

Spruhan
Engineering, P.C.

80 JEWETT ST., (SUITE 2)
NEWTON, MA 02458

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

192 CONCORD STREET
NEWTON
MASSACHUSETTS

SURVEY PLAN

REVISION BLOCK

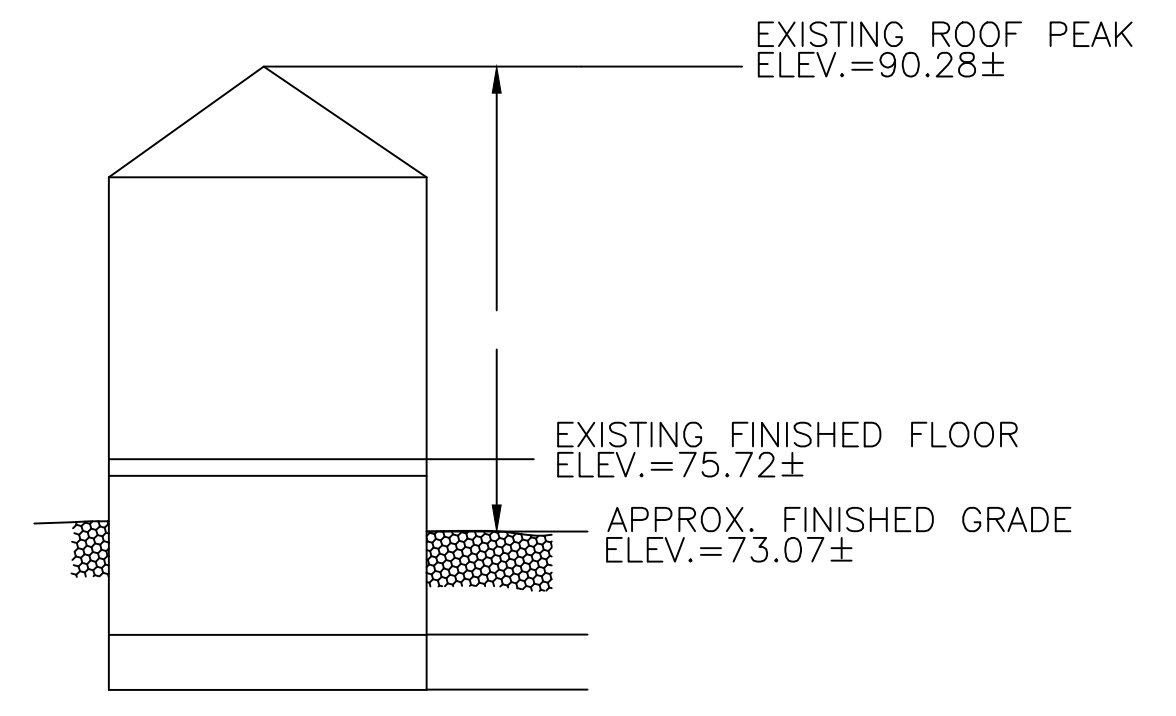
	DESCRIPTION	DATE
HF	WETLAND RESOURCES	3/9/21

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DATE: 10/27/2020
DRAWN BY: D.K.
CHECKED BY: E.S.
APPROVED BY: E.S.

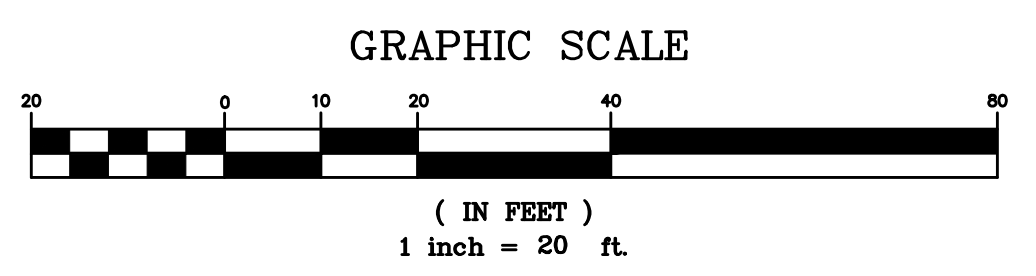
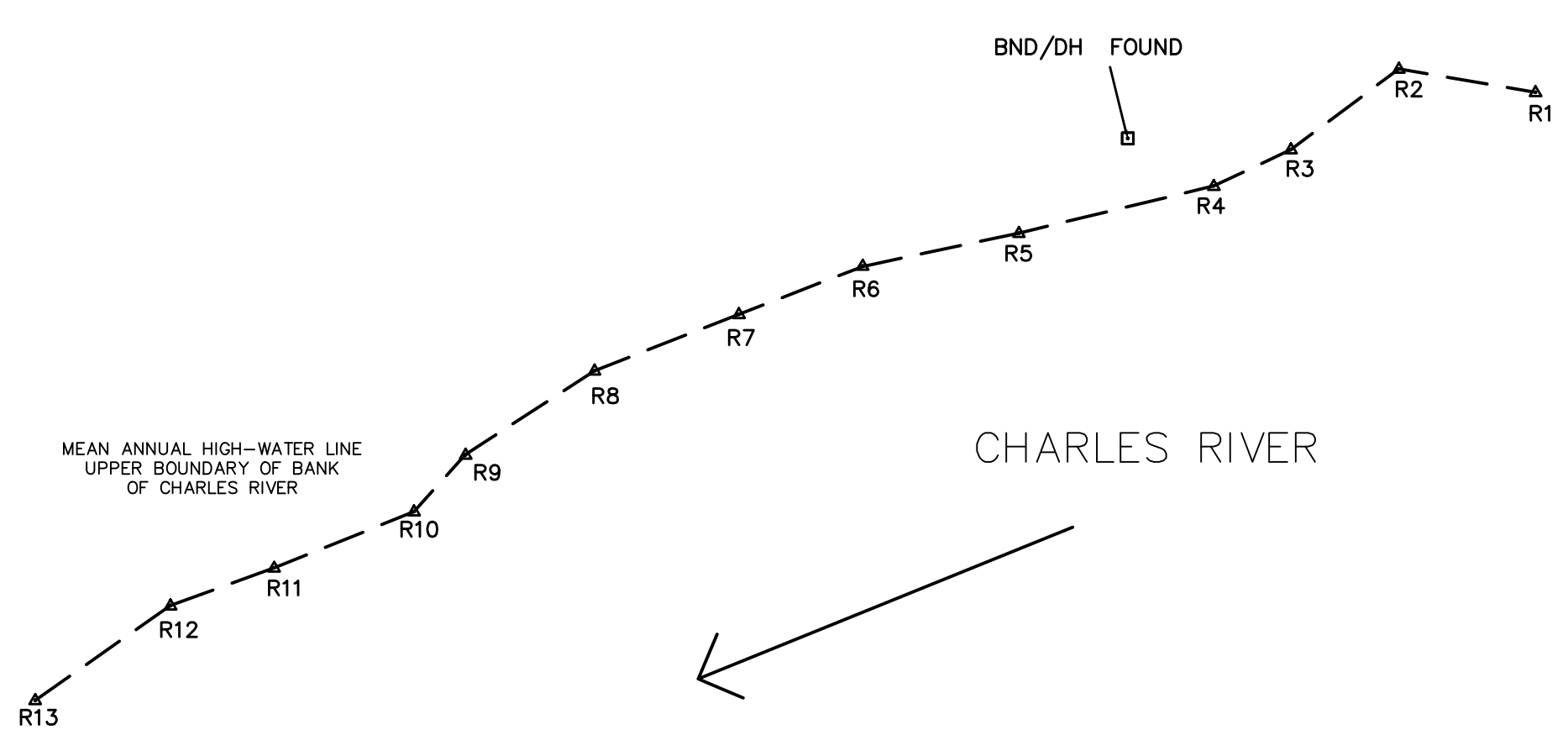
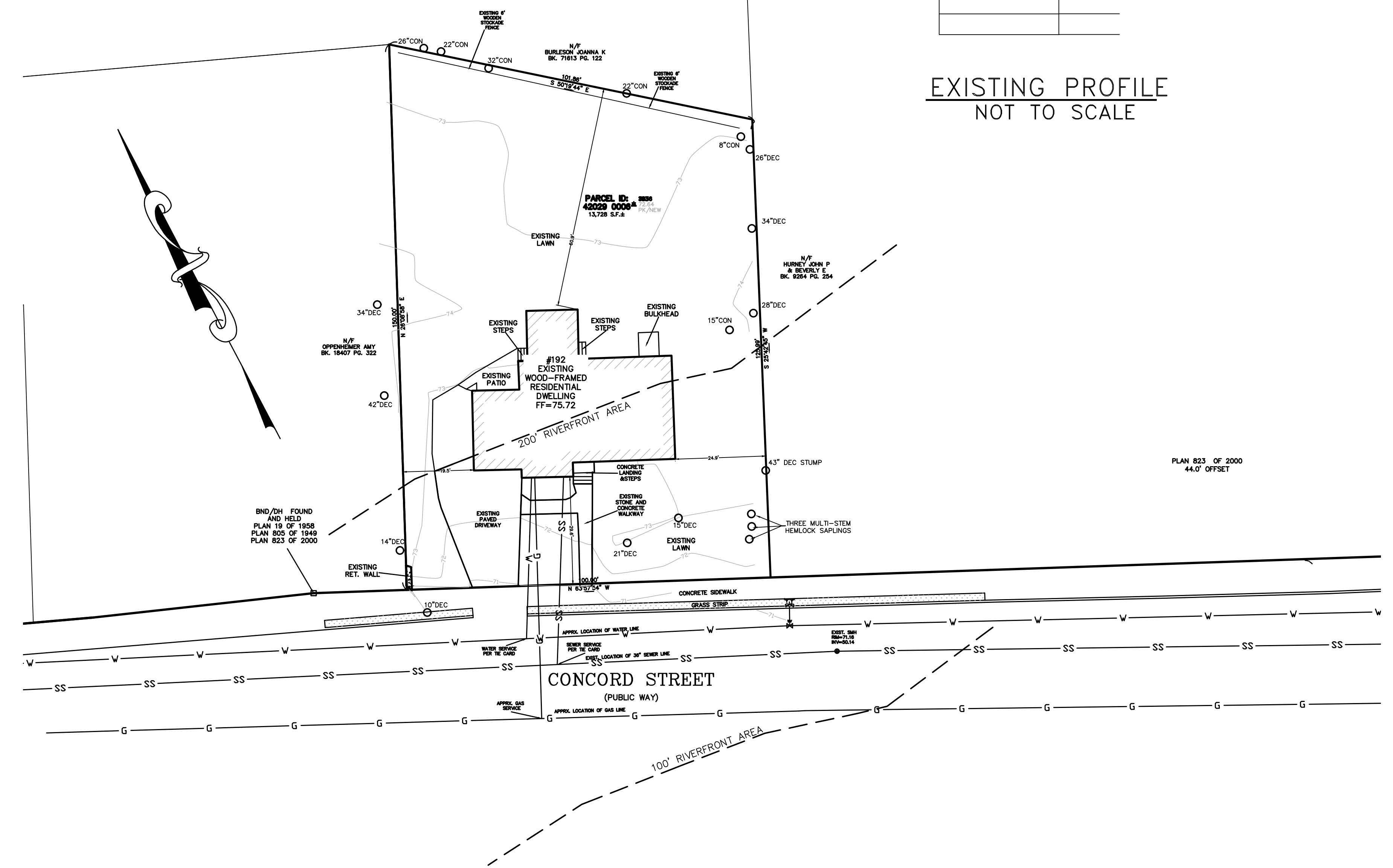
EXISTING
CONDITIONS



