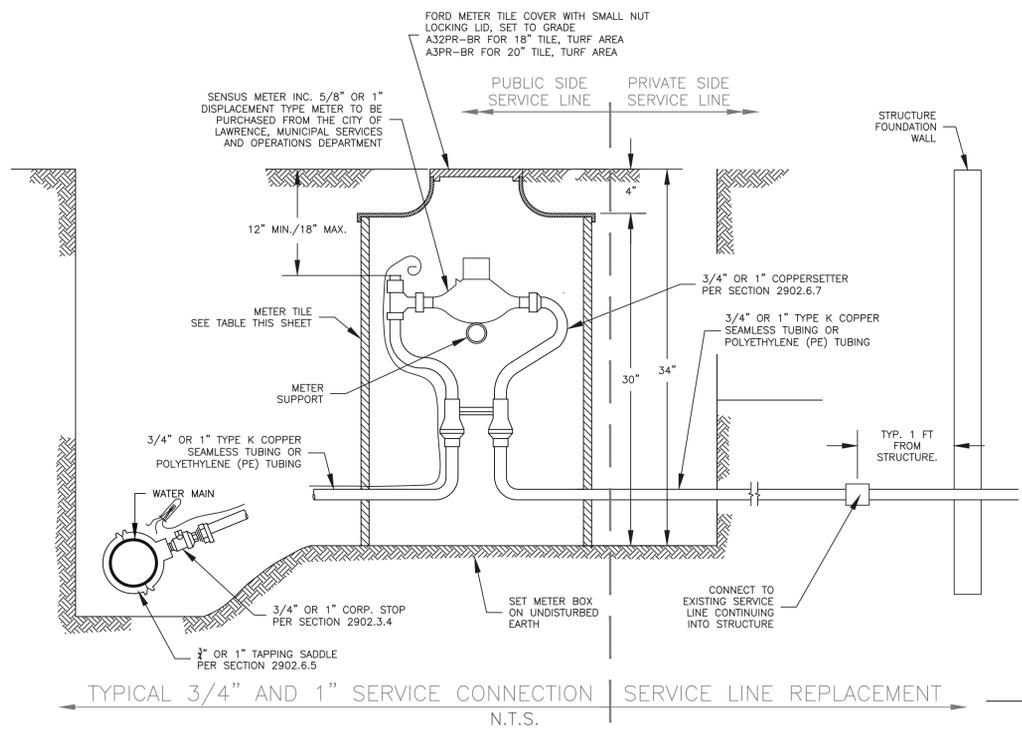


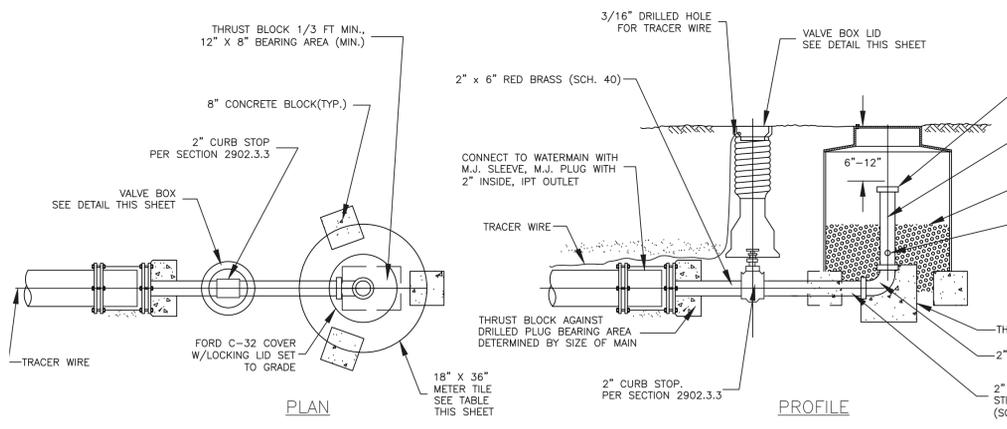
TYPICAL 1-1/2" OR 2" SERVICE CONNECTION
N.T.S.



