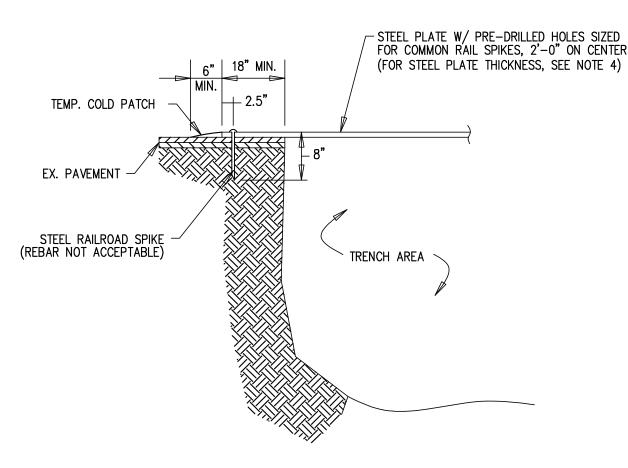


TYPICAL
EXCAVATION TRENCH
N.T.S.



NOTE:

1. THE CITY RESERVES THE RIGHT NOT TO ALLOW THE USE OF STEEL PLATES TO SECURE TRENCHES AT ANY TIME THROUGHOUT CONSTRUCTION.

2. PLACE 48"X48" ORANGE AND BLACK CONSTRUCTION SIGN, STATING "STEEL PLATES 100 FT." TO PROVIDE DRIVERS WITH ADVANCED NOTICE. SEE TRAFFIC MANAGEMENT PLAN FOR PLACEMENT OF SIGNAGE.

3. NOT MORE THAN ONE (1) STEEL PLATE SHALL BE USED AT ANY TIME AND CAN NOT BE USED ON EXCAVATIONS GREATER THAN 7-FEET WIDE.

4. STEEL PLATE DIMENSIONS AND THICKNESS SHALL BE DESIGNED BY THE CONTRACTOR. STEEL PLATE THICKNESS SHALL BE DESIGNED TO ALLOW DEFLECTION OF NOT MORE THAN 0.25".
 5. PROVIDE WOOD WEDGES UNDER PLATE EDGES AT UNEVEN SURFACES TO MINIMIZE MOVEMENT.

STEEL PLATE DETAIL

1 1/2" PAVEMENT MILLING -

MIN. (TYP.)

REQUIRED.

JOINTS TO BE SEALED WITH -

HOT APPLIED HMA CRACK

SPECIFICATION SS-S-1401)(TYP.)

SEALER, PER M3.05.4

(SEE ALSO FEDERAL

# CONSTRUCTION NOTES

THE FOLLOWING DESCRIBES MATERIALS AND METHODS AS THEY PERTAIN TO ROAD OPENING WORK. ALL WORK SHALL CONFORM TO THE 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AND ALL SUBSEQUENT SUPPLEMENTAL SPECIFICATIONS THERETO.

### BACKFILL MATERIALS

EXCAVATIONS IN THE STREET PAVEMENT AREAS SHALL BE CAREFULLY BACKFILLED WITH LAYERS OF SUITABLE GRAVEL. THE TWELVE (12) INCHES OF BEDDING MATERIAL AROUND PIPES SHALL BE SAND (M1.04.0) FOR WATER, \( \frac{3}{4}\) CRUSHED STONE (M2.01.0) FOR SEWER, GRAVEL BORROW — TYPE C (M1.03.0) FOR RCP DRAIN & TYPE D (M1.03.0) FOR CHDPE DRAIN OR AS SPECIFIED BY THE OWNER OF THE UTILITY AND APPROVED BY THE CITY OF MARLBOROUGH. BACKFILL MATERIAL SHALL CONSIST OF CONTROLLED DENSITY FILL (CDF) — TYPE 1E OR 2E (M4.08.0) FOR ALL MAJOR ROADWAYS OF THE CITY OR AS DIRECTED BY THE COMMISSIONER OF PUBLIC WORKS.

SUITABLE GRAVEL MATERIAL FOR BACKFILLING SHALL BE GRANULAR FILL CONSISTING OF SOIL SUBSTANTIALLY FREE FROM CLAY, ORGANIC MATERIALS, LOAM, WOOD, TRASH OR OTHER OBJECTIONABLE MATERIAL WHICH MAY NOT BE COMPRESSIBLE OR WHICH CANNOT BE PROPERTY COMPACTED. IT SHALL NOT CONTAIN STONES, BROKEN CONCRETE, MASONRY RUBBLE OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED. IT SHALL NOT CONTAIN ANY SNOW, ICE OR FROZEN SOIL.

## COMPACTION OF BACKFILL

BACKFILL SHALL BE UNIFORMLY DISTRIBUTED IN SUCCESSIVE LAYERS, EACH LAYER BEING THOROUGHLY COMPACTED BEFORE THE SUCCEEDING LAYER IS PLACED. THE ENTIRE WIDTH OF THE TRENCH SHALL BACKFILLED AND MECHANICALLY TAMPED IN LIFT DEPTHS NOT GREATER THAN (12) INCHES. COMPACTION EQUIPMENT AND LIFT THICKNESS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS TO OBTAIN THE COMPACTION STANDARDS UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. THE TOP LAYER OF BACKFILL SHALL BE FOURTEEN (14) INCHES OF GRAVEL COMPACTED TO 97% OF MAXIMUM DENSITY.

#### GRADING ROLLING AND FINISHING

PAVEMENT PLACED SHALL BE PLACED AND RAKED TO A UNIFORM SURFACE, ROLLED TO THE REQUIRED THICKNESS AND TO A GRADE THAT WILL MATCH THE EXISTING BITUMINOUS ROAD SURFACE. THE PERMITTEE SHALL MAINTAIN THE SURFACING AND SHALL PROMPTLY FILL WITH SIMILAR MATERIAL ANY DEPRESSION AND HOLES THAT MAY OCCUR SO AS TO KEEP THE SURFACING IN A SAFE AND SATISFACTORY CONDITION FOR TRAFFIC.

# TEMPORARY PAVEMENT

A TEMPORARY PAVEMENT SHALL BE PLACED ON THE SURFACE OF THE FILL AND THOROUGHLY COMPACTED. A TEMPORARY PAVEMENT SHALL BE HOT MIX ASPHALT THREE (3) INCHES THICK (SEE EXCAVATION TRENCH DETAIL). IF PLATES ARE USED PRIOR TO TEMPORARY PAVING, THEY SHALL BE RAMPED TO MATCH THE EXISTING PAVEMENT. TEMPORARY PAVING OR STEEL PLATING SHALL IMMEDIATELY FOLLOW THE BACKFILLING OPERATION OR AS DIRECTED BY ENGINEER.

#### PERMANENT PAVING

THE FINAL BITUMINOUS CONCRETE SURFACE SHALL NOT BE PLACED ANY EARLIER THAN 65 DAYS OR NO LATER THAN 90 DAYS FROM THE DATE OF COMPLETION OF THE TEMPORARY SURFACE WITHOUT APPROVAL FROM THE COMMISSIONER OF PUBLIC WORKS. THE TEMPORARY PAVEMENT SHALL BE MILLED TO A DEPTH OF ONE AND ONE—HALF ( $1\frac{1}{2}$ ) INCHES, TWELVE (12) INCHES OUTSIDE OF THE TEMPORARY PAVING LIMITS. PAVEMENT LIMITS JOINTS ARE TO BE SEALED WITH HOT APPLIED HMA CRACK SEALER, PER M3.05.4. IN SOME INSTANCES, BEYOND A SIMPLE TRENCH EXCAVATION, PAVEMENT DETAILS AND RESURFACING REQUIREMENTS WILL BE INCLUDED AS A SPECIAL CONDITION IN THE PERMIT.

# PROTECTIVE SYSTEMS

— TACK COAT (ASPHALT EMULSION)

-LIMITS OF EXISTING TEMP.

TRENCH PAVING

TRENCH WIDTH

. COMPACTION EQUIPMENT AND LIFT THICKNESS

REQUIREMENTS TO OBTAIN THE COMPACTION

STANDARDS DESCRIBED IN THE CONSTRUCTION

NOTES UNLESS OTHERWISE APPROVED BY THE

CITY ENGINEER. IN PROXIMITY TO STRUCTURES

TYPICAL

FINAL TRENCH PAVING

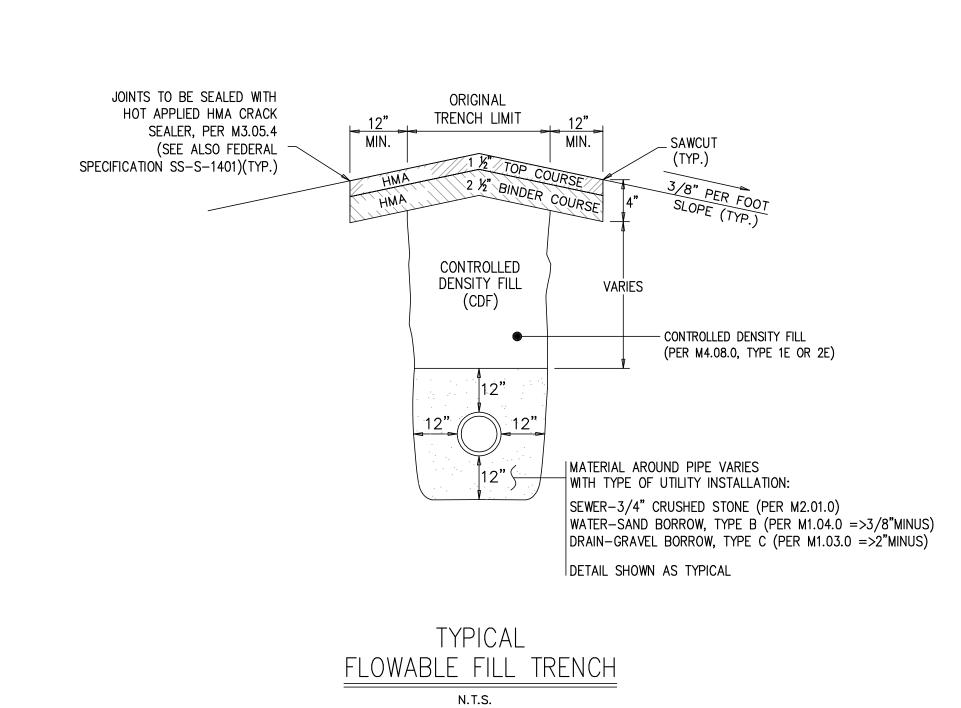
SHALL MEET OR EXCEED THE MINIMUM

A JUMPING JACK COMPACTOR SHALL BE

\_\_\_ 1 1/2" BIT. CONC. PAVEMENT-TOP

(PER M3.11.04 - 3/8" TYP.)

ALL EXCAVATIONS MUST BE PROPERLY SLOPED, SHORED, OR SHIELDED UNLESS THEY ARE MADE ENTIRELY IN STABLE ROCK, OR LESS THAN (5) FEET DEEP AND DECLARED SAFE AFTER AN INSPECTION BY A COMPETENT PERSON.







Public Works

Engineering Division 135 Neil Street Marlborough, MA 01752 p. (508) 624-6910 f. (508) 624-7699

www.marlborough-ma.gov

REVISIONS						
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TRENCHING DETAILS

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