

- NOTES:**
- CONTRACTOR TO PROVIDE SEVENTY-TWO (72) HOUR ADVANCE NOTICE TO THE CITY ENGINEER AND CITY CONSERVATION AGENT PRIOR TO COMMENCING WORK IN FIELD OTHER THAN EROSION CONTROL INSTALLATIONS AND MAINTENANCE OF ON-GOING BYPASS PUMPING OPERATIONS.
 - ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, AND ALL SUBSEQUENT AMENDMENTS AND SUPPLEMENTS THERETO; AND TO ALL APPLICABLE CITY OF MARLBOROUGH REQUIREMENTS.
 - ALL DISTURBED AREAS NOT OTHERWISE DESIGNATED SHALL BE SURFACED WITH 4" OF TOPSOIL/LOAM AND THEN HYDROSEEDING.
 - SEDIMENT TRACKED ONTO ADJACENT PAVEMENT AREAS SHALL BE SWEEPED AND REMOVED DAILY.
 - REINFORCED CONCRETE PIPE (RCP) SHALL CONFORM TO ASTM C-76 CLASS IV, WALL B (CIRCULAR REINFORCEMENT) AND SHALL BE JOINED USING FLEXIBLE WATERTIGHT RUBBER GASKETS CONFORMING TO ASTM-C443.
 - CONTRACTOR TO PROVIDE SHEETING AND BRACING OF TRENCH AND SHALL DEWATER AS NECESSARY TO FULLY PROTECT WORKMEN AND TO INSTALL NEW DRAIN PIPE "IN THE DRY". ALL EXCAVATION WORK SHALL COMPLY WITH CITY OF MARLBOROUGH REGULATIONS, AND IN THE ABSENCE THEREOF, WITH THE PROVISIONS IN THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" OF THE ASSOCIATION GENERAL CONTRACTORS OF AMERICA, INC. UNDER NO CIRCUMSTANCES LAY PIPE IN WATER. TRENCHES SHALL BE KEPT FREE FROM WATER UNTIL PIPE JOINT MATERIAL HAS HARDENED.
 - GRADE BOTTOM OF TRENCH EVENLY TO ENSURE UNIFORM BEARING FOR FULL LENGTH OF ALL PIPE. INSTALLATION OF NEW 24" RCP SHALL BEGIN AT THE DOWNSTREAM END, TRUE TO LINE AND GRADE, WITH BELL ENDS OF PIPE FACING UPSTREAM. INSTALL GASKETS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. CLEAN PIPE OF DIRT AND DEBRIS AS WORK PROGRESSES.
 - TRENCH EXCAVATION SHALL INCLUDE THE REMOVAL OF ALL MATERIALS OF EVERY DESCRIPTION, INCLUDING SOIL, ROCK, BOULDERS, PAVEMENT, AND ALL ORGANIC MATERIAL ANY ORGANIC MATERIAL BELOW THE PIPE INVERTS/BEDDING SHALL BE REMOVED AND REPLACED WITH GRAVEL BORROW.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL REQUIRED EROSION CONTROL MEASURES. A SURPLUS STOCK OF STRAW WATTLE SITUATION FENCE AND CRUSHED STONE SHALL BE STORED ON-SITE FOR IMMEDIATE ACCESS AS NEEDED.
 - EXISTING BOULDERS EXCAVATED DURING TRENCH EXCAVATION MAY BE PLACED/USED ON-SITE IF APPROVED BY OWNERS OF AFFECTED PROPERTIES. OTHERWISE THEY SHALL BE REMOVED AND PROPERLY DISPOSED OFF-SITE.
 - ALL EXCESS AND UNSUITABLE EXCAVATED MATERIALS SHALL BE REMOVED AND PROPERLY DISPOSED OFF-SITE.
 - CONTRACTOR SHALL OBTAIN TRENCH PERMIT AND ANY OTHER CONSTRUCTION PERMITS REQUIRED BY THE CITY OF MARLBOROUGH. OWNERS TO OBTAIN THE REQUIRED ORDER OF CONDITIONS FROM THE MARLBOROUGH CONSERVATION COMMISSION.
 - ALL SOIL STOCKPILE AREAS TO BE SURROUNDED WITH 12" DIAMETER STAKED STRAW WATTLES.
 - ELEVATIONS REFER TO NAVD88 DATUM.
 - LOCATIONS AND ELEVATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE REFERENCED PLAN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. H.W. MOORE ASSOCIATES ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES INACCURATELY SHOWN OR OMITTED. CALL DIG-SAFE CALL CENTER, (888) 544-7233, 72 HOURS (3 WORKING DAYS) PRIOR TO EXCAVATION.
 - RESTORE DRIVEWAY DISTURBANCE TO PRE-CONSTRUCTION CONDITIONS.
 - EXISTING CATCH BASINS, DRAIN LINES, AND FLARED END SECTION USED FOR BY-PASS PUMPING SHALL BE THOROUGHLY CLEANED AT CONCLUSION OF PUMPING OPERATIONS.



DRAWN BY: EJR DESIGNED BY: EJR
 CHECKED BY: FAK APPROVED BY: AD

REVISIONS		
NO.	DATE	DESCRIPTION
2	04/20/22	CITY REVIEW COMMENTS
1	03/21/22	CITY REVIEW COMMENTS

C-1

DATE: MAR. 11, 2022
 SCALE: 1" = 20'
 SHEET 1 OF 2

630 & 686 FOREST STREET
 MARLBOROUGH, MASSACHUSETTS

**CULVERT
 REPLACEMENT PLAN**

**H.W. Moore
 ASSOCIATES**
 CIVIL ENGINEERING & LAND PLANNING
 A DIVISION OF HANCOCK SURVEY ASSOCIATES
 121 E. Berkshire Street, 4th Floor, Boston, MA 02118
 Tel: 617-337-4143 Fax: 617-337-9498 Web: hmoore.com

LEGEND (EXISTING)

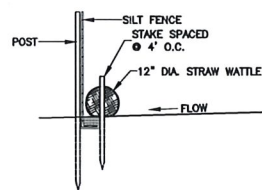
- ⊙ EX. OR APPROVED DRAIN MANHOLE
- EX. OR APPROVED CATCH BASIN
- ▣ EXIST. DBL. CATCH BASIN
- 15" D- EX. OR APPROVED DRAIN
- 8" W- EX. OR APPROVED WATER & GATE
- E- EXIST. UNDERGROUND ELEC.
- E&COM- EXIST. ELEC. & COM
- * EXIST. LIGHTPOLE
- G- EXIST. GAS LINE
- x467.1 x452.3 EXIST. SPOTGRADES
- 468- EXIST. 2' CONTOUR
- 470- EXIST. 10' CONTOUR
- SIGN
- HANDICAP PARKING
- I.R. (FND) ○ SURVEY IRON ROD
- EXIST. TREELINE
- BC EX. BITUMINOUS CURB

PLAN REFERENCES:

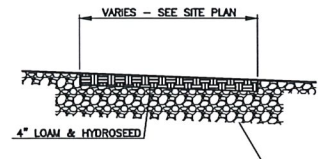
- EXISTING CONDITIONS: PROPERTY LINES, EASEMENTS, TOPOGRAPHY, AND UTILITIES TAKEN FROM A DIGITAL FILE PROVIDED BY BRUCE SALUK & ASSOCIATES, INC. ON MARCH 8, 2022, NAMED, "2870 EM 030722".

TOH = TOP OF HEADWALL

GRAPHIC SCALE
 20 0 FEET 20 40

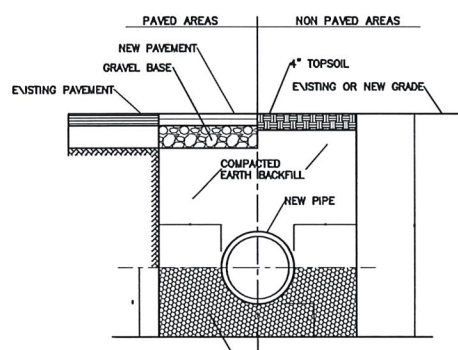


**STRAW WATTLES & SILT FENCE
SEDIMENTATION CONTROL**
(NOT TO SCALE)

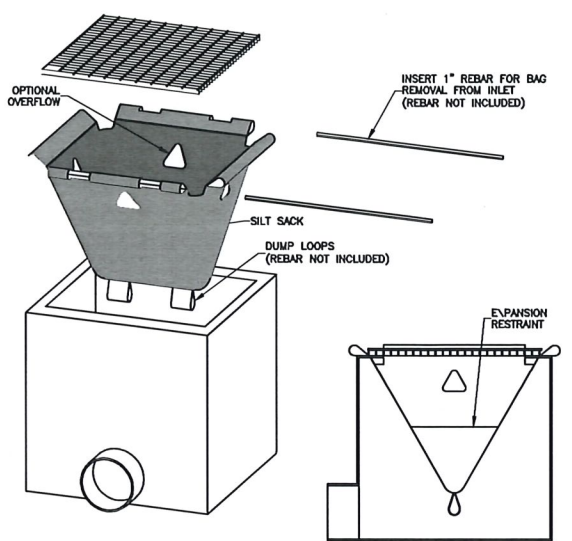


LOAM & HYDROSEED
(NOT TO SCALE)

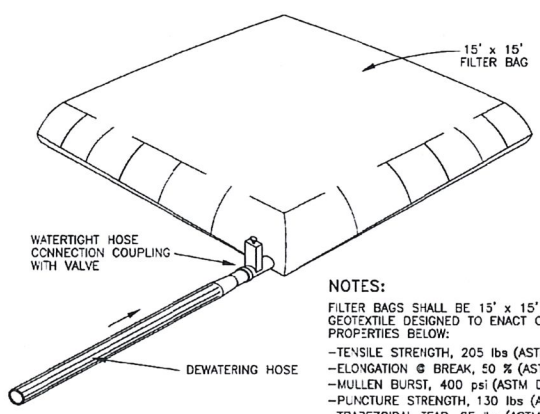
NOTES:
1.) HYDROSEED TO BE PREMIUM SUN-SHADE MIN.
2.) LOAM TO COMPLY WITH 1988 STANDARD SPECIFICATIONS.



**EXCAVATION & BACKFILL DETAIL
FOR DRAIN AND WATER PIPES**
(NOT TO SCALE)

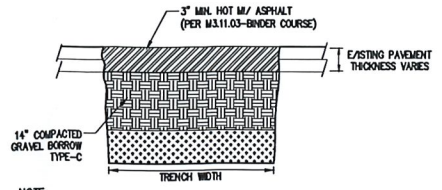


SILK SACK DETAIL
(NOT TO SCALE)

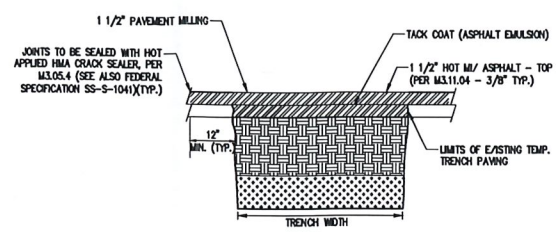


DEWATERING FILTER BAG DETAIL
N. T. S. FilterBag.dwg

- NOTES:
FILTER BAGS SHALL BE 15' x 15' POLYPROPYLENE GEOTEXTILE DESIGNED TO ENACT OR EXCEED THE PROPERTIES BELOW:
-TENSILE STRENGTH, 205 lbs (ASTM D-4632)
-ELONGATION @ BREAK, 50 % (ASTM D-4632)
-MULLEN BURST, 400 psi (ASTM D-3786)
-PUNCTURE STRENGTH, 130 lbs (ASTM D-4833)
-TRAPEZOIDAL TEAR, 85 lbs (ASTM D-4533)
-APPARENT OPENING SIZE, 80 US Sieve (ASTM D-4751)
-PERMITTIVITY, 1.40 Sec⁻¹ (ASTM D-4491)
-UV RESISTANCE, % RETAINED, 70 % (ASTM D-4355)
-FLOW RATE, 90 gal/min/sf (ASTM D-4491)
BAGS SHALL BE US FILTER BAG BY US FABRICS, CINCINNATI, OHIO, OR APPROVED EQUAL.



**TEMPORARY TRENCH PAVING
TYPICAL SECTION**
N.T.S.



**FINAL TRENCH PAVING
TYPICAL SECTION**
N.T.S.

24" RCP WINGWALL

DESIGN NOTES:
1. CONCRETE 5,000 PSI @ 28 DAYS
2. REINFORCEMENT ASTM A-615 GRADE
60, 2" MIN. COVER #5 REBAR 12" OCBW
4. UNIT WEIGHT 10,320 lbs.

SCITUATE COMPANIES
CONTRACTOR: DATE: DRAWING: SPP-WW24 DRAWING BY: C. A. SCOTT

NOTE: WINGWALLS TO BE SET ON A COMPACTED BED OF CRUSHED STONE.



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CHECKED BY: FAK APPROVED BY: AD

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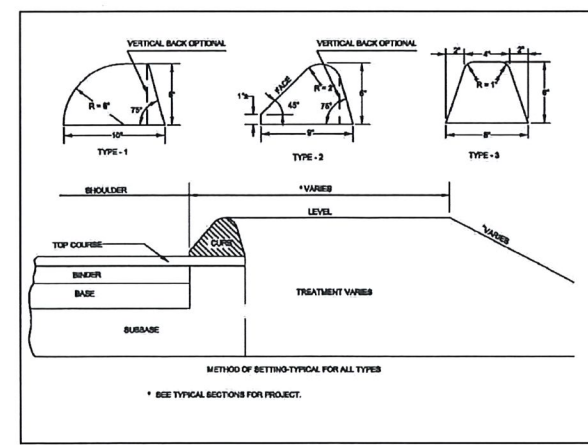
C-2
DATE: MAR. 11, 2022
SCALE: AS NOTED
SHEET 2 OF 2

686 FOREST STREET

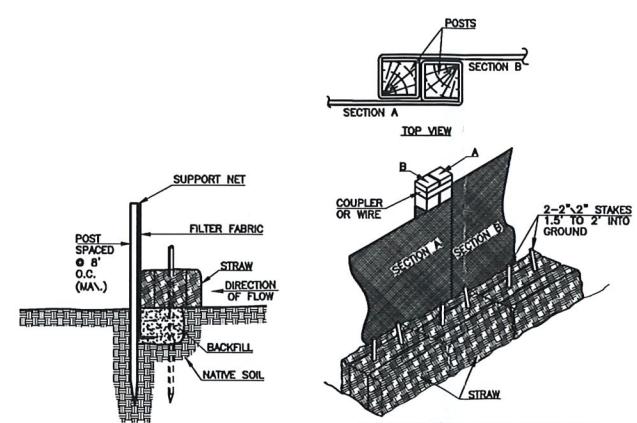
MARLBOROUGH, MASSACHUSETTS

**CULVERT
REPLACEMENT PLAN**

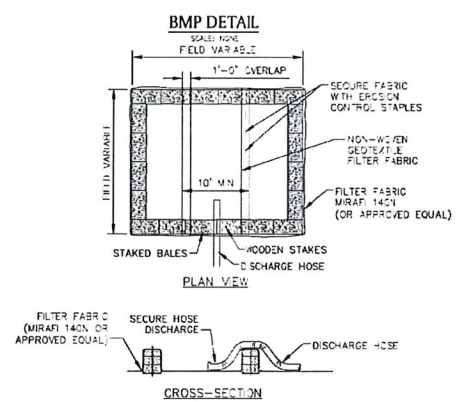
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181 E. Berkshire Street, 4th Floor, Boston, MA 02118
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**massDOT HOT MIX ASPHALT CURBS
BIT.CONC. CURB (BCC)**
(NOT TO SCALE)



STRAW & SILTATION FENCE
(NOT TO SCALE)



DEWATERING CORRAL
(NOT TO SCALE)

- NOTES:
1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. THE BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.
3. KEEP AS FAR FROM WETLANDS AS PRACTICAL.
4. CLEAN AND REMOVE AS SOON AS DEWATERING IS COMPLETE.