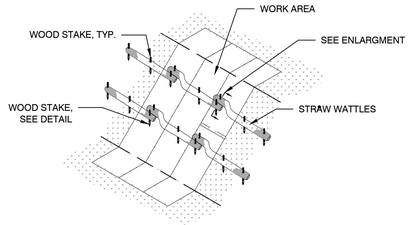
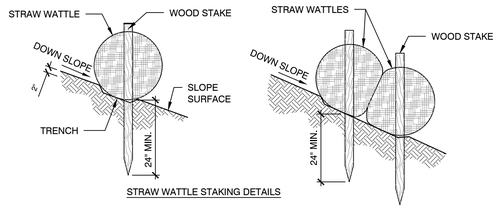
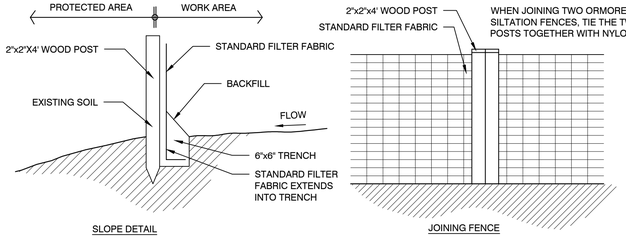


STRAW WATTLE LAYOUT ON SLOPE



STRAW WATTLE STAKING DETAILS



SLOPE DETAIL

JOINING FENCE

1 EROSION AND SEDIMENT CONTROL

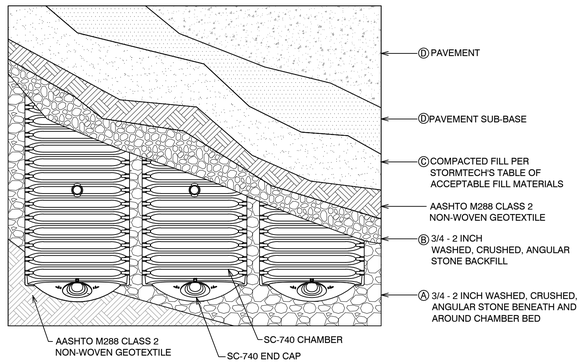
SCALE: N.T.S.

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
Ⓓ FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS	REFER TO DETAILS AND GEOTECHNICAL REPORT FOR PAVEMENT, BASE AND SUBBASE DESIGN	N/A	N/A	PREPARE PER GEOTECHNICAL REPORT.
Ⓒ FILL MATERIAL FOR 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS)	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	A-1 A-2 A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
Ⓑ EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
Ⓐ FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS WASHED, CRUSHED, ANGULAR NO. 4 STONE.

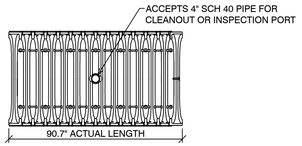
3 CHAMBER DETENTION - ACCEPTABLE FILL MATERIALS

SCALE: N.T.S.



4 CHAMBER DETENTION - PLAN VIEW, TYP.

SCALE: N.T.S.

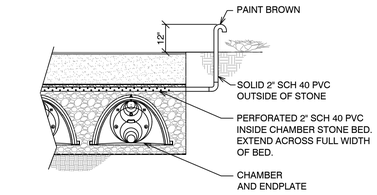


NOMINAL CHAMBER SPECIFICATIONS

SIZE (W x H x INSTALLED LENGTH):	51.0" x 30.0" x 85.4"
CHAMBER STORAGE:	45.9 CUBIC FEET
MINIMUM INSTALLED STORAGE:	74.9 CUBIC FEET
WEIGHT:	75 LBS.

7 CHAMBER, TYP.

SCALE: N.T.S.

