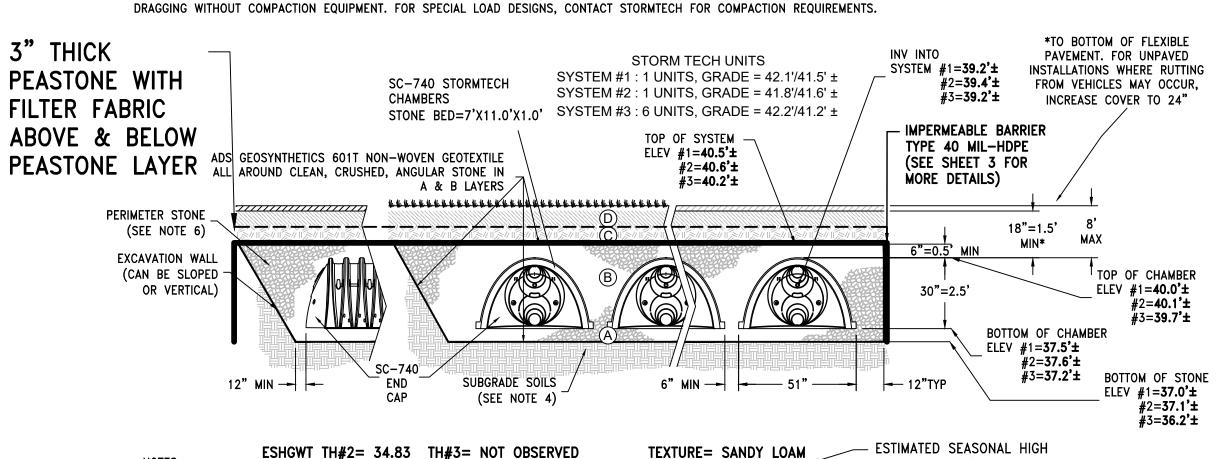


ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS AASHTO MATERIAL COMPACTION / DENSITY DESCRIPTION MATERIAL LOCATION CLASSIFICATIONS REQUIREMENT FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS. PREPARE PER SITE DESIGN ENGINEER'S PLANS. N/A PAVED INSTALLATIONS MAY HAVE STRINGEN BE PART OF THE 'D' LAYER BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. AASHTO M1451 A-1, A-2-4, A-3 OMPACT ADDITIONAL LAYERS IN 6" (150 mm) MA INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL FROM THE TOP OF THE EMBEDMENT STONE ('B' FINES OR PROCESSED AGGREGATE. GRADED MATERIAL AND 95% RELATIVE DENSITY FOR LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER. PROCESSED AGGREGATE MATERIALS, ROLLER GROSS AASHTO M431 VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 OF THIS LAYER. , 357, 4, 467, 5, 56, 57, 6, 67, 68, kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs 78, 8, 89, 9, 10 EMBEDMENT STONE: FILL SURROUNDING THE AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57 CHAMBERS FROM THE FOUNDATION STONE ('A' CLEAN, CRUSHED, ANGULAR STONE NO COMPACTION REQUIRED. LAYER) TO THE 'C' LAYER ABOVE. FOUNDATION STONE: FILL BELOW CHAMBERS FROM PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. 2 3 CLEAN, CRUSHED, ANGULAR STONE THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE 3, 357, 4, 467, 5, 56, 57

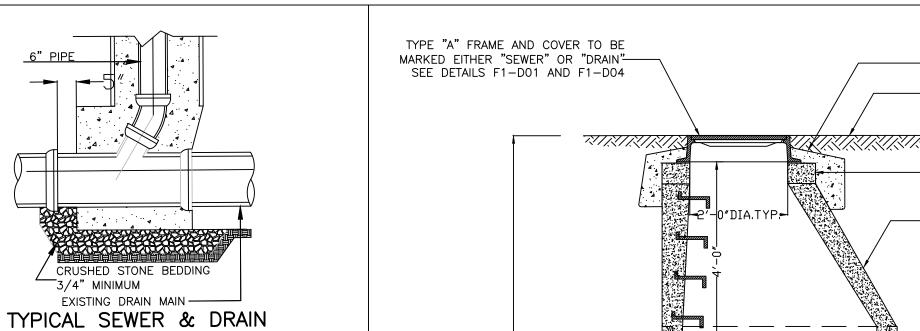
PLEASE NOTE:

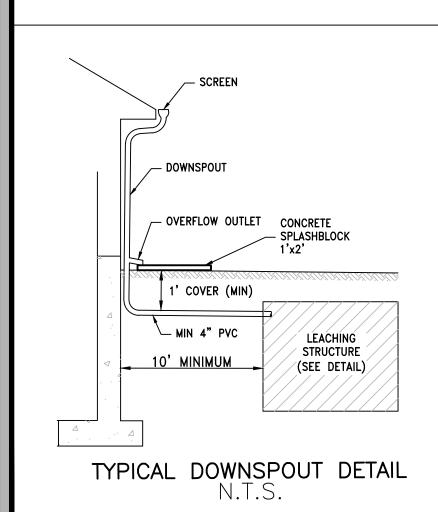
- 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR



- 1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION
- 2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- 3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- 4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- 5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- 6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE

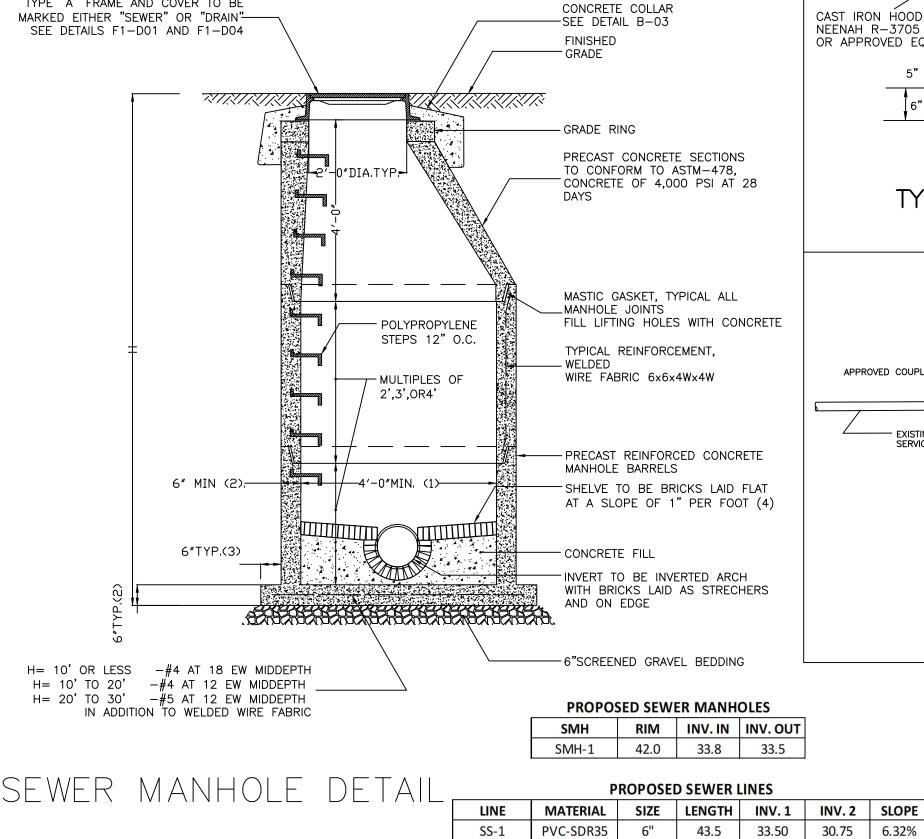
USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.





CONNECTION TO MAIN

CHAMBERS".



