

PERFORATED STORM DRAIN PIPE TRENCH (STORM DRAIN LINES IN PAVED AREAS)

CU101,CU102,CU103,CU104,CG101,CG102

PIPE TRENCH NOTES:

- 1. INSTALL THERMOPLASTIC (PVC, HDPE) GRAVITY PIPING IN ACCORDANCE WITH ASTM D 2321. SEE ALSO PIPE TRENCH BEDDING NOTES.
- 2. INSTALL WATER SUPPLY PIPING IN ACCORDANCE WITH PORTLAND WATER DISTRICT WRITTEN INSTRUCTIONS. BEDDING REQUIRED IS INDICATED IN PIPE TRENCH BEDDING NOTES.
- 3. ALL EXCAVATION WORK SHALL COMPLY WITH OSHA STANDARDS. TRENCH SIDEWALLS SHALL BE VERTICAL FROM TRENCH BOTTOM TO 12" ABOVE TOP OF PIPE.
- 4. PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE BETWEEN PIPES AND WATER LINES AT CROSSINGS. PROVIDE A MINIMUM OF 6" VERTICAL CLEARANCE BETWEEN ALL OTHER CROSSING PIPES.
- 5. MAINTAIN THE FOLLOWING DEPTH OF COVER FOR **EACH SERVICE:**

<u>SERVICE</u>	MIN DEPTH OF COVER
WATER SUPPLY	5'-6" (6'-0" MAX
SANITARY SEWER	4'-6"*
NATURAL GAS (IN RIGHT-OF-	-WAY) 3'-0"
NATURAL GAS (ON SITE)	2'-0"
STORM DRAIN	AS INDICATED
*DEPTH OF COVER MAY BE	ABLE TO BE REDUCED IF,
2" THICK RIGID INSULATION IS PROVIDED ABOVE	

- 2 THICK RIGID INSULATION IS PROVIDED ABOVE AND ON EITHER SIDE OF PIPE. OBTAIN ARCHITECT'S WRITTEN PERMISSION BEFORE INSTALLING ANY PIPES WITH REDUCED COVER.
- 6. PROVIDE MIN 0.005'/FT (0.5%) PITCH ON ALL GRAVITY PIPING.
- 7. WRAP ALL DUCTILE IRON WATER PIPING IN MIN 8 MIL POLYETHYLENE SHEETING AND TAPE SECURELY BEFORE BURYING IN ACCORDANCE WITH PWD'S WRITTEN REQUIREMENTS.
- 8. PIPE BEDDING SHALL BE ASTM D 2321, CLASS 1B OR II BEDDING, EXCEPT WITH 100 PERCENT PASSING A 1" SIEVE AND GREATER THAN 75 PERCENT PASSING A NO. 4 SIEVE, EXCEPT AT SEWER AND STORM DRAINAGE PIPING, WHERE 3/4" CRUSHED STONE SHALL BE USED.
- 8. MINIMUM BEDDING ON EITHER SIDE OF THE PIPE IN THE TRENCH SHALL BE AS FOLLOWS

BEDDING ON SIDES OF PIPE PIPE DIAMETER 24" OR LESS 9" EACH SIDE 9-3/4" EACH SIDE

MANHOLE NOTES:

- 1. MANHOLE FRAME AND COVERS SHALL BE IN ACCORDANCE WITH CITY OF PORTLAND'S WRITTEN REQUIREMENTS, AND FIGURES II-1, II-4, II-5, AND II-6 OF THE MOST RECENT VERSION OF THE CITY OF PORTLAND TECHNICAL MANUAL
- 2. CONCRETE: 5,000 PSI AFTER 28 DAYS.
- 3. PROVIDE REINFORCING TO ACHIEVE AASHTO HS-20 LOADING CLASSIFICATION (32,000 POUND AXLE LOAD).

OTHER AREAS: 6" THICK

- 4. SHIPLAP JOINTS SHALL BE SEALED WITH 2 STRIPS OF 1" DIA BUTYL RUBBER SEALANT.
- 5. PROVIDE LOCK JOINT FLEXIBLE PIPE SLEEVES, CAST INTO BASE.
- 6. EACH CASTING TO HAVE LIFTING HOLES CAST IN. PLUG LIFTING HOLES WITH GROUT AFTER PLACING MANHOLE.
- 7. PROVIDE MANHOLE STEPS @ 12" OC.
- 8. INVERT BRICKS SHALL BE LAID ON EDGE
- 9. APPLY WATERPROOFING COATING TO EXTERIOR SURFACE OF ALL SEWER MANHOLES.
- 10. EXCAVATE TO SUBGRADE IN SOFT GRAY CLAY AND NATIVE BROWN SILTY CLAYS USING A SMOOTH-EDGE BUCKET.