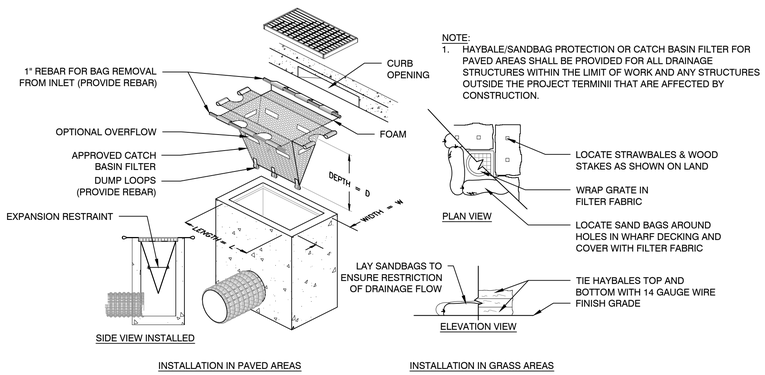


6 VENT DETAIL, TYP.

SCALE: N.T.S.

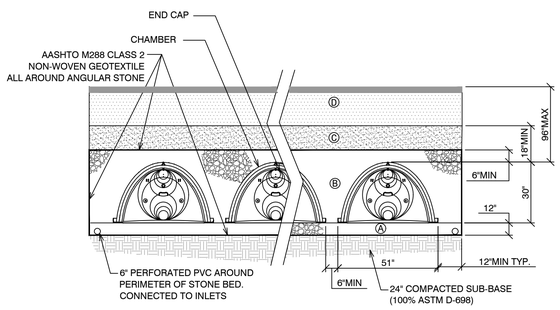
CHAMBER GENERAL NOTES

1. INSTALLATION PER MANUFACTURERS INSTRUCTIONS.
2. INSULATOR REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
3. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
4. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
5. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION MANUFACTURE'S INSTALLATION INSTRUCTIONS.
6. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF MANUFACTURE'S INSTALLATION INSTRUCTIONS.
7. THE CONTRACTOR MUST REFER TO MANUFACTURE'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED MANUFACTURE'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
8. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.



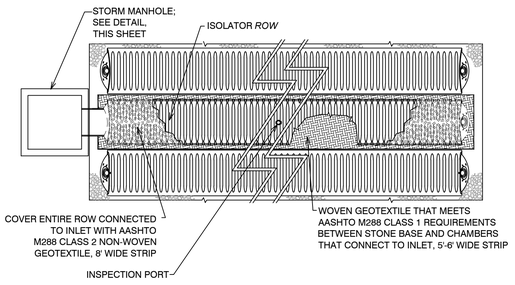
2 INLET SEDIMENT CONTROL

SCALE: N.T.S.



5 CHAMBER DETENTION - ELEVATION VIEW, TYP.

SCALE: N.T.S.



8 INSULATOR ROW - PLAN VIEW, TYP.

SCALE: N.T.S.

Project:

TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

Weston & Sampson

427 Main Street, Suite 400,
Worcester, MA 01608
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OWNER:
NAME: TOWN OF MILLBURY, MA
ADDRESS: 127 ELM ST. MILLBURY, MA 01527
PHONE: 508.865.4710

APPLICANT: SAME AS OWNER

PREPARING FIRM:
NAME: WESTON & SAMPSON ENGINEERS INC.
ADDRESS: 427 MAIN ST. SUITE 400, WORCESTER, MA 01608
PHONE: 508.762.1676

PROJECT ADDRESS: INTERSECTION OF NORTH MAIN STREET AND ELM STREET. SEE PLANS FOR PROJECT LIMITS.

ASSESSORS MAP AND LOT NUMBER: MULTIPLE, SEE PLANS

PROPOSED LAND USE: SAME AS EXISTING, BUSINESS 2 (B-2)

Revisions:

No.	Date	Description
	9/23/2019	STORM WATER PERMIT

Seal:

Issued For:

STORM WATER MANAGEMENT PLAN

Scale: AS SHOWN

Date: 9-17-2019

Drawn By: DMP

Reviewed By: RC

Approved By: MSM

W&S Project No: 2180403

W&S File No:

Drawing Title:

SITE DRAINAGE AND IMPROVEMENT DETAILS

Sheet Number:

L7.00

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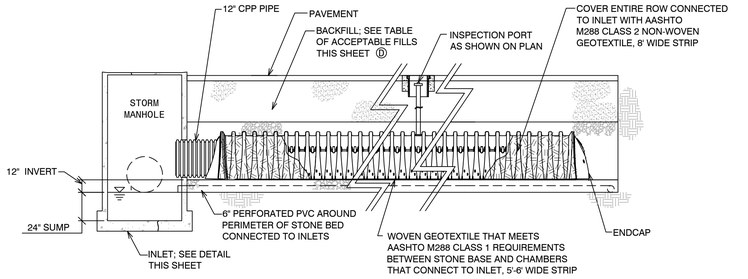
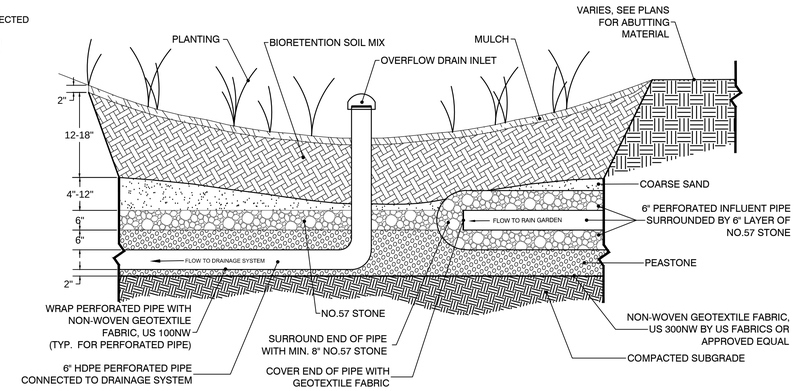


NOTES:
1. FOR DESIGN OF STORM MANHOLE SEE DETAIL, THIS SHEET.
2. SEE STORM MANAGEMENT PLAN, FOR LOCATION OF STORM PIPES AT MANHOLES, INVERT OF PIPES, ELEVATION OF BOTTOM OF STONE BED AND LAYOUT OF CHAMBER DETENTION SYSTEM.
3. DETAILS SHOWN FOR REFERENCE ONLY. LANDSAVER CHAMBERS ARE ALSO AN APPROVED DETENTION MATERIAL.

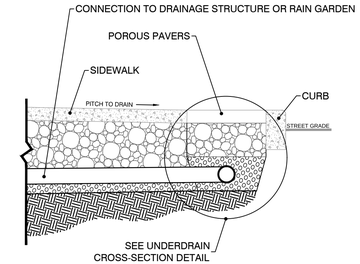
1 INSULATOR ROW - PROFILE VIEW, TYP.

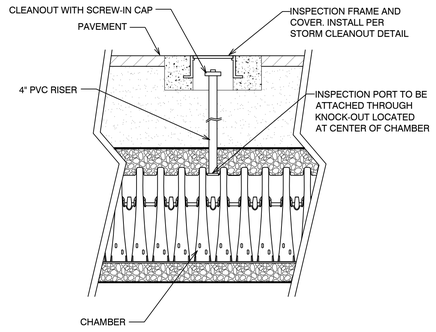
SCALE: N.T.S.



4 RAIN GARDEN WITH BELOW GRADE INFLUENT

SCALE: N.T.S.



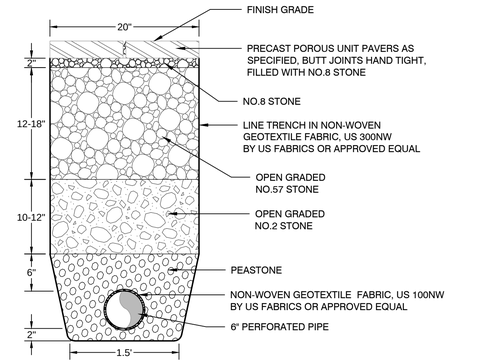


2 INSPECTION PORT DETAIL, TYP.

SCALE: N.T.S.