EXISTING PROFILE
NOT TO SCALE

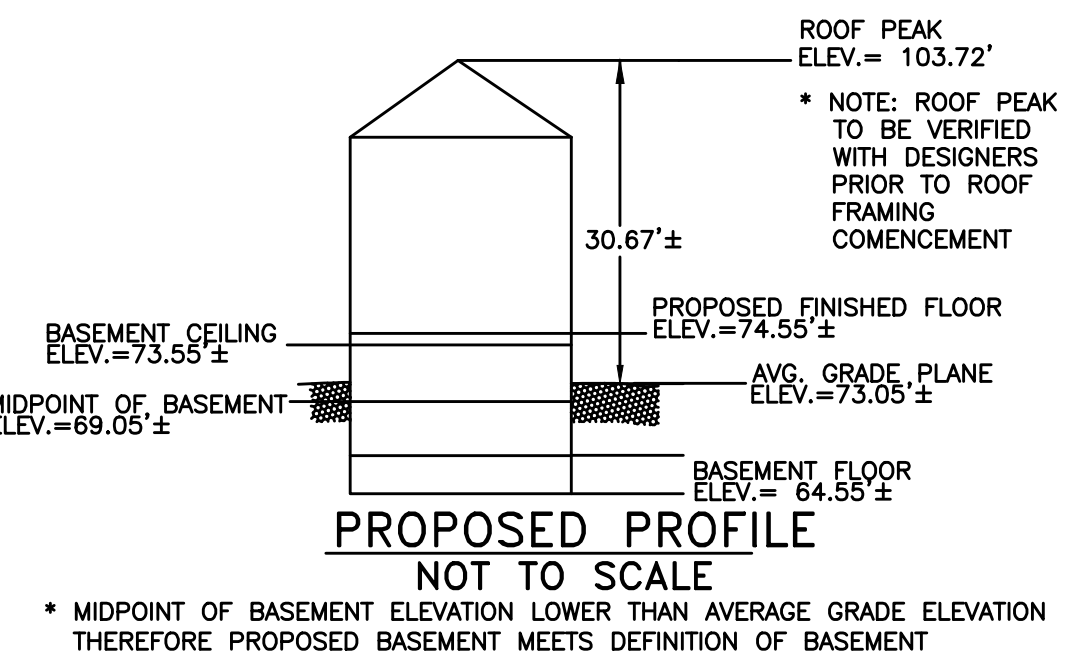
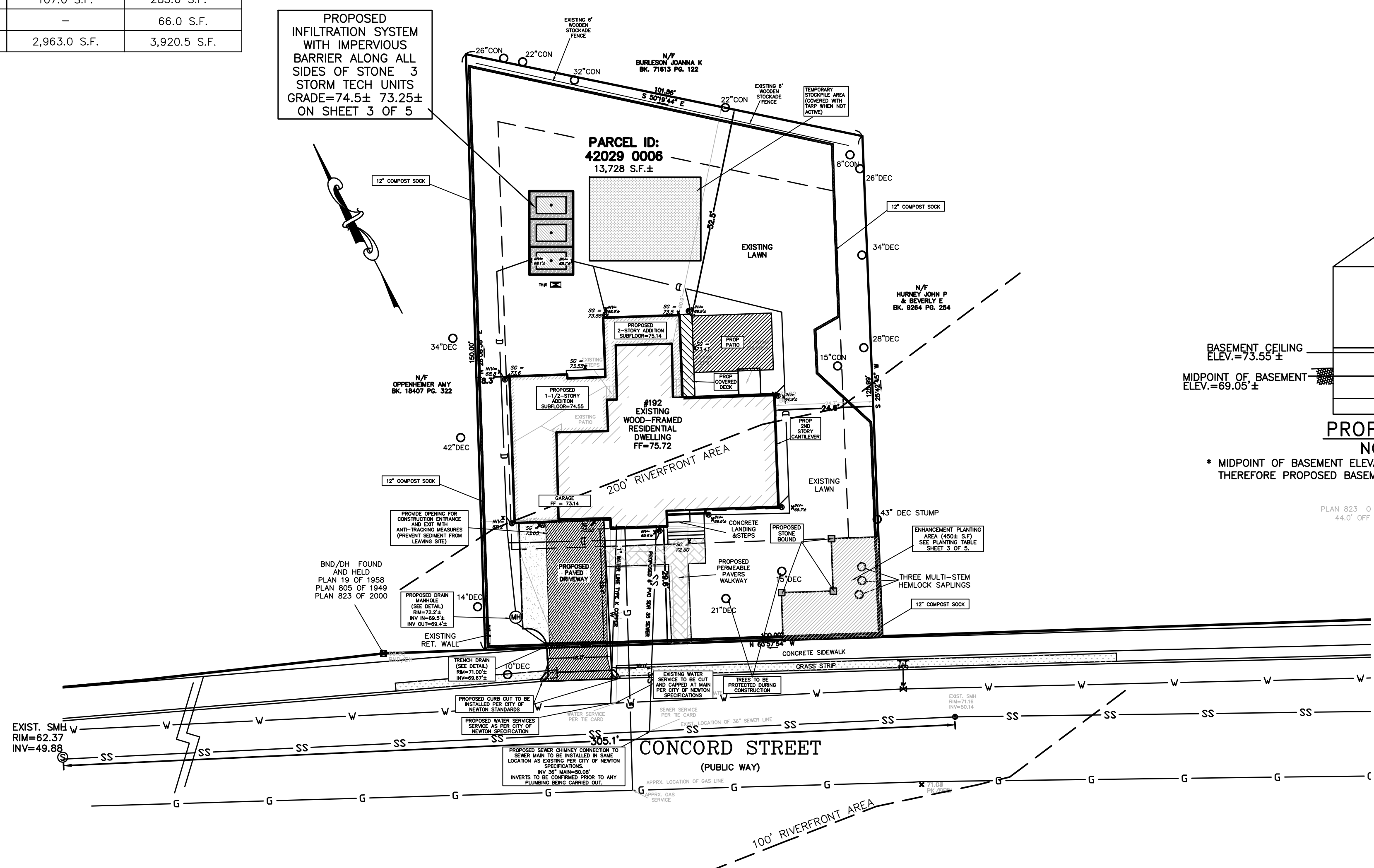
- NOTES:
1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY SPRUHAN ENGINEERING, P.C. AS OF 03/03/2021.
 2. DEED REFERENCE: BOOK 58719, PAGE 520
PLAN REFERENCE 1: PLAN #251 OF 1952
PLAN REFERENCE 2: PLAN #19 OF 1958
PLAN REFERENCE 3: PLAN #24 OF 1956
PLAN REFERENCE 4: PLAN #638 OF 1946
PLAN REFERENCE 5: PLAN #805 OF 1949
PLAN REFERENCE 6: PLAN #729 OF 2018
MIDDLESEX COUNTY SOUTH DISTRICT REGISTRY OF DEEDS
 3. THIS PLAN IS NOT INTENDED TO BE RECORDED.
 4. I CERTIFY THAT THE DWELLING SHOWN IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25017C0534E, IN COMMUNITY NUMBER: 250208, DATED 6/4/2010.
 5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
 6. FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.
 7. NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS SPRUHAN ENGINEERING, P.C. ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.
 8. THE ELEVATIONS SHOWN BASED ARE ON CITY OF NEWTON DATUM.
 9. ZONING DISTRICT - SR3, LOT CREATED BEFORE 12/07/1953

LEGEND	
[Symbol]	BOUND
[Symbol]	IRON PIN/PIPE
[Symbol]	STONE POST
[Symbol]	TREE
[Symbol]	TREE STUMP
[Symbol]	SHRUBS/FLOWERS
[Symbol]	SIGN
[Symbol]	BOLLARD
[Symbol]	SEWER MANHOLE
[Symbol]	DRAIN MANHOLE
[Symbol]	CATCH BASIN
[Symbol]	WATER MANHOLE
[Symbol]	WATER VALVE
[Symbol]	HYDRANT
[Symbol]	GAS VALVE
[Symbol]	ELECTRIC MANHOLE
[Symbol]	ELECTRIC HANDHOLE
[Symbol]	UTILITY POLE
[Symbol]	LIGHT POLE
[Symbol]	MANHOLE
[Symbol]	SPOT GRADE
[Symbol]	TOP OF WALL
[Symbol]	BOTTOM OF WALL
[Symbol]	EXISTING BUILDING
[Symbol]	RETAINING WALL
[Symbol]	STONE WALL
[Symbol]	FENCE
[Symbol]	TREE LINE
[Symbol]	SEWER LINE
[Symbol]	DRAIN LINE
[Symbol]	WATER LINE
[Symbol]	GAS LINE
[Symbol]	UNDERGROUND ELECTRIC LINE
[Symbol]	OVERHEAD WIRES
[Symbol]	CONTOUR LINE (MJR)
[Symbol]	CONTOUR LINE (MNR)



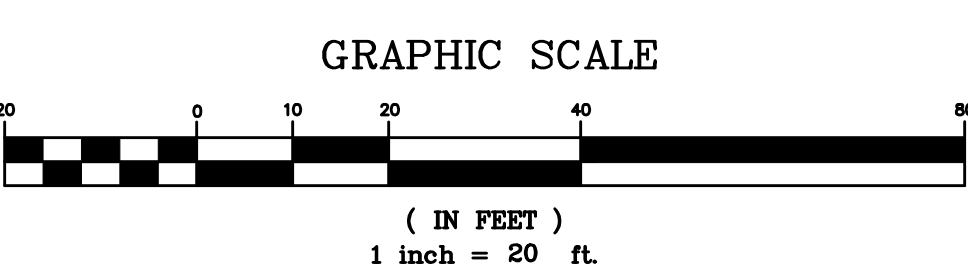
IMPERVIOUS AREA		
	EXISTING	PROPOSED
BUILDING	1,732.0 S.F.	2,557.5 SF
DRIVEWAY	857.0 S.F.	660.0 S.F.
WALKWAY/STEPS LANDING/WALLS BULKHEADS	267.0 S.F.	352.0 S.F.
PATIO	107.0 S.F.	285.0 S.F.
DECK	-	66.0 S.F.
TOTAL	2,963.0 S.F.	3,920.5 S.F.

PROPOSED INFILTRATION SYSTEM WITH IMPERVIOUS BARRIER ALONG ALL SIDES OF STONE 3 STORM TECH UNITS GRADE=74.5± 73.25± ON SHEET 3 OF 5



LEGEND

○	UTILITY POLE	□	BOW BOTTOM OF WALL
○	WATER GATE	—	FG FINISHED GRADE
⊙	HYDRANT	—	SG SPOT GRADE
⊙	GAS GATE	THF	DEEP TEST HOLE
⊙	SEWER MANHOLE	PT#	PERCOLATION TEST
⊙	CLEANOUT	71.4 X	SPOT ELEVATION
⊙	DRAIN MANHOLE	[71]	PROPOSED CONTOUR
⊙	CATCH BASIN	71	EXISTING CONTOUR
○	TREE	D	DRAIN LINE
⊙	LIGHT POLE	W	WATER LINE
⊙	SIGN	SS	SEWER LINE
TBR	TO BE REMOVED	G	GAS LINE
TBA	TO BE ABANDONED	X	FENCE
TOW	TOP OF WALL	—	PROPOSED WALL