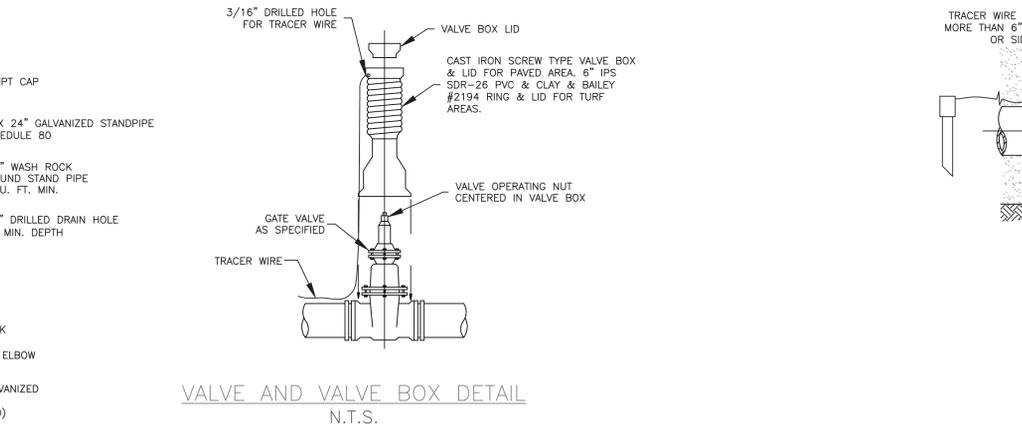
TYPICAL 3/4" AND 1" SERVICE CONNECTION
N.T.S.

| METER SIZE | SERVICE LINE SIZE* | METER SETTER | METER BOX SIZE/ACCEPTABLE PRODUCTS | METER BOX COVER SIZE/ACCEPTABLE PRODUCTS |
|------------|----------------------|--|---|--|
| 5/8" | 3/4" | FORD VB-81W-44-33-NL AY MCDONALD 732-1-WX22 33 | 18 x 30 / ADS 1805AAH OR ADS 18050012H OR ADS N-12 OR CONTECH A2000 OR APPROVED EQUAL | 18" & 20" / TRUMBULL 367-5464 (FRAME) & 367-5815 (LID) |
| 1" | 1" | FORD VB-84W-44-44-NL AY MCDONALD 732-1-WX22 44 | 20" / SIGMA RMP2030-W OR APPROVED EQUAL | |
| 1.5" | 1.5" | FORD VBH76-18-44-66-NL AY MCDONALD 722-618K022 660 | 36" / ADS N-12 OR SIGMA RMP3636-W OR CONTECH A2000 PVC OR APPROVED EQUAL | 36" / FORD MC-36-P-BR |
| 2" | 2" | FORD VBH77-18-44-77-NL AY MCDONALD 722-718K022 770 | | |
| 3" | 4" | METERS LARGER THAN 2" SHALL REQUIRE INDIVIDUAL VAULT DESIGNS. THE DESIGN ENGINEER SHALL SUBMIT PLANS FOR THE VAULT DESIGN TO THE ENGINEER FOR REVIEW AND APPROVAL ON A CASE-BY-CASE BASIS. | | |
| 4" + | MATCH METER DIAMETER | | | |

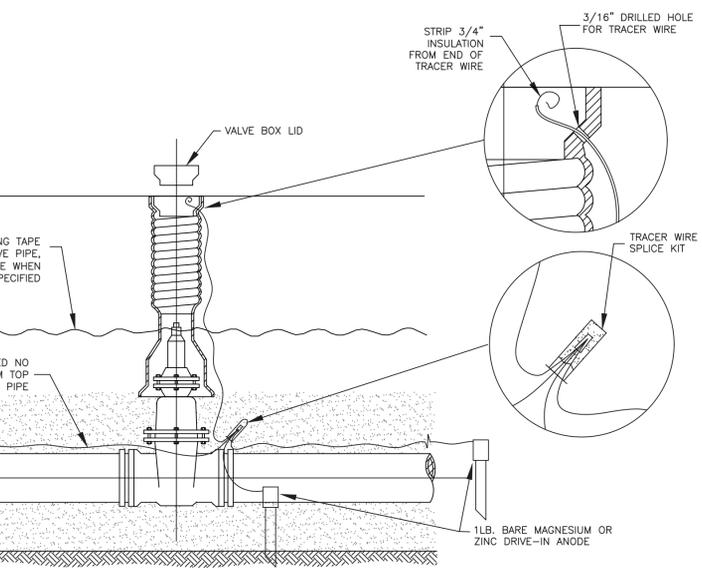
APPROVED WATER SERVICE MATERIALS



BLOWOFF DETAIL
N.T.S.

