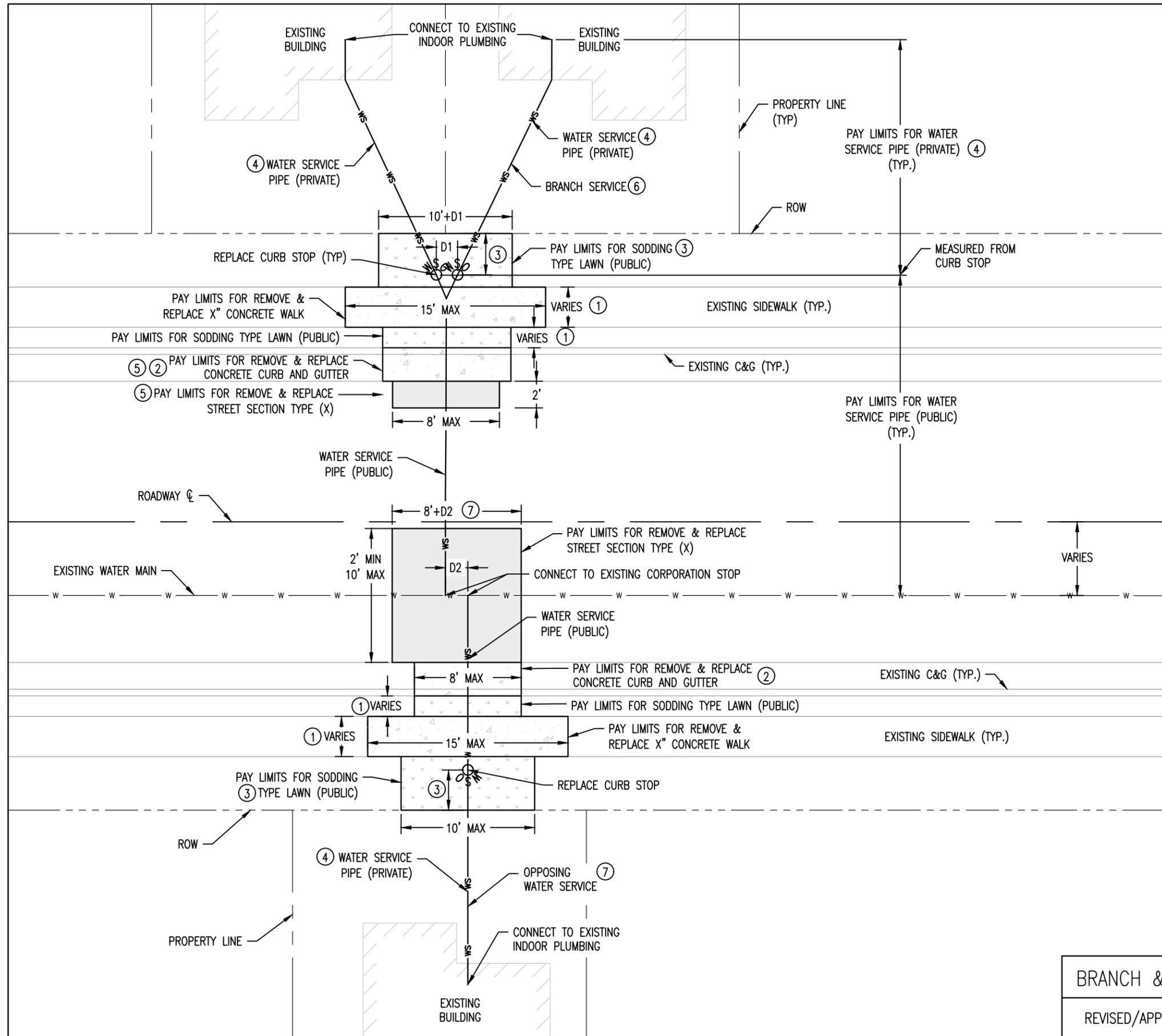
FULL LEAD WATER SERVICE REPLACEMENT

LSLR-17

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE



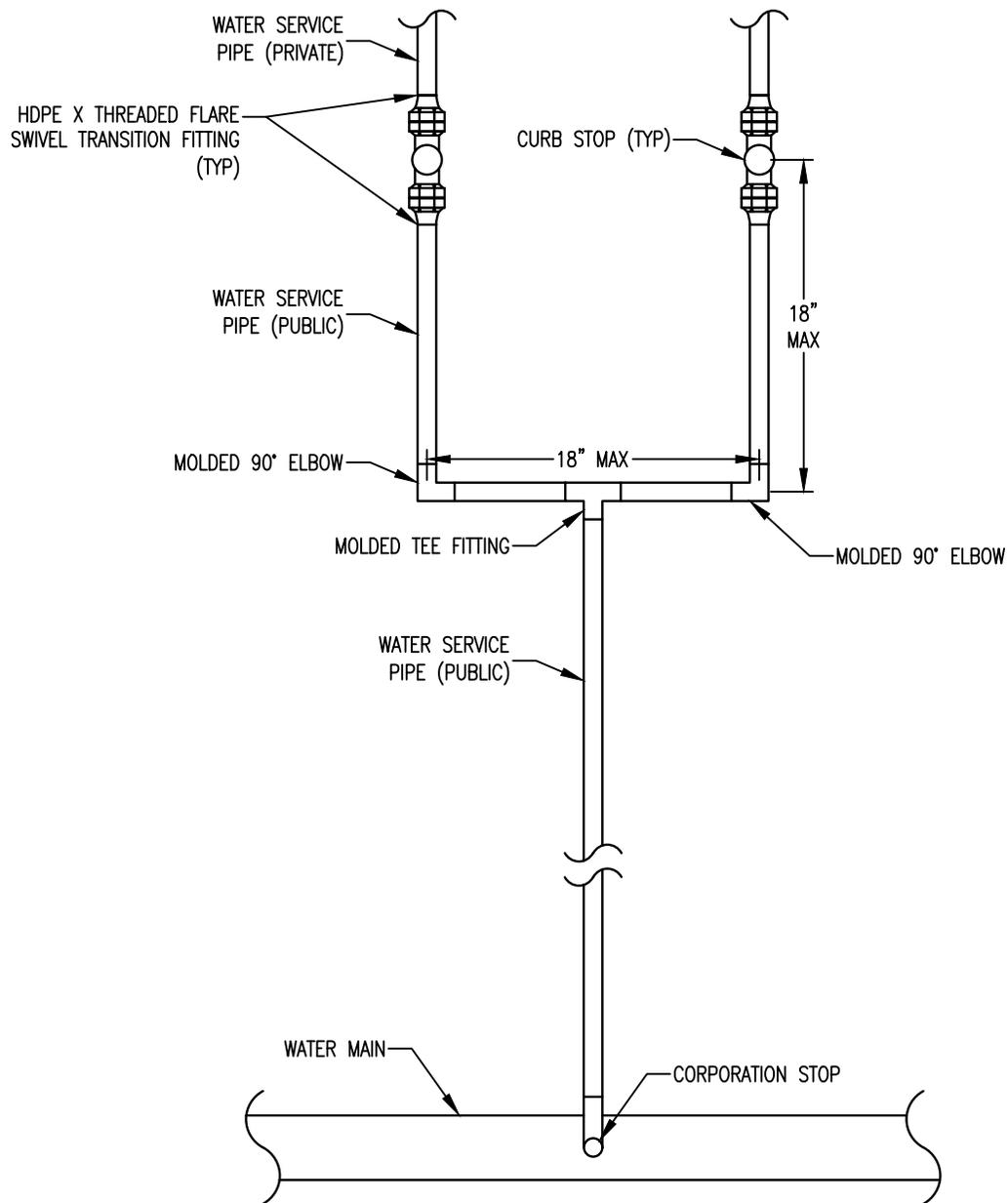
KEY NOTES:

- ① SHALL MATCH EXISTING WALK OR CURB TYPE GEOMETRY.
- ② LIMIT OF MEASUREMENT FOR REMOVE & REPLACE INTEGRANT CURB, WHERE PRESENT, SHALL BE LIMITED TO A 2-FIT OFFSET MEASURED FROM EXISTING FACE OF CURB.
- ③ LIMITS OF PAYMENT FOR SODDING TYPE LAWN AREAS SHALL BE A MAXIMUM OF 8-FIT BEHIND CURB STOP OR AS MEASURED TO THE RIGHT-OF-WAY, WHICHEVER IS LESS.
- ④ NO PAYMENT SHALL BE MADE FOR ANY REMOVALS OR RESTORATION ON A PRIVATE PROPERTY BUT ALL COSTS SHALL BE CONSIDERED INCLUDED FOR PAYMENT UNDER THE APPROPRIATE WATER SERVICE PIPE (PRIVATE) PAY ITEM. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
- ⑤ CURB AND GUTTER AND PAVEMENT REMOVALS SHALL ONLY BE PAID FOR WHERE THE LOCATION OF THE INPLACE CURB STOP IS LOCATED WITHIN 4-FIT OF THE INPLACE BACK OF CURB.
- ⑥ WHERE A BRANCH SERVICE IS PRESENT, THE WIDTH OF THE PAY LIMITS SHALL BE INCREASE BY THE DISTANCE BETWEEN THE CURB STOP "D1".