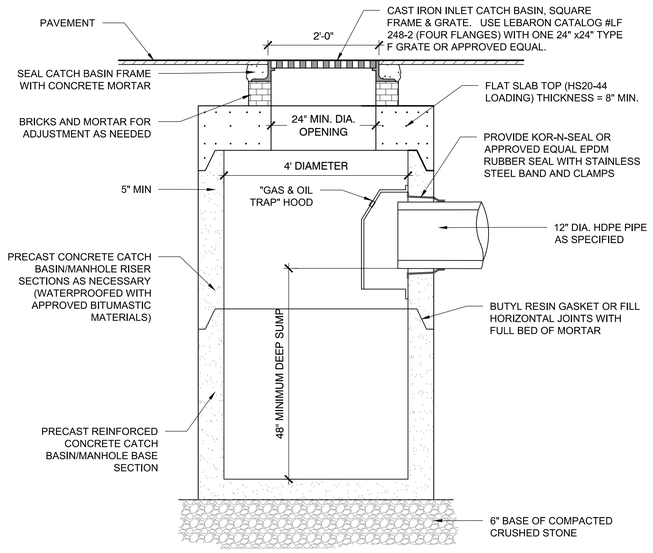
5 UTILITY CONFLICT, TYP.

SCALE: N.T.S.



7 POROUS PAVER EDGING, WITH UNDER-DRAIN CROSS-SECTION , TYP.

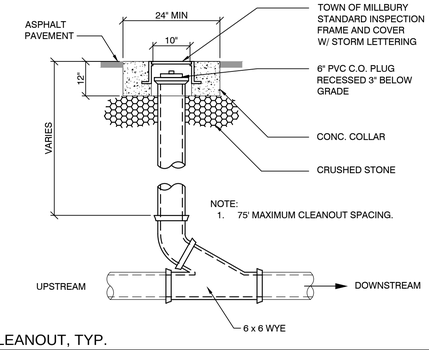
SCALE: N.T.S.



NOTES:
1. FOR DOUBLE CATCH BASINS, STRUCTURE SHALL BE 6' IN DIAMETER.

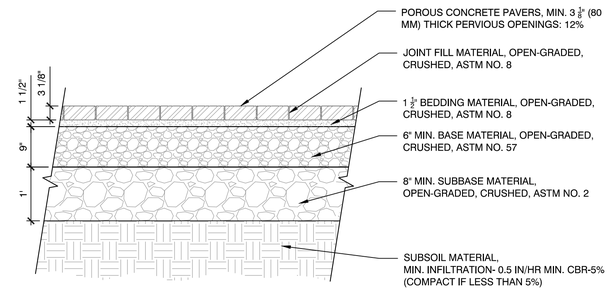
3 CATCH BASIN

SCALE: N.T.S.



6 STORM CLEANOUT, TYP.

SCALE: N.T.S.



NOTES:
1. ALL AGGREGATE MATERIAL SHALL BE CRUSHED, ANGULAR STONE AND FREE OF FINES.
2. SURFACE SLOPE SHALL BE A MINIMUM OF 1% AND MAXIMUM OF 5%.
3. INSTALL PVC UNDERDRAIN PIPE WHERE INFILTRATION RATE OF SUBSOIL IS LESS THAN 0.5 IN./HR.
4. MAINTAIN A MINIMUM DISTANCE OF 2' BETWEEN BOTTOM OF PERMEABLE BASE AND WATER TABLE.
5. THE MINIMUM AGGREGATE THICKNESS ARE AFTER COMPACTION.

8 POROUS PAVERS

SCALE: N.T.S.