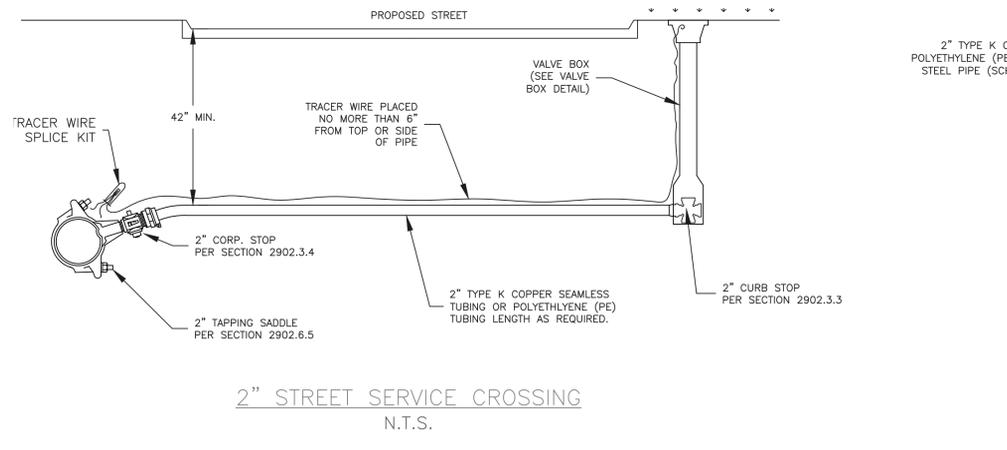


VALVE AND VALVE BOX DETAIL
N.T.S.