- NOTES**
- ELEVATIONS REFER TO CITY OF NEWTON DATUM.
 - 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.
 - 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 STATE LAW. NO EXCAVATION SHALL BE MADE BY THE CONTRACTOR OR ANY PUBLIC WORK UTILITY EXCEPT 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 FOLLOWING:
 - SUCH PUBLIC UTILITY COMPANIES AS SUPPLY GAS, ELECTRICITY, AND TELEPHONE SERVICE IN THE CITY.
 - SUCH PUBLIC UTILITY COMPANIES AS PROVIDE CABLE TELEVISION SERVICE IN THE CITY.
 - CITY OF NEWTON WATER & SEWER DEPARTMENT. SUCH NOTICE SHALL SET FORTH THE STREET NAME AND A REASONABLE ACCURATE DESCRIPTION OF THE LOCATION OF THE EXCAVATION.
 - 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. REFERENCE TO NOTES FOR DETAILS. NOTE: A PERMIT MUST BE OBTAINED PRIOR TO ANY EXCAVATION BEING CARRIED OUT. 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 821 CMR 21.00 AND 22.00.
 - PROPOSED SEWER PIPE SHALL BE 6" PVC SDR 35.
 - PROPOSED WATER SERVICE SHALL BE 1" TYPE K COPPER.
 - THIS PLAN IS THE RESULT OF AN INSTRUMENT SURVEY DONE ON THE GROUND 3/3/21.
 - ALL WORK SHALL BE SUBJECT TO THE INSPECTION BY AND APPROVAL OF THE CITY ENGINEER.
 - THE CONTRACTOR SHALL PROVIDE CITY OF NEWTON POLICE OFFICERS FOR THE DIRECTION AND CONTROL OF TRAFFIC, AS REQUIRED BY THE CITY ENGINEER.
 - 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 A STREET OPENING & UTILITIES CONNECTION PERMITS AS WELL AS A SIDEWALK CROSSING PERMIT AND A TRENCH PERMIT WITH THE DPW.
 - ALL TRENCHES IN PAVED STREETS SHALL BE TEMPORARILY PATCHED WITH PAVEMENT OF EXISTING PAVEMENT THICKNESS OR AS DIRECTED BY THE CITY ENGINEERING INSPECTOR. LAID NOT AND MAINTAINED UNTIL THE PERMANENT PATCH IS INSTALLED.
 - WARNING SIGNS SHALL CONFORM TO PAGE 66 OF THE CITY OF NEWTON GENERAL CONSTRUCTION DETAILS.
 - ALL TOPSOIL, SUBSOIL OR IMPERVIOUS SOIL MUST BE REGRADED AND REFINISHED BELOW THE LEADING 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 INCHES PER HOUR OR FASTER.
 - IN CASES WHERE LEDGE OR BOULDERS ARE ENCOUNTERED, SPRUHAN ENGINEERING, P.C. WILL NOT BE RESPONSIBLE FOR THE AMOUNT OF ROCK ENCOUNTERED.
 - IF ANY PART OF THIS DESIGN IS TO BE ALTERED IN ANY WAY, THE DESIGN ENGINEER, AS WELL AS THE APPROVING AUTHORITIES, SHALL BE NOTIFIED IN WRITING BEFORE CONSTRUCTION.
 - THE ROOF RUNOFF FROM THE ROOF SURFACES SHALL BE COLLECTED BY GUTTERS AND DIRECTED TO THE STORM WATER DRAINAGE SYSTEM.
 - THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE DESIGN ENGINEER FOR INSPECTIONS OR AS-BUILT LOCATIONS. PETER NOLAN & ASSOCIATES, LLC WILL NOT PROVIDE AS-BUILT CERTIFICATION TO UNINSPECTED BACKFILLED UTILITIES. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED PRIOR TO INSPECTIONS. THE ENGINEER OF RECORD IS RESPONSIBLE FOR THE ON-SITE INSPECTION(S) OF ALL SUBSURFACE STRUCTURES. THIS INCLUDES BUT IS NOT LIMITED TO: STORM UTILITIES (INCLUDING SEWER PIPE HOLES), ROOT LEADER COLLECTION SYSTEMS, TRENCH DRAINS, MANHOLES, ETC. ENGINEER OF RECORD MUST CONDUCT BOTTOM OF TRENCH INSPECTION(S) PRIOR TO SUBSURFACE DRAINAGE SYSTEM(S) BEING BACKFILLED. CONTRACTOR TO NOTIFY ENGINEER BEFORE BACKFILL OR SIGN OFF CANNOT OCCUR WITHOUT RE-EXCAVATION.
 - 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).
 - THE EXISTING WATER & SEWER SERVICES SHALL BE CUT AND CAPPED AT THE MAIN AND BE COMPLETELY REMOVED FROM THE SITE. REPLACED AS SPECIFIED AND PROPERLY BACKFILLED. THE ENGINEERING DIVISION MUST INSPECT THIS WORK FAILURE TO HAVE THIS WORK INSPECTED MAY RESULT IN THE DELAY OF ISSUANCE OF THE UTILITY CONNECTION PERMIT.
 - THE CONTRACTOR SHALL NOTIFY THE ENGINEERING DIVISION 48 HOURS IN ADVANCE AND SCHEDULE AN APPOINTMENT TO HAVE THE DRAINAGE SYSTEM WATER & SEWER SERVICES INSPECTED. THE SYSTEM & UTILITIES MUST BE FULLY EXPOSED FOR THE INSPECTOR. ONCE THE INSPECTOR IS SATISFIED, THE SYSTEM & UTILITIES MAY THEN BE BACKFILLED.
 - NO WORK IS ALLOWED WITHIN A CITY OF NEWTON RIGHT-OF-WAY BETWEEN NOVEMBER 15TH AND APRIL 15TH, IF AN EMERGENCY EXISTS OR THERE ARE ESTIMATING CIRCUMSTANCES. APPLICANT MAY REQUEST PERMISSION FROM THE CITY ENGINEER. IF ALLOWED, SPECIAL CONSTRUCTION REQUIREMENTS WILL BE REQUIRED, AND AS SUCH IT IS RECOMMENDED THAT THE APPLICANT OR APPLICANT'S REPRESENTATIVE CONTACT THE CITY OF NEWTON ENGINEERING DEPARTMENT PRIOR TO START OF WORK FOR CLARIFICATION.
 - AT THE END OF CONSTRUCTION, ALL DRAINAGE STRUCTURES ARE TO BE CLEANED OF SILT, STONES AND OTHER DEBRIS.
 - WITH EXCEPTION OF GAS UTILITY SERVICES, ALL UTILITY TRENCHES WITHIN ANY CITY OF NEWTON RIGHT-OF-WAY WILL BE BACKFILLED WITH TYPE III (EXCAVATABLE) CONTROLLED DENSITY FILL, AS SPECIFIED BY THE CITY OF NEWTON ENGINEERING SPECIFICATIONS.
 - ALL NEW SEWER SERVICE AND/OR STRUCTURES SHALL BE PRESSURE TESTED OR VEGETATED AFTER FINAL INSTALLATION IS COMPLETE. METHOD OF FINAL INSPECTION SHALL BE DETERMINED SOLELY BY THE CONSTRUCTION INSPECTOR FROM THE CITY ENGINEERING DIVISION. ALL SEWER MANHOLES SHALL BE VACUUM TESTED ACCORDANCE TO THE CITY'S CONSTRUCTION STANDARDS & SPECIFICATIONS. THE SEWER SERVICE WILL NOT BE ACCEPTED UNTIL ONE OF THE TWO METHODS STATED ABOVE IS COMPLETED. ALL TESTING MUST BE WITNESSED BY A REPRESENTATIVE OF THE ENGINEERING DIVISION. A CERTIFICATE OF OCCUPANCY WILL NOT BE RECOMMENDED UNTIL THIS TEST IS COMPLETED AND A WRITTEN REPORT IS RECEIVED BY THE CITY ENGINEER.
 - 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. DURING CONSTRUCTION, THE EROSION CONTROL MEASURES SHALL BE INSPECTED 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. THE CITY ENGINEER HAS THE RIGHT TO STOP OR DELAY ANY WORK ON THE SITE.
 - 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.
 - 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 LIABILITY FOR THE DESIGN OR ESTIMATING CIRCUMSTANCES. APPLICANT MAY REQUEST PERMISSION FROM THE CITY ENGINEER. IF ALLOWED, SPECIAL CONSTRUCTION REQUIREMENTS WILL BE REQUIRED, AND AS SUCH IT IS RECOMMENDED THAT THE APPLICANT OR APPLICANT'S REPRESENTATIVE CONTACT THE CITY OF NEWTON ENGINEERING DEPARTMENT PRIOR TO START OF WORK FOR CLARIFICATION.
 - PER CITY OF NEWTON ORDINANCE NO.8-42, COUNCIL ITEM #291-19, BUILDING SEWER, WATER SERVICE PIPE & SIDEWALK/DRIVE REPLACEMENT ORDINANCE, THE APPLICANT IS REQUIRED TO INSTALL/REPLACE SIDEWALK & CURB ALONG THE ENTIRE FRONTAGE. THIS SHALL INCLUDE APPROPRIATE TRANSITION TO ADJOINING CURBS & WALKWAYS, INCLUDING ACCESSIBLE CURB CUTS & OTHER ACCESS AS REQUIRED. THE ENGINEERING DIVISION 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.
 - FIVE-YEAR WEATHERABLE: IF AT THE TIME OF CONSTRUCTION THE ROADWAY IS UNDER A FIVE-YEAR WEATHERABLE, THE ROADWAY MUST BE MILED AND PAVED OUTER-TO-OUTER FOR A DISTANCE OF 25 FEET IN EACH DIRECTION FROM THE OUTERMOST TRENCHES.
 - PRIOR TO THE ENGINEERING DIVISION RECOMMENDING THAT A CERTIFICATE OF OCCUPANCY BE ISSUED, AN AS-BUILT PLAN MUST BE SUBMITTED. THE AS-BUILT PLAN MUST SHOW ALL TEST 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.
- THE FOLLOWING STATEMENT MUST BE ON ALL AS-BUILT PLANS SUBMITTED TO THE ENGINEERING DIVISION:
- CERTIFY THAT THE CONSTRUCTION SO SHOWN WAS INSPECTED PRIOR TO BACKFILL AND THAT ALL WORK CONFORMS WITH THE APPROVED PLAN AND MEETS OR EXCEEDS THE CITY OF NEWTON CONSTRUCTION STANDARDS.
- Signature: _____ Date: _____

- NOTES**
- ANY PROPOSED RETAINING WALL SHALL BE DESIGNED BY OTHERS. ANY PROPOSED RETAINING WALL 30' SIDEWALK SHALL NOT EXCEED 4' FEET IN HEIGHT IN ANY DRAINAGE WORK.
 - SURFACE WATER SHALL BE DIVERTED AWAY FROM ALL SIDES OF FOUNDATION WALL.
 - IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO CONTACT THE ENGINEER OF RECORD FOR ALL INSPECTIONS OUTLINED IN NOTE 13 ON THIS SHEET.
 - CONTRACTOR TO ENSURE THAT THE BUILDING FOOTPRINT REPRESENTED ON THIS PLAN IS THE SAME AS THE PROPOSED ARCHITECTURAL /STRUCTURAL PLANS AND INCORPORATES ALL OVERHANGS, CANTILEVERS AND ANY COMPONENT THAT IS SUBJECT TO ZONING RESTRICTIONS. IF THIS IS FOUND NOT TO BE THE CASE THE CONTRACTOR MUST CONTACT THE ENGINEER /SURVEYOR AND REQUEST A REVISED PLAN WHICH MUST BE RESUBMITTED TO L.S.D., CITY OF NEWTON.
 - CONTRACTOR TO ENSURE ALL RAIN WATER FROM SPLASH BLOCKS (IF ANY) IS DIVERTED AWAY FROM BUILDING FOUNDATION AND DIVERTED AWAY FROM NEIGHBORING PROPERTIES.
 - CONTRACTOR TO ENSURE SEWER LINE IS PITCHED AT AN EQUAL SLOPE OF BETWEEN 2% AND 10% FROM HOUSE TO MAIN CONNECTION.
 - ANY TREE BEING REMOVED SHALL COMPLY WITH CITY OF NEWTON TREE ORDINANCE.

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PLAN REFERENCE 1: PLAN #251 OF 1952
PLAN REFERENCE 2: PLAN #19 OF 1958
PLAN REFERENCE 3: PLAN #24 OF 1956
PLAN REFERENCE 4: PLAN #35 OF 1946
PLAN REFERENCE 5: PLAN #205 OF 1949
PLAN REFERENCE 6: PLAN #723 OF 2018
MIDDLESEX COUNTY SOUTH DISTRICT REGISTRY OF DEEDS
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 - FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.
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 - THE ELEVATIONS SHOWN BASED ARE ON CITY OF NEWTON DATUM.
 - ZONING DISTRICT - SR3, LOT CREATED BEFORE 12/07/1953

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80 JEWETT ST, (SUITE 2)
NEWTON, MA 02458
Tel: 617-816-0722
Email: edmond@spruhaneng.com

192 CONCORD STREET,
NEWTON,
MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

BY	DESCRIPTION	DATE
CM	REVISED PER CITY OF NEWTON REQUIREMENTS	01/26/21
CM	REVISED PER CITY OF NEWTON REQUIREMENTS	02/15/21
HF	WETLAND RESOURCES	3/9/21

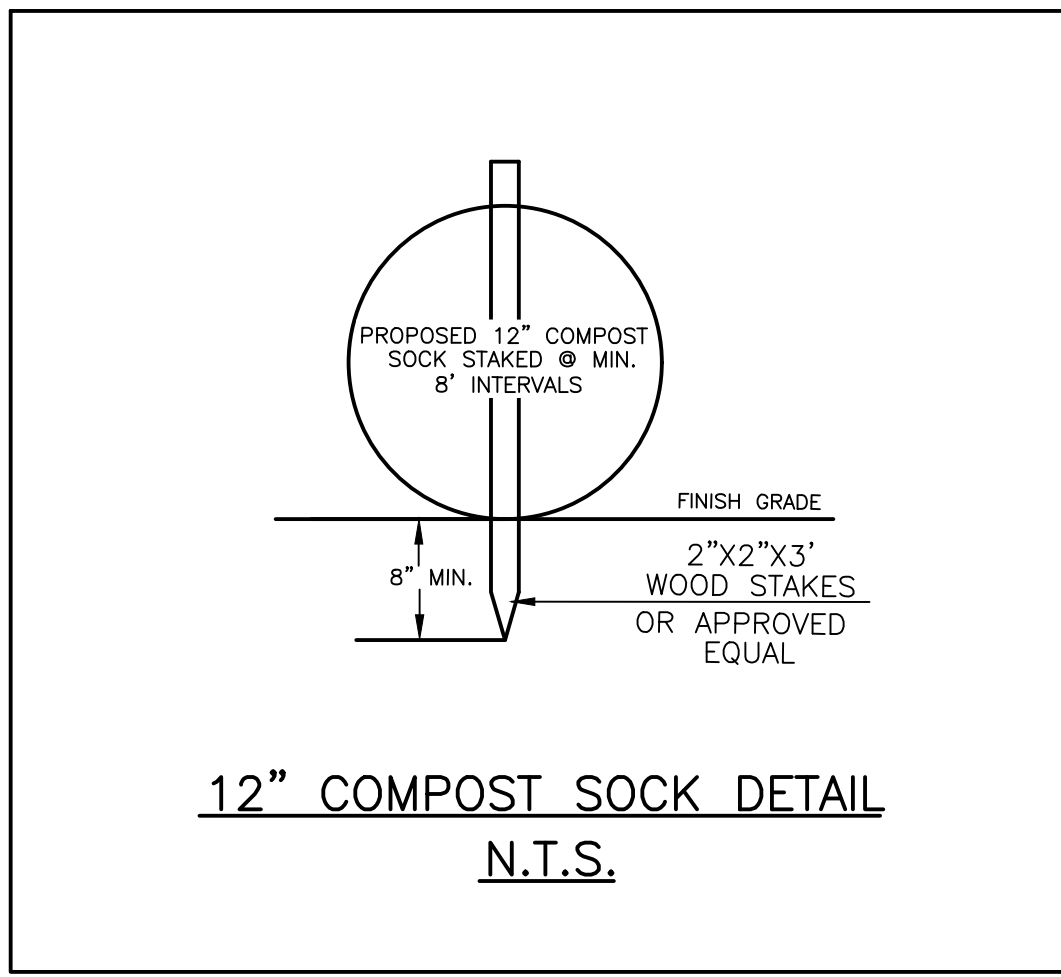
SCALE 1"=20'

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SHEET:
2 OF 5

DATE:	01/12/2021
DRAWN BY:	C.M.
CHECKED BY:	E.S.
APPROVED BY:	E.S.