SS-2

PVC-SDR35

PVC-SDR35

6" 11.2 34.50 33.80 6.28%

6" 10.4 34.50 33.80 6.73%

1-1/2" WASHED, CRUSHED, ANGULAR STONE BENEATH AND AROUND CHAMBER BED MINIMUM OF 18" - SC-740 END CAP OBSERVATION PORT — SC-740 CHAMBER TO GRADE AND CAP

STORMTECH SC-740 CHAMBER SYSTEM PLAN VIEW DETAIL

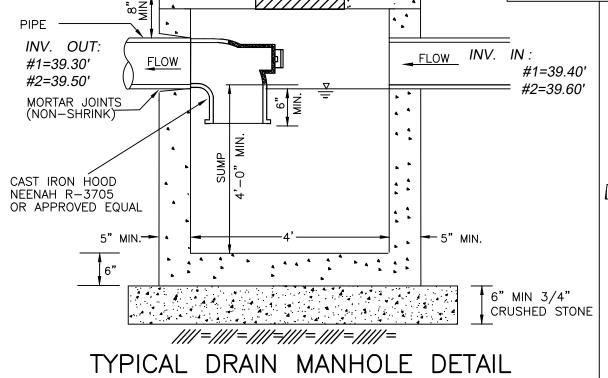
DEEP OBSERVATION HOLE LOG: GENERAL SOIL CONDITIONS FOR THE AREA PERFORMED AT 712 WATERTOWN ST. NEWTON, MA. BY MATTHEW MUI, SOIL EVALUATOR #14259 REPRESENTING SPRUHAN

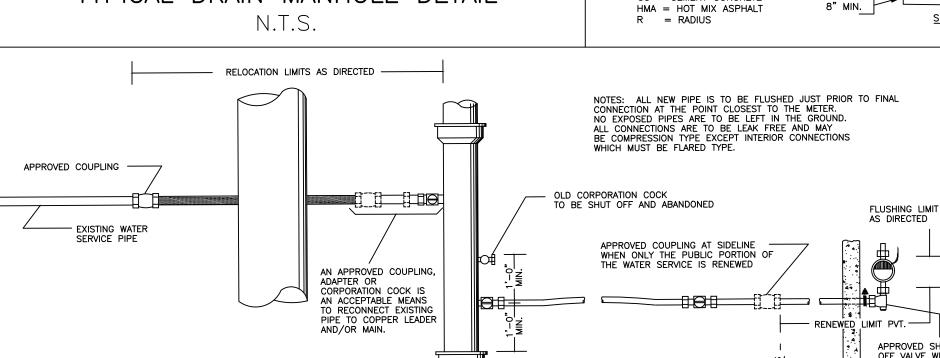
| Depth Horizon/ (In) Hori | DEEP OBSERVATION HOLE NUME | | | | | TP-1 | | GROUND ELEVATION: Coarse Fragments | | | | 40.0 |
|--|----------------------------|------|--------------------|------------------------|-------|---------|------------|-------------------------------------|----|-----------|---------|----------------|
| Color Percent Color Color Percent Color Percent Color Percent Color | | | | Redoximorphic Features | | | | | | Churchine | | Other |
| (37.00) FILL | | | | Depth (in) | Color | Percent | (USDA) | Gravel | | Structure | (Moist) | Otner |
| (36.33) A 10YR SANDY LOAM <5 <5 MASSIVE FRIABLE SANDY LOAM <5 <5 MASSIVE FRIABLE SANDY LOAM <5 <5 MASSIVE FRIABLE | | FILL | - | | | - | - | | - | - | - | |
| (33.33) Bw 10YR SANDY LOAM <5 <5 MASSIVE FRIABLE - | | А | 10YR [≦] | | - | | SANDY LOAM | <5 | <5 | MASSIVE | FRIABLE | |
| 90 120 | | Bw | 10YR ^{SS} | | | | SANDY LOAM | <5 | <5 | MASSIVE | FRIABLE | |
| | 80-120 (30.00) | С | 2.5Y [©] | 80" (33.33) | | | SANDY LOAM | 10 | 15 | MASSIVE | FRIABLE | MANY COBBLE |

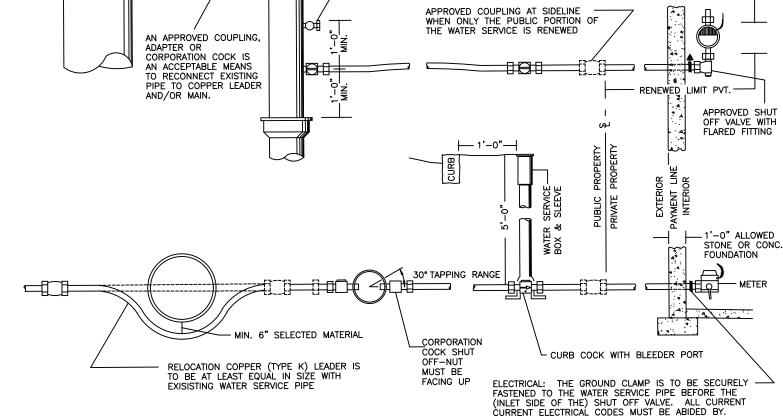
| | | | | DEEP OBSERVATION HOLE NUMBER: TP-2 | | | | | GROUND ELEVATION: | | | | |
|-----------------------------|---------------|------------------------|------------------------|------------------------------------|---------|------------|---|---------------------|-------------------|-------------|---------|--|--|
| Depth Horizon (in) Layer | Horizon/ | Matrix: Color-Moist | Redoximorphic Features | | | Texture | Coarse Fragments (Percent by Volume) | | Ot | Consistence | Other | | |
| | Layer | | Depth (in) | Color | Percent | (USDA) | Gravel | Cobbles & Stones | Structure | (Moist) | Other | | |
| 0-12 (40.00) | Α | 10YR 3/2 | | - | | SANDY LOAM | <5 | <5 | MASSIVE | FRIABLE | - | | |
| 12-74 (34.83) | FILL (ASH) | - | | - | | | | - | - | - | - | | |
| 74-110 (31.83) | С | 10YR ½ | 74" (34.83) | - | | SILT LOAM | 10 | 10 | MASSIVE | FRIABLE | NO REF. | | |

| | EEP OBS | ERVATION | HOLE NUM | BER: | TP-3 | TP-3 GROUND ELEVATION: | | | | | 41.25 |
|-------------------|------------------------|---|--------------------|---------------|---------|------------------------|---|---------------------|-------------------|-------------|----------|
| Depth | Horizon/ | Matrix: | Redoximorphic Feat | | Texture | | Coarse Fragments (Percent by Volume) | | Structure | Consistence | Other |
| (in) | Layer | Color-Moist | Depth (in) | Color | Percent | (USDA) | Gravel | Cobbles & Stones | Suuclule | (Moist) | Unlei |
| 0-12 (40.25) | А | 10YR 3/2 | | - | - | SANDY LOAM | <5 | <5 | MASSIVE | FRIABLE | - |
| 12-44 (37.58) | FILL | | - | | | | - | - | 1 | - | - |
| 44-50 (37.08) | Bw | 10YR { | 1 | - | | SANDY LOAM | <5 | <5 | MASSIVE | FRIABLE | - |
| 50-110 (32.08) | С | 2.5Y ⁶ / ₄ | NONE | | - | FINE SANDY LOAM | 20 | 10 | SINGLE GRAINED | LOOSE | GRAVELLY |
| 2. N 3. N | IO REDOX. IO REFUSA | IG OR WEEPIN OBSERVED. L. MATTHEW MU | | IN 12/15/2022 | | | | | | | |