Project:

TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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PROPOSED LAND USE:
SAME AS EXISTING, BUSINESS 2 (B-2)

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Seal:

Issued For:

STORM WATER MANAGEMENT PLAN

Scale: AS SHOWN

Date: 9-17-2019

Drawn By: DMP

Reviewed By: RC

Approved By: MSM

W&S Project No: 2180403

W&S File No:

Drawing Title:

SITE DRAINAGE AND IMPROVEMENT DETAILS

Sheet Number:

L7.01

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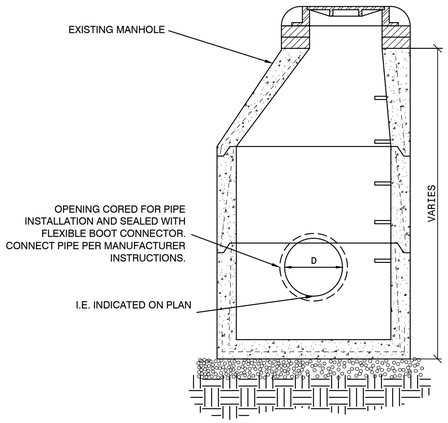
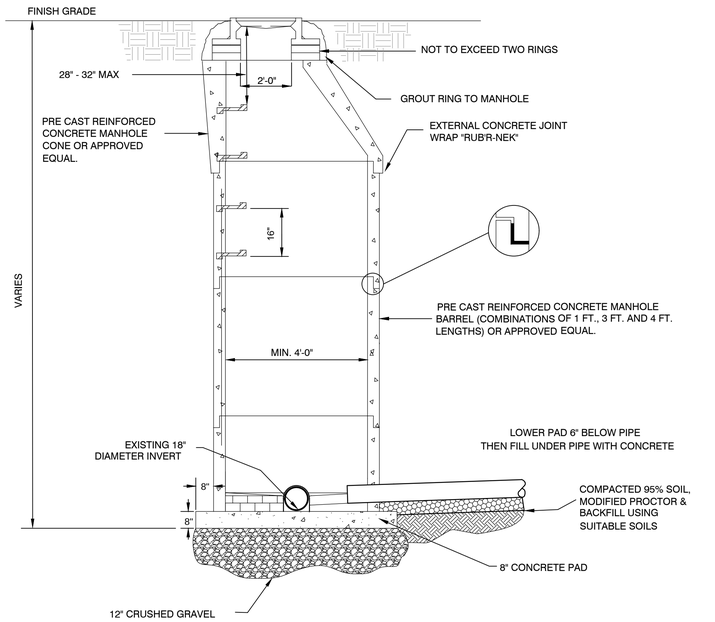
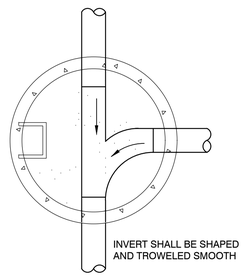


NOTES:
1. A FLEXIBLE PIPE TO MANHOLE CONNECTION SHALL BE USED WHENEVER A PIPE PENETRATES INTO A MANHOLE STRUCTURE.
2. THE DESIGN OF THE CONNECTOR SHALL PROVIDE A WATERTIGHT SEAL BETWEEN THE PIPE AND CONCRETE STRUCTURE.
3. CONNECT DRAIN PIPE TO MANHOLE WITH MIN. 4' HDPE. TRANSITION FROM PERFORATED HDPE TO HDPE USING ADAPTER OR COUPLING.
4. SEE PLANS FOR LOCATION OF STORM PIPE(S) AT INLET.
5. SEE EROSION & SEDIMENT CONTROL PLAN FOR INLET PROTECTION MEASURES. MAINTAIN MEASURES UNTIL FINAL STABILIZATION IS ACHIEVED.

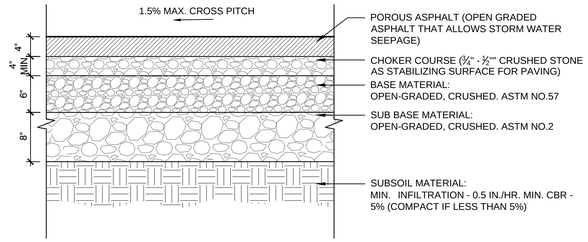
1 CONNECTING TO EXISTING MANHOLE, TYP.
SCALE: N.T.S.