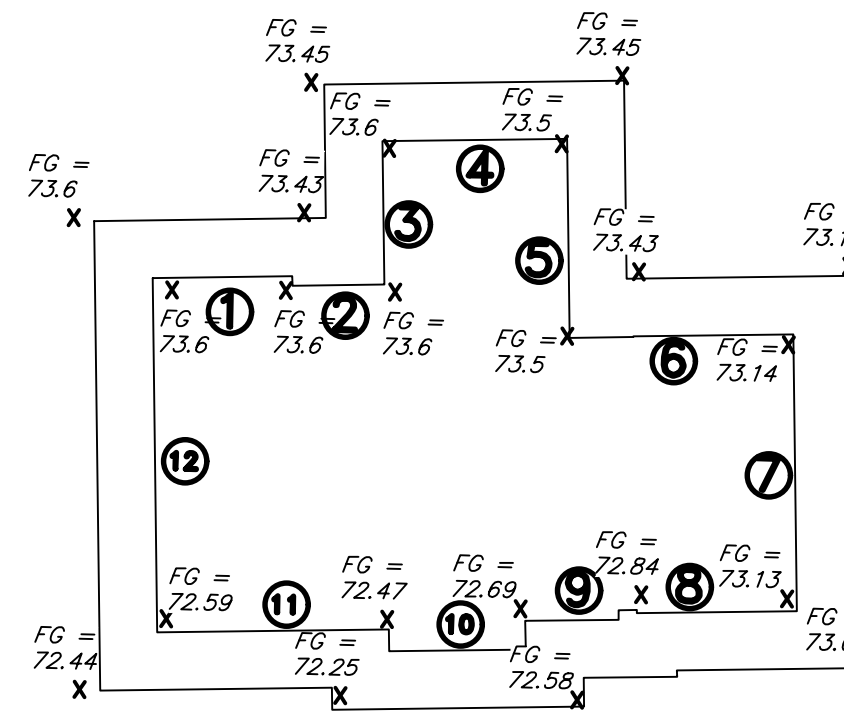
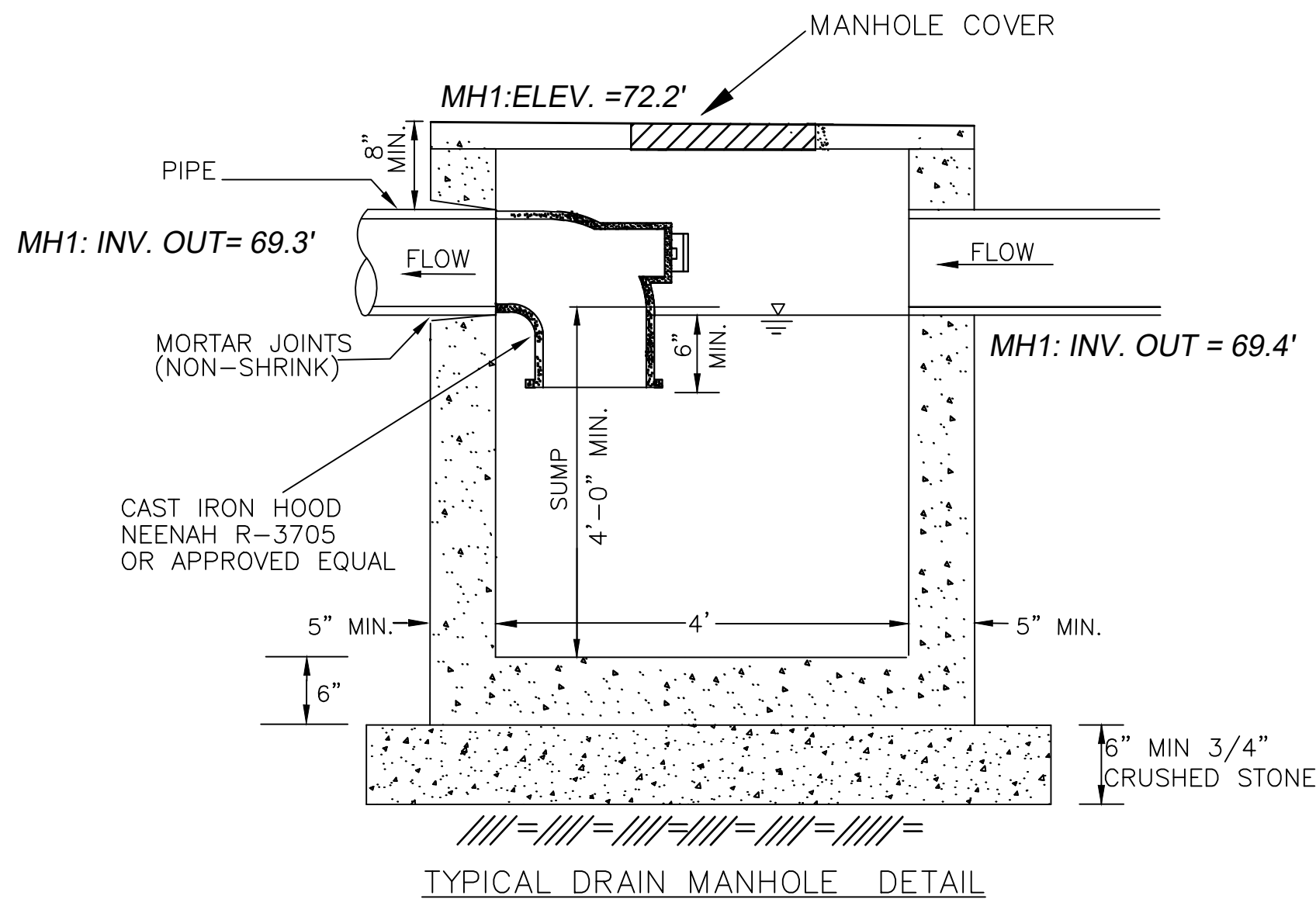
PROPOSED CIVIL PLAN



Enhancement Planting Area (450± sf)

Stratum; Species, Size; Spacing	Number
Shrubs (Evergreen and Deciduous); 3-5' height; 6' on-center	14
Mountain Laurel (<i>Kalmia latifolia</i>)	3
Black Chokeberry (<i>Photinia melanocarpa</i>)	4
Gray Dogwood (<i>Cornus racemosa</i>)	4
Inkberry (<i>Ilex glabra</i>)	3
Small Shrubs; Sizes Below; 6' on-center	14
Lowbush Blueberry (<i>Vaccinium angustifolium</i> ; 6-12")	5
Common Juniper (<i>Juniperus communis</i> ; 18-24")	4
Northern Bush Honeysuckle (<i>Diervilla lonicera</i> ; 18-24")	5

- The three existing multi-stem Eastern Hemlock (*Tsuga canadensis*) saplings in the area will be retained.
- Plants to be placed under direction of qualified wetland scientist.
- Substitutions will be from the above planting list subject to approval by Staff.
- Plants must be natives; cultivars and varieties will not be accepted.
- The soil at the edges of the planting area will be graded such that the mulch will be level or depressed compared to the adjacent lawn or sidewalk.
- After planting, the area will be mulched with a 3" thick layer of a 4:1 mixture of decomposed leaf compost and natural bark mulch.

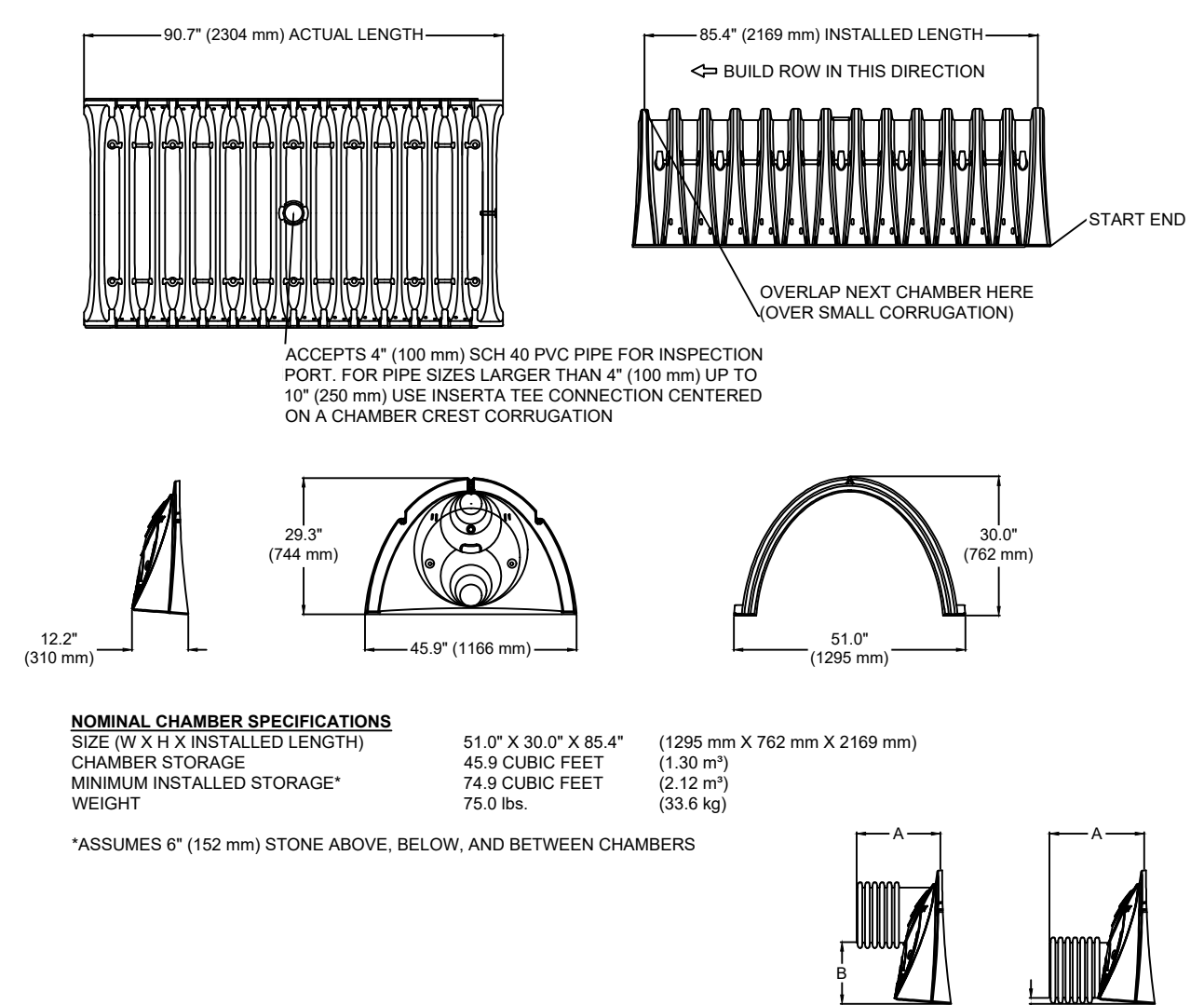


AVERAGE GRADE PLANE (ALL UNITS IN FEET)					
SEGMENT	LEGNTH	POINT 1	POINT 2	MEAN 1 & 2	MEAN x LENGTH
1	14.54	73.58	73.43	73.51	1,068.76
2	9.57	73.43	73.43	73.43	702.73
3	14.92	73.43	73.43	73.43	1,095.58
4	19.21	73.43	73.43	73.43	1,410.59
5	20.70	73.43	73.43	73.43	1,520.00
6	23.29	73.43	73.14	73.29	1,706.81
7	28.80	73.14	73.00	73.07	2,104.42
8	18.57	73.00	72.52	72.76	1,351.15
9	9.71	72.52	72.58	72.55	704.46
10	14.22	72.58	72.25	72.42	1,029.74
11	24.11	72.25	72.44	72.35	1,744.24
12	36.88	72.44	73.58	73.01	2,692.61
SUM =	234.52				17,131.08
SUM OF MEAN x LENGTH / SUM OF LENGTHS = AVERAGE GRADE PLANE =					73.05

AVERAGE GRADE PLANE

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	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 BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 1' (400 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ² 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL, AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 10,000 lbs (45 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ² 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ² 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. **

SC-740 TECHNICAL SPECIFICATION



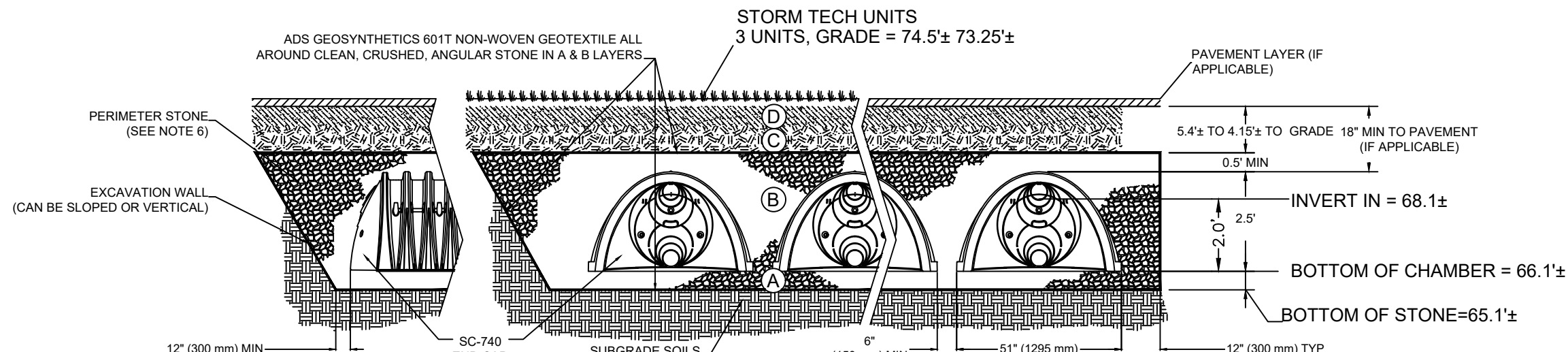
NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	CHAMBER STORAGE	MINIMUM INSTALLED STORAGE*	WEIGHT
51.0" X 30.0" X 85.4"	45.9 CUBIC FEET (1,300 m³)	74.9 CUBIC FEET (2,120 m³)	75.0 lbs (33.6 kg)
1295 mm X 762 mm X 2169 mm			