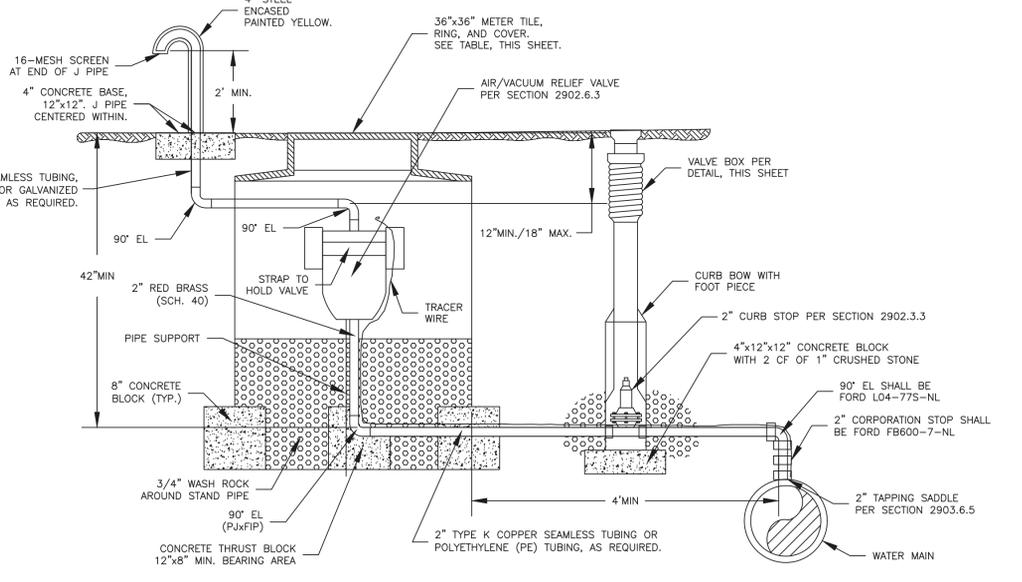


- NOTE:**
- ANODES SHALL BE A MINIMUM OF ONE POUND (1 LB.) BARE MAGNESIUM OR ZINC DRIVE-IN GROUNDING ANODE ROD AND SHALL BE DRIVEN INTO THE GROUND AT THE SAME ELEVATION AS THE WATERLINE. ANODES SHALL BE PLACED AT THE BEGINNING AND THE END OF THE WATERLINE, AT EVERY VALVE BOX OR TEST STATION, AT ALL DEAD ENDS, AT THE END OF SERVICE LINES, AND/OR AT LEAST EVERY FIVE HUNDRED FEET (500').
 - SPlice CONNECTIONS SHALL BE COPPERHEAD INDUSTRIES LLC SNAKEBITE LOCKING WIRE CONNECTOR, COPPERHEAD INDUSTRIES SCB-01SR DIRECT BURY, COPPERHEAD INDUSTRIES LLC 3WB-01 DRYCONN THREE-WAY DIRECT BURY LUG CONNECTOR, OR 3M DBR/Y-6 DIRECT BURY.
 - TRACER WIRE SHALL BE 12AWG COPPER CLAD STEEL (CCS), MINIMUM BREAK LOAD OF 280 LBS. WITH BLUE 30MIL HDPE JACKET FOR OPEN TRENCH INSTALLATIONS OR 12AWG COPPER CLAD STEEL (CCS), MINIMUM BREAK LOAD OF 1,100 LBS. WITH BLUE 45 MIL HDPE JACKET FOR DIRECTIONAL DRILL INSTALLATION. TRACER WIRE SHALL BE PLACED NO FURTHER THAN 6" TO THE SIDE OR ABOVE THE WATERLINE. TRACER WIRE SHALL BE ACCESSIBLE AT VALVE BOX OR TEST STATIONS AT LEAST EVERY 500'.
 - MARKING TAPE SHALL BE INSTALLED 18" ABOVE PVC PIPE OR DUCTILE IRON PIPE. MARKER TAPE SHALL BE AT LEAST 3" IN WIDTH, BLUE IN COLOR WITH BLACK LETTERING STATING, "CAUTION BURIED WATERLINE BELOW."
 - TRACER WIRE SHALL BE REQUIRED ON ALL POLYETHYLENE (PE) TUBING SERVICE LINES. SPlice SERVICE LINE TRACER WIRE TO TRACER WIRE AT THE EXISTING WATERMAIN WITH APPROVED CONNECTOR. IF NO TRACER WIRE IS IN PLACE ON THE EXISTING WATERMAIN, THE SERVICE LINE TRACER WIRE TO 1LB MIN. ANODE AT EXISTING WATERMAIN.
 - ALL PUBLIC SERVICE LINES SHALL BE INSTALLED IN A MANNER THAT ALLOWS FOR LOCATION OF SAID INFRASTRUCTURE BY THE DEPARTMENT POST-CONSTRUCTION. MIXED MATERIALS (I.E. COPPER AND POLYETHYLENE) FROM THE WATER MAIN TO THE WATER METER SHALL NOT BE PERMITTED WITHOUT THE ADDITION OF A TRACER WIRE.

TRACER WIRE/MARKER TAPE DETAIL
N.T.S.



2" STREET SERVICE CROSSING
N.T.S.



AIR RELEASE VALVE DETAIL
N.T.S.

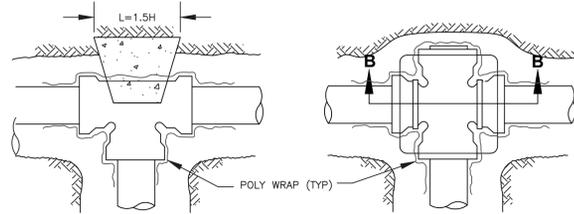
2026 EDITION SHEET ____ OF ____

| DATE | BY | REVISION |
|----------|-----|---|
| 04-01-26 | LJM | REPLACES ALL PREVIOUS VERSIONS OF WATERLINE DETAILS |
| 04-01-25 | LJM | REPLACES AIR RELEASE VALVE DETAIL |

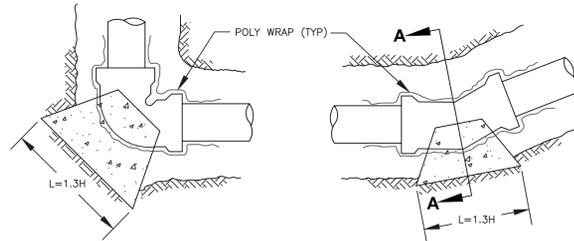


STANDARD DETAILS FOR
WATERLINE

ANDREW P. ENSZ PROGRAM MANAGER
CRAIG S. OWENS CITY MANAGER



- BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH
- PLUGS SHALL BE INDIVIDUALLY RESTRAINED

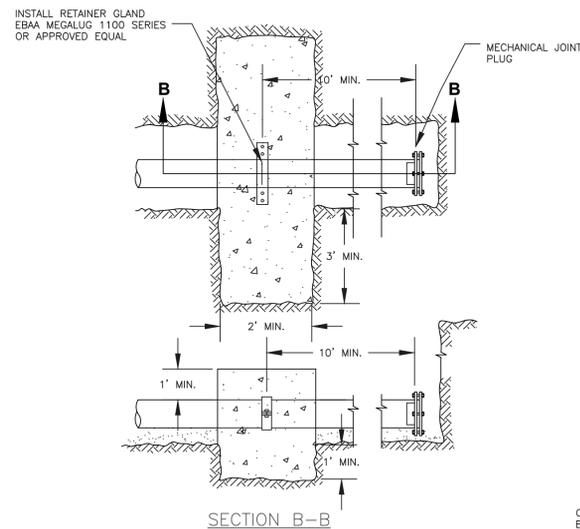


- NOTES:
- BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH. PLUGS SHALL BE INDIVIDUALLY RESTRAINED. ALL CONCRETE USED FOR THRUST BLOCKS AND ENCASEMENT SHALL BE CLASS A CONCRETE.
 - PIPE AND FITTINGS WITHIN 2 FEET OF CONCRETE BLOCKING SHALL BE WRAPPED IN 8 MIL POLY WRAP WITH 18" MINIMUM OVERLAP AT SEAM. (TYPICAL ALL BLOCKING INSTALLATIONS EXCEPT BLOCKING FOR FIRE HYDRANT BASE)

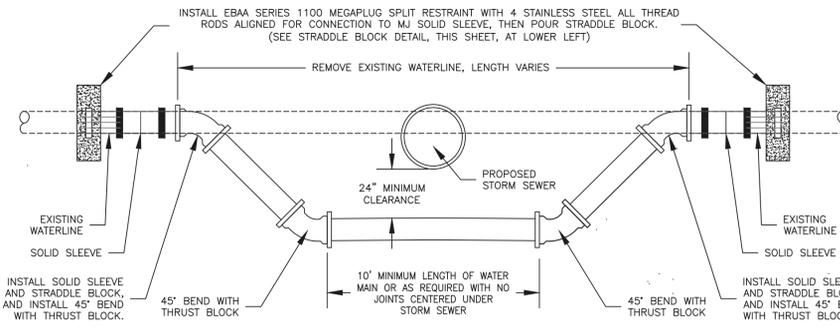
| LINE SIZE | BEARING AREA IN SQUARE FEET | | | | |
|-----------|-----------------------------|----------|----------|--------------|--------------|
| | TEE OR DEAD END | 90° ELLS | 45° ELLS | 22 1/2° ELLS | 11 1/4° ELLS |
| 4" | 2.7 | 3.8 | 2.1 | 1.1 | 0.5 |
| 6" | 5.6 | 7.9 | 4.3 | 2.2 | 1.1 |
| 8" | 9.6 | 13.6 | 7.4 | 3.8 | 1.9 |
| 10" | 14.5 | 20.5 | 11.1 | 5.7 | 2.8 |
| 12" | 20.5 | 29.0 | 15.7 | 8.0 | 4.0 |

BEARING AREA BASED ON THE FOLLOWING:
 DESIGN PRESSURE: 150 psi
 SOIL BEARING CAPACITY: 1500 PSF
 SAFETY FACTOR: 1.5

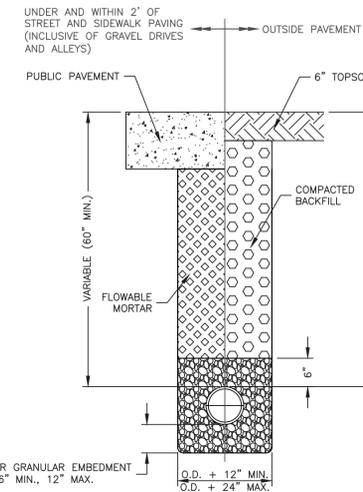
THRUST BLOCK DETAILS
N.T.S.