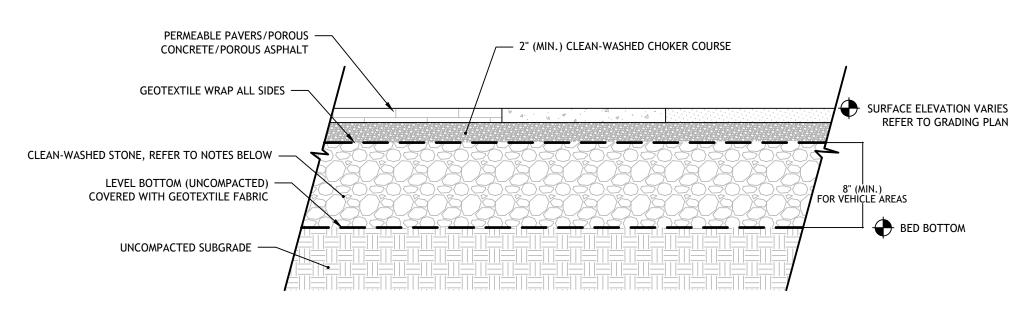
MANHOLE COVER ELEVATION: #1=41.40' #2=41.60'







TYPICAL WATER SERVICE CONFIGURATIONS



TYPICAL PERMEABLE PAVERS DETAIL

<u>N.T.S.</u>

NOTES:

- 1. UNSUITABLE MATERIAL WILL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- 2. ALL AGGREGATES WITHIN POROUS PAVER BED SHALL BE CLEAN-WASHED, DEFINED AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER THE AASHTO T-11 WASH LOSS TEST.
- CHOKER COURSE AGGREGATE SHALL MEET THE FOLLOWING SPECIFICATIONS:

| REQUIRED CHOKER COURSE GRADATION | | | | |
|----------------------------------|-----------------|--|--|--|
| U.S. STANDARD SIEVE SIZE | PERCENT PASSING | | | |
| 1-½" (37.5 mm) | 100 | | | |
| 1" (25 mm) | 95 - 100 | | | |
| ½" (19 mm) | 25 - 60 | | | |
| #4 (4.75 mm) | 0 - 10 | | | |
| #8 (2.36 mm) | 0 - 5 | | | |

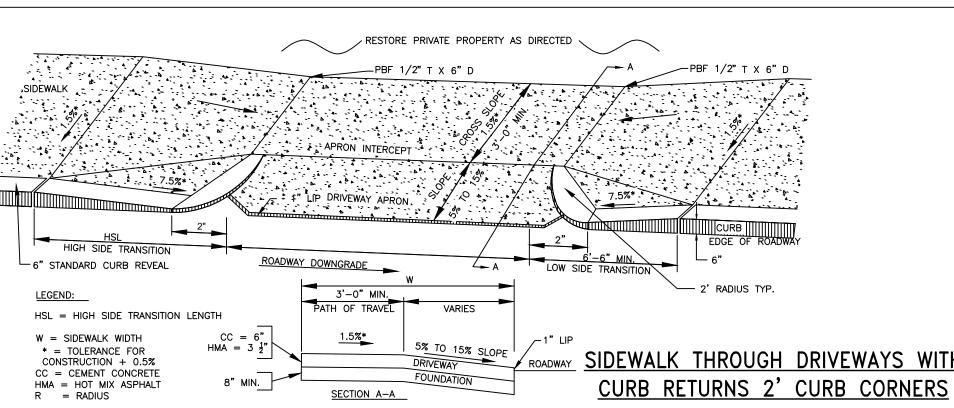
4. GEOTEXTILE SHALL CONSIST OF POLYPROPYLENE FIBERS AND MEET THE FOLLOWING SPECIFICATIONS: GRAB TENSILE STRENGTH (ASTM-D4632) > OR = 120 LBS.

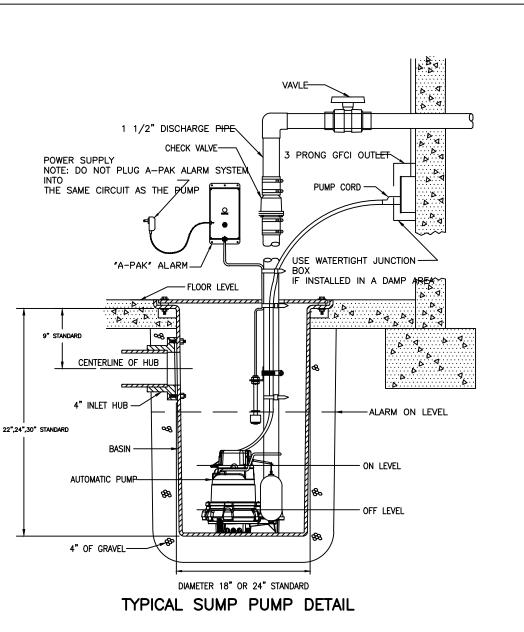
> MULLEN BURST STRENGTH (ASTM-D3786) > OR = 225 LBS. FLOW RATE (ASTM-D4491) > OR = 95 GAL./MIN./FT² UV RESISTANCE AFTER 500 HRS. (ASTM-D4355) > OR = 70%

HEAT-SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED

5. PERMEABLE PAVER AND GRID SYSTEMS:

- PERMEABLE PAVER AND GRID SYSTEMS SHALL CONFORM TO MANUFACTURER SPECIFICATIONS. • THE SYSTEMS SHALL HAVE A MINIMUM FLOW THROUGH RATE OF 5 IN/HR AND A VOID PERCENTAGE OF NO LESS THAN 10%.
- GRAVEL USED IN INTERLOCKING CONCRETE PAVERS OR PLASTIC GRID SYSTEMS MUST BE WELL GRADED AND WASHED TO ENSURE PERMEABILITY.
- 6. DESIGN ENGINEER WILL INSPECT AND CERTIFY IN WRITING THAT ALL DRAINAGE WORK WAS INSTALLED IN ACCORDANCE WITH APPROVED PLANS. CONTRACTOR TO NOTIFY ENGINEER AT LEAST 72 HOURS IN ADVANCE FOR DRAINAGE SYSTEM INSPECTION PRIOR TO BACKFILLING.







Spruhan Engineering, P.C. 80 JEWETT ST, (SUITE 2)

> Tel: 617-816-0722 Email:edmond@spruhaneng.com

NEWTON, MA 02458

WATERTOWN STREET NEWTON *MASSACHUSETTS*

CIVIL PLAN

REVISION BLOCK

| DESCRIPTION | DATE |
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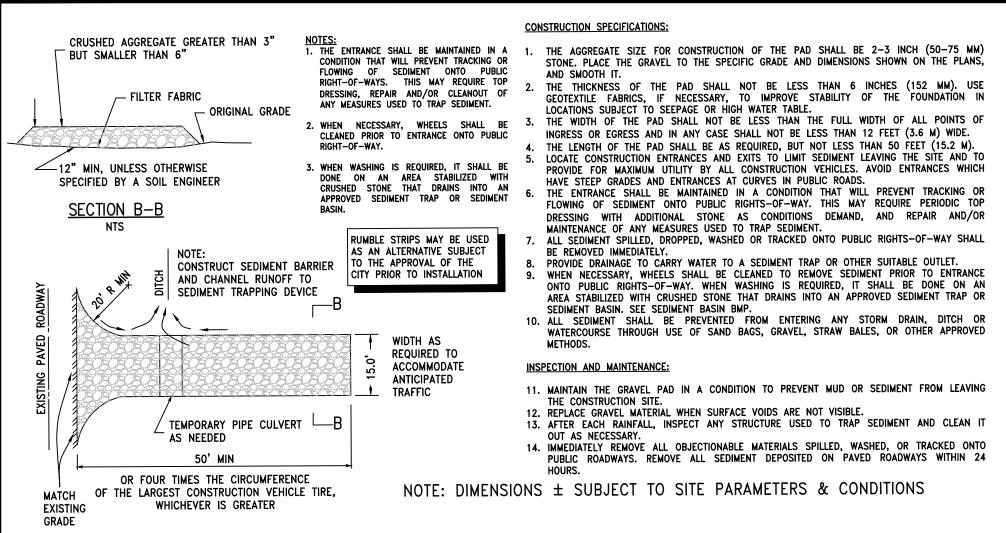


09/11/24 09/03/2024

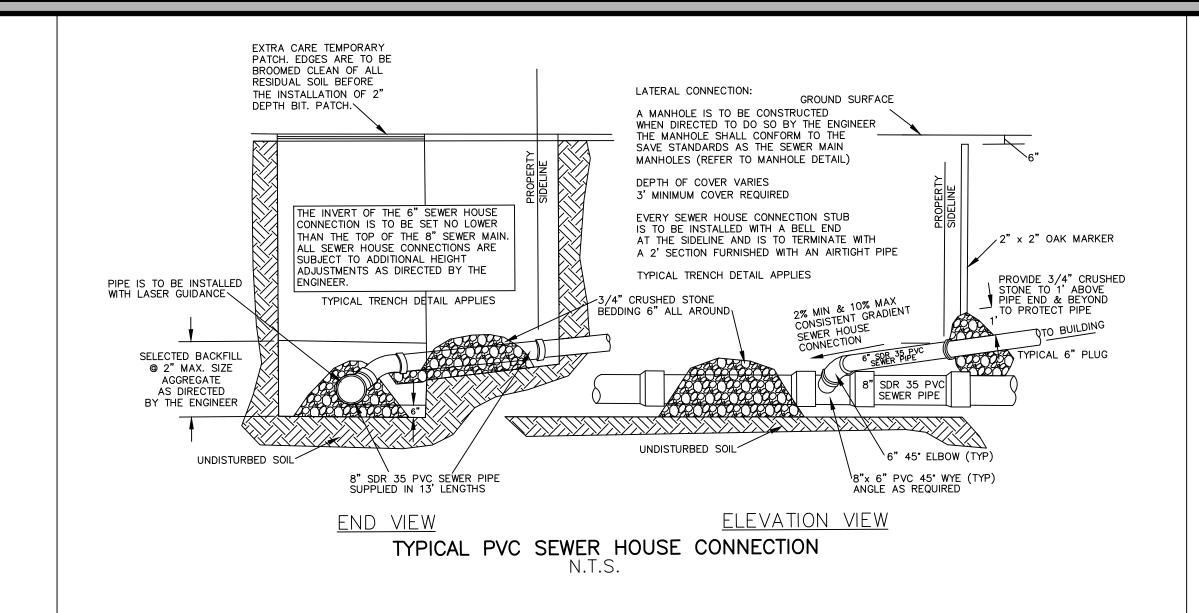
DRAWN BY: 0.G CHECKED BY: c.c APPROVED BY: F.S

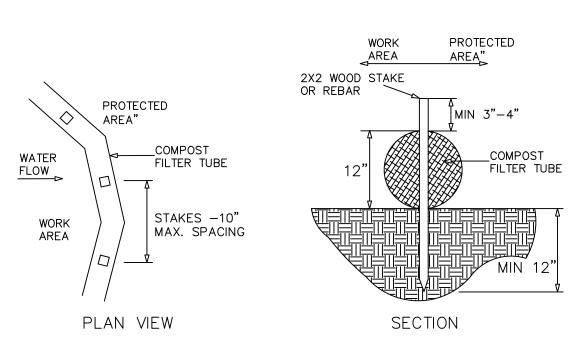
DETAILS

SHEET 4 OF 6



STABILIZED CONSTRUCTION ENTRANCE DETAIL



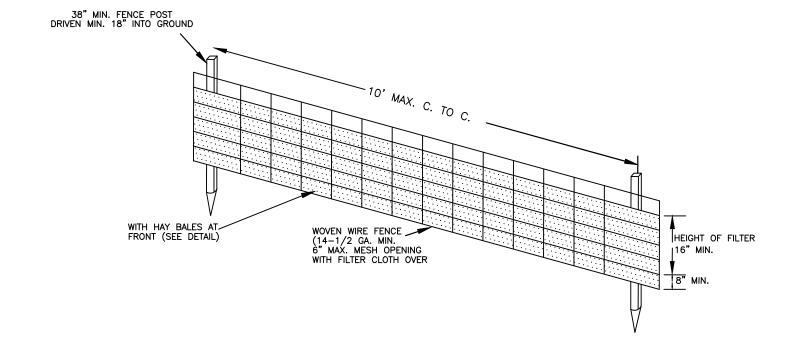


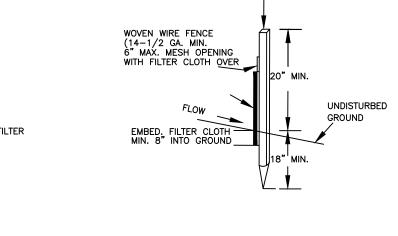
COMPOST FILTER TUBE SHOULD BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND WHERE SHOWN ON THE PLAN.

1. ALL MATERIALS TO MEET SPECIFICATION.

- 2. SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS.
- 3. SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
- 4. COMPOST MATERIAL TO BE DISPERSED ON SITE AS DETERMINED

COMPOST SOCK DETAIL





CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

38" MIN. FENCE POST

- 1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- 2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP
- OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED. 4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND
- 5. WHEN SILT FENCE IS USED WITH COMPOST SOCK, THE SILT

SILT FENCE DETAIL

STEEL EITHER T OR U TYPE OR HARDWOOD FENCE: WOVEN WIRE, 14-1/2 GA. 6" MAX. MESH OPENING. AND MID-SECTION. FILTER CLOTH: FILTER X, MIRAFI 100X, 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH STABLINKA T140N OR APPROVED

PREFABICATED UNIT: GEOFAB, ENVIROFENCE, MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE OR APPROVED EQUAL.

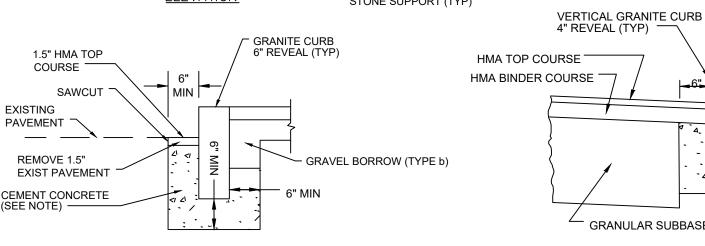
FENCE IS INSTALLED AND THE COMPOST SOCK THEN PLACED AND STAKED ON THE PROJECT SIDE OF THE SILT FENCE.