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"

PART #	STUB	A	B	C
SC740PE007 / SC740PE007PC	6" (150 mm)	10.9" (277 mm)	18.9" (470 mm)	0.5" (13 mm)
SC740PE008 / SC740PE008PC	6" (150 mm)	12.2" (310 mm)	16.5" (419 mm)	0.5" (13 mm)
SC740PE009 / SC740PE009PC	6" (150 mm)	12.2" (310 mm)	14.5" (368 mm)	0.6" (15 mm)
SC740PE100 / SC740PE100PC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	0.7" (18 mm)
SC740PE121 / SC740PE121PC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	1.2" (30 mm)
SC740PE129 / SC740PE129PC	12" (300 mm)	14.7" (373 mm)	9.0" (229 mm)	1.2" (30 mm)
SC740PE150 / SC740PE150PC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	1.3" (33 mm)
SC740PE181 / SC740PE181PC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	1.8" (44 mm)
SC740PE189 / SC740PE189PC	18" (450 mm)	18.5" (470 mm)	5.0" (127 mm)	0.5" (13 mm)
SC740PE248	24" (600 mm)	18.5" (470 mm)	5.0" (127 mm)	0.5" (13 mm)

ALL STUBS, EXCEPT FOR THE SC740PE248 ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-800-800-2694.
* FOR THE SC740PE248 THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.
NOTE: ALL DIMENSIONS ARE NOMINAL.

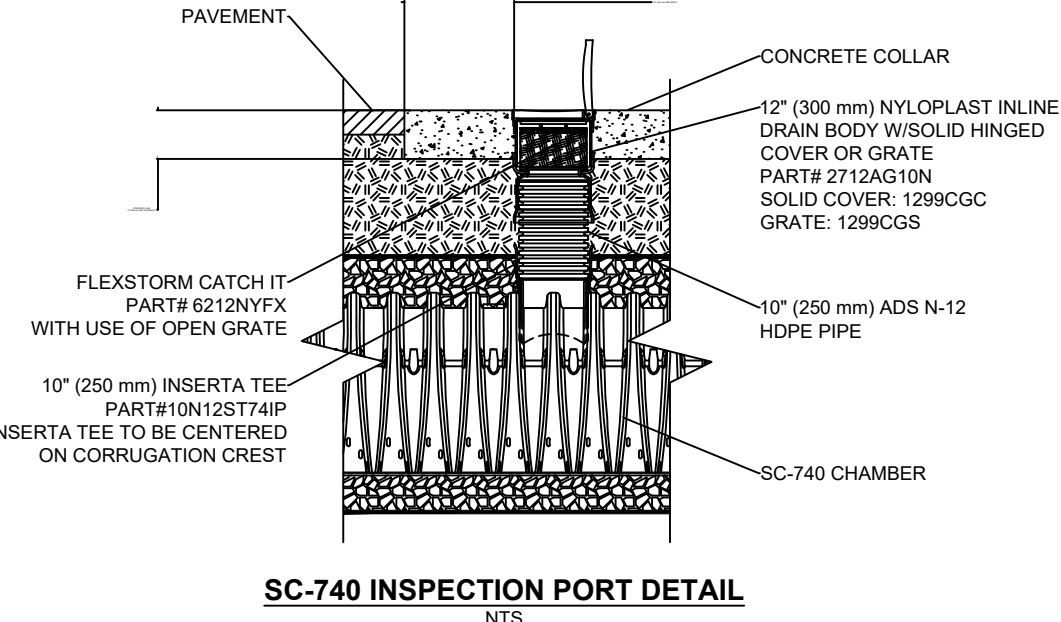
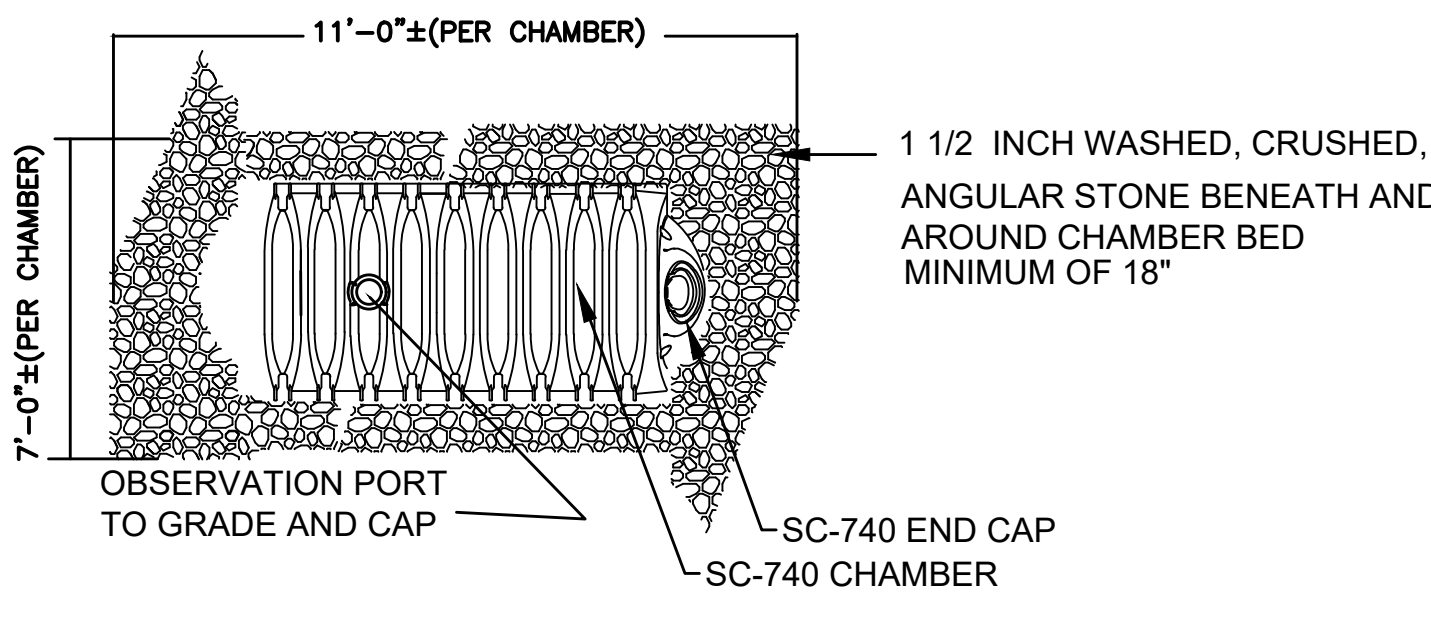


NOTES:

- 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 CHAMBERS".
- SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
- 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.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOLID 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.

STORMTECH GENERAL NOTES

- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- STORMTECH'S 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.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE. CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'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.
- 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.



REVISION BLOCK

BY	DESCRIPTION	DATE
CM	REVISED PER CITY OF NEWTON REQUIREMENTS	01/26/2021
HF	WETLAND RESOURCES	3/9/21

DATE	01/12/2021
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APPROVED BY	ES
SHEET	3
PLAN NO.	3 OF 5
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3 OF 5

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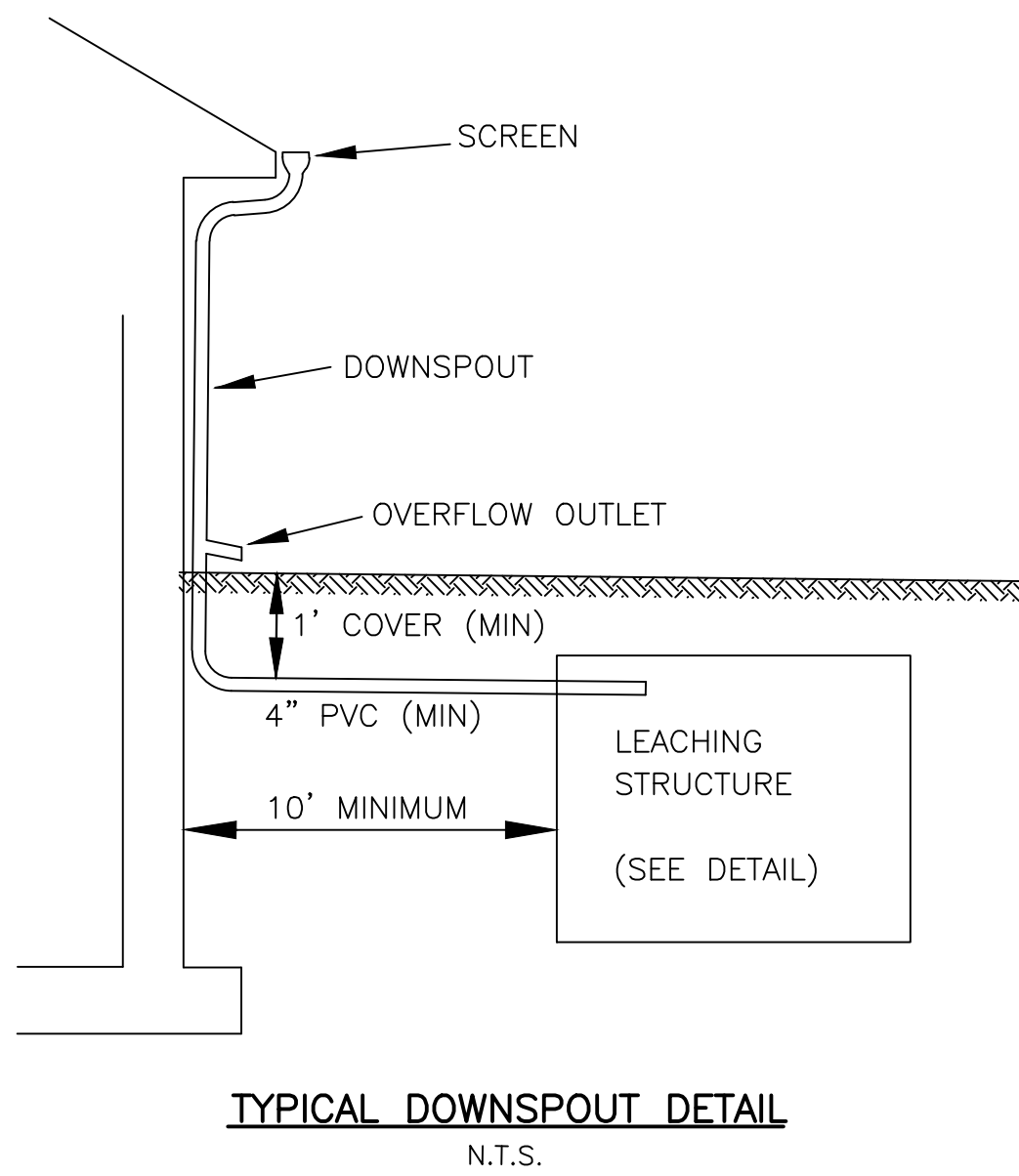
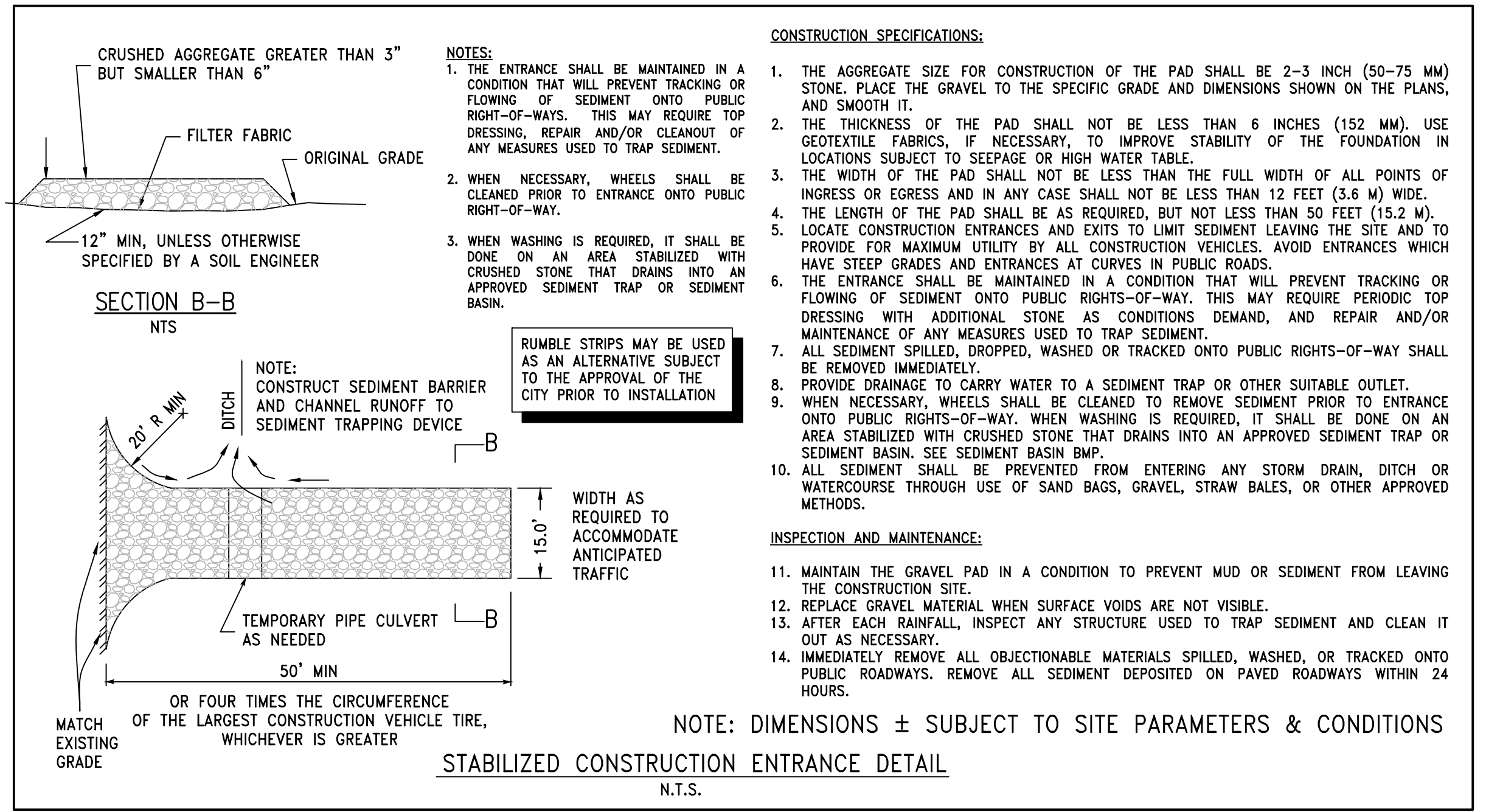
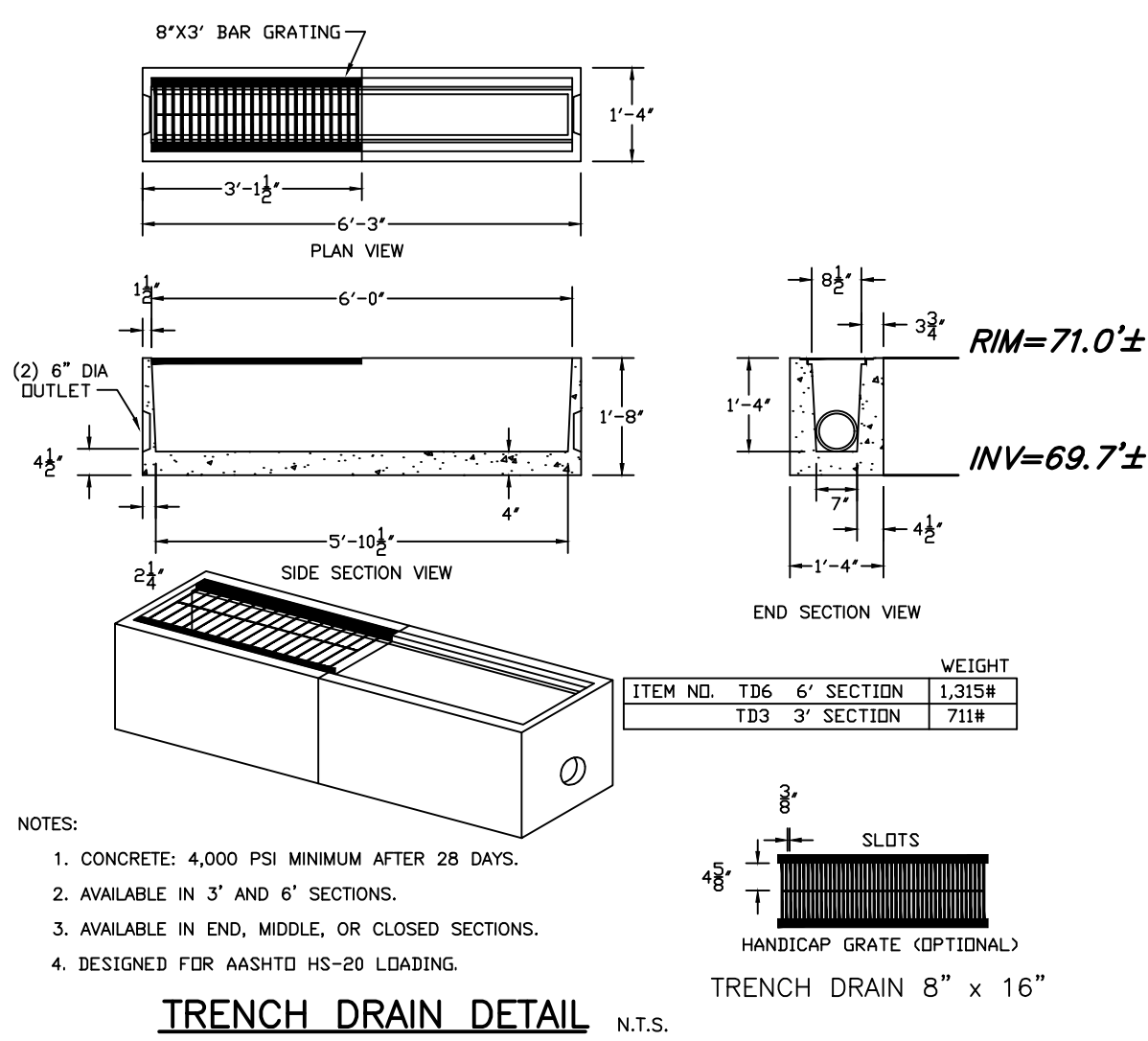
DETAILS



**SPRUHAN ENGINEERING
P.C.**

80 JEWETT ST, (SUITE 2)
NEWTON, MA 02458

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



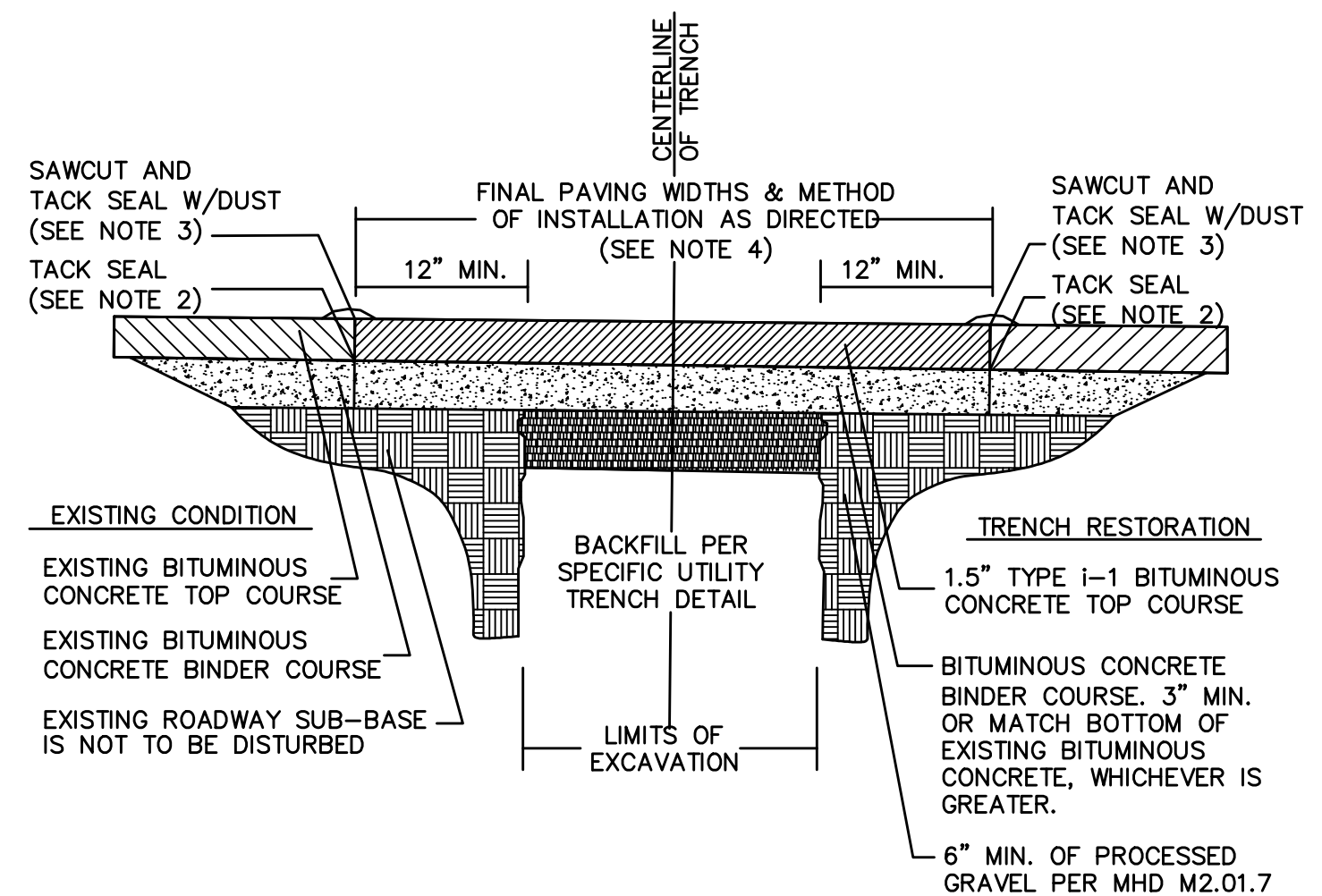
DEEP OBSERVATION HOLE LOG

GENERAL SOIL CONDITIONS FOR THE AREA PERFORMED AT 192 CONCORD STREET, NEWTON BY SPRUHAN ENGINEERING, P.C.

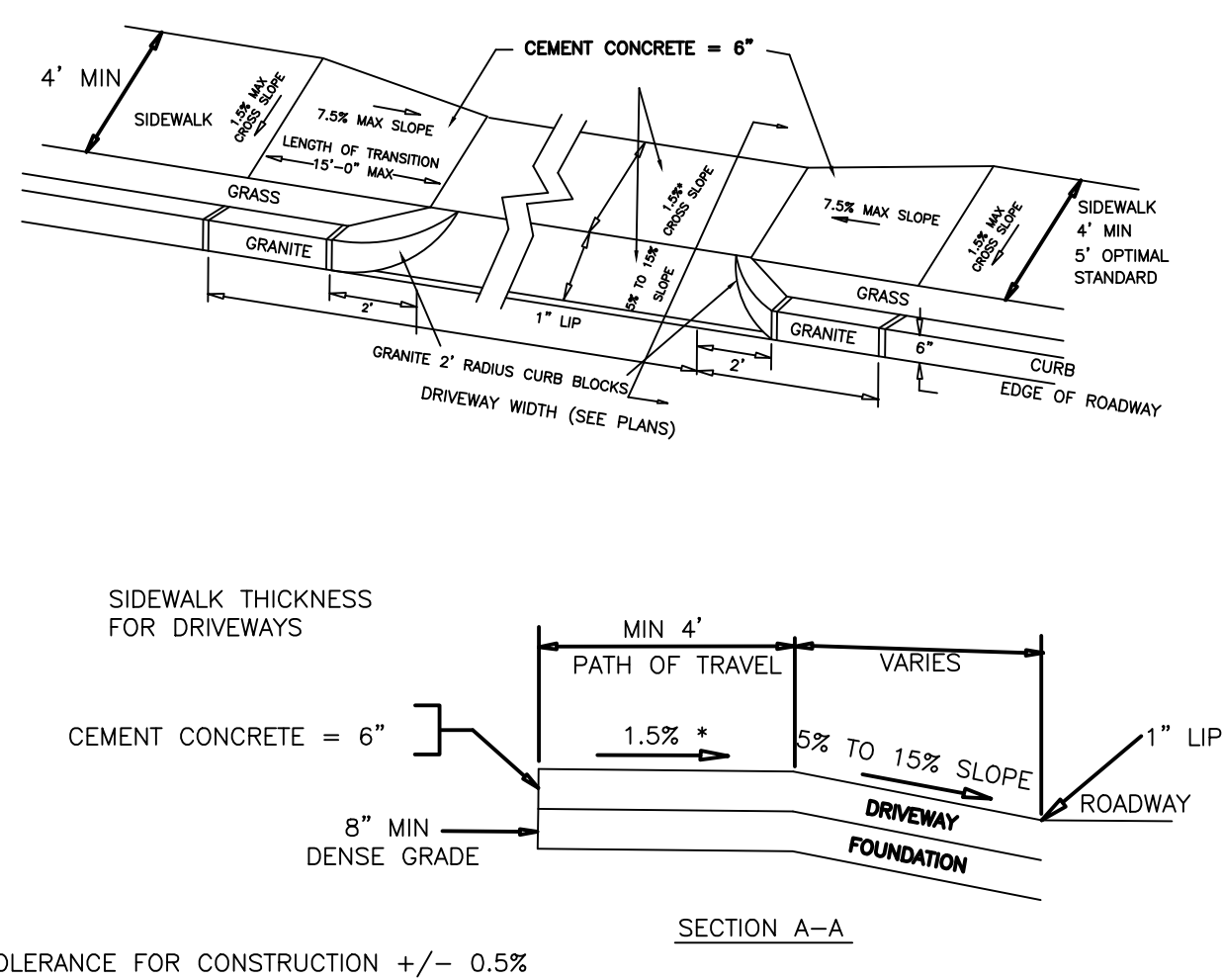
HOLE NUMBER: TP - 1 DATED: 01-07-21
GENERAL SITE CONDITIONS: GRASS AND TREES.