NOTES:
1. MANHOLES SHALL MEET OR EXCEED ASTM-C478
2. MINIMUM WALL THICKNESS SHALL BE 5"
3. ALL MANHOLE SECTIONS SHALL HAVE LIFTING HOLES PROVIDED
4. MANHOLE SECTION SHALL BE TONGUE AND GROOVED
5. STEPS SHALL BE CAST IN PLACE WITH A MAX. 16" O.C.
6. MASTIC OR 'O' RING WILL BE ACCEPTABLE
7. INLET AND OUTLET PIPES MUST BE AT PROPER ELEVATION WITH OPENING CAST IN MANHOLE BY MANUFACTURER
8. MANHOLES MAY BE CONSTRUCTED CONCENTRIC IF TOTAL HEIGHT IS 5' OR LESS
9. DISTANCE FROM BOTTOM OF TROUGH TO SHELF EDGE TO BE 70% DIAMETER OF OUTLET PIPE
10. 10% SLOPE ON SHELF - ALL DIRECTION
11. MIN. 15" WIDTH OF SHELF (BENCH)
12. ADJUST ELEVATION OF FRAME AS REQUIRED USING CONCRETE GRADE RINGS

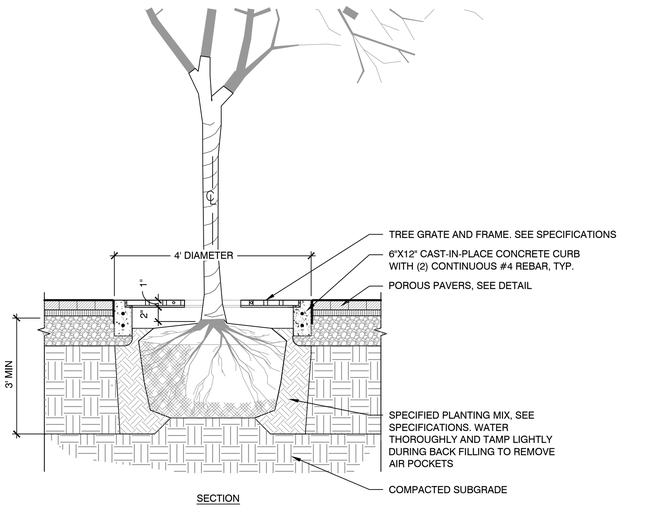


2 "DOGHOUSE TYPE" MANHOLE
SCALE: N.T.S.



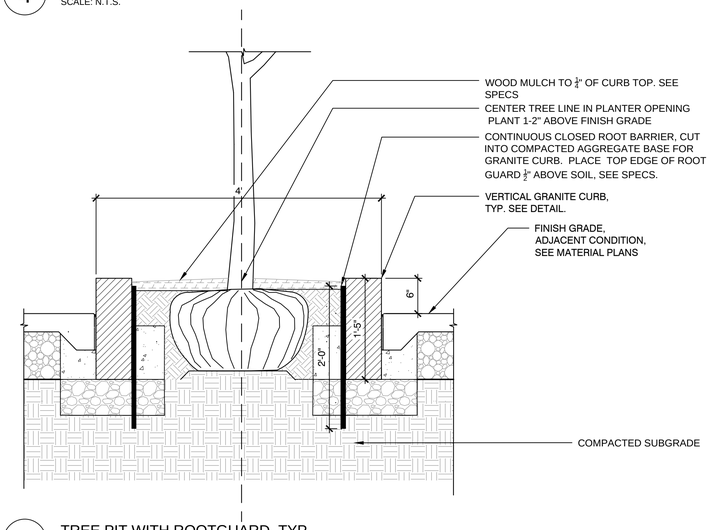
NOTES:
1. ALL AGGREGATE MATERIAL SHALL BE CRUSHED, ANGULAR STONE AND FREE OF FINES.
2. SURFACE SLOPE SHALL BE A MINIMUM OF 1% AND A MAXIMUM OF 4.5%.
3. THE MINIMUM AGGREGATE THICKNESS ARE AFTER COMPACTION.

