

MOUND LOAM 6"

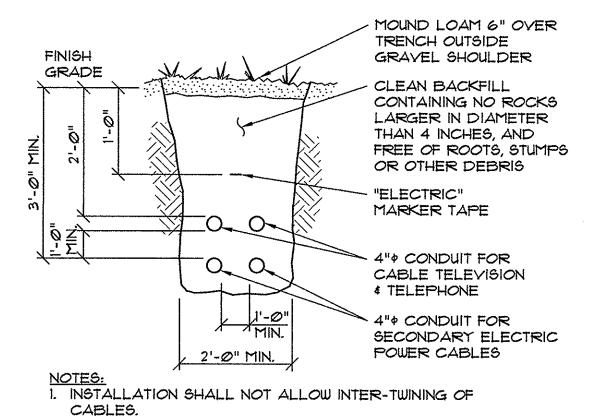
WARNING TAPE

GAS PIPELINE

TRACER WIRE

SUBBASE

SAND



- 2. DIRECT BURY ELECTRICAL CABLES MAY BE USED IF ALLOWED BY CENTRAL MAINE POWER
- 3. CONFIRM CONDUIT SIZES WITH INDIVIDUAL UTILITY COMPANIES PRIOR TO INTALLATION.
- 4. COORDINATE FINAL LAYOUT WITH INDIVIDUAL UTILITY COMPANIES.

GAS PIPING TRENCH SECTION NOT TO SCALE

CABLE TRENCH SECTION

NOT TO SCALE

## UNDERGROUND UTILITIES WARNING TAPE

IDENTIFICATION TAPE TO BE INSTALLED ABOVE ALL NEW UNDERGROUND UTILITIES AND ABOVE ANY EXISTING UTILITIES THAT MAY BE EXPOSED BY THIS CONSTRUCTION.

DETECTABLE UNDERGROUND MARKING TAPE TO BE PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED PLASTICIZED ALUMINUM TAPE, INTENDED FOR DIRECT-BURIAL SERVICE NOT LESS THAN 3" WIDE x 5 MILS THICK. PROVIDE TAPE WITH BLACK PRINTING IDENTIFYING THE UTILITY. DETECTABLE WARNING TAPE REQUIRED OVER ALL WATER, SEWER, DRAINAGE, OR GAS UTILITIES. TAPE TO BE TERRA TAPE BY REEF INDUSTRIES, INC., www.reefindustries.com, OR EQUAL.

APWA UNIFORM COLOR CODE:

WHITE PROPOSED EXCAVATION PINK

TEMPORARY SURVEY MARKINGS ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES

GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS YELLOW ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT BLUE POTABLE WATER

RECLAIMED WATER, IRRIGATION AND SLURRY LINES PURPLE SEWERS AND DRAIN LINES

## VUNDERGROUND UTILITIES WARNING TAPE

## GENERAL NOTES FOR MANHOLES AND CATCH BASINS

- ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
- 2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
- 3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
- 4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
- 5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE
- 6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVED EQUAL.
- 7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.

- 8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
- 9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL. 10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
- 11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
- 12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CASCO TRAP. SEE FIGURE II—09.

GENERAL NOTES FOR

 $\sqrt{\mathsf{MANHOLES}}$  AND CATCH BASINS (II-4)

NOT TO SCALE DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION. 1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.

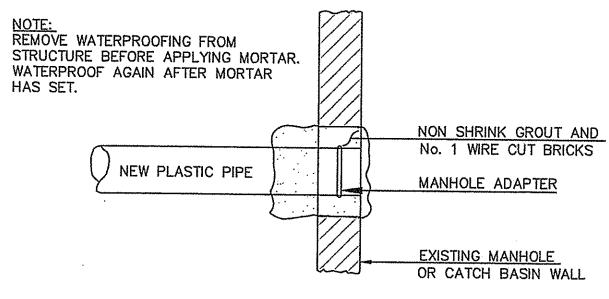
IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX
ASPHALT PAVEMENT SHALL MATCH THE GREATER OF
EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES... CORRESPONDING STREET CLASSIFICATION.

3. DIMENSION B SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES PAVED AREAS --------- UNPAVED AREAS DIMENSION B SHALL BE AT LEAST 9".
DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR AGGREGATE SUBBASE COURSE - GRAVEL, TYPE "D"-CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND AGGREGATE BASE COURSE - CRUSHED, TYPE "B"-HOT BITUMINOUS PAVEMENT GRADING STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE FOLLOWING TABLE. HOT BITUMINOUS PAVEMENT GRADING "C"----- 4" LOAM AND SEED GRIND TO PROPER DEPTH -PIPE DIAMETER, D MAX. TRENCH WIDTH, A HALF OF MAX. PAYMENT WIDTH PLUS 12" FOR TRENCH PAVEMENT REPLACEMENT — COMMON BACKFILL FROM TRENCH EXCAVATION (INCIDENTAL) OR GRANULAR BORROW (IF ORDERED) 3/4" CRUSHED STONE OR SAND-12" ABOVE TOP OF PIPE. 3/4" CRUSHED STONE FOR PIPE BEDDING TO PIPE SPRINGLINE ESTABLISHED TRENCH PROFILE -2" CRUSHED STONE -

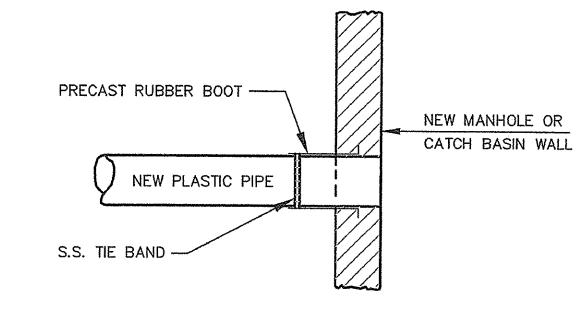
3 TYPICAL PIPE TRENCH INSTALLATION (11-12)

NOT TO SCALE

NOTE: EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION. IF PIPE DIAMETER IS SO LARGE THAT CORE DRILLING IS PROHIBITED, THE CONTRACTOR MAY SAW CUT THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.



METHOD 3 - NEW PIPE INTO EXISTING STRUCTURE



METHOD 2 - NEW CONSTRUCTION

7 PLASTIC PIPE CONNECTION METHODS (II-13 & II-14)

NOT TO SCALE

GREER ENGINEERS

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