1. THIS PROCEDURE IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE COURSE IS IN PLACE PRIOR TO BINDER AND TOP PLACEMENT. 2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE. ─ VOID TO BE FILLED WITH CEMENT CONCRETE (SEE NOTE) -GRAVEL OR CRUSHED STONE SUPPORT (TYP **ELEVATION**

GRANITE CURB IN EXISTING PAVEMENT

GRANITE CURB 4" REVEAL (TYP) HMA OVERLAY **EXISTING** PAVEMENT OR MILLED SURFACE \ 6" LOAM AND SEED 6" BANK GRAVEL SAWCUT 6" MIN CEMENT CONCRETE

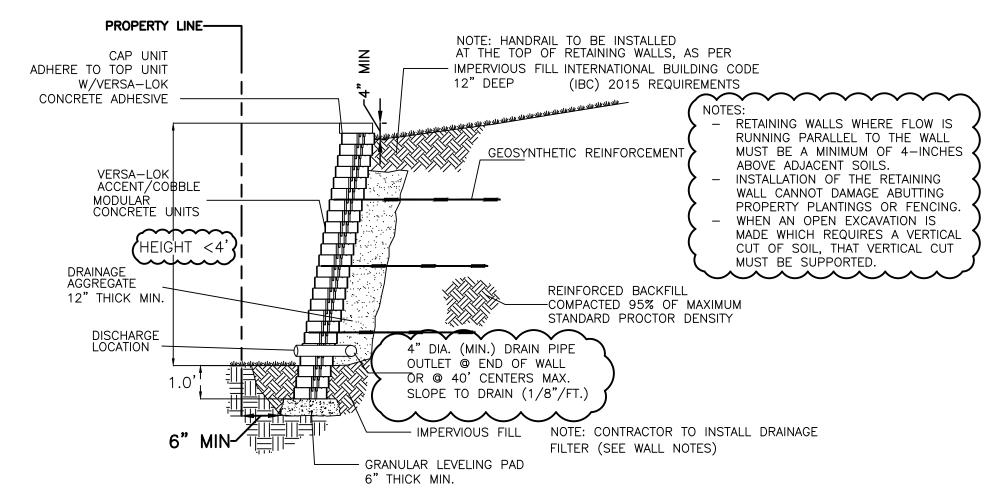
GRANITE CURB IN EXISTING PAVEMENT WITH OVERLAY



4" REVEAL (TYP) HMA TOP COURSE HMA BINDER COURSE ____ 6" LOAM AND SEED 6" BANK GRAVEL (TYPE a) **GRANULAR SUBBASE**

GRANITE CURB IN FULL DEPTH PAVEMENT

VERTICAL CURB



TYPICAL SECTION-REINFORCED RETAINING WALL

- 1. ELEVATIONS REFER TO CITY OF NEWTON DATUM
- 2. THIS PLAN IS THE RESULT OF AN INSTRUMENT SURVEY DONE ON THE GROUND ON 12/15/23.
- 3. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY CROSSINGS OF PROPOSED AND EXISTING UTILITIES.
- 4. MASSACHUSETTS STATE LAW REQUIRES UTILITY NOTIFICATION AT LEAST THREE BUSINESS DAYS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CALL DIG-SAFE AT 1-888-344-7233 IN ORDER TO COMPLY WITH
- 5. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THE CITY OF NEWTON GENERAL CONSTRUCTION DETAILS. LATEST EDITION, PREPARED AND ISSUED BY THE NEWTON ENGINEERING DEPARTMENT. COPIES MAY BE OBTAINED AT THE OFFICE OF THE CITY ENGINEER. REFER TO NOTE 29 FOR DETAILS. NOTE: A TRENCH PERMIT MUST BE OBTAINED PRIOR TO ANY EXCAVATION BEING CARRIED OUT PROPOSED SEWER PIPE SHALL BE 6" PVC SDR 35. CONTRACTOR TO ENSURE SEWER LINE IS PITCHED AT AN EQUAL SLOPE OF BETWEEN 2% AND 10% FROM HOUSE TO MAIN
- 7. PROPOSED WATER SERVICE SHALL BE 1" TYPE K COPPER.

FIRE DEPARTMENT TO ENSURE PUBLIC SAFETY.

- 8. ALL WORK SHALL BE SUBJECT TO THE INSPECTION BY AND APPROVAL OF THE CITY ENGINEER.
- 9. ALL WORK MUST BE DONE IN ACCORDANCE WITH "CITY OF NEWTON STANDARD SPECIFICATIONS" AND "CITY OF NEWTON CONSTRUCTION DETAILS", COPIES OF WHICH MAY BE OBTAINED AT THE ENGINEERING OFFICE. ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE CITY OF NEWTON ENGINEERING DEPARTMENT.
- 10. AS OF JANUARY 1, 2009, ALL TRENCH EXCAVATION CONTRACTORS SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, TRENCH EXCAVATION SAFETY REQUIREMENTS, TO PROTECT THE PUBLIC FROM UNAUTHORIZED ACCESS TO UNATTENDED TRENCHES. TRENCH EXCAVATION PERMIT REQUIRED. THIS APPLIES ALL TRENCHES, BOTH ON PUBLIC AND/OR PRIVATE PROPERTY.
- 11. NO EXCAVATION SHALL BE MADE BY THE CONTRACTOR IN ANY PUBLIC WAY OR UTILITY EASEMENT UNLESS AT LEAST FORTY-EIGHT (48) HOURS, EXCLUSIVE OF SATURDAYS, SUNDAYS, AND HOLIDAYS, BEFORE THE PROPOSED EXCAVATION IS TO BE MADE, HE HAS SUBMITTED, NOTICE OF THE PROPOSED EXCAVATION TO THE
- a. SUCH PUBLIC UTILITY COMPANIES AS SUPPLY GAS, ELECTRICITY, AND TELEPHONE SERVICE IN THE CITY. b. SUCH PRIVATE COMPANIES AS PROVIDE CABLE TELEVISION SERVICE IN THE CITY.

C. CITY OF NEWTON WATER & SEWER DEPARTMENT. SUCH NOTICE SHALL SET FORTH THE STREET NAME AND A

- REASONABLY ACCURATE DESCRIPTION OF THE LOCATION OF THE EXCAVATION. 12. THE CONTRACTOR MUST PROVIDE POLICE DETAILS, SCHEDULED 48 HOURS IN ADVANCE, FOR THE DIRECTION AND CONTROL OF TRAFFIC, AS REQUIRED BY THE CITY ENGINEER. ALL ROADS AFFECTED BY CONSTRUCTION SHALL ALWAYS REMAIN OPEN TO EMERGENCY VEHICLES. CONTRACTOR IS TO COORDINATE WITH POLICE AND
- 13. NO WORK SHALL BE PERFORMED UNTIL THE NECESSARY PERMITS ARE OBTAINED FROM THE CITY OF NEWTON PUBLIC WORKS DEPARTMENT. THE APPLICANT WILL HAVE TO APPLY FOR STREET OPENING. UTILITIES CONNECTION, SIDEWALK CROSSING AND AN INSTALL CURB & SIDEWALK PERMIT WITH THE DPW PRIOR TO START
- 14. ALL TRENCHES IN PAVED STREETS SHALL BE TEMPORARILY PATCHED WITH PAVEMENT OF EXISTING PAVEMENT THICKNESS OR AS DIRECTED BY THE CITY ENGINEERING INSPECTOR, LAID HOT AND MAINTAINED UNTIL THE PERMANENT PATCH IS INSTALLED.
- 15. WARNING SIGNS SHALL CONFORM TO 2020 MUTCD STANDARD HIGHWAY SIGNS.

APPROVING AUTHORITIES, SHALL BE NOTIFIED IN WRITING BEFORE CONSTRUCTION.