- ⑦ WHERE OPPOSING SERVICES ARE PRESENT AND LOCATED WITHIN 4-FIT OF EACH OTHER, THE WIDTH OF THE PAY LIMITS SHALL BE INCREASE BY THE DISTANCE BETWEEN THE CORPORATION STOPS "D2".

NOTES:

THE PAY LIMITS SHOWN REPRESENT THE MAXIMUM EXTENT OF REMOVAL AND RESTORATION THAT WILL BE MEASURED AND COMPENSATED AT EACH WATER SERVICE REPLACEMENT SITE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY IMPACTS BEYOND THESE LIMITS. ALL IMPACTS, REGARDLESS OF LOCATION, SHALL BE FULLY RESTORED BY THE CONTRACTOR, ACCORDING TO THE RESPECTIVE CONSTRUCTION REQUIREMENTS AND SPECIFICATIONS.

| | | |
|--|---|----------|
| BRANCH & OPPOSING LEAD WATER SERVICE REPLACEMENT | | LSLR-18 |
| REVISED/APPROVED 12/05/2025 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | NO SCALE |



NOTES:

1. THIS DETAIL APPLIES WHERE TWO HDPE PRIVATE WATER SERVICES AND CURB STOPS ARE TO BE CONNECTED TO ONE PUBLIC WATER SERVICE AS INDICATED IN THE PLANS OR AS DIRECTION BY THE ENGINEER.
2. ALL WATER SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE STREET RIGHT OF WAY FROM THE WATER MAIN TO THE CURB STOP.

HDPE EXTRA BRANCH LAYOUT

LSLR-19

REVISED/APPROVED 12/05/2025

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE