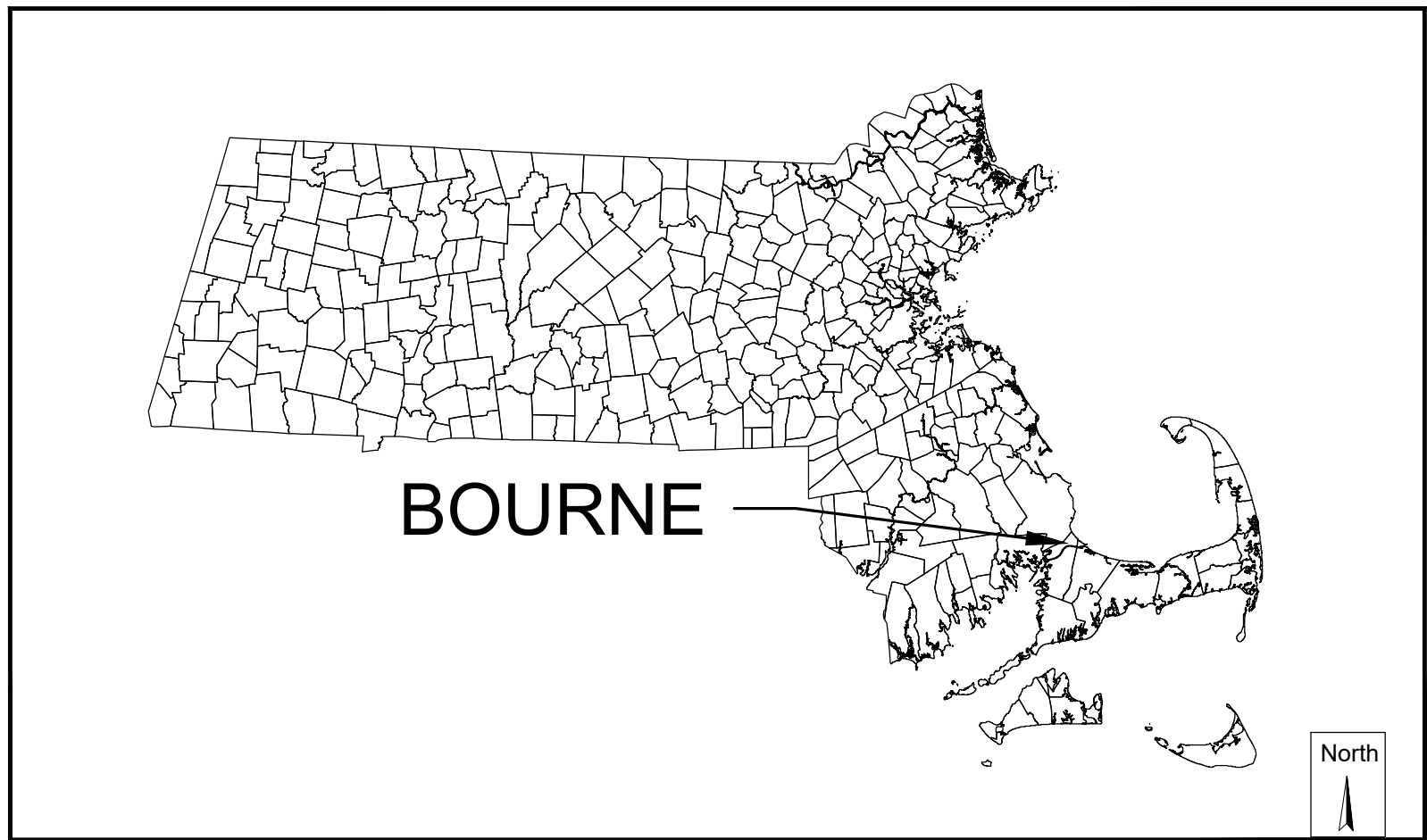


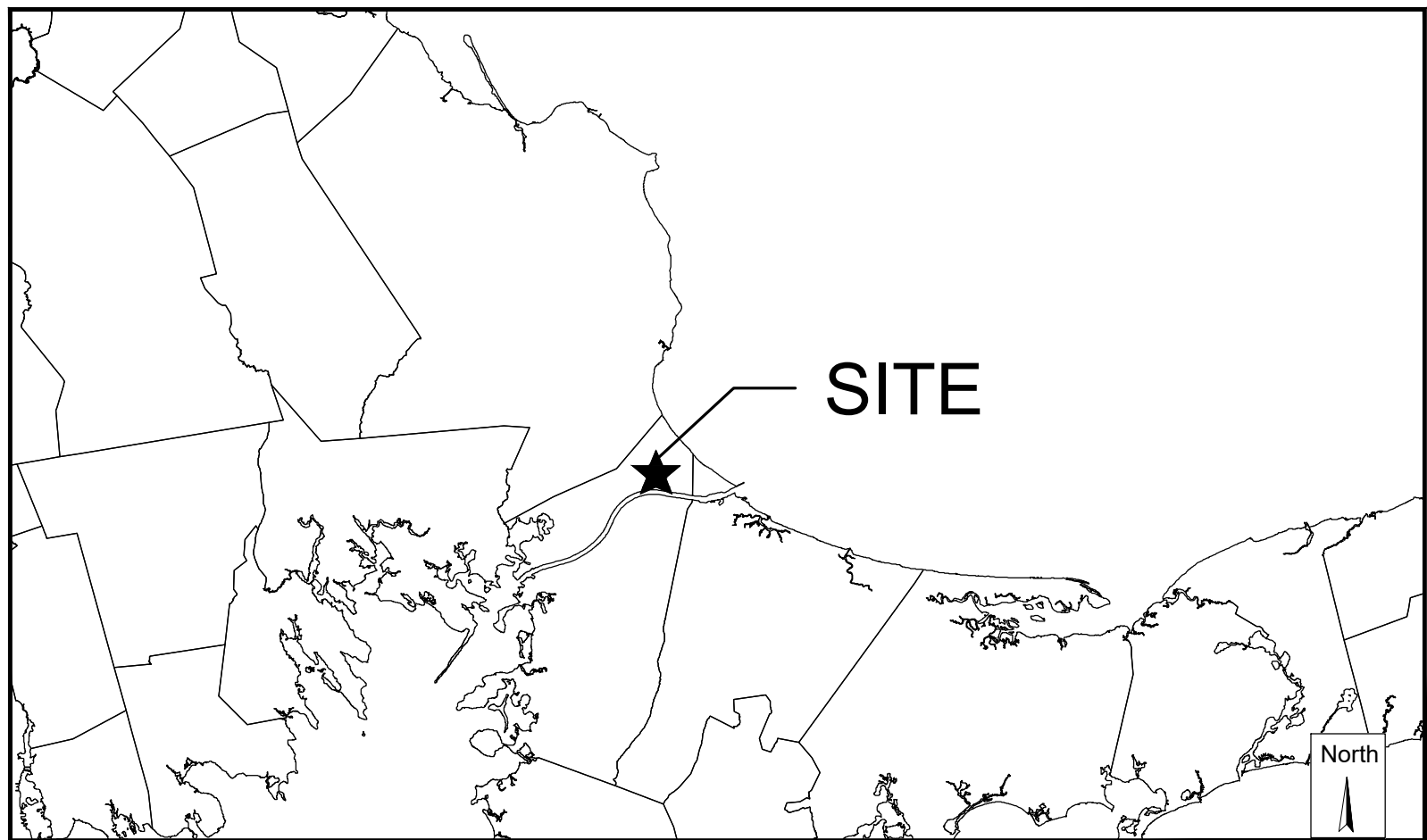
CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS

MARCH 5, 2021
SEPTEMBER 2021
DECEMBER 2021



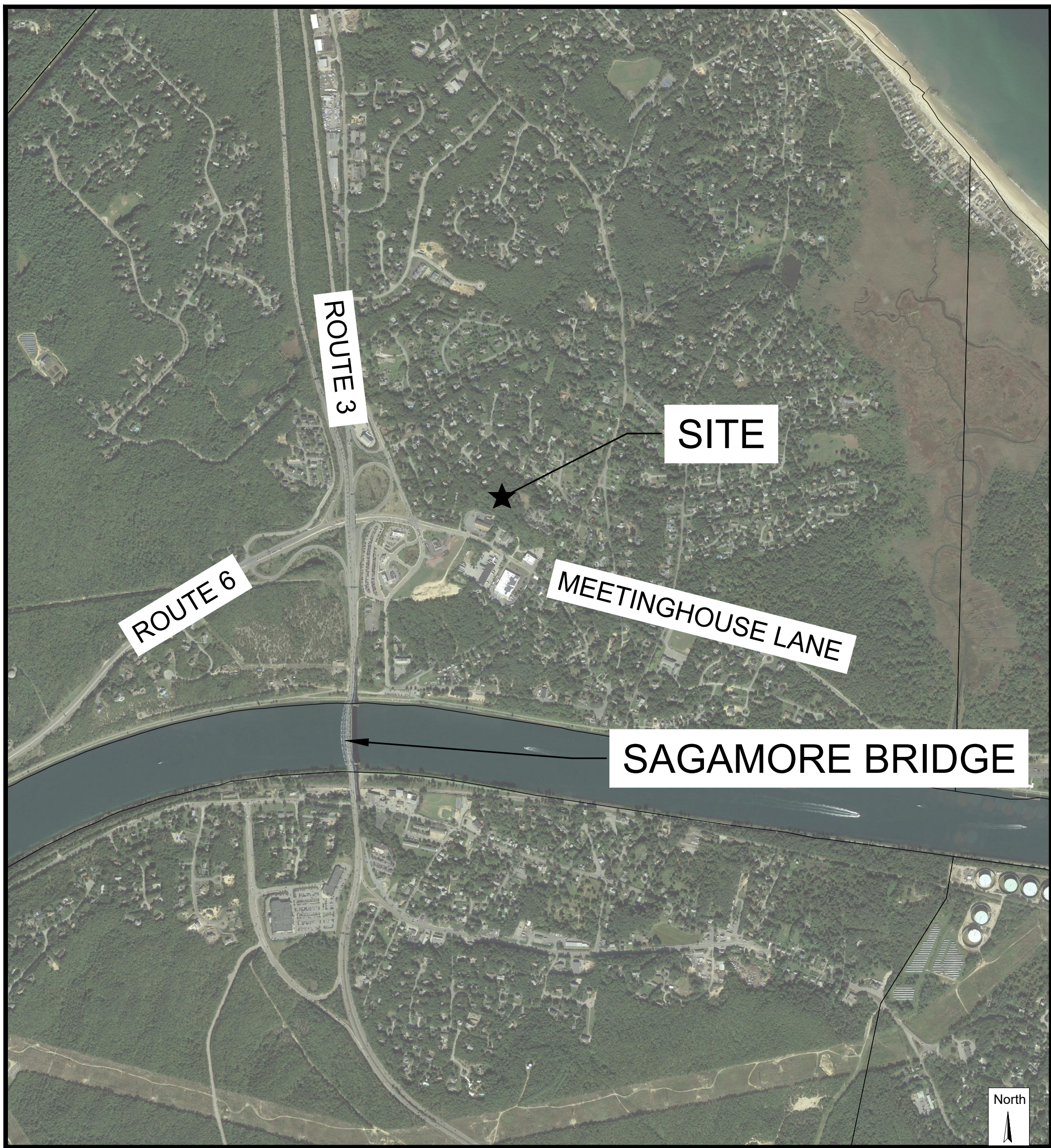
MASSACHUSETTS

Graphic Scale
0 150000
SCALE IN FEET
1:150000



BOURNE

Graphic Scale
0 12000
SCALE IN FEET
1:12000



VICINITY MAP

Graphic Scale
1-inch = 1000-feet

PERMITTING SET ONLY
NOT FOR CONSTRUCTION

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- GENERAL NOTES:
- THIS PLAN SET IS FOR PERMITTING ONLY AND NOT FOR CONSTRUCTION.
 - SITE INFORMATION:
ADDRESS: CAPE VIEW WAY
ZONING DISTRICT: R40
 - THE PROPERTY IS LOCATED WITHIN F.I.R.M. ZONE X AS SHOWN ON COMMUNITY PANEL NO. 25001C0316J, DATED JULY 16, 2014.
 - THE WETLAND DELINEATION SHOWN HEREON WAS CONDUCTED BY HORSLEY WITTEN GROUP. SEE EXISTING CONDITIONS PLAN FOR DATES AND LOCATIONS OF WETLAND SURVEY.