PERCOLATION TEST HOLE PT - 1

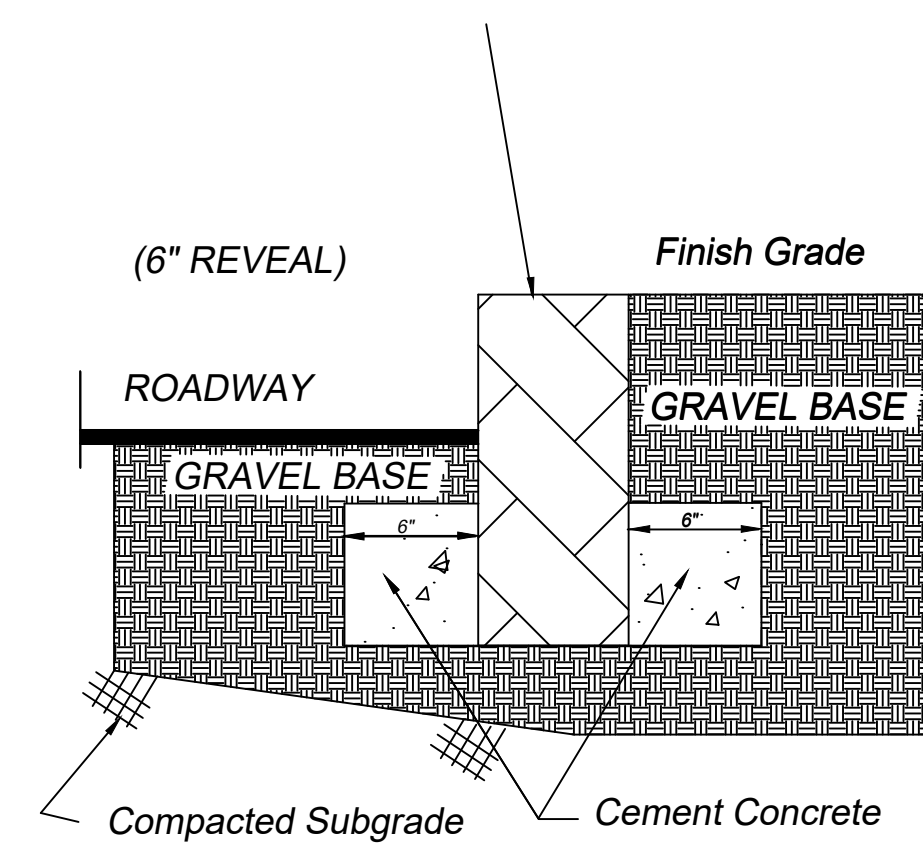
ELEVATION	DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	OTHER
72.75'-71.75'	0" - 12"	A _p	LOAMY SAND	5 YR 4/2	NO	NONE
71.75'-68.75'	12" - 36"	B _w	LOAMY SAND	7.5 YR 6/3	NO	NONE
68.75'-62.75'	36" - 120"	C ₁	COARSE SAND GRAVEL	7.5 YR 5/0	NO	GLACIAL OUTWASH



1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASS. HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988 AS AMENDED.
2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATIONS.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH 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.



CURB TYPE TO BE DETERMINED BY ENGINEERING INSPECTOR



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HF	WETLAND RESOURCES	3/9/21

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PLAN NO.	4 OF 5
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4 OF 5