- 16. ALL TOPSOIL, SUBSOIL OR IMPERVIOUS SOIL MUST BE EXCAVATED AND REMOVED BELOW THE LEACHING SYSTEM AND TO A DISTANCE 5' LATERALLY IN ALL DIRECTIONS BEYOND THE SIDES OF THE GALLEYS. BACKFILL AS REQUIRED WITH A CLEAN GRANULAR SAND, FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES. THE SAND SHALL HAVE A PERCOLATION RATE OF 2 MINUTES PER INCH OR FASTER.
- 17. IN CASES WHERE LEDGE OR BOULDERS ARE ENCOUNTERED, SPRUHAN ENGINEERING, P.C. WILL NOT BE
- RESPONSIBLE FOR THE AMOUNT OF ROCK ENCOUNTERED 18. IF ANY PART OF THIS DESIGN IS TO BE ALTERED IN ANY WAY, THE DESIGN ENGINEER, AS WELL AS THE
- 19. THE ROOF RUNOFF FROM THE ROOF SURFACES SHALL BE COLLECTED BY GUTTERS AND DIRECTED TO THE STORM WATER DRAINAGE SYSTEM. SURFACE WATER TO BE DIVERTED FROM ALL SIDES OF FOUNDATION WALL.
- 20. PRIOR TO AN OCCUPANCY PERMIT BEING ISSUED, AN AS-BUILT PLAN SHOULD BE SUBMITTED TO THE ENGINEERING DIVISION IN BOTH DIGITAL FORMAT AND HARD COPY. THE PLAN SHOULD SHOW ALL UTILITIES AND FINAL GRADES, TIES TO ALL GATES, VALVES, CLEAN-OUTS, CONNECTION POINTS AT MAINS, STRUCTURE ACCESS/MAINTENANCE COVERS, ANY EASEMENTS, SHOW DIMENSIONAL TIES FROM FIXED POINTS (FOUNDATION CORNERS) TO ALL SUBSURFACE COMPONENTS AS WELL AS FINAL GRADING. THE AS-BUILT PLAN MUST BE STAMPED, SIGNED, AND DATED BY THE ENGINEER OF RECORD.
- 21. AFTER ALL ENGINEERING PERMITS ARE OBTAINED, THE CONTRACTOR NEEDS TO NOTIFY THE ENGINEERING DIVISION CONSTRUCTION INSPECTOR A MINIMUM OF <u>48-HOURS</u> IN ADVANCE AND SCHEDULE AN APPOINTMENT TO HAVE SITE UTILITIES AND STORMWATER COMPONENTS INSPECTED. THE SYSTEM & UTILITIES MUST BE FULLY EXPOSED FOR THE INSPECTOR. ONCE THE INSPECTOR IS SATISFIED, THE SYSTEM & UTILITIES MAY BE
- 22. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE DESIGN ENGINEER FOR INSPECTIONS OR AS-BUILT LOCATIONS. SPRUHAN ENGINEERING P.C. WILL NOT PROVIDE AS—BUILT CERTIFICATION TO UNINSPECTED BACKFILLED UTILITIES. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED PRIOR TO INSPECTIONS.
- 23. ANY PROPOSED PVC PIPES UNDER PAVING OR CONCRETE WITH LESS THAN 30" OF COVER MUST BE ENCASED IN CONCRETE. (SEE PAGE 21, CITY OF NEWTON GENERAL CONSTRUCTION DETAILS.)
- 24. THE EXISTING WATER SERVICE MUST BE COMPLETELY REMOVED FROM THE DWELLING TO THE CORPORATION AT THE MAIN. THE CORPORATION SHALL BE CAPPED, AND A NEW TAP SHALL BE MADE FOR THE NEW SERVICE. EACH PHASE OF THIS PROCESS MUST BE INSPECTED BY A REPRESENTATIVE OF THE ENGINEERING DIVISION. FAILURE TO HAVING THIS INSPECTION PERFORMED, MAY RESULT IN THE DELAY OR DENIAL OF A WATER SERVICI
- 25. THE EXISTING SEWER SERVICE MUST BE COMPLETELY REMOVED FROM THE DWELLING TO THE MAIN. THE REMOVAL, ALONG WITH THE NEW CONNECTION MUST BE INSPECTED BY A REPRESENTATIVE OF THE ENGINEERING DIVISION. FAILURE TO HAVING THESE INSPECTIONS PERFORMED, MAY RESULT IN THE DELAY OR DENIAL OF A
- 26. THE NEW SEWER SERVICE(S) AND/OR STRUCTURE(S) SHALL BE PRESSURE TESTED OR VIDEOTAPED AFTER FINAL INSTALLATION IS COMPLETE. METHOD OF FINAL INSPECTION SHALL BE DETERMINED SOLELY BY THE CONSTRUCTION INSPECTOR FROM THE CITY ENGINEERING DIVISION. THE SEWER SERVICE WILL NOT BE ACCEPTED UNTIL ONE OF THE TWO METHODS STATED ABOVE IS COMPLETED. A CERTIFICATE OF OCCUPANCY WILL NOT BE RECOMMENDED UNTIL ALL PIPING AND STRUCTURES ARE TESTED AND PASS.
- 27. THE NEW WATER SERVICE SHALL BE INSTALLED IN CONJUNCTION WITH THE CITY OF NEWTON UTILITIES DIVISION. THE OWNER/CONTRACTOR MAY OBTAIN A WATER SERVICE APPLICATION BY CONTACTING THE UTILITIES DIVISION (617) 796-1640 OR BY VISITING THE CITY OF NEWTON WEBSITE AND CLICK THE LINK FOR PUBLIC WORKS / UTILITIES DIVISION. AFTER THE APPLICATION IS PAID IN FULL THE OWNER/CONTRACTOR SHALL FOLLOW THE
- 28. THE EXISTING CONTOURS OF THE LAND ARE NOT TO BE ALTERED BY MORE THAN THREE (3) FEET AS A RESULT OF THE PLACEMENT OR REMOVAL OF SOD, LOAM, CLAY, GRAVEL OR STONE, OR OTHER SOLID MATERIAL UNLESS A PROPOSED RETAINING WALL OR SWALE IS INSTALLED AFTER IT IS APPROVED BY BOTH CITY OF NEWTON ENGINEERING DEPARTMENT & CITY OF NEWTON I.S.D.

INSTRUCTIONS PLAN NOTES MENTIONED AND FOLLOWING.