-SEE PIPE PENETRATION AND CONNECTION DETAIL (TYP) BRICK CHANNEL OR PRECAST CONC SHELF AND INVERT **PRECAST** CONC OR **BRICK SHELF** 3" MAXIMUM PIPE PROJECTION ETHERIDGE FOUNDRY E24-5 OR APPROVED EQUAL FRAME AND COVER WITH DIAMOND COVER DESIGN AND "SEWER" OR "DRAIN" CAST INTO COVER MORTAR 2-3 COURSES BRICK OR AND PROVIDE ONE 7/8" DIAMETER PAVED AREAS TURF AREAS PRECAST CONC GRADE RINGS DRILLED PICK HOLE, LOCATED 8" FROM C-507 NOT TO SCALE (TOTAL HEIGHT 4"-8") THE CENTER OF THE COVER MIN DIA FINISH GRADE-TURF FINISH PAVEMENT **COMMON FILL GRANULAR** BORROW (TYP) SHIP LAP JOINT **FIBER** REINFORCED PLASTIC OR **COATED STEEL** NATIVE SOIL STEPS (TYP) -BRICK CHANNEL OR PRECAST CONC SHELF AND INVERT. OMIT IN GRANULAR BORROW (TYP) DRAIN MANHOLES AND 4'-0" PROVIDE 3' SUMP — —SANITARY SEWER LINE IN PIPE TRENCH CONCRETE OR MASONRY 1/4"/FT INFILL (NO VOIDS) -C-507 -RESILIENT CONNECTOR EXTENDED BASE (WHERE INDICATED) W/ DIAMETER 12" MIN GREATER THAN 3000 PSI CONC (IF OD OF BARREL SECTIONS BRICK SHELF USED) — - 3/4" CRUSHED STONE BASE, WRAPPED IN NONWOVEN GEOTEXTILE FABRIC, EXTEND MIN 12" EXIST SUBGRADE BEYOND CATCH BASIN. THICKNESS AS FOLLOWS: OR COMPACTED FILL SOFT SUBGRADE AREAS (GENERALLY 8'-13' BELOW GRADE): 24" THICK

-RESILIENT CONNECTOR CAST IN PRECAST SECTION OR CORE AND HALF PVC PLUG — EXPANDABLE LOCK SEAL FLEXIBLE 45° WYE BRANCH — CONNECTOR -SEWER MANHOLE 3/4" CRUSHED -BRICK CHANNEL OR STONE (TYP)-PRECAST CONC SHELF AND INVERT. 6" MIN CONC ALL AROUND -INV OUT 90° ELBOW -3,000 PSI CONC ENCASEMENT -- 6" MIN THICKNESS 3/4" L INV OUT CRUSHED STONE

6'-0"

3 TYP PIPE PENETRATION AND CONNECTION DETAIL

- MANHOLE WALI

FLEXIBLE SYNTHETIC RUBBER SLEEVE

- STAINLESS STEEL PIPE CLAMP

-EXISTING PIPE

-SHIELDED FLEXIBLE RUBBER COUPLING OR

HDPE COUPLING (FOR STORM DRAIN LINE

CONNECTIONS)