Plan Set:		CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS	
Prepared For:		PRESERVATION OF AFFORDABLE HOUSING 2 OLIVER STREET, SUITE 500 BOSTON, MA 02109 (617) 261-9898	
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GENERAL CONSTRUCTION NOTES:

- ALL SITE WORK TO COMPLETE THIS PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED.
- UTILIZE ALL PRECAUTIONS AND MEASURES TO ENSURE THE SAFETY OF THE PUBLIC, ALL PERSONNEL, AND PROPERTY DURING CONSTRUCTION IN ACCORDANCE WITH OSHA STANDARDS, INCLUDING THE INSTALLATION OF TEMPORARY FENCING BARRICADES, SAFETY LIGHTING, CONES, POLICE DETAIL AND/OR FLAGMEN AS DETERMINED NECESSARY BY THE TOWN OF BOURNE. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF POLICE DETAIL AND FOR COORDINATING WITH THE LOCAL OR STATE POLICE DEPARTMENT FOR ALL REQUIRED POLICE DETAIL.
- MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS. PAY ALL FEES INCLUDING POLICE DETAILS AND POST ALL BONDS, IF NECESSARY, ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE OWNER AND THE ENGINEER.
- ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. PRIOR TO THE START CONSTRUCTION VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLING ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
- THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES, AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY IN THE TOWN OF BOURNE, AND "DIGSAFE" (1-888-344-7233) AT LEAST THREE BUSINESS DAYS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNALTERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR MUST RESOLVE CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD LOCATED UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR MUST MAINTAIN ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION FOR THE PREPARATION OF THE AS-BUILT PLAN.
- COORDINATE AND MAKE ALL CONNECTION ARRANGEMENTS WITH UTILITY COMPANIES, AS REQUIRED.
- THE CONTRACTOR MUST MAINTAIN ALL EXISTING UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE ENTIRE DURATION OF THE PROJECT. REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ALL COST RELATED TO THE REPAIR OF UTILITIES. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES MUST BE DONE BY HAND.
- COORDINATE ALL TRENCHING WORK WITHIN ROADWAYS WITH THE PROPER LOCAL & STATE AGENCY. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH SAFETY INCLUDING ANY LOCAL AND/OR STATE PERMITS REQUIRED FOR THE TRENCH WORK. IF THIS WORK IS REQUIRED TO OCCUR OUTSIDE THE AGREED UPON HOURS OF OPERATION FOR THE FACILITY, THE CONTRACTOR MUST PLAN ACCORDINGLY.
- SAWCUT ALL TRENCH WORK WITHIN EXISTING PAVEMENT AS INDICATED ON THE DRAWINGS. BACKFILL AND COMPACT TRENCH WORK AS INDICATED ON THE DRAWING AND IN THE SPECIFICATIONS. IF SETTLEMENT OCCURS DUE TO INADEQUATE COMPACTION, AS DETERMINED BY THE ENGINEER, WITHIN THE WARRANTY PERIOD, CONTRACTOR IS REQUIRED TO REMOVE, PATCH AND REPAVE AFTER ONE COMPLETE 12-MONTH CYCLE.
- IMPORT ONLY CLEAN MATERIAL. MATERIAL FROM AN EXISTING OR FORMER 21E SITE AS DEFINED BY THE MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000 WILL NOT BE ACCEPTED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH AND MAINTAIN ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. COORDINATE WITH THE ENGINEER THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS.
- SITE LAYOUT SURVEY REQUIRED FOR CONSTRUCTION MUST BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A MASSACHUSETTS' REGISTERED PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE SURVEYOR FOR ALL SITE SURVEY WORK.
- MAINTAIN ALL GRADE STAKES SET BY THE SURVEYOR. GRADE STAKES ARE TO REMAIN UNTIL A FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED BY THE ENGINEER. RE-STAKING OF PREVIOUSLY SURVEYED SITE FEATURES IS THE RESPONSIBILITY (INCLUDING COST) OF THE CONTRACTOR.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS, ALL SITE CONSTRUCTION MATERIALS AND METHODOLOGIES ARE TO CONFORM TO THE MOST RECENT VERSION OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES 2020 EDITION).
- PROVIDE ALL CONSTRUCTION SERVICE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAINMENT, AND TRENCH WORK.
- COLLECT SOLID WASTES AND STORE IN A SECURED DUMPSTER. THE DUMPSTER MUST MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS.
- RESTORE ALL SURFACES EQUAL TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE PER SPECIFICATIONS. LEAVE ALL AREAS NOT DISTURBED BY CONSTRUCTION IN THEIR NATURAL STATE. TAKE CARE TO PREVENT DAMAGE TO SHRUBS, TREES, CROPS, OTHER LANDSCAPING AND/OR NATURAL FEATURES. WHEREAS THE PLANS DO NOT SHOW ALL LANDSCAPE FEATURES, EXISTING CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK.
- REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. PROMPTLY REMOVE ALL DEMOLITION DEBRIS FROM THE SITE TO AN APPROVED DUMP SITE.
- ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
- DO NOT WASH ANY CONCRETE TRUCKS ONSITE. REMOVE BY HAND ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA.
- BURIAL OF ANY STUMPS, SOLID DEBRIS, AND/OR STONES/BOULDERS ONSITE IS PROHIBITED. DO NOT USE ROAD SALT OR OTHER DE-ICING CHEMICALS ON THE ACCESS ROADWAY.
- AT THE END OF CONSTRUCTION, REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE (AS INDICATED IN THE SPECIFICATIONS). PERFORM A THOROUGH INSPECTION OF THE WORK PERIMETER. COLLECT AND REMOVE ALL MATERIALS AND BLOWN OR WATER CARRIED DEBRIS FROM THE SITE.

BASIC CONSTRUCTION SEQUENCE:

- THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, ENGINEERS, AND LANDSCAPE ARCHITECT AND SUBMIT A PROPOSED CONSTRUCTION SEQUENCE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
 - IDENTIFY AND MARK INVASIVE SPECIES. PLANT IDENTIFICATION SHALL BE PERFORMED BY QUALIFIED PERSONNEL ONLY, AS INDICATED IN THE SPECIFICATIONS.
 - PLACE SEDIMENTATION BARRIERS AND INLET PROTECTION AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD. UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE LOCAL CONSERVATION COMMISSION AND DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP). PROTECT ALL SUBSURFACE INFILTRATION STRUCTURES FROM FLOW UNTIL SITE IS STABILIZED.
 - INSTALL TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS INDICATED ON DRAWINGS. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
 - BEGIN CLEARING THE SITE AS REQUIRED. SEE SPECIFICATIONS FOR INVASIVE SPECIES MANAGEMENT.
 - SURVEY AND STAKE CENTERLINE OF THE PROPOSED ROADS, STORMWATER MANAGEMENT AREAS, AND DRAINAGE LINES.
 - EXCAVATE AND ROUGH GRADE THE PROPOSED STORMWATER MANAGEMENT AREAS AND ANY ADDITIONAL TEMPORARY BASINS NECESSARY TO CONTROL SITE RUNOFF AND SEDIMENT. TEMPORARILY STABILIZED PERMANENT STORMWATER MANAGEMENT AREAS AS NECESSARY TO REDUCE SIDE SLOPE EROSION AND SEDIMENT ACCUMULATION.
 - BEGIN CLEARING AND GRUBBING THE AREAS OF ROADWAYS AND STORMWATER MANAGEMENT AREAS. TOPSOIL IS TO BE STRIPPED FROM THE AREA OF THE PROPOSED ROADWAYS AND STORMWATER MANAGEMENT AREAS AND STOCKPILED IN APPROVED LOCATIONS. TOPSOIL STOCKPILES MUST BE PROTECTED BY A SEDIMENT BARRIER.
 - INSTALL TEMPORARY CONVEYANCE DEVICES (SWALES, CHECK DAMS, PIPES, ETC.) AS NECESSARY TO CONVEY RUNOFF TO TREATMENT AREAS.
 - BEGIN ROUGH GRADING AREAS FOR ROADS, PARKING AND BUILDINGS. BRING ROUGH GRADING TO PROPER ELEVATIONS AS SOON AS PRACTICABLE. COORDINATE WORK TO MINIMIZE TIE SOILS ARE UN-STABILIZED.
 - BEGIN UTILITY CONSTRUCTION. THE CONTRACTOR IS FREE TO INSTALL THE UTILITIES IN THE SEQUENCE HE/SHE CHOOSES. IMMEDIATELY REPAIR, REPLACE AND STABILIZE ANY EROSION CONTROL DEVICES DISTURBED DURING THE UNDERGROUND UTILITY CONSTRUCTION. MODIFY TEMPORARY CONVEYANCE DEVICES, AS NECESSARY, TO CONVEY RUNOFF TO TREATMENT AREAS.
 - INSTALL DRAINAGE PIPES, DRAINAGE MANHOLES, CATCH BASINS, AND UNDERGROUND DRAINAGE STRUCTURES. BEGIN WORK AT THE STORMWATER MANAGEMENT AREAS AND PROGRESS UP-GRADE/UP-SLOPE. PROTECT DISCHARGE OUTLETS WITH RIP-RAP APRONS. THE STORMWATER MANAGEMENT AREA(S) AND DRAINAGE NETWORK ARE TO BE PROTECTED FROM SEDIMENTATION UNTIL ALL UN-STABILIZED AREAS ARE STABILIZED WITH STONE SUB-BASE OR VEGETATION. INSTALL SEDIMENT BARRIERS AT ALL POINTS OF ENTRY INTO THE DRAINAGE NETWORK. TAKE PARTICULAR CARE TO PROTECT THE UNDERGROUND STRUCTURES FROM SEDIMENT.
 - PERMANENTLY SEED ALL DISTURBED AREAS OUTSIDE OF THE AREA TO BE PAVED.
 - UPON COMPLETION OF UNDERGROUND UTILITIES INSTALLATION, PLACE COMPACTED GRAVEL FOUNDATION AND ROUGH GRADE THE ROADWAYS/PARKING AREAS IN ACCORDANCE WITH THE SITE PLANS AND IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS AS SOON AS POSSIBLE.
 - BEGIN ROAD AND PARKING CONSTRUCTION PER SITE PLANS AND IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS. ROADS AND PARKING AREAS ARE NOT TO BE PAVED UNTIL THE ENTIRE PERMANENT DRAINAGE SYSTEM HAS BEEN INSTALLED AND ALL PIPE CONNECTIONS COMPLETE.
 - FINISH PERMANENT STABILIZATION, COMPLETE PERMANENT STORMWATER MANAGEMENT AREA SEEDING AND PLANTING AFTER THE CONTRIBUTING AREA TO THE BASIN HAS REACHED A MINIMUM OF 80% STABILIZATION AND IS NO LONGER REQUIRED AS A CONSTRUCTION SEDIMENTATION BASIN.
 - COMPLETE ALL REMAINING PLANTING AND SEEDING.
 - SWEEP THE ROADWAY TO REMOVE ALL SEDIMENTS. REPAIR DRAINAGE OUTLETS AND BASINS AS REQUIRED. CLEAN AND FLUSH THE DRAINAGE STRUCTURES AND PIPES AT THE END OF CONSTRUCTION AND REMOVE ALL ACCUMULATED SEDIMENTS IN THE STORMWATER MANAGEMENT AREAS. CONTRACTOR MUST INSPECT THE DRAINAGE NETWORK AND REPAIR ANY DAMAGE IMMEDIATELY.
 - ENGINEER TO APPROVE THE REMOVAL OF ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS AND DETERMINE WHEN THE CONTRIBUTING AREA HAS REACHED A MINIMUM OF 80% STABILIZATION.

EROSION & SEDIMENT CONTROL NOTES:

- PRIOR TO THE START OF CONSTRUCTION A NOTICE OF INTENT (NOI) MUST BE FILED WITH NPDES. REFER TO THE STORMWATER AND POLLUTION PREVENTION PLAN (SWPPP) REGARDING ALL EROSION CONTROL MATTERS. MAINTAIN A WORKING COPY OF THE SWPPP ONSITE AT ALL TIMES. FOLLOW THE SWPPP PROTOCOL FOR SITE MAINTENANCE, INSPECTIONS AND PROPER DOCUMENTATION UNTIL THE SITE HAS BEEN ACCEPTED BY THE OWNER. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR OR OWNER MUST FILE A NOTICE OF TERMINATION WITH NPDES. IN ACCORDANCE WITH NPDES REGULATIONS, THE COMPLETED SWPPP MUST INCLUDE ALL OF THE SITE EROSION CONTROL DOCUMENTATION, WEEKLY EROSION INSPECTION REPORTS COMPLETED BY THE DESIGNATED SITE PERSONNEL, AND ANY OTHER PERTINENT SITE DOCUMENTATION MUST BE RETAINED FOR A MINIMUM OF 3 YEARS FROM THE DATE OF TERMINATION.
- DESIGNATE THE SITE CONSTRUCTION FOREMAN AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.
- INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE CONSERVATION AGENT, AND ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSPECT, MAINTAIN REPAIR AND REPLACE EROSION CONTROL MEASURES, AS NECESSARY, DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROLS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
- MAINTAIN A MINIMUM SURPLUS OF 100 FEET OF EROSION CONTROL BARRIER (SILT FENCE, STRAWBALE, &/OR SILT SOCK) ONSITE AT ALL TIMES.
- PROTECT THE ADJACENT RESOURCE AREA FROM SEDIMENTATION DURING PROJECT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER & IN CONFORMANCE WITH THE ORDER OF CONDITIONS.
- PROVIDE CONSTRUCTION EXITS AS INDICATED ON DRAWINGS TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. CLEAN AND/OR REPLACE THE CRUSHED STONE PAD, AS NECESSARY, TO MAINTAIN ITS EFFECTIVENESS.
- KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL. IF TREES ARE TO BE CUT ON THE ENTIRE SITE, CLEAR AND GRUB ONLY THOSE AREAS WHICH ARE ACTIVELY UNDER CONSTRUCTION. PROPERLY INSTALL THE SEDIMENTATION CONTROLS PRIOR TO BEGINNING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK.
- MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTH-MOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, USE BEST PROFESSIONAL JUDGEMENT AND GOOD CONSTRUCTION PRACTICES WHEN SCHEDULING CONSTRUCTION ACTIVITIES AND ENSURE THE NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY IMPENDING WEATHER EVENTS.
- INSPECT EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZED SLOPES ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF .25 INCH OR GREATER. REPAIR IDENTIFIED PROBLEMS WITHIN 24 HOURS TO ENSURE EROSION AND SEDIMENT CONTROLS ARE IN GOOD WORKING ORDER. RESET OR REPLACE MATERIALS AS REQUIRED.
- SURROUND THE PERIMETER OF SOIL STOCKPILES WITH SILT SOCK, SILT FENCE, STRAWBALES, OR A COMBINATION OF SILT FENCE WITH STRAWBALE, AS DETERMINED NECESSARY.
- DISTURBED AREAS AND SLOPES MUST NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED. REINFORCE TEMPORARY AREAS HAVING A SLOPE GREATER THAN 4:1 WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SWALES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER.
- INSTALL A SILT SACK OR APPROVED EQUIVALENT IN EACH EXISTING CATCHBASIN RECEIVING RUNOFF FROM THE SITE. UPON THE INSTALLATION OF EACH CATCH BASIN, INSTALL A SILT SACK OR APPROVED EQUIVALENT. INSPECT SILT SACKS, AFTER EACH SIGNIFICANT STORM EVENT AND REMOVE AND EMPTY AS NEEDED FOR THE DURATION OF THE CONSTRUCTION PERIOD.
- SMALL SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE ENGINEER, TO SIZE AND CREATE THESE BASINS IN APPROPRIATE LOCATIONS.
- CONTAIN ALL SEDIMENT ONSITE. SWEEP ALL EXITS FROM THE SITE AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. SWEEP PAVED AREAS AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS ACCUMULATED DURING SITE CONSTRUCTION.
- REMOVE ACCUMULATED SEDIMENT FROM ALL TEMPORARY PRACTICES AND DISPOSE OF IN A PRE-APPROVED LOCATION.
- PROVIDE ON SITE OR MAKE READILY AVAILABLE THE NECESSARY EQUIPMENT AND SITE PERSONNEL DURING CONSTRUCTION HOURS FOR THE DURATION OF THE PROJECT TO ENSURE ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE PROPERLY MAINTAINED AND REPAIRED IN A TIMELY AND RESPONSIBLE MANNER. IF SITE WORK IS SUSPENDED DURING THE WINTER MONTHS THE CONTRACTOR MUST CONTINUE TO PROVIDE PERSONNEL AND EQUIPMENT EITHER ON SITE OR READILY AVAILABLE TO PROPERLY MAINTAIN AND REPAIR ALL EROSION AND SEDIMENTATION CONTROL DEVICES IN A TIMELY AND RESPONSIBLE MANNER.
- PRIOR TO THE INSTALLATION OF FILTER FABRIC AND MEDIA WITHIN THE BIORETENTION AREAS, REMOVE AND PROPERLY DISPOSE OF SEDIMENT ACCUMULATED IN ANY PARTIALLY CONSTRUCTED OR TEMPORARY BIORETENTION/DRAINAGE AREA USED FOR SEDIMENT CONTROL DURING CONSTRUCTION. PROVIDE A SURFACE ELEVATION AT A MINIMUM 1-FOOT ABOVE THE BOTTOM OF MEDIA ELEVATION AS SHOWN IN THE BIORETENTION SCHEDULE FOR PARTIALLY CONSTRUCTED BIORETENTION AREAS. THIS ALLOWS FOR AN OVERLAP OF THE COLLECTED SEDIMENT FROM WITHIN THE BIORETENTION AREA PRIOR TO MEDIA/FABRIC INSTALLATION.
- CONTROL DUST BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE DURING CONSTRUCTION OF ALL STORMWATER FACILITIES INSTALLED OR AFFECTED BY THE PROJECT. REMOVE SEDIMENT OR DEBRIS COLLECTED WITHIN THESE FACILITIES FROM THE PROJECT WORK PRIOR TO THE OWNER'S ACCEPTANCE.

STORMWATER FACILITY OPERATION & MAINTENANCE:

- THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER INSPECTION AND MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES AS OUTLINED BELOW DURING CONSTRUCTION AND UNTIL SUCH TIME THAT THE ROADWAYS AND ASSOCIATED UTILITIES ARE ACCEPTED BY THE OWNER AND THE ENGINEER.
- INSPECT AND RESTORE/CLEAN ALL FACILITIES (INLETS, MANHOLES, INFILTRATION BASINS, STORMWATER MANAGEMENT AREAS AS DESCRIBED BELOW OF SEDIMENT AND DEBRIS PRIOR TO THE OWNER'S ACCEPTANCE.
 - REMOVE AND DISPOSE ALL SEDIMENT AND DEBRIS TO A PRE-APPROVED LOCATION.
 - REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION PERTAINING TO STORMWATER FACILITY OPERATION AND MAINTENANCE REQUIREMENTS. MAINTAIN A WORKING COPY OF THE SWPPP ON SITE AT ALL TIMES.
 - AT A MINIMUM INSPECT MONTHLY AND AFTER STORM EVENTS GREATER THAN OR EQUAL TO 1" OF RAINFALL. AS NECESSARY FOR THE ENTIRE DURATION OF THE CONSTRUCTION PROJECT AND THE FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE PROPER STABILIZATION.
 - SPECIFIC MAINTENANCE REQUIRED DURING CONSTRUCTION:
 - DRAINAGE STRUCTURES (INLETS, MANHOLES, CATCHBASINS):** MONITOR AND REGULARLY INSPECT ALL EXISTING AND PROPOSED DRAINAGE STRUCTURES FOR PROPER OPERATION, COLLECTION OF LITTER OR TRASH, AND STRUCTURAL DETERIORATION. CLEAN AND REMOVE SEDIMENT FROM THE STRUCTURES (INCLUDING SUMPS) AS NECESSARY, AND REPAIR WHEN REQUIRED.
 - SEDIMENT FOREBAY:** REGULARLY INSPECT TO ENSURE PROPER FUNCTION. REMOVE SEDIMENT BUILD-UP ON THE FLOOR OF THE FOREBAY AND PROPERLY DISPOSE, AS NECESSARY, TO LIMIT CLOGGING. CLEAN SEDIMENT FOREBAYS PRIOR TO COMPLETION OF CONSTRUCTION.
 - BIORETENTION SYSTEMS:** REGULARLY INSPECT TO ENSURE PROPER FUNCTION. MONITOR AND INSPECT STRUCTURAL COMPONENTS, INCLUDING WEIR WALLS, DRAINAGE INLETS, OUTLET STRUCTURES AND SPILLWAYS, FOR PROPER FUNCTION. CLEAN AND REPAIR ANY CLOGGED STRUCTURES DURING INSPECTIONS. PRIOR TO THE COMPLETION OF CONSTRUCTION, REMOVE AND REPLACE ALL ESTABLISHED, DEAD OR SEVERELY DISEASED PLANTS. REMOVE SEDIMENT BUILD-UP AS NEEDED, AND REPLACE SOIL WHEN NECESSARY. IF SEDIMENT OR ORGANIC DEBRIS BUILD-UP LIMITS THE INFILTRATION CAPABILITIES, REMOVE THE TOP 6" OR GREATER AND SURFACE ROTO-TILLED TO A DEPTH OF 12".
 - ROUTINE MAINTENANCE:** OTHER ROUTINE MAINTENANCE INCLUDES THE REMOVAL OF TRASH AND LITTER FROM PAVED AND PERIMETER AREAS, AND STREET AND PARKING LOT SWEEPING UPON COMPLETION OF CONSTRUCTION TO AVOID EXCESSIVE ACCUMULATION OF SEDIMENT IN THE DRAINAGE SYSTEM. INSPECT THE PIPES AND STRUCTURES FOR SEDIMENT ACCUMULATION AND PROPER FLOW.

WATER & SEWER INSTALLATION NOTES

- INSTALL SEWER AND WATER MAINS ACCORDING TO THE FOLLOWING GUIDELINES TO PREVENT FREEZING OF THE MAIN OR SEWER:

UTILITY TYPE	MIN. COVER OVER TOP OF PIPE	MIN. HORIZONTAL DISTANCE TO DRAIN STRUCTURE
SANITARY FORCEMAIN	5'	3'
GRAVITY FORCEMAIN	4'	3'
WATER MAIN	5'	2'

- INSULATE SANITARY FORCE MAINS, WATER MAINS, HYDRANT PIPING AND DEAD END WATER LINES WHERE SOIL COVER OR HORIZONTAL SEPARATION TO PRECAST STRUCTURES IS LESS THAN THE DISTANCE SPECIFIED ABOVE AND/OR WHERE SHOWN ON PLANS.
- INSULATION: 2" THICK POLYURETHANE INSULATION WITH PVC JACKET PLACED AROUND PIPE OR DESIGNER APPROVED EQUAL.
- WATER AND SEWER SEPARATION IS TYPICALLY 10-FOOT MINIMUM HORIZONTAL AND 18-INCHES VERTICAL WITH SEWER MAINS BELOW THE WATER MAINS (SEE DETAIL). IF SITE CONDITIONS REQUIRE LESS, THEN INSTALL UTILITIES AS INDICATED ON DETAILS.

WATER SYSTEM INSTALLATION NOTES:



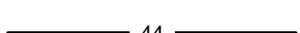








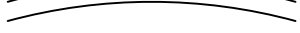
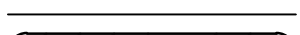



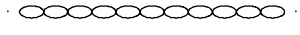

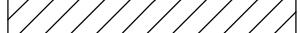





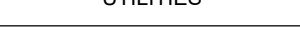




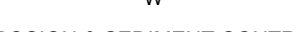
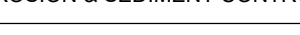



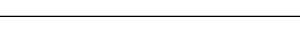
- CONSTRUCT THE WATER MAIN AND ITS APPURTENANCE IN ACCORDANCE WITH THE LOCAL WATER DEPARTMENT'S STANDARDS AND SPECIFICATIONS AND PAY FOR ALL ASSOCIATED FEES AS REQUIRED BY THE WATER DEPARTMENT.
- ALL PROPOSED WATER MAIN 4-INCHES AND GREATER IN DIAMETER ARE DUCTILE IRON CLASS 52. ONLY USE HDPE 3408 OR AS INDICATED ON DRAWINGS OR AS APPROVED BY THE ENGINEER.
- SUPPLY TWO COPIES OF SWORN CERTIFICATES TO PROVE THAT ALL PIPES AND FITTINGS ARE INSPECTED AND TESTED AS REQUIRED BY THE STANDARD SPECIFICATIONS TO WHICH THE MATERIAL IS MANUFACTURED.
- GATE VALVES: MUELLER (A 2290 SERIES), CLOW (AWWA STANDARD C505 SERIES), AMERICAN DARLING (RESILIENT WEDGE) OR APPROVED EQUAL.
- PROVIDE GATE VALVES ON ALL HYDRANT BRANCHES AND WATER MAIN. THE GATE VALVE TO TURN TO THE RIGHT TO OPEN (CLOCKWISE). ALL BOLTS AND NUTS MUST BE RUST PROOF STEEL.
- CLEAR ALL NEWLY INSTALLED WATER SYSTEM COMPONENTS OF ALL FOREIGN MATERIALS SUCH AS DIRT AND MISCELLANEOUS DEBRIS PRIOR TO SYSTEM TESTING. NO TESTING IS ALLOWED WITHOUT REMOVAL OF ALL FOREIGN MATERIALS.
- CONTRACTOR IS RESPONSIBLE FOR CONDUCTING A PRESSURE TEST AND DISINFECTION TEST OF ALL WATER MAINS. THE TESTS MUST BE WITNESSED BY THE APPROVED INSPECTOR OR THE ENGINEER. THE CONTRACTOR MUST PROVIDE A MINIMUM OF 48-HOUR ADVANCE NOTICE TO THE LOCAL WATER DEPARTMENT PRIOR TO THE PRESSURE AND DISINFECTION TESTS. THE CONTRACTOR MUST PROVIDE ALL NECESSARY EQUIPMENT AND CHEMICALS TO PROPERLY CONDUCT THE TESTS.
- INSTALL AND REMOVE ALL NECESSARY BLOWOFFS REQUIRED FOR THIS PROJECT AT NO EXTRA COST TO THE OWNER.
- COLLECT ALL BACTERIOLOGICAL SAMPLES AND PAY FOR ALL RELATED LABORATORY FEES.
- MAINTAIN UP-TO-DATE AS-BUILT DRAWINGS AND NOTES INDICATING THE HORIZONTAL AND VERTICAL LOCATION WITH TWO TIES OF ALL SYSTEM COMPONENTS INSTALLED. AS-BUILT DRAWINGS AND NOTES WILL BE UTILIZED BY THE ENGINEER FOR THE PREPARATION OF RECORD PLANS.

SEWER SYSTEM OPERATION & MAINTENANCE:

- CLEAN ALL NEWLY INSTALLED FACILITIES, INCLUDING SEWER COLLECTION SYSTEM OF ALL FOREIGN MATERIALS SUCH AS DIRT AND MISCELLANEOUS DEBRIS PRIOR TO SYSTEM TESTING. TESTING MUST BE WITNESSED AND INSPECTED BY THE ENGINEER. NO TESTING IS ALLOWED WITHOUT REMOVAL OF ALL FOREIGN MATERIALS.
- CONDUCT A LEAKAGE TEST OF ALL SEWER MAINS. TEST MUST BE WITNESSED BY THE ENGINEER. THE CONTRACTOR MUST PROVIDE THE ENGINEER WITH A MINIMUM OF 48-HOURS ADVANCE NOTICE TO THE TIME OF THE PRESSURE TEST.
- TEST SEWER PIPES FOR LEAKAGE WITH THE FOLLOWING PROCEDURE:

INTRODUCE LOW PRESSURE AIR INTO THE SEAL LINE (WITH PNEUMATIC PLUGS) UNTIL THE INTERNAL AIR PRESSURE REACHES 4 psi GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE. ALLOW AT LEAST 2 MINUTES FOR AIR PRESSURE TO STABILIZE. AFTER THE STABILIZATION PERIOD (5.5 psi MINIMUM PRESSURE IN THE PIPE), THE PORTION OF PIPE TESTED IS ACCEPTABLE IF THE TIME REQUIRED IN MINUTES FOR THE PRESSURE TO DECREASE FROM 3.5 TO 3 psi IS NOT LESS THAN 1.90 TIMES THE LENGTH OF PIPE BEING TESTED.
- VACUUM TEST ALL SEWER MANHOLES. TESTS MUST BE WITNESSED BY THE ENGINEER UNLESS THE SEASONAL GROUNDWATER LEVEL IS MORE THAN 10 FEET FROM THE BOTTOM OF THE MANHOLE.
- MANDREL TEST ALL SEWER MAINS AFTER 30 DAYS. TESTS MUST BE WITNESSED BY A TOWN REPRESENTATIVE OR THE ENGINEER.

LEGEND:

GENERAL	SYMBOLS
	BUILDING
	CENTERLINE
	CONTOUR - MINOR
	CONTOUR - MAJOR
	CURB
	CURB CUT
	EDGE OF PAVEMENT
	FENCE - CHAIN LINK
	FENCE - WIRE
	LIMIT OF WORK
	PATHWAY
	SIDEWALK
	STORMWATER AREA
	TREE LINE
	WALL - RETAINING
	WALL - STONE
	CONCRETE
	CROSSWALK/PAVEMENT STRIPING
	CLEAN OUT
	PIPE STUB
	ABUTTING LOT
	EASEMENT LOT
	PROPERTY, LOT, OR ROW
	UTILITY BOX
	HYDRANT
	DRAIN PIPE
	SANITARY SEWER
	UNDERGROUND ELEC.
	WATER LINE
	WETLAND FLAG
	SILT FENCE
	SILT SOCK
	WETLAND BOUNDARY
	WETLAND 50 BUFFER
	WETLAND 100 BUFFER

Revisions

Rev	Date	By	Appr	Description
1	9/10/21	EW/EBK		Revision per peer review comments
2				
3				
4				
5				

Drawn By: EVH

Checked By: EVH

Designed By: EVH

Date: MARCH 5, 2021

Plan Set:

Prepared For:

Registration:

Survey Provided By:

Project Number:

Sheet :

Sheet Number:

Horsley Witten Group, Inc.

90 Route 6A

Sandwich, MA 02563

Phone: (508) 833-6600

Fax: (508) 833-3150

Dated: JUNE 2019

2 OLIVER STREET, SUITE 500

BOSTON, MA 02109

Phone: (617) 261-9888

Fax: ---

Project Number:

Sheet :

Sheet Number:

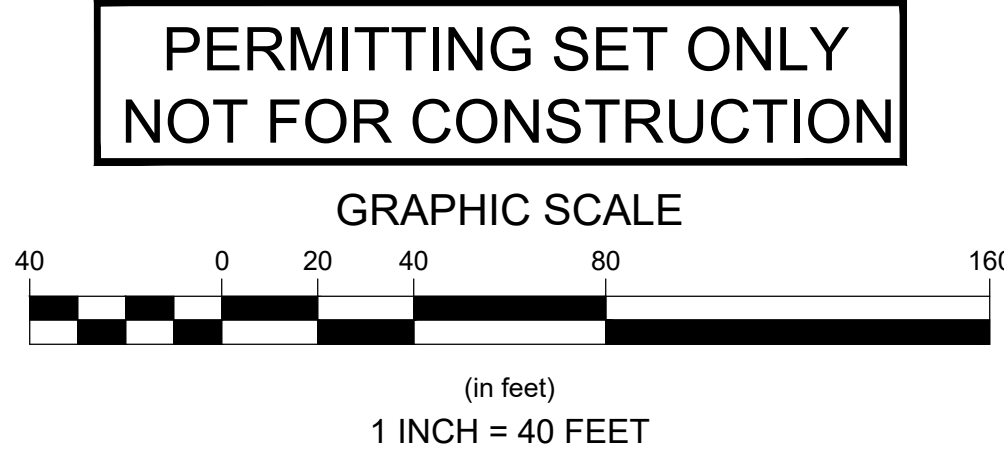
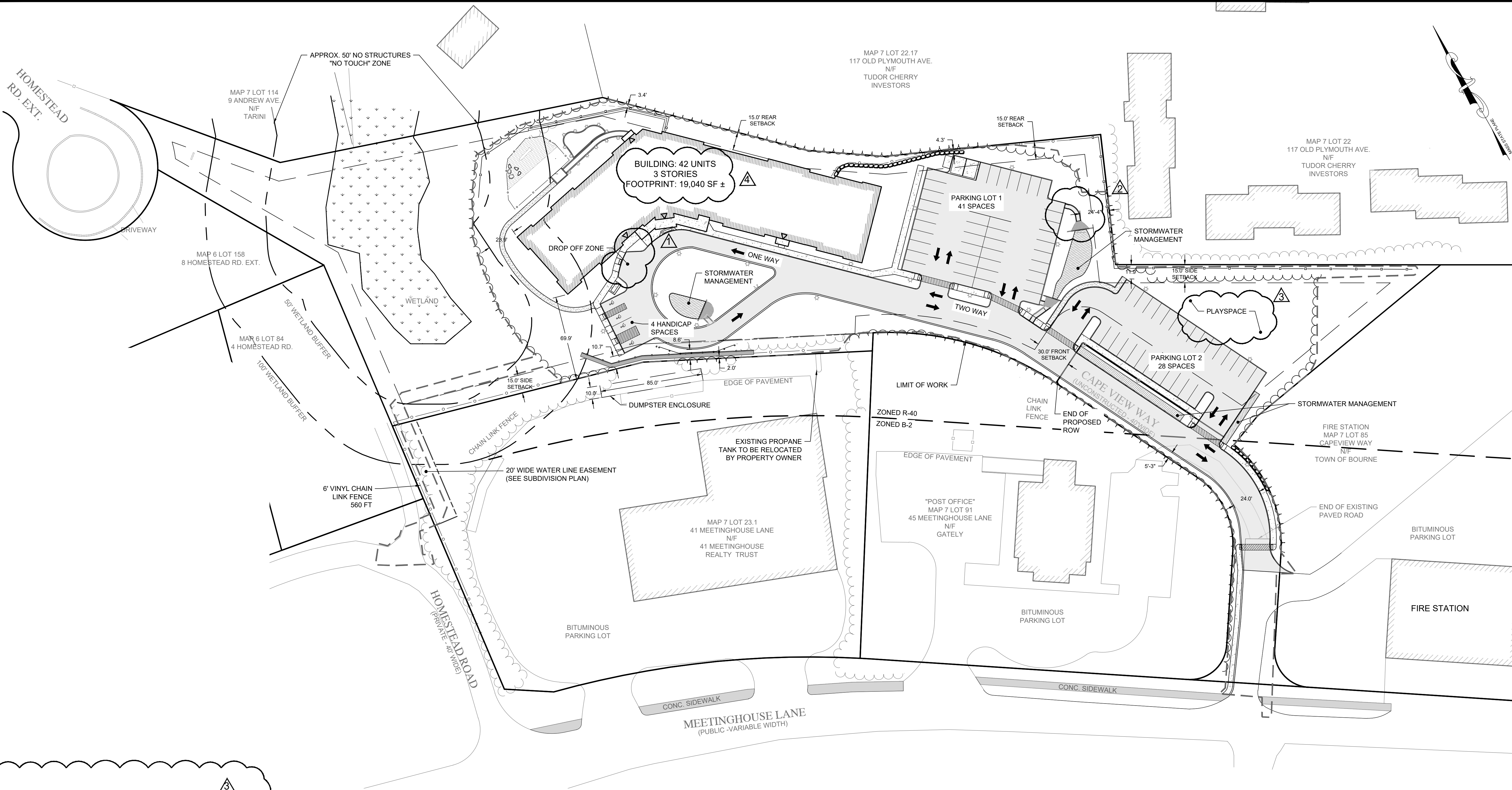
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C - 2

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ZONING REGULATORY REQUIREMENTS		
DISTRICTS		
TOWN: Bourne		
ZONING DISTRICT: R40		
	REQUIRED	PROVIDED
LOT SIZE AND COVERAGE		
MINIMUM LOT SIZE (sf):	40,000	157,598
MAXIMUM % LOT COVERAGE:	20%	12%
MINIMUM % USEABLE OPEN SPACE:	20%	56%
DIMENSIONAL		
MINIMUM LOT FRONTAGE (feet):	125	191
FRONT YARD SETBACK (feet):	30	>30
REAR YARD SETBACK (feet):	15	15
SIDE YARD SETBACK (feet):	15	2
BUILDING HEIGHT (feet):	35	38.75
PARKING		
PARKING SPACES:	2 spaces per dwelling	
TOTAL PARKING SPACES (ON-SITE):	84	73
TOTAL PARKING SPACES (OFF-SITE):		
TOTAL HANDICAP SPACES:	84	73
HANDICAP SPACE:	4	4
MINIMUM PARKING DIMENSIONS	15'-6"x8'-8"	15'-6"x8'-8"



Revisions

5/10/21	EW/EBK	Addition of drop off zone
9/10/21	EW/EBK	Revised per peer review comments
12/10/21	EW/EBK	ZBA comments
12/10/21	EW/EBK	Revised building location & total units

Horsley Witten Group, Inc.

Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Plan Set:

CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS

Plan Title:

OVERALL SITE PLAN

Survey Provided By:

Horsley Witten Group, Inc.
90 Route 6A
Sandwich, MA 02563
Phone: (508) 833-6600
Fax: (508) 833-3150
Date: JUNE 2019

Registration:

Project Number:

19038

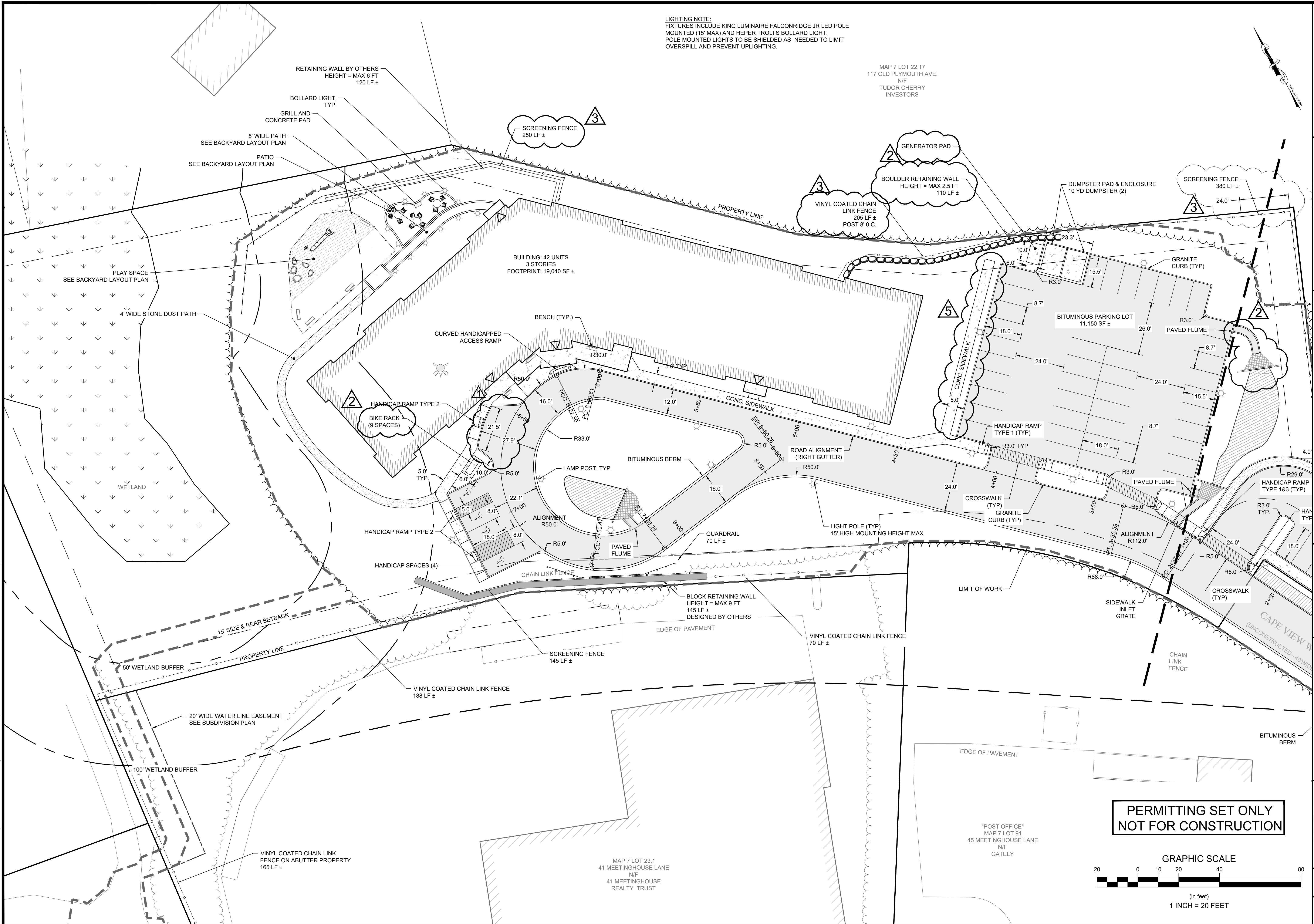
Sheet:

4 of 22

Sheet Number:

C - 4

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Revisions	
Rev	Description
1	5/10/21 EWH/BRK Addition of drop off zone
2	9/10/21 EWH/BRK Revised per peer review comments
3	10/2/21 BRK/BRK Revised fence layout
4	12/10/21 EWH/BRK Revised building location & total units
5	12/10/21 KJK/BRK Sidewalk move per peer review

Date	By	Appr	Description
MARCH 5, 2021	EWV	BRK	Created By
	EWV		Drawn By
	EWV		Designed By

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Sustainable Environmental Solutions
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**CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS**

Plan Set:
Site: 19038 ST.dwg
Drawing: 19038 ST.dwg
Sheet: 5 of 22

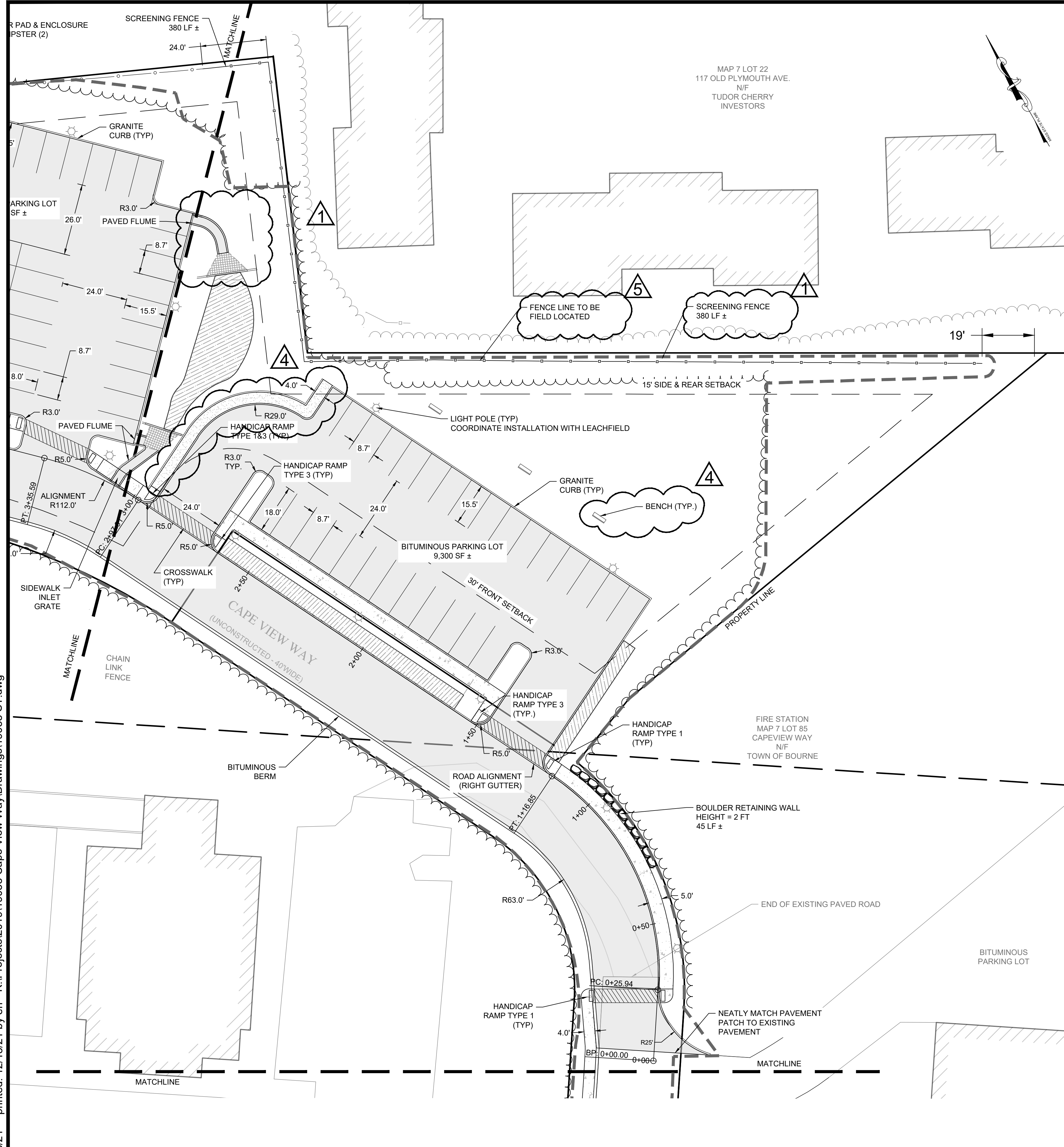
Prepared For:
**PRESERVATION OF
AFFORDABLE HOUSING**
2 OLIVER STREET, SUITE 200
BOSTON, MA 02109
Phone: (617) 261-9898
Fax: ---

Survey Provided By:
Horsley Witten Group, Inc.
90 Route 6A
Sandwich, MA 02563
Phone: (508) 833-6600
Fax: (508) 833-3150
Date: JUNE 2019

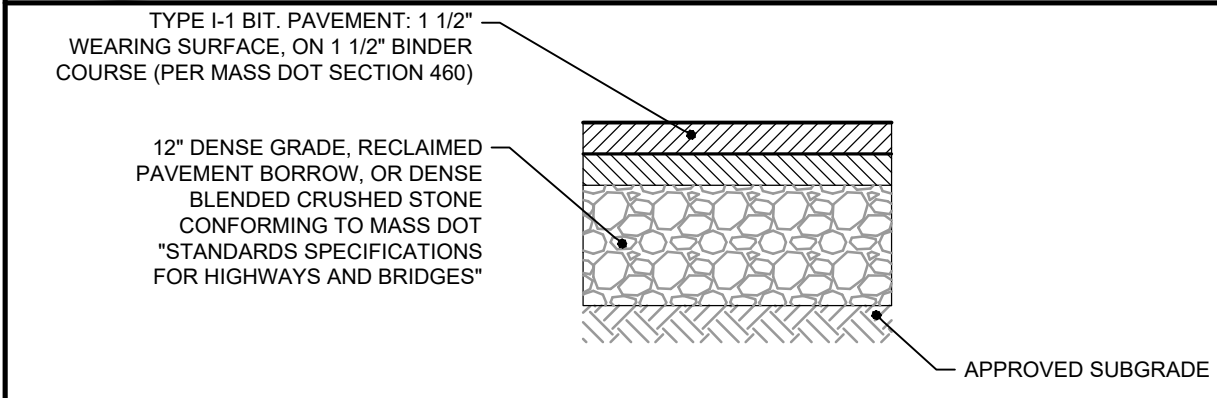
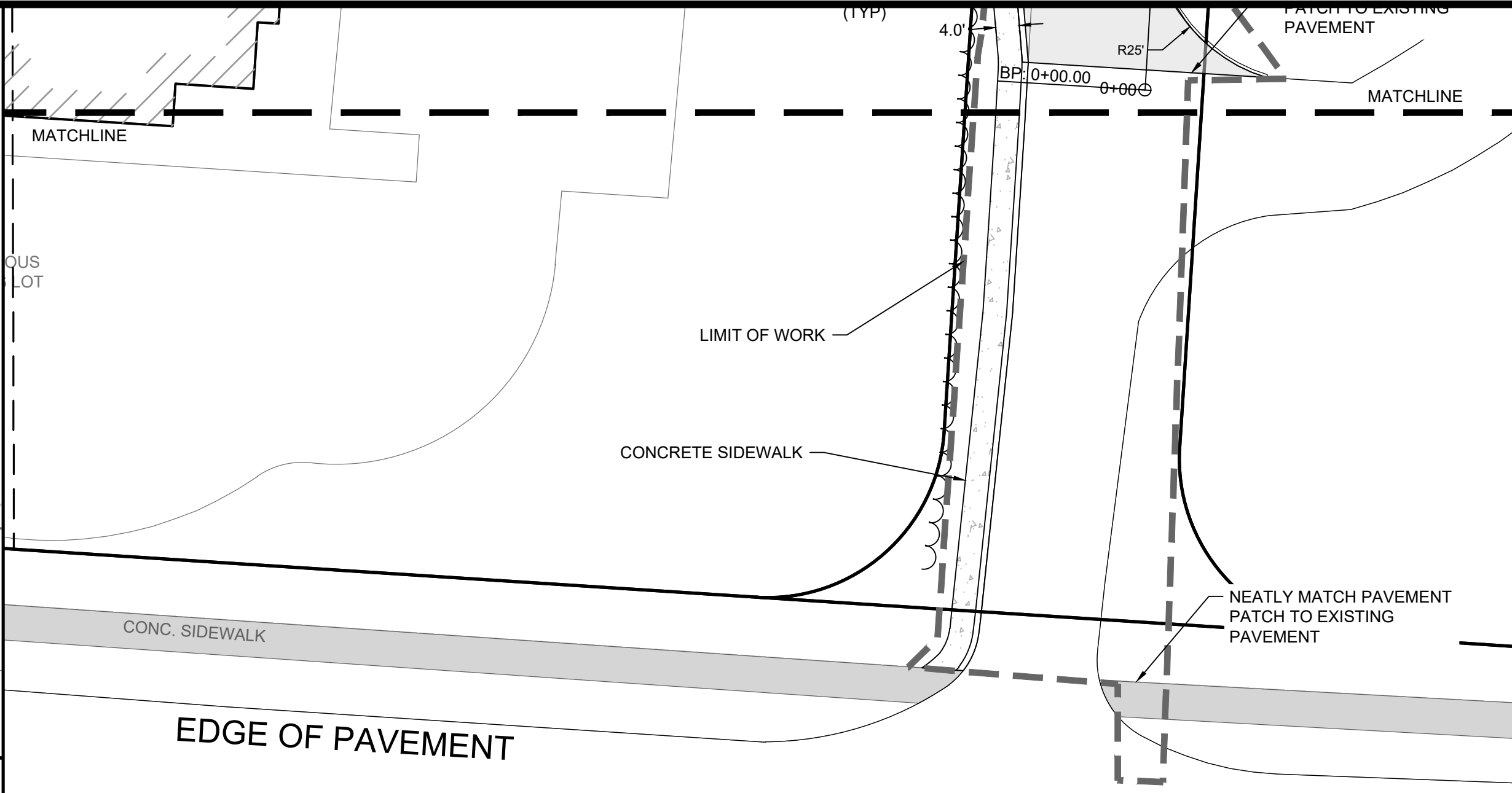
Registration:
RICHARD A. CLAYTON
CIVIL
NO. 45116
12-13-2021

Project Number: 19038
Sheet: 5 of 22
Sheet Number: C-5

last modified: 12/13/21 printed: 12/13/21 by eh K:\Projects\2019\19038 Cape View Way\Drawings\19038 ST.dwg

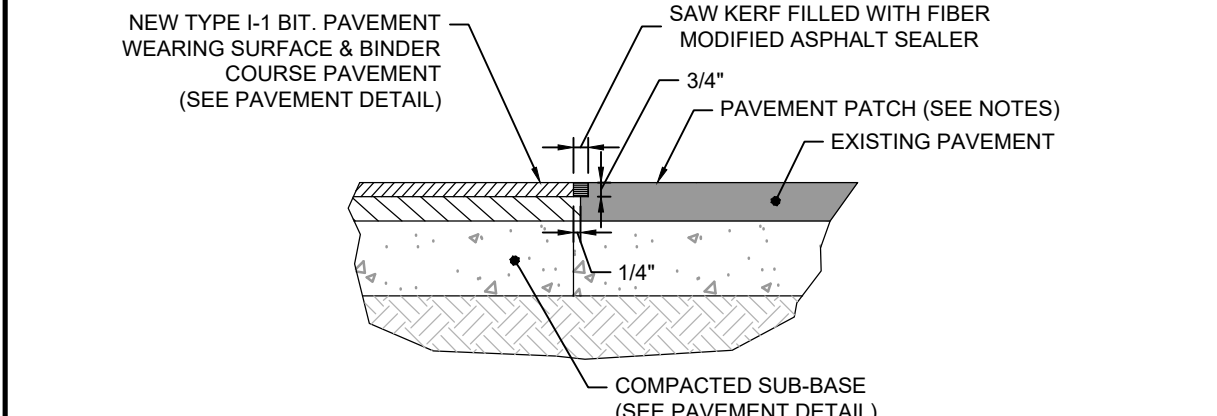


NOTE: ROAD ALIGNMENT IS PROVIDED ALONG
NORTHEAST GUTTERLINE.



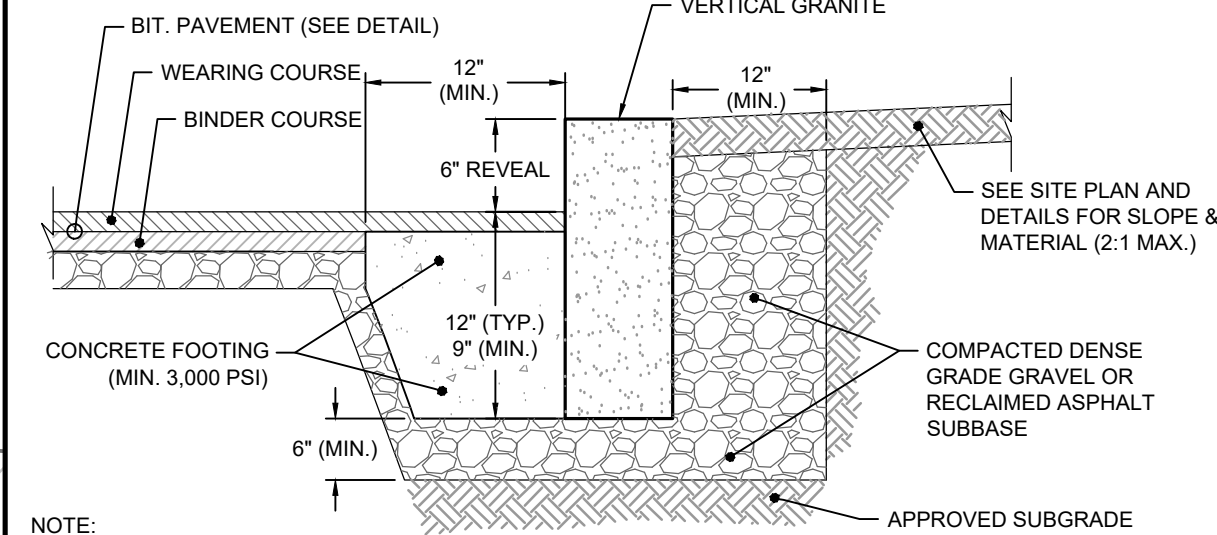
- GENERAL NOTES:
1. SUB-GRADE (EXISTING MATERIAL) SHALL CONSIST OF INERT MATERIAL THAT IS HARD, DURABLE STONE AND/OR COARSE SAND, FREE FROM LOAM AND CLAY TO A DEPTH NOT LESS THAN 4-FT BELOW THE FINISH PAVEMENT SURFACE. EXCAVATE SANDY LOAM AND/OR LOAMY SAND TOPSOIL MATERIAL FROM ALL PAVED AREAS PRIOR TO SUB-BASE INSTALLATION.
 2. PLACE SUB-BASE IN MAXIMUM 8" LIFTS (COMPACTED TO 95%).
 3. COMPACT SUB-GRADE FILL TO 95% COMPACTION.
 4. SEE SITE LAYOUT PLAN FOR PAVEMENT WIDTH AND LOCATION.
 5. SEE GRADING PLANS FOR PAVEMENT SLOPE AND CROSS SLOPE.
 6. SWEEP CLEAN THE EXISTING BINDER COURSE SURFACE PRIOR TO INSTALLING THE WEARING COURSE BY A STREET SWEEPING MACHINE. APPLY A TACK COAT PER SPECIFICATIONS.

BITUMINOUS PAVEMENT
NOT TO SCALE



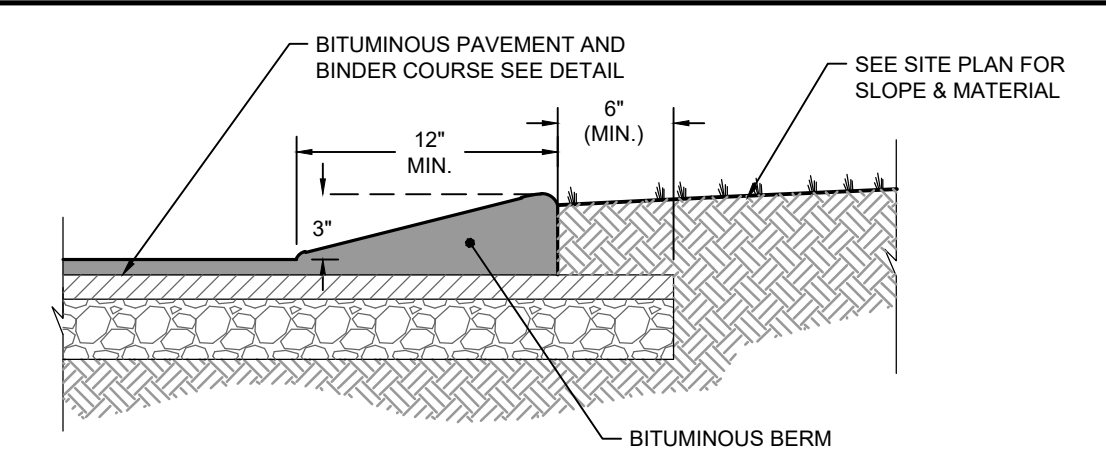
- NOTES:
1. EXISTING BITUMINOUS PAVEMENT SHALL BE REMOVED TO A CLEAN STRAIGHT EDGE VIA SAW CUTTING. THE SAW CUT SHALL BE COMPLETED PERPENDICULAR TO THE ROADWAY/SIDEWALK.
 2. PRIOR TO INSTALLING THE WEARING COURSE THE EXISTING VERTICAL PAVEMENT SURFACE SHALL BE SWEEP COMPLETELY CLEAN.
 3. AFTER PROPER COMPACTION (SEE PAVEMENT DETAIL) SAW CUT NEW PAVEMENT ABUTMENT 3/4" DEEP AND FILL WITH FIBER MODIFIED ASPHALT SEALER AS SHOWN.

PAVEMENT PATCH
NOT TO SCALE



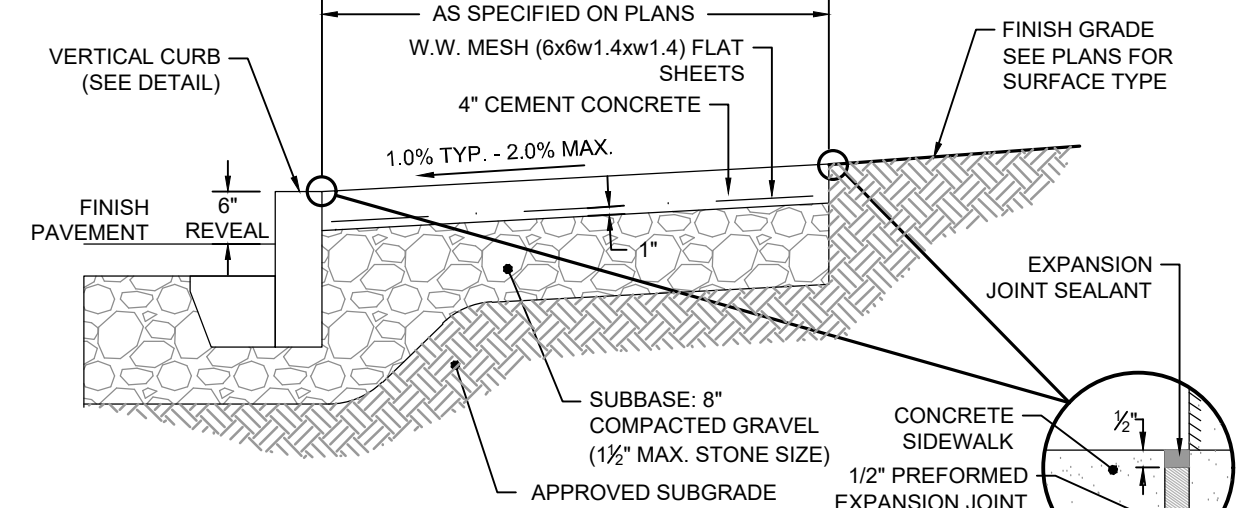
- NOTE:
1. VERTICAL CURB MIN. HEIGHT = 18" MIN. WIDTH = 6"
 2. VERTICAL CURBING TO BE INSTALLED AS SHOWN ON THE SITE PLAN.
 3. PROVIDE CURB EXPANSION JOINTS AT 5'-0" TO 6'-0" O.C.
 4. CURB REPLACEMENT IN EXISTING PAVEMENT - SAWCUT EDGE MIN. 12" FROM CURB.
 5. CONCRETE CURB - PROVIDE 1" CHAMFER OF EDGE ALONG PAVEMENT SIDE FACE FOR CONCRETE CURB.
 6. CONCRETE CURB - TO HAVE A MINIMUM CONCRETE STRENGTH OF 4,000 PSI
 7. CEMENT MORTAR JOINTS & INSTALL PREFORMED (1/2") EXPANSION JOINT WHERE REQUIRED.

GRANITE CURB
NOT TO SCALE



- NOTES:
1. BERM TO BE CONSTRUCTED OF BITUMINOUS WEARING SURFACE COURSE AS SHOWN.
 2. BERM TO BE CONSTRUCTED INTEGRAL WITH BITUMINOUS WEARING SURFACE.
 3. WHEN BERM IS TO BE CONSTRUCTED ON A FRESH LAID BITUMINOUS SURFACE, THAT SURFACE MUST FIRST BE CLEANED.
 4. BERM TO BE FOUNDED ENTIRELY ON THE BASE COURSE.
 5. FINISH GRADE AT THE BACK OF THE BERM IS TO BE BROUGHT TO THE TOP OF THE BACK EDGE OF BERM.

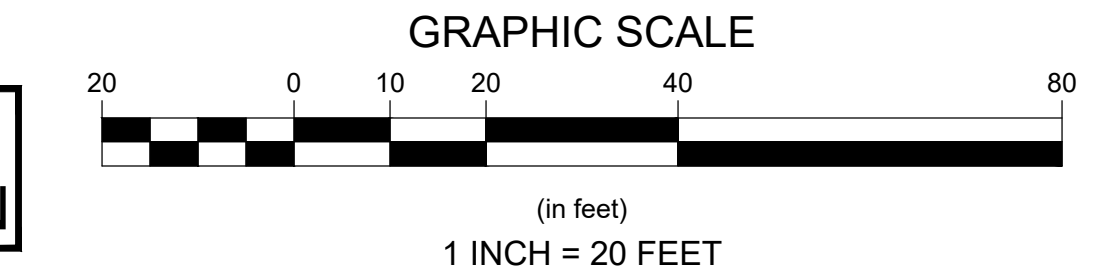
BITUMINOUS BERM
NOT TO SCALE



- NOTES:
1. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE-FORMED JOINT FILLER.
 2. PROVIDE TOOLED CONTROL JOINTS AT 5' O.C. TYP. - 6' MAX.
 3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
 4. CEMENT CONCRETE - 4,000 PSI-TYPE II
 5. IF APPLICABLE, MATCH ALL EXISTING SIDEWALK WIDTHS.
 6. SUBBASE: COMPACTED TO 95%.

CONCRETE SIDEWALK
NOT TO SCALE

EXPANSION JOINT DETAIL



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Revisions	
9/10/21	EW/BRK Revision per peer review comments
10/6/21	BRK/BRK Revised fence layout
12/10/21	EW/BRK ZBA comments
12/10/21	EW/BRK Added benches, path to field
12/10/21	KJK/BRK Field locate screening fence
Date	By
MARCH 5, 2021	EW/BRK
Checked By:	BRK
Drawn By:	EW/BRK
Designed By:	EW/BRK
Horsley Witten Group, Inc. Sustainable Environmental Solutions hws@hwsinc.com 80 Route 6A Sandwich, MA 02563 508-833-6600 voice 508-833-3150 fax	
CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS	
SITE LAYOUT PLAN (2)	
Prepared For:	PRESERVATION OF AFFORDABLE HOUSING 2 OLIVER STREET, SUITE 200 BOSTON, MA 02109 Phone: (617) 261-9898 Fax: ---
Survey Provided By:	Horsley Witten Group, Inc. 80 Route 6A Sandwich, MA 02563 Phone: (508) 833-6600 Fax: (508) 833-3150 Date: JUNE 2019
Registration:	
Project Number:	19038
Sheet:	6 of 22
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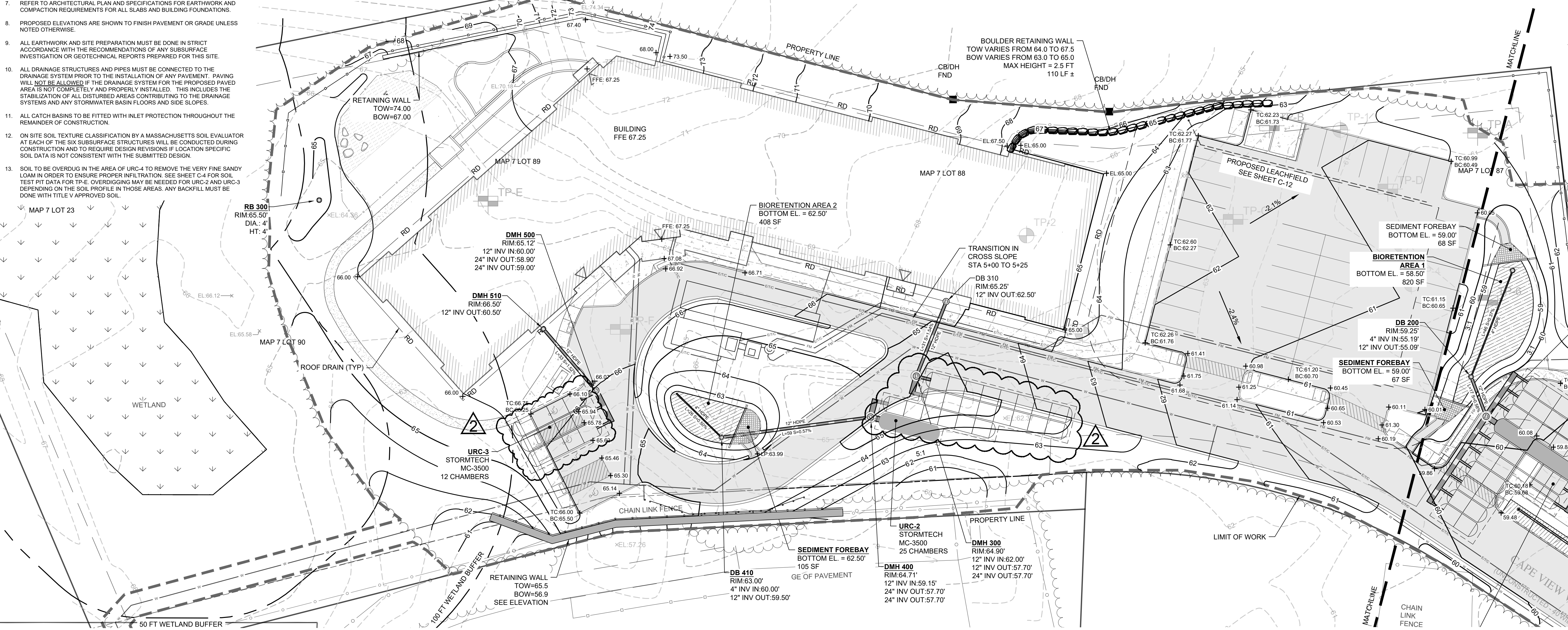
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GENERAL GRADING AND DRAINAGE NOTES:

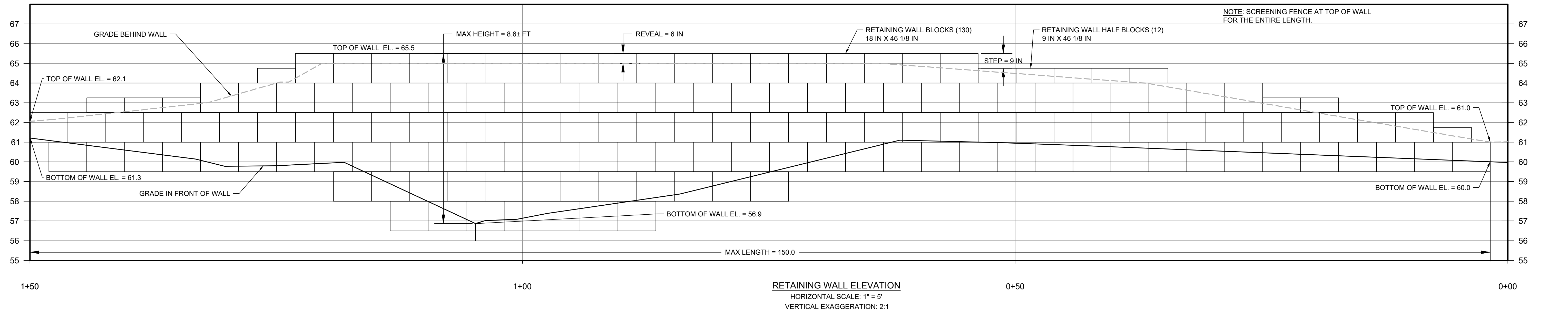
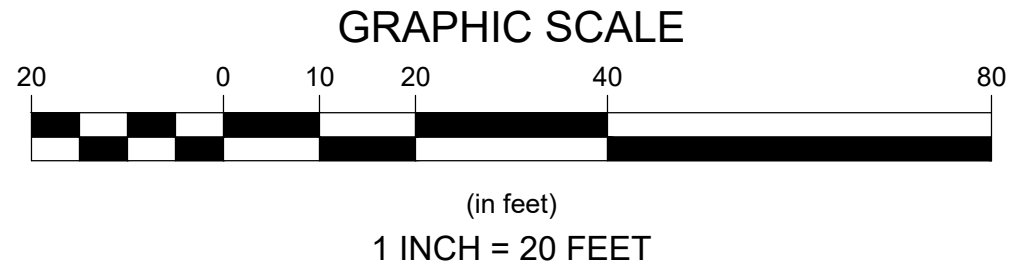
1. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
2. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
3. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
4. ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS. IMMEDIATELY NOTIFY THE ENGINEER IF POSITIVE DRAINAGE CANNOT BE PROVIDED.
6. UNLESS INDICATED OTHERWISE ON THE DRAWINGS OR DETAIL, A MINIMUM CONCRETE FOUNDATION REVEAL OF 8" TO BE PROVIDED AT ALL BUILDING CORNERS. NOTIFY THE ENGINEER AND ARCHITECT IF ANY DEVIATION OR ALTERATION OF FOUNDATION REVEAL IS REQUIRED.
7. REFER TO ARCHITECTURAL PLAN AND SPECIFICATIONS FOR EARTHWORK AND COMPACTION REQUIREMENTS FOR ALL SLABS AND BUILDING FOUNDATIONS.
8. PROPOSED ELEVATIONS ARE SHOWN TO FINISH PAVEMENT OR GRADE UNLESS NOTED OTHERWISE.
9. ALL EARTHWORK AND SITE PREPARATION MUST BE DONE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF ANY SUBSURFACE INVESTIGATION OR GEOTECHNICAL REPORTS PREPARED FOR THIS SITE.
10. ALL DRAINAGE STRUCTURES AND PIPES MUST BE CONNECTED TO THE DRAINAGE SYSTEM PRIOR TO THE INSTALLATION OF ANY PAVEMENT. PAVING WILL NOT BE ALLOWED IF THE DRAINAGE SYSTEM FOR THE PROPOSED PAVED AREA IS NOT COMPLETELY AND PROPERLY INSTALLED. THIS INCLUDES THE STABILIZATION OF ALL DISTURBED AREAS CONTRIBUTING TO THE DRAINAGE SYSTEMS AND ANY STORMWATER BASIN FLOORS AND SIDE SLOPES.
11. ALL CATCH BASINS TO BE FITTED WITH INLET PROTECTION THROUGHOUT THE REMAINDER OF CONSTRUCTION.
12. ON SITE SOIL TEXTURE CLASSIFICATION BY A MASSACHUSETTS SOIL EVALUATOR AT EACH OF THE SIX SUBSURFACE STRUCTURES WILL BE CONDUCTED DURING CONSTRUCTION AND TO REQUIRE DESIGN REVISIONS IF LOCATION SPECIFIC SOIL DATA IS NOT CONSISTENT WITH THE SUBMITTED DESIGN.
13. SOIL TO BE OVERDUG IN THE AREA OF URC-4 TO REMOVE THE VERY FINE SANDY LOAM IN ORDER TO ENSURE PROPER INFILTRATION. SEE SHEET C-4 FOR SOIL TEST PIT DATA FOR TP-E. OVERDIGGING MAY BE NEEDED FOR URC-2 AND URC-3 DEPENDING ON THE SOIL PROFILE IN THOSE AREAS. ANY BACKFILL MUST BE DONE WITH TITLE V APPROVED SOIL.

DEWATERING:

1. A HIGH WATER TABLE IS NOT ANTICIPATED. HOWEVER, IF DEWATERING IS REQUIRED DURING EXCAVATION, TEMPORARILY LOWER THE WATER TABLE PER SPECIFICATIONS. INSTALL A DEWATERING BASIN AS INDICATED IN THE DEWATERING BASIN DETAIL AND PROVIDE A DEWATERING PLAN DEPICTING PROPOSED DEWATERING LOCATION FOR REVIEW AND APPROVAL. DIRECT THE PUMP DISCHARGE TO BASIN TO PREVENT SEDIMENTS FROM LEAVING THE CONSTRUCTION AREA. INSTALL ADDITIONAL BASINS IF REQUIRED. INSTALL THE BASIN AS INDICATED ON DRAWINGS IF SO NOTED, OTHERWISE INSTALL THE BASIN(S) WITHIN THE LIMIT OF DISTURBANCE INDICATED BY THE SILT FENCE OR STRAWBALES.
2. PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.
3. IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER ESC MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TEMPORARY STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS.



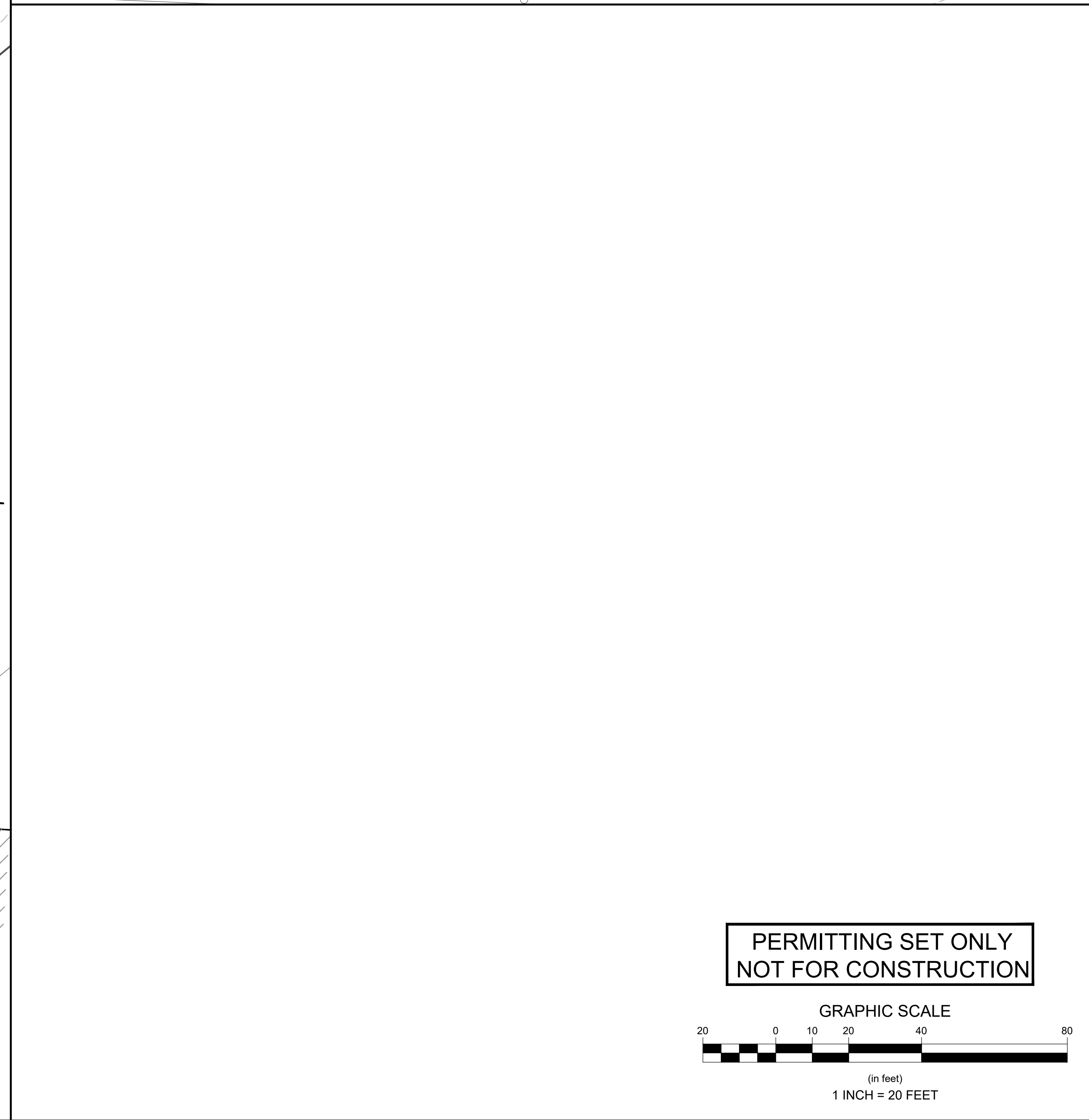
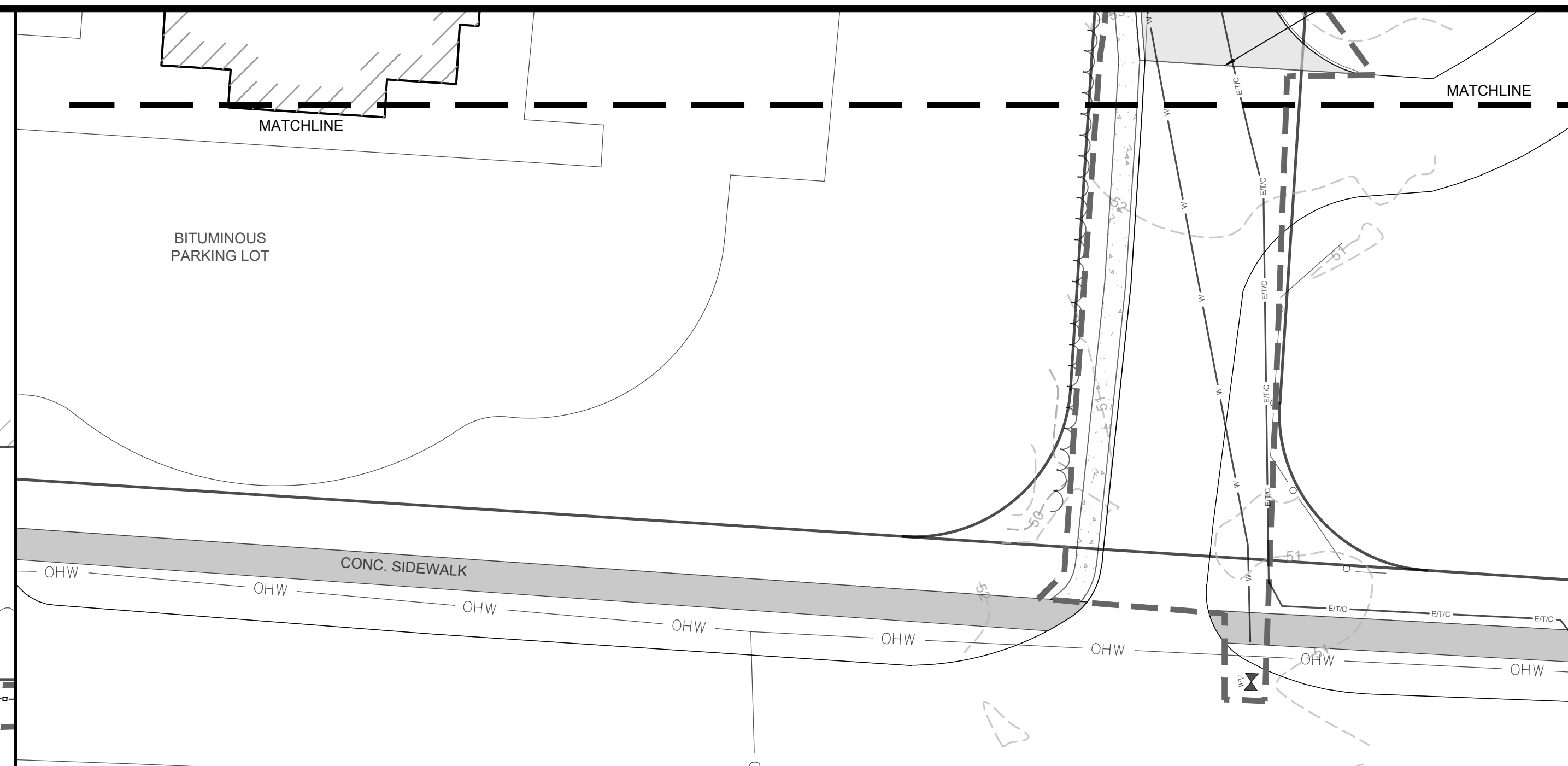
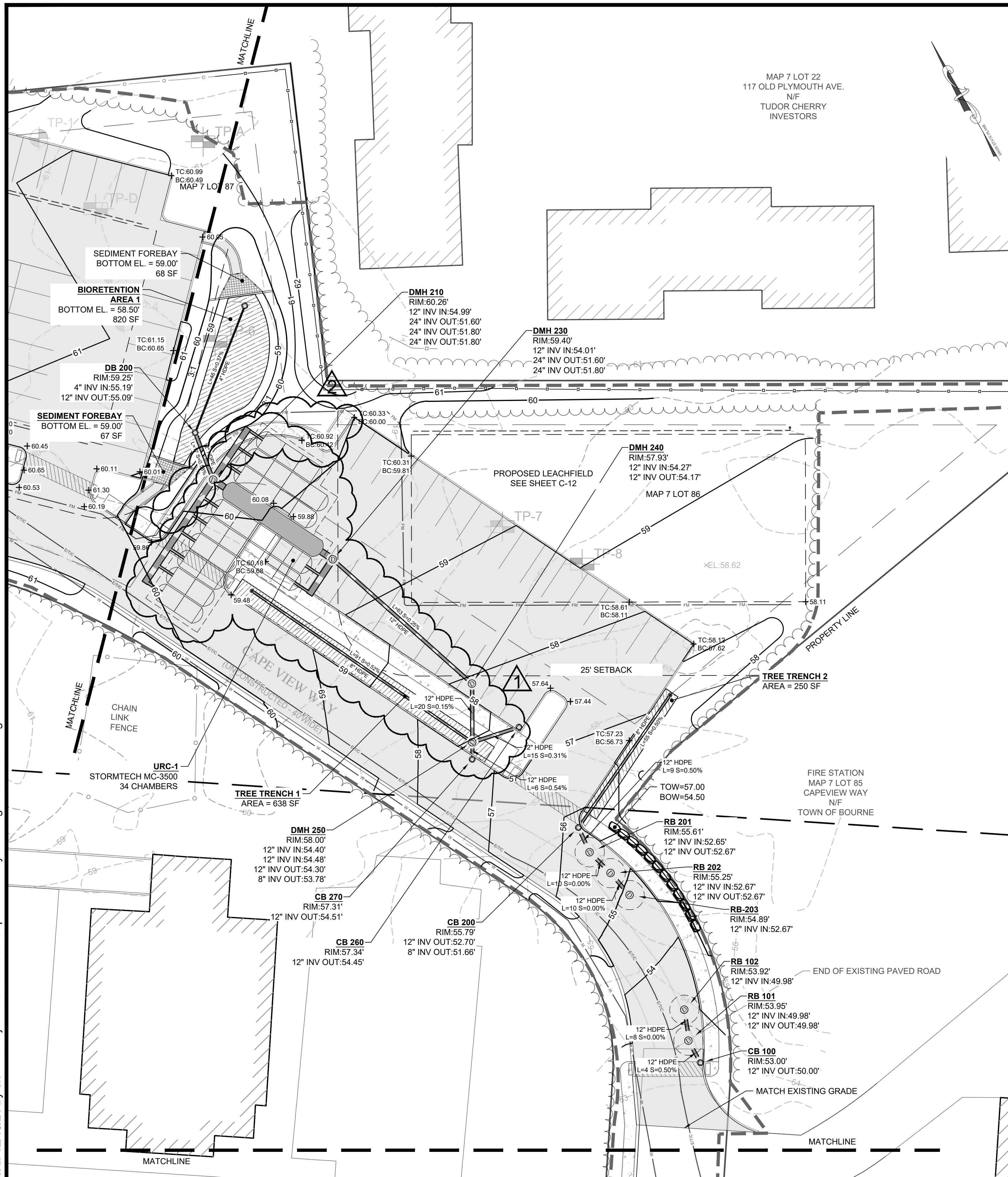
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Revisions		Date		By		Appr		Description	
1	9/10/21	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	Revised per peer review comments
2	12/10/21	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	EW/ERK	Revised building location & total units