- 29. NO EXCAVATION IS ALLOWED WITHIN ANY CITY RIGHT-OF-WAY BETWEEN NOVEMBER 15TH AND APRIL 15TH. IF AN EMERGENCY EXISTS OR THERE ARE EXTENUATING CIRCUMSTANCES, APPLICANT MAY SEEK PERMISSION FOR SUCH WORK FROM THE CITY DPW COMMISSIONER VIA THE CITY ENGINEER. IF PERMISSION IS GRANTED, SPECIAL CONSTRUCTION STANDARDS WILL BE APPLIED. APPLICANT OR APPLICANT'S REPRESENTATIVE MUST CONTACT THE CITY OF NEWTON ENGINEERING DEPARTMENT PRIOR TO START OF WORK FOR CLARIFICATION.
- 30. AT THE END OF CONSTRUCTION, ALL DRAINAGE STRUCTURES ARE TO BE CLEANED OF SILT, STONES AND
- 31. DURING CONSTRUCTION, THE EROSION CONTROL MEASURES SHALL BE INSPECTED ONCE PER WEEK AND WITHIN 24 HOURS OF ANY STORM EVENT GENERATING MORE THAN 1/2" OF RAINFALL. THE EROSION CONTROL MEASURES SHALL BE CLEANED REGULARLY AND ADJUSTED IF NECESSARY TO ENSURE THAT NO SILT OR
- 32. EXCEPT FOR GAS SERVICES, ALL UTILITY TRENCHES WITHIN THE CITY OF NEWTON RIGHT-OF-WAY WILL BE BACK FILLED WITH TYPE IE (EXCAVATABLE) CONTROLLED DENSITY FILL AS SPECIFIED BY THE CITY OF NEWTON ENGINEERING SPECIFICATIONS. EXCAVATABLE FLOW FILL WITH EXTEND TO WITHIN 18" OF ROADWAY ASPHALT.
- 33. ALL CONSTRUCTION ACTIVITIES WITHIN THE CITY OF NEWTON RIGHT-OF-WAY MUST FULLY COMPLY WITH ALL OF CITY OF NEWTON CONSTRUCTION SPECIFICATIONS AS WELL AS 521 CMR 21.00 AND 22.00.
- 34. ALL SILTATION CONTROL NEEDS TO BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE CITY ENGINEER'S OFFICE FOR APPROVAL PRIOR TO COMMENCEMENT.
- 35. ALL TRENCH EXCAVATION CONTRACTORS SHALL COMPLY WITH MGL CHAPTER 82A, TRENCH EXCAVATION SAFETY REQUIREMENTS, TO PROTECT THE GENERAL PUBLIC FROM UNAUTHORIZED ACCESS TO UNATTENDED TRENCHES. A TRENCH EXCAVATION PERMIT IS REQUIRED.
- 36. APPROVAL OF THIS PLAN BY CITY OF NEWTON ENGINEERING DIVISION IMPLIES THAT THE PLAN MEETS THE MINIMAL DESIGN STANDARDS OF THE CITY OF NEWTON. HOWEVER, THE ENGINEERING DIVISION MAKES NO REPRESENTATION AND ASSUMES NO RESPONSIBILITY FOR THE DESIGN(S) IN TERMS OF SUITABILITY FOR THE PARTICULAR SITE CONDITIONS OR OF THE FUNCTIONABILITY OR PERFORMANCE OF ANY ITEMS CONSTRUCTED IN ACCORDANCE WITH THE DESIGN(S). THE CITY OF NEWTON ASSUMES NO LIABILITIES FOR DESIGN ASSUMPTION, ERRORS OR OMISSIONS BY THE ENGINEER OF RECORD.
- 37. PER CITY OF NEWTON ORDINANCE NO.B-42, COUNCIL ITEM #251-19, BUILDING SEWER, WATER SERVICE PIPE & SIDEWALK/CURB REPLACEMENT ORDINANCE. THE APPLICANT IS REQUIRED TO INSTALL/REPLACE SIDEWALK & CURB ALONG THE ENTIRE FRONTAGE. THIS SHALL INCLUDE APPROPRIATE TRANSITION TO ADJOINING CURBING & WALKWAYS, INCLUDING ACCESSIBLE CURB CUTS & OTHER ACCESS AS REQUIRED. THE ENGINEERING CONSTRUCTION INSPECTOR MAKES A DETERMINATION, BASED ON THE MATERIAL & MANNER OF CONSTRUCTION OF THE EXISTING SIDEWALK & CURB, THAT THE EXISTING SIDEWALK & CURB HAS THE ABILITY TO BE RE-SET OR REUSED WITHOUT REPLACEMENT.
- 38. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE DESIGN ENGINEER FOR INSPECTIONS AND AS-BUILT LOCATIONS; THE ENGINEER OF RECORD IS RESPONSIBLE FOR THE ON-SITE INSPECTION(S) OF ALL SUBSURFACE STRUCTURES. THIS INCLUDES BUT NOT LIMITED TO DRAINAGE, UTILITIES (INCLUDING SEWER PIPE SLOPE), ROOF LEADER COLLECTION SYSTEM, TRENCH DRAINS, MANHOLES ETC. ENGINEER OF RECORD MUST ALSO CONDUCT OTTOM OF HOLE" INSPECTION(S) PRIOR TO SUBSURFACE DRAINAGE SYSTEM(S) BEING INSTALLED CONTRACTOR TO NOTIFY ENGINEER BEFORE BACKFILL OR SIGN OFF CANNOT OCCUR WITHOUT RE-EXCAVATION.
- 39. PLEASE SEE SECTION 6-C REQUIREMENT #6 OF THE STORMWATER MANAGEMENT AND EROSION CONTROL RULES & REGULATIONS PAGE 11 OF 17, POST CONSTRUCTION OPERATION AND MAINTENANCE PLAN (0&M). THE O & M PLAN MUST BE RECORDED AT THE APPROPRIATE REGISTRY OF DEEDS AND THAT PROOF OF RECORDING MUST BE PROVIDED TO THE ENGINEERING DIVISION PRIOR TO THE RECOMMENDATION OF THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- 40. 5 YEAR MORATORIUM IF AT TIME OF CONSTRUCTION THE ROADWAY IS UNDER A 5 YEAR MORATORIUM, THE ROADWAY MUST BE MILLED & PAVED GUTTER-TO-GUTTER FOR A DISTANCE OF 25 FEET IN EACH DIRECTION FROM THE OUTERMOST TRENCHES OR AS DIRECTED BY THE ENGINEERING INSPECTOR.



Engineering, P.C. 80 JEWETT ST, (SUITE 2)

> Tel: 617-816-0722 Email:edmond@spruhaneng.com

NEWTON, MA 02458

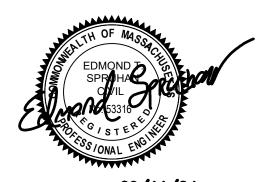
WATERTOWN STREET NEWTON MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

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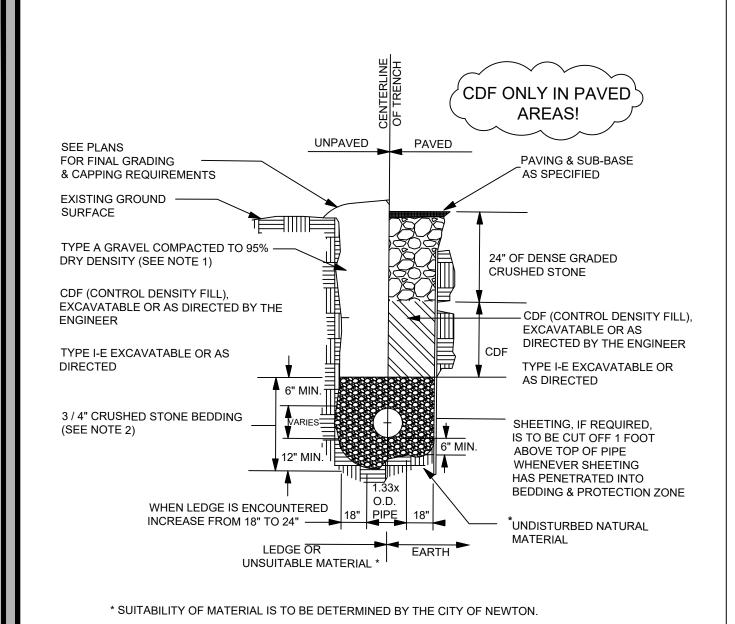
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09/03/2024 DRAWN BY: 0.G CHECKED BY c.c APPROVED BY: F.S

DETAILS

SHEET 5 OF 6



1. GRAVEL BORROW SHALL CONFORM TO MASSDOT SPECIFICATION M1.03.0

2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

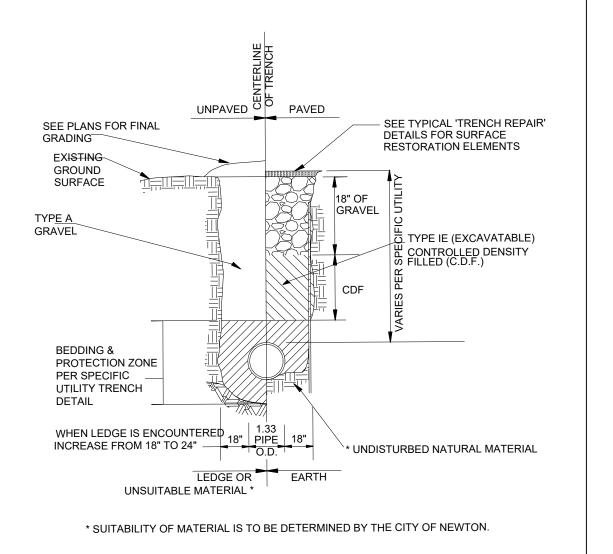
GRAVITY SEWER TRENCH DETAIL N.T.S.