STRADDLE OR END BLOCKING
N.T.S.



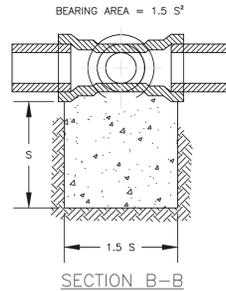
WATERLINE VERTICAL RELOCATION DETAIL
N.T.S.



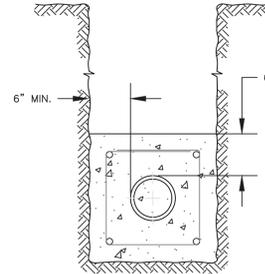
NOTES

- FLOWABLE MORTAR MATERIALS AND PLACEMENT LIMITS SHALL CONFORM TO SECTIONS 1102E AND 1107B OF THE CITY OF LAWRENCE CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 1100-GRADING RESPECTIVELY.
- COMPACTED BACKFILL SHALL CONFORM TO SECTION 1107B AND 1108 OF THE CITY OF LAWRENCE CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 1100-GRADING.
- DETAIL SHOWN SHALL GOVERN IN NEW CONSTRUCTION. THE CITY OF LAWRENCE STANDARD DETAILS FOR STREET REPAIR-PAVEMENT REMOVAL AND REPLACEMENT DETAILS FOR TRENCHING WITHIN EXISTING ROADWAYS SHALL GOVERN WITHIN EXISTING PAVEMENT.

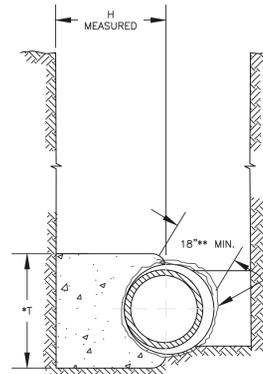
WATERLINE TRENCH DETAILS
N.T.S.



SECTION B-B

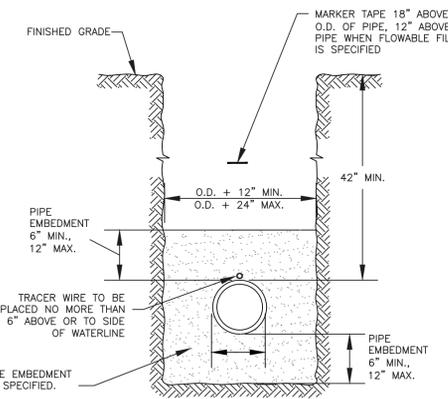


CONCRETE ENCASEMENT DETAIL
N.T.S.

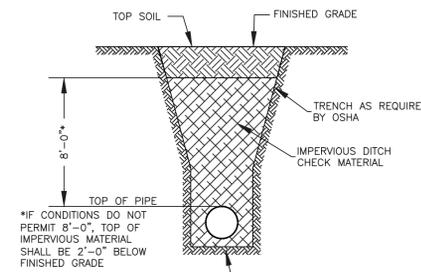


- AS REQUIRED TO OBTAIN THE MINIMUM BEARING AREA SHOWN IN THE TABLE, IN NO CASE SHALL THIS BE LESS THAN THE O.D. OF THE PIPE. BEARING AREA = LxT
- POLYWRAP OVERLAP AT SEAM