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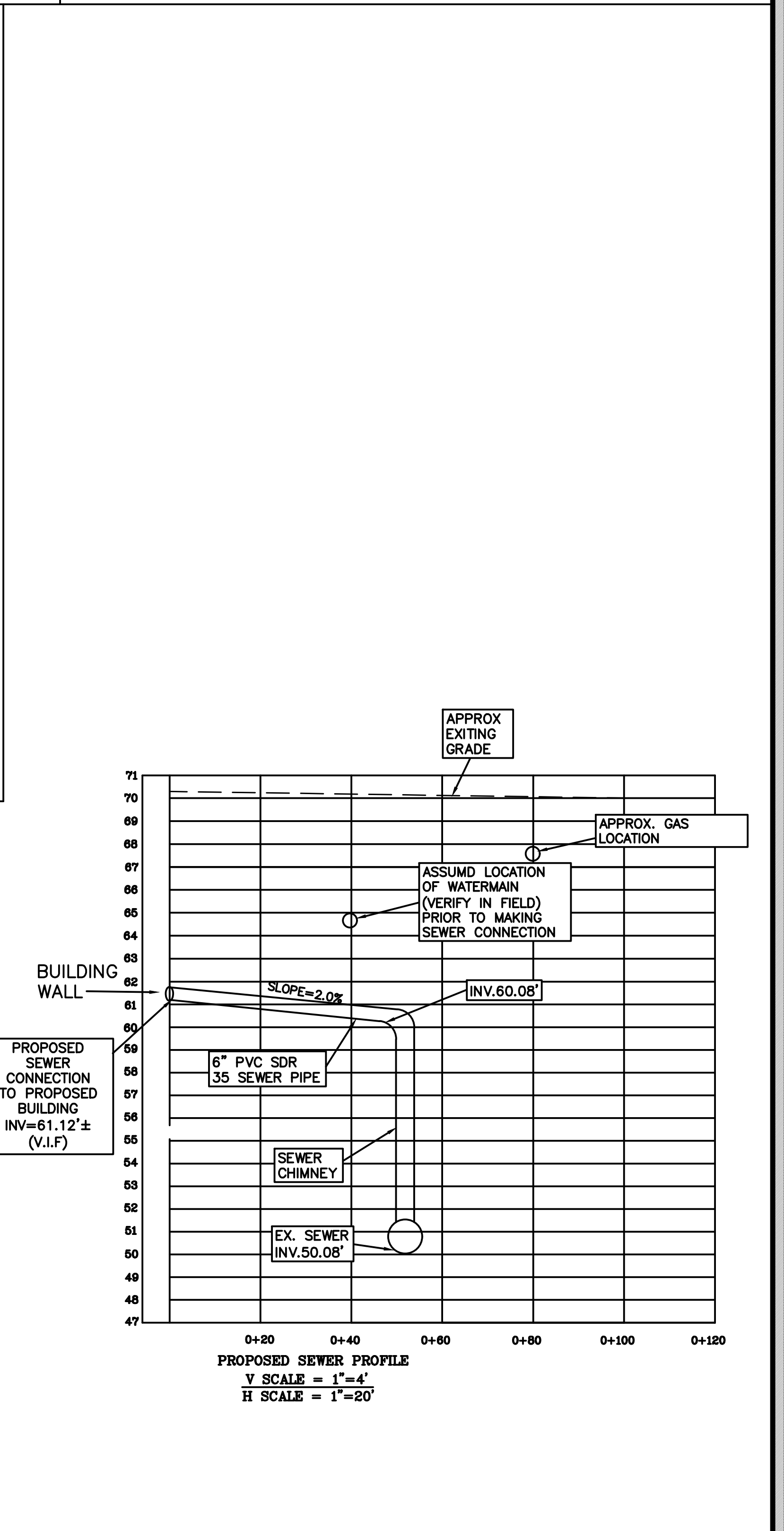
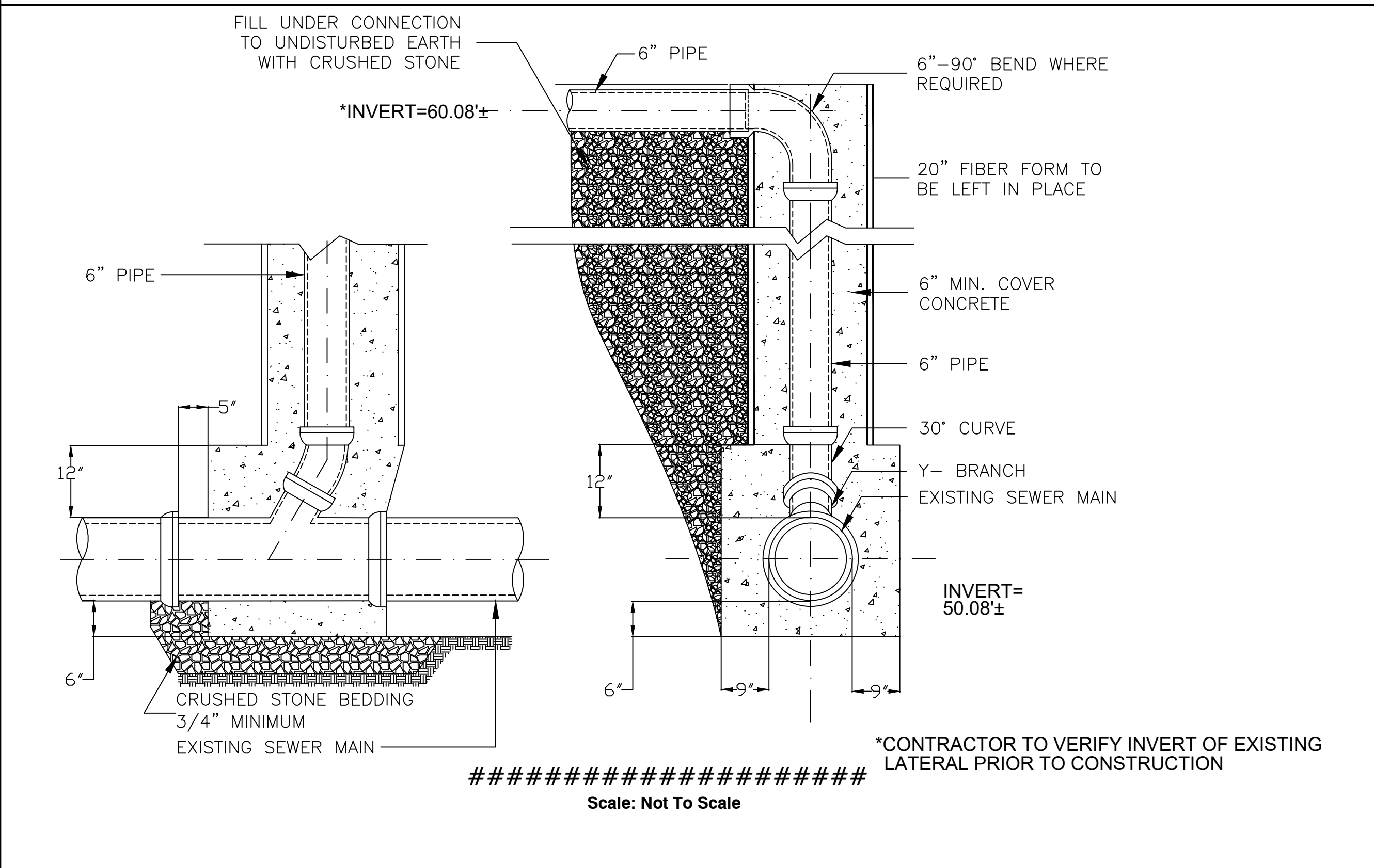
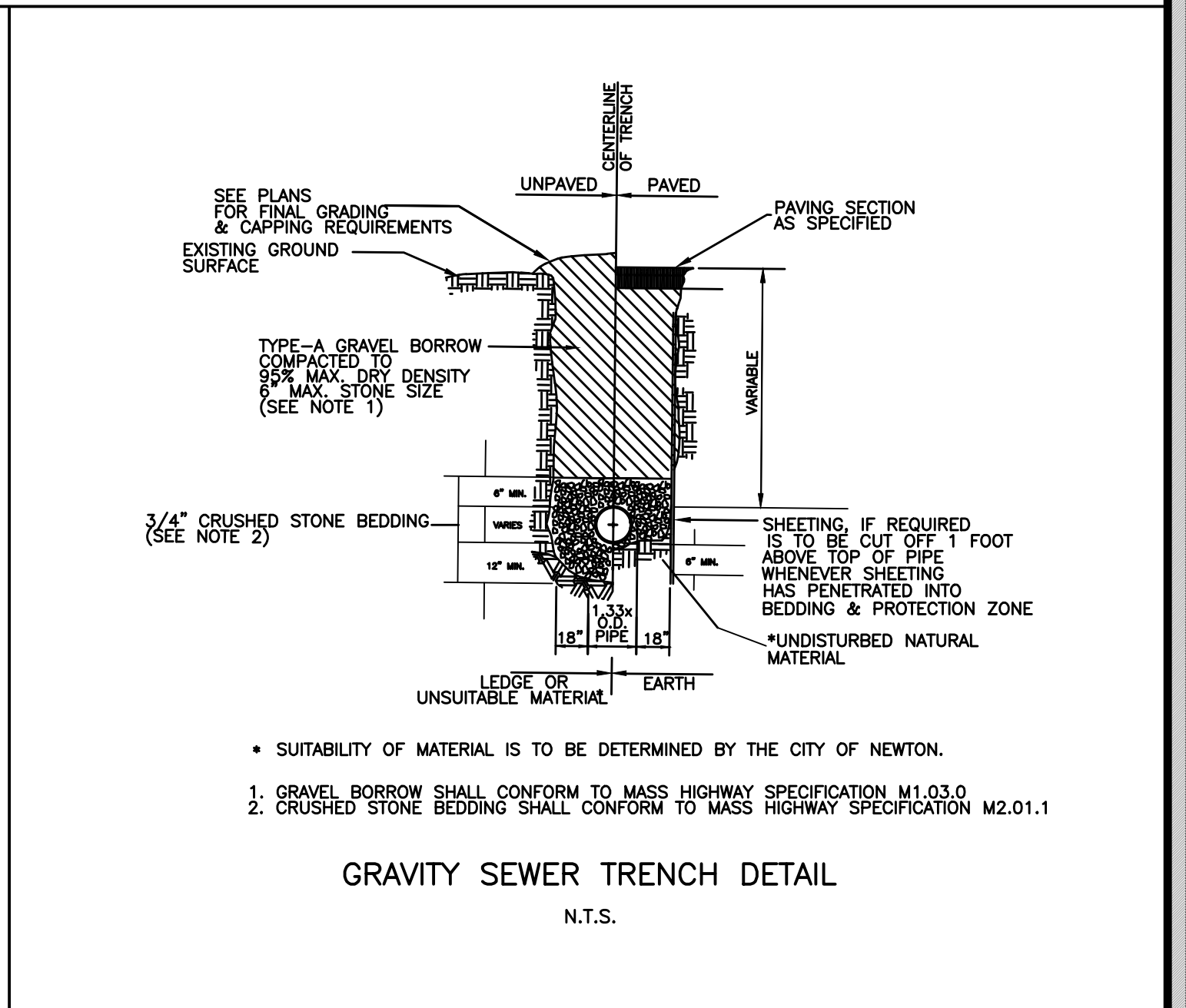
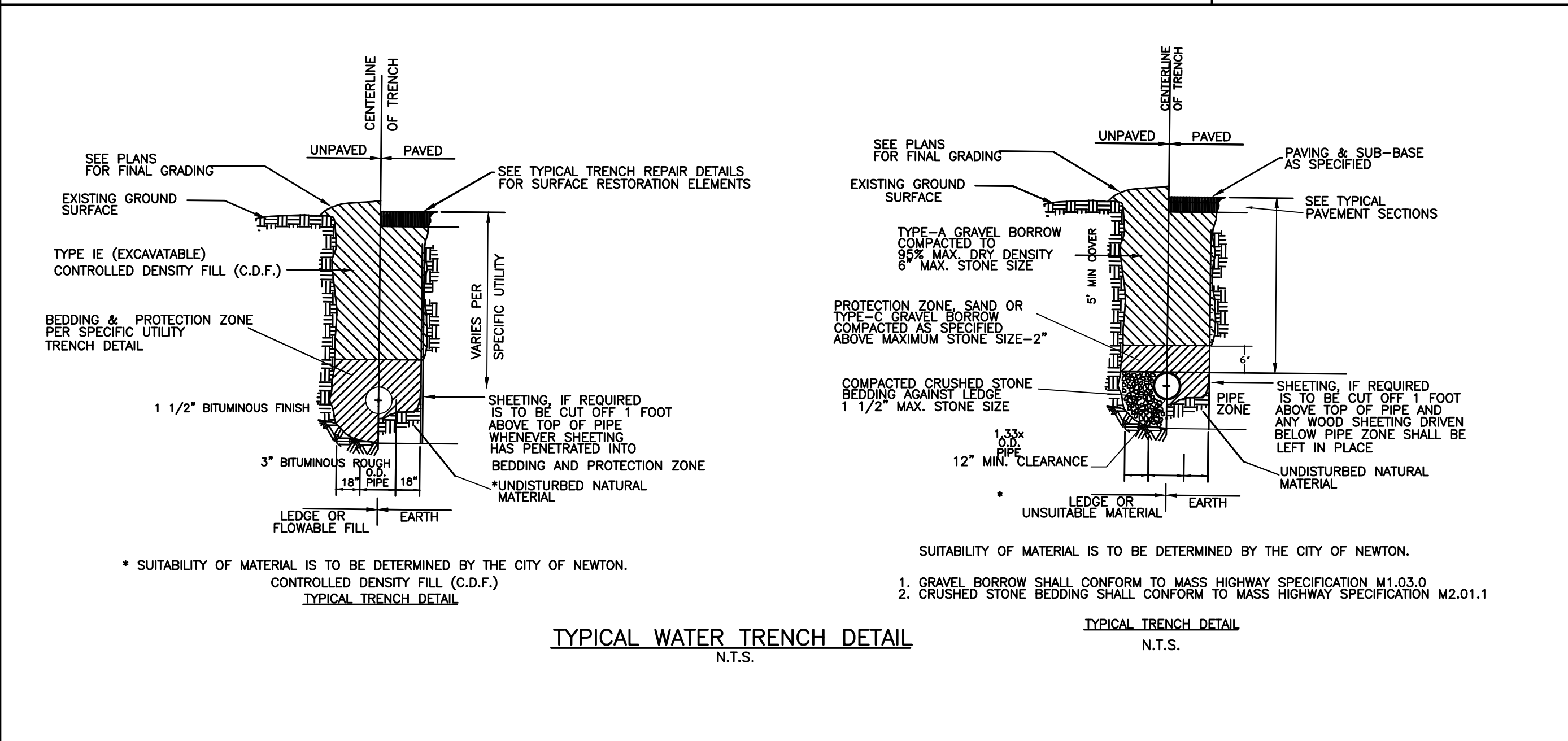
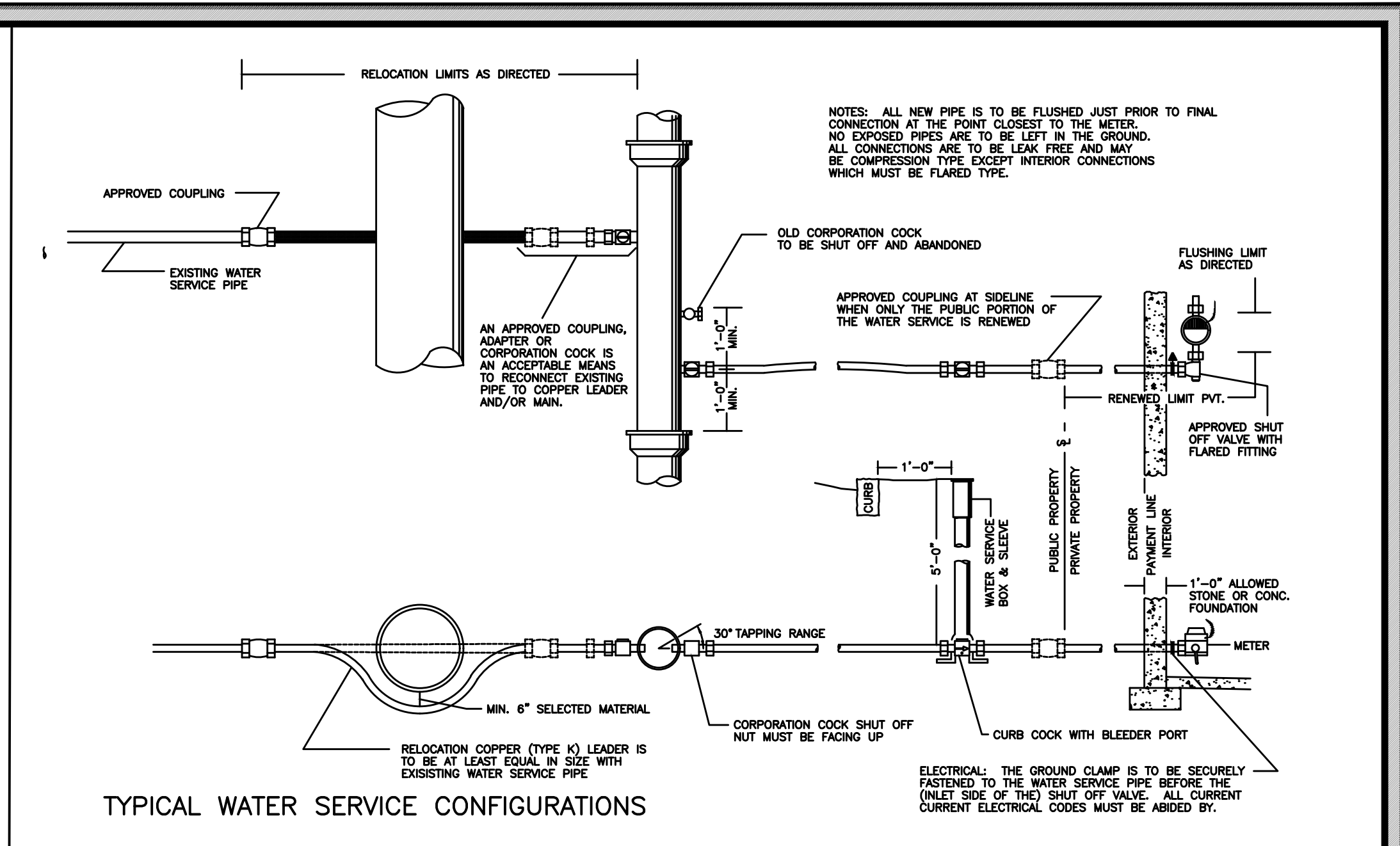
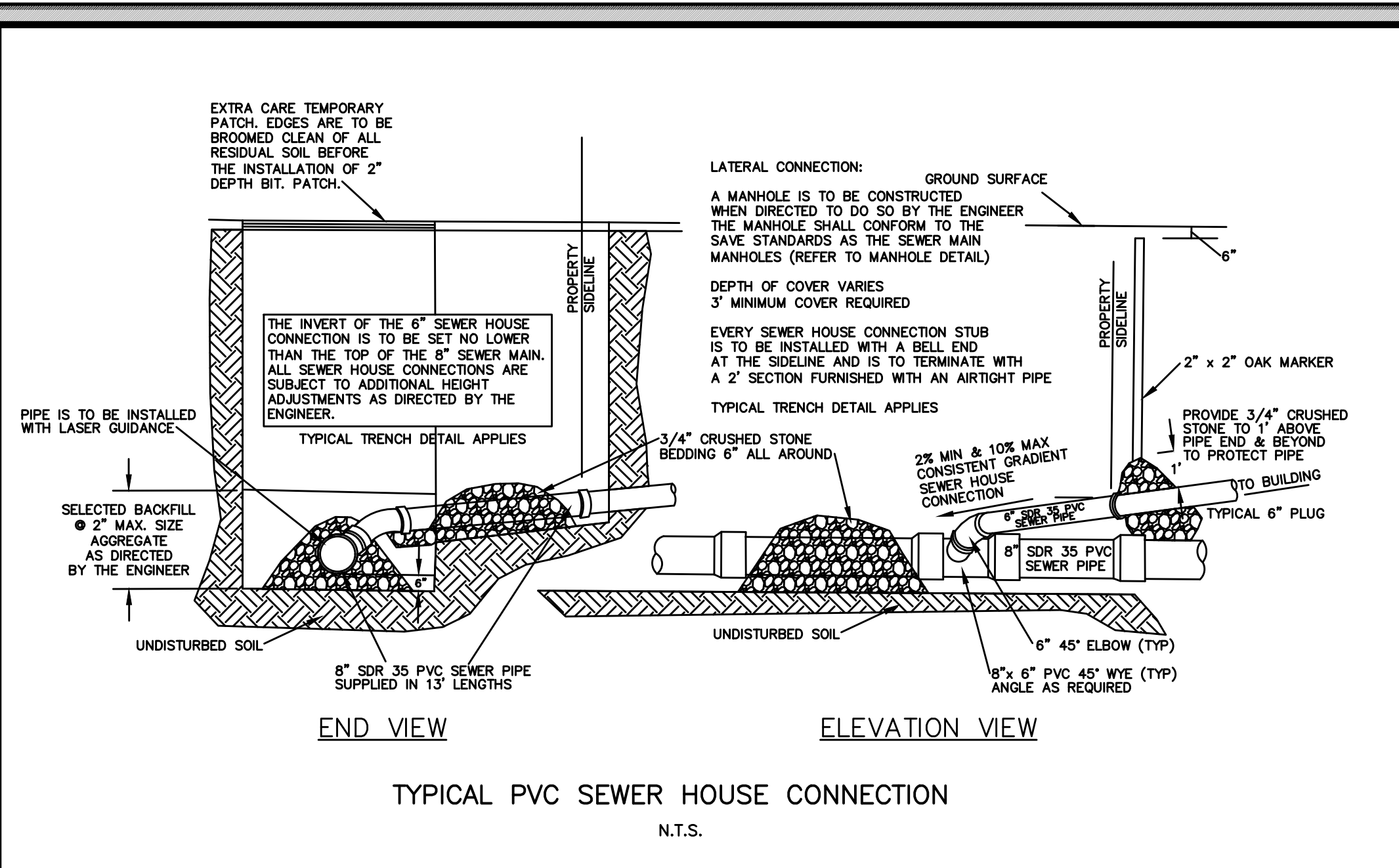
DETAILS



SPRUHAN ENGINEERING
P.C.

80 JEWETT ST, (SUITE 2)
NEWTON, MA 02458

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



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