UNPAVED PAVED SEE PLANS FOR FINAL GRADING PAVING & SUB-BASE **EXISTING GROUND** AS SPECIFIED SURFACE -- SEE TYPICAL PAVEMENT SECTION TYPE-A GRAVEL BORROW COMPACTED TO 95% MAX. DRY DENSITY 18" OF DENSE GRADED 6" MAX. STONE SIZE CRUSHED STONE TYPE-A GRAVEL BORROW-PROTECTION ZONE, SAND OR TYPE-C GRAVEL BORROW COMPACTED AS SPECIFIED ABOVE. MAXIMUM STONE ZONE COMPACTED CRUSHED STONE BEDDING AGAINST LEDGE 1 1/2" MAX. STONE SIZE UNDISTURBED NATURAL 12" MIN. CLEARANCE - MATERIAL WHEN LEDGE IS ENCOUNTERED __ INCREASE FROM 18" TO 24" LEDGE OR EARTH UNSUITABLE MATERIAL * SUITABILITY OF MATERIALS IS TO BE DETERMINED BY THE CITY OF NEWTON

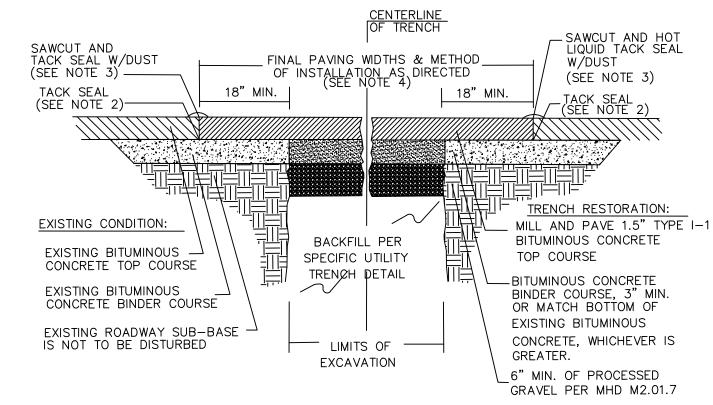
1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0

2. CRUSHED STONE BEDDING SHALL CONFORM TO MASSDOT SPECIFICATION M2.01.1

NOTE: TRENCHBOX OR SHEETING SHALL MEET OSHA STANDARDS. TYPICAL WATER TRENCH DETAIL

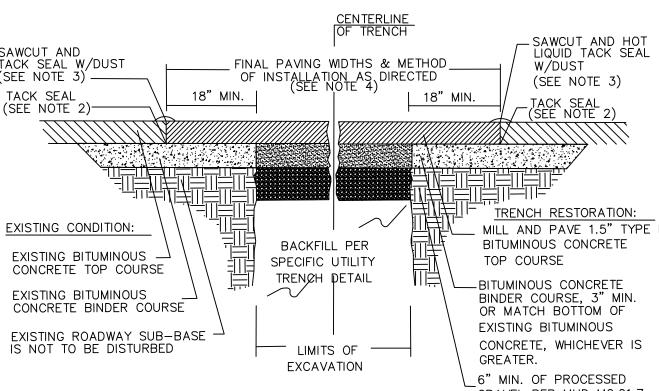


NOTE: TRENCHBOX OR SHEETING SHALL MEET OSHA STANDARDS. TYPICAL C.D.F. (CONTROL DENSITY FILL) TRENCH SECTION



- 1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASSDOT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 2020 AS
- 2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MASSDOT PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.
- 3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH HOT LIQUID TACK AND STONE DUST.
- 4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE
- PLACED BY MACHINE/BOX SPREADER WHEN & AS DIRECTED BY THE CITY OF NEWTON. 5. SUPERPAVE FOR PAVEMENT

TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL



CIVIL PLAN

Spruhan

Engineering, P.C.

80 JEWETT ST, (SUITE 2)

NEWTON, MA 02458

Tel: 617-816-0722

Email:edmond@spruhaneng.com

712

WATERTOWN STREET

NEWTON

MASSACHUSETTS

REVISION BLOCK

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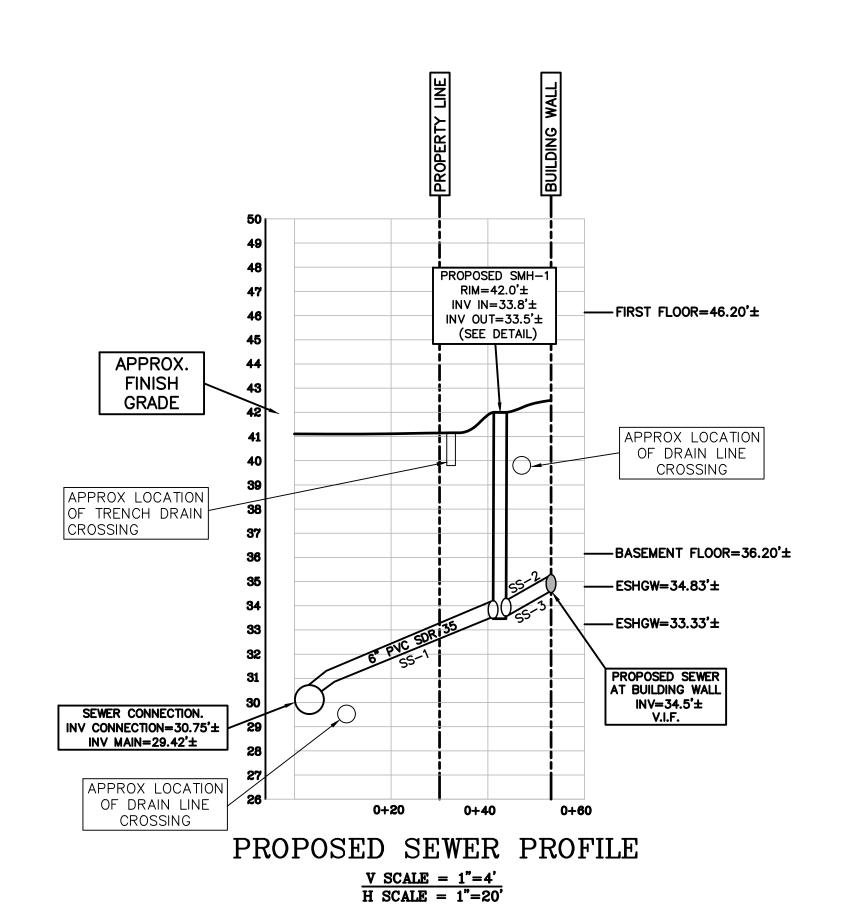
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| DRAWN BY: | 0.G |
| CHECKED BY: | c.c |
| APPROVED BY: | E.S |
| | |

DETAILS

SHEET 6 OF 6



SS-1

SS-2

1. IF WATER AND SEWER LINES MUST CROSS OR ARE WITHIN 10-FEET HORIZONTALLY, THE SEWER PIPE AND WATER PIPE MUST BE ENCASED. THIS REQUIREMENT STANDS UNLESS THE WATER IS A MINIMUM OF 18-INCHES ABOVE THE SEWER PIPE OR IF THERE IS A MINIMUM OF A 10-FOOT HORIZONTAL SEPARATION.

SEWER/DRAIN PIPES MUST BE ENCASED IN CONCRETE WHERE GROUND COVER IS LESS THAN 3 FT.

PROPOSED SEWER MANHOLES SMH RIM INV. IN INV. OUT SMH-1 42.0 33.8 33.5

PROPOSED SEWER LINES MATERIAL SIZE LENGTH INV. 1 INV. 2 SLOPE 6" 43.5 33.50 30.75 6.32% PVC-SDR35 PVC-SDR35 6" 11.2 34.50 33.80 6.28% SS-3 PVC-SDR35 6" 10.4 34.50 33.80 6.73%