SECTION A-A

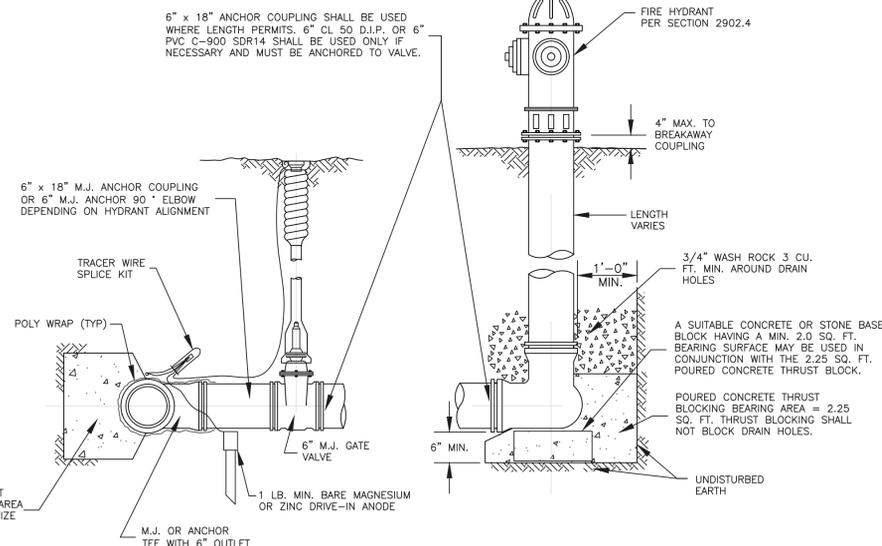


TYPICAL TRENCH SECTION
N.T.S.

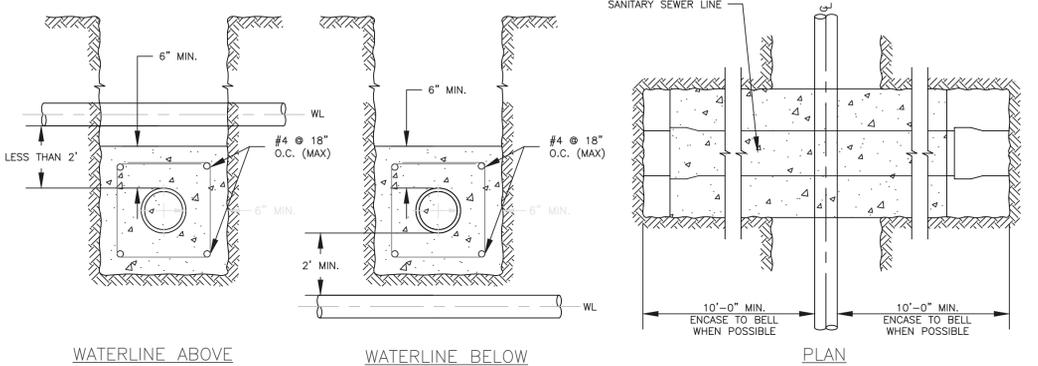


IMPERVIOUS DITCH CHECKS SHALL BE PLACED WHERE SHOWN ON THE PLANS. LENGTHS SHALL BE A MINIMUM OF 10 L.F. FLOWABLE FILL IS REQUIRED FOR PVC PIPE. FOR OTHER PIPE TYPES, CLAY MATERIAL OR FLOWABLE FILL MAY BE USED AT THE CONTRACTOR'S OPTION. FLOWABLE FILL MATERIAL TO COMPLY WITH CITY OF LAWRENCE CONSTRUCTION AND MATERIALS SPECIFICATION SECTION 1100, CURRENT EDITION. CLAY MATERIAL SHALL BE FREE OF CLODS, CLUMPS, DEBRIS, ORGANIC MATERIAL, AND STONES, COMPACTED SO AS TO OBTAIN 95% OF STANDARD PROCTOR MAXIMUM DENSITY AS DETERMINED BY ASTM D698.

IMPERVIOUS DITCH CHECK
N.T.S.



FIRE HYDRANT ASSEMBLY DETAIL WITH TEST STATION
N.T.S.



WATERLINE ABOVE
WATERLINE BELOW
CONCRETE ENCASEMENT OF SANITARY SEWER LINE CROSSING WATER LINE
N.T.S.

2026 EDITION

SHEET ____ OF ____

| DATE | BY | REVISION |
|----------|-----|---|
| 04-01-26 | LJM | REPLACES ALL PREVIOUS VERSIONS OF WATERLINE DETAILS |
| 04-01-25 | LJM | REPLACES ALL PREVIOUS VERSIONS OF WATERLINE DETAILS |



STANDARD DETAILS FOR
WATERLINE

2 OF 2

ANDREW P. ENSZ PROGRAM MANAGER
CRAIG S. OWENS CITY MANAGER