3 POROUS BITUMINOUS CONCRETE PAVEMENT, TYP.
SCALE: N.T.S.

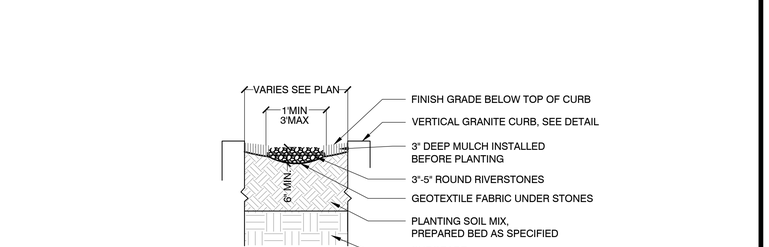


SECTION

4 TREE GRATE, TYP.
SCALE: N.T.S.

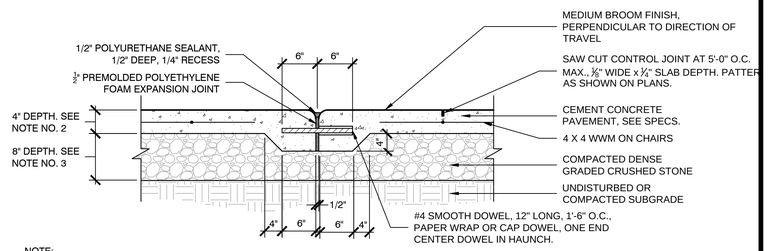


5 TREE PIT WITH ROOTGUARD, TYP.
SCALE: N.T.S.



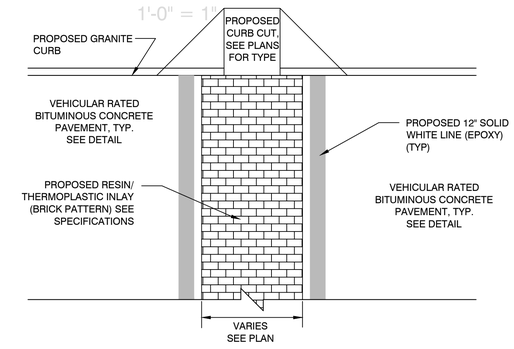
NOTES:
1. ABUTTING MATERIALS VARY. SEE PLANS.

6 PLANTING BED WITH STONE SWALE, TYP.
SCALE: N.T.S.



NOTE:
1. EXPANSION JOINT SPACING SHALL BE 25'-0" MAX, UNLESS OTHERWISE SHOWN ON PLANS.
2. CONTRACTOR SHALL USE 6x6-W2.9xW2.9 WELDED WIRE FABRIC W/12" LAP @ 6" DEPTH PVMT.
3. USE 8" GRAVEL BORROW UNDER 4" CEM. CONC. WALK PVMT. USE 12" GRAVEL BORROW UNDER 6" CEM. CONC. PADS/SLABS.
4. DOWELS SHALL BE USED AT EXPANSION JOINTS, WHERE NEW CONCRETE PAVEMENT ABUTS EXISTING CONCRETE PAVING TO REMAIN, AND ANY PROPOSED CONCRETE RAMPS AND STAIRS.
5. FOR SIDEWALK PAVEMENT, USE BROOM FINISH PERPENDICULAR TO ROUTE OF TRAVEL.
6. DOWEL IS TYPICAL AT ALL EXPANSION JOINTS (18"O.C.) WITH CONCRETE PAVING AND NEW CONCRETE PAVING BETWEEN EXISTING CONCRETE PAVING TO REMAIN.
7. DELETE EXPANSION SLEEVE AND DOWEL WHERE JOINT ABUTS WALL, CURBS, OR OTHER VERTICAL SURFACES UNLESS OTHERWISE NOTED.

X 7 CEMENT CONCRETE PAVING, TYP.
cement concrete pavement
SCALE: N.T.S.



8 RESIN CROSS WALKS, TYP.
SCALE: N.T.S.

Project:
TOWN OF MILLBURY, MA

DOWNTOWN REDEVELOPMENT

MILLBURY , MA

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W&S Project No: 2180403

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Drawing Title:
SITE DRAINAGE AND IMPROVEMENT DETAILS

Sheet Number:
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