FILL ANNULAR

SPACE WITH NON-

SHRINK GROUT -

CENTER PIPE

PENETRATION-

STAINLESS STEEL

LOCKING BAND

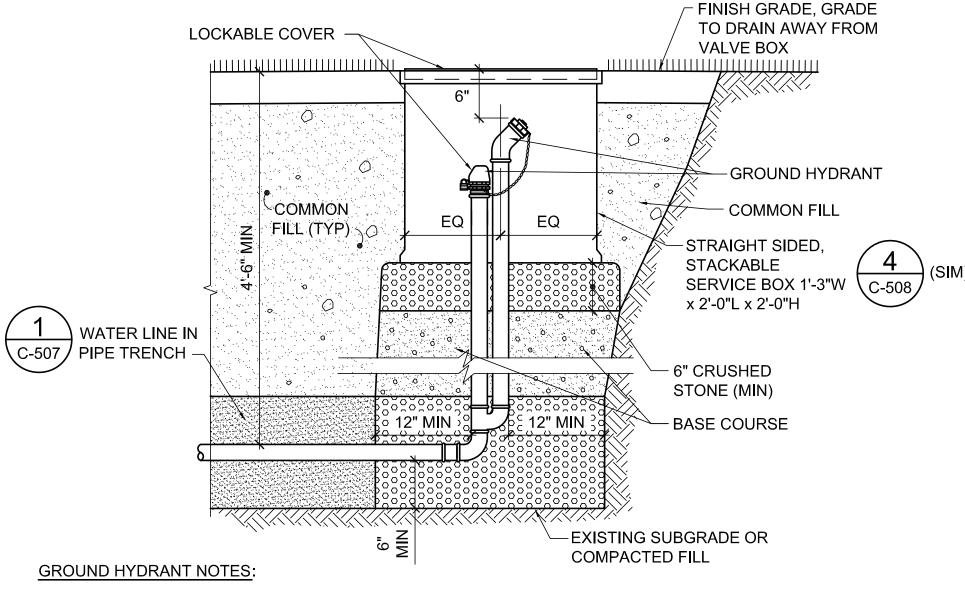
IN PIPE

1. FOR ADDITIONAL REQUIREMENTS, SEE DETAIL 2/C-507.

2. DROP MANHOLE SHALL CONFORM TO CITY OF PORTLAND'S WRITTEN REQUIREMENTS (TECHNICAL MANUAL FIGURE II-3)



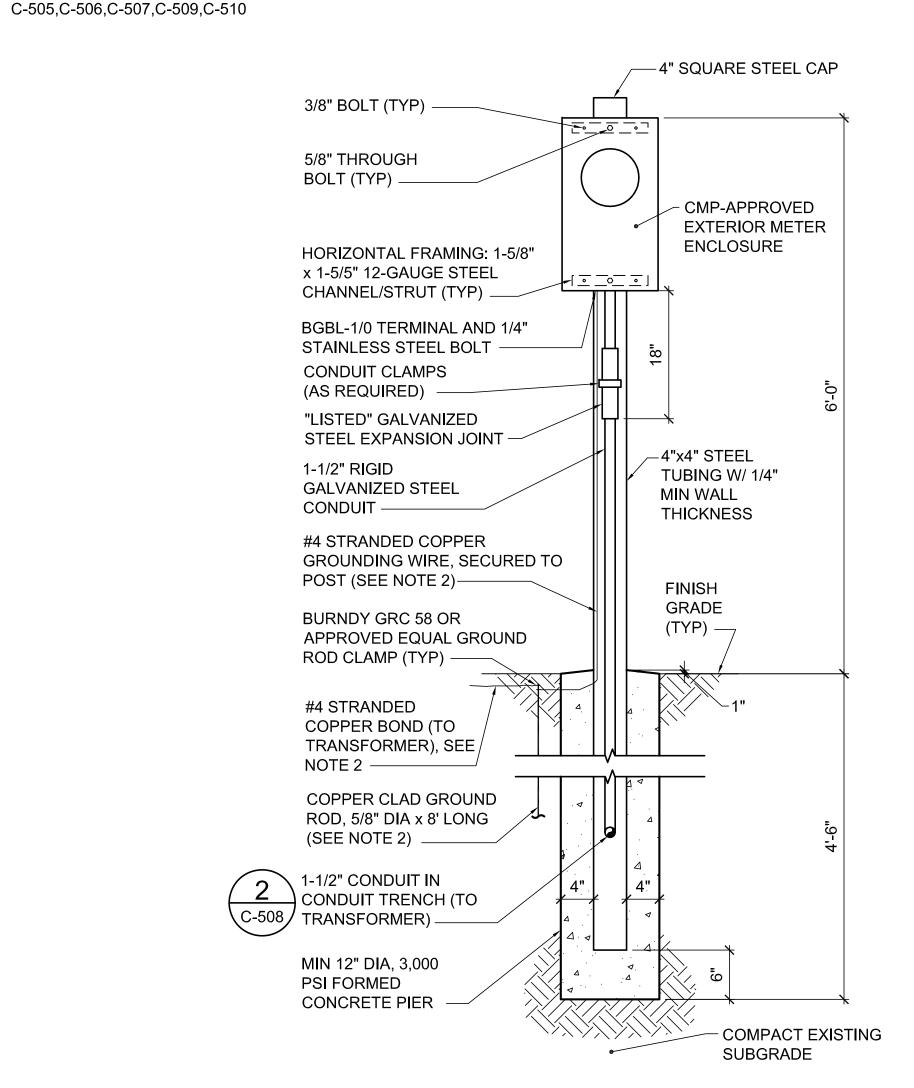
+0.1'



1. PROVIDE FREEZE PROOF SANITARY GROUND HYDRANT WITH VACUUM BREAKER AND BACKFLOW PREVENTION.

2. INSTALL GROUND HYDRANT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.





PIPE TRENCH DETAILS

C-507 / NOT TO SCALE

METER PEDESTAL NOTES

- 1. METER PEDESTAL SHALL COMPLY WITH ILLUSTRATION NO. 16, "UNDERGROUND OUTDOOR OVERALL METER ENCLOSURE MOUNTING (1-SINGLE)" OF "THE CENTRAL MAINE POWER HANDBOOK OF REQUIREMENTS FOR ELECTRIC SERVICE AND **METER INSTALLATIONS."**
- 2. METALLIC CONDUIT AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH SECTION VII OF "THE CENTRAL MAINE POWER HANDBOOK OF REQUIREMENTS FOR ELECTRIC SERVICE AND METER INSTALLATIONS" AND ARTICLE 250 OF THE NATIONAL ELECTRIC CODE. PROVIDE BONDING TO TRANSFORMER AND ANY OTHER NEARBY GROUNDING SYSTEMS.
- 3. STEEL POSTS, HORIZONTAL FRAMING, BASE PLATES, AND ALL OTHER APPURTENANCES SHALL BE GALVANIZED STEEL AND POWDER COATED GREEN IN COLOR TO MATCH TRANSFORMER.