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Prepared For: PRESERVATION OF AFFORDABLE HOUSING													
2 OLIVER STREET, SUITE 200													
BOSTON, MA 02109													
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Fax: ---													

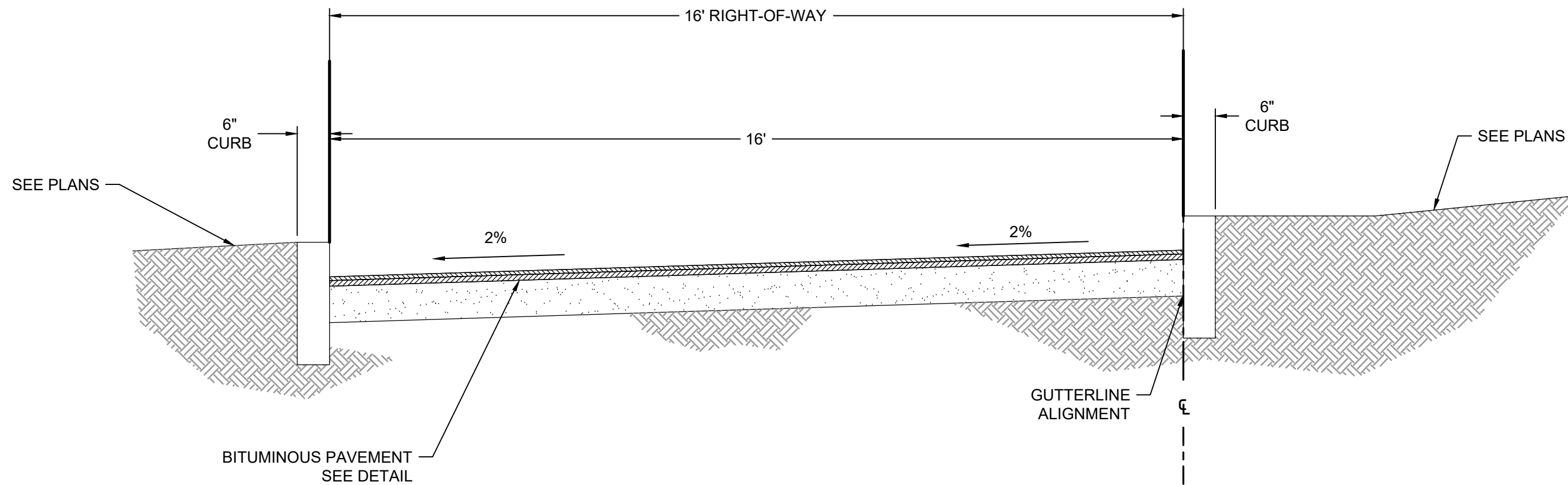
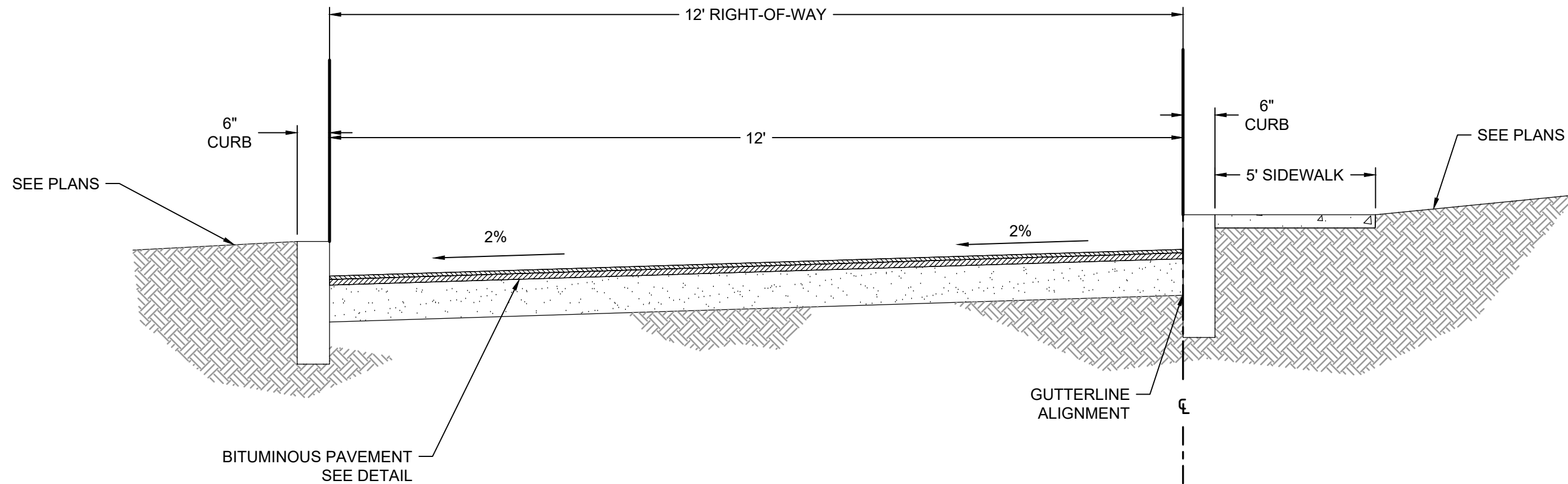
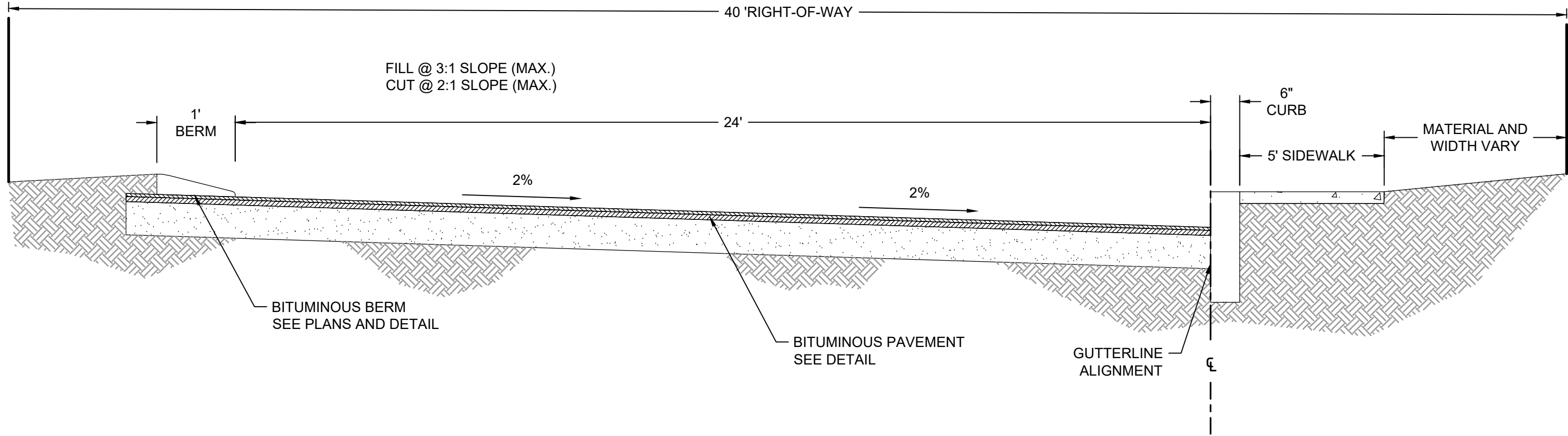
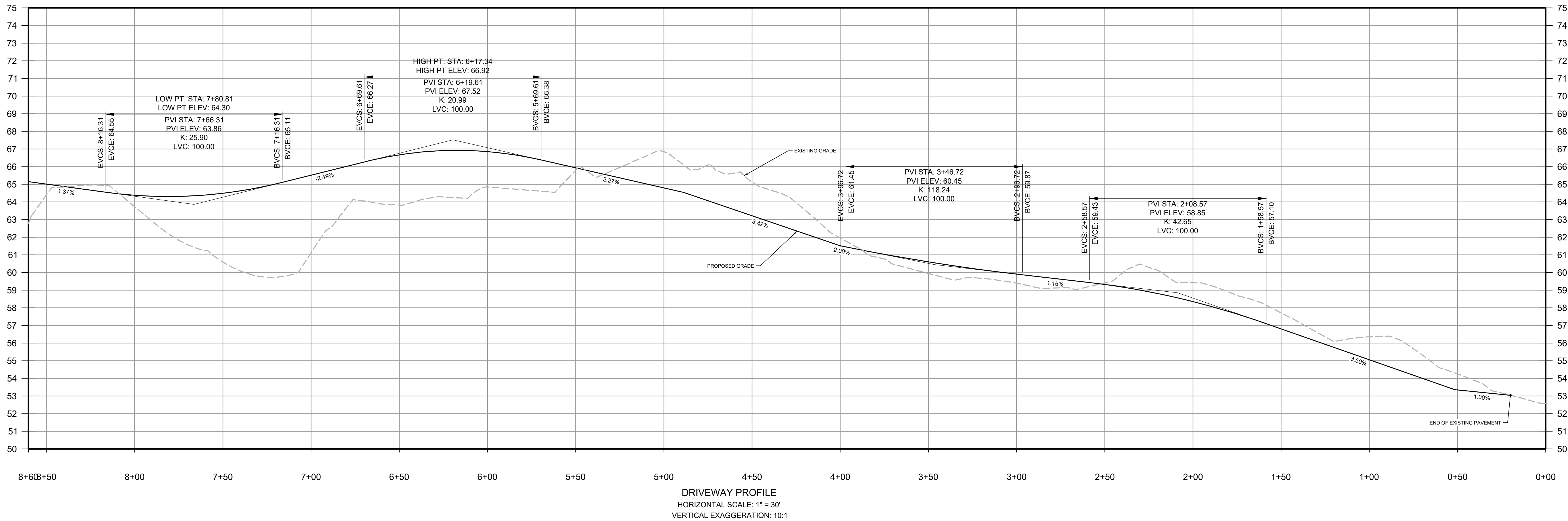
Survey Provided By:		Horsley Witten Group, Inc.		90 Route 6A		Sandwich, MA 02563		Phone: (508) 833-6600		Fax: (508) 833-3150		Date: JUNE 2019	
Registration:													
Project Number:		19038		Sheet:		7 of 22		Sheet Number:		C - 7		GRADING & DRAINAGE PLAN (1)	



<div>CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS</div>	<div>GRADING & DRAINAGE PLAN (2)</div>	<div>Plan Set:</div>	<div></div>	Revisions				
				△	9/10/21 EWH/BK	Revision per peer review comments		
				△	12/10/21 EWH/BK	Added path to road, revised grading		
				△				
				△				
				△				
				△				
<div>Horsley Witten Group, Inc. Sustainable Environmental Solutions www.horsleywitten.com 90 Route 8A Sandwich, MA 02563 508-833-6600 voice 508-833-3150 fax</div>			Date: MAR-CH 5, 2021	Designed By: EWH	Drawn By: EWH	Checked By: BK		
			Rev.	Date	By	Aprt. Description		

<div>Survey Provided By: Horsley Witten Group, Inc. 90 Route 8A Sandwich, MA 02563 Phone: (508) 833-6600 Fax: (508) 833-3150 Date: JUNE 2019</div>	<div>Prepared For: PRESERVATION OF AFFORDABLE HOUSING 2 OLIVER STREET, SUITE 500 BOSTON, MA 02109 Phone: (617) 261-5886 Fax: ----</div>	<div>Project Number: 19038</div>	<div>Sheet : 8 of 22</div>	<div>Registration: </div>

last modified: 12/13/21 printed: 12/13/21 by eh K:\Projects\2019\19038 Cape View Way\Drawings\19038 GD.dwg



Revisions

Rev	Date	By	Appr	Description
1	12/10/21	EW	BRK	Revised profile for building relocation

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
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Survey Provided By:

Horsley Witten Group, Inc.
90 Route 6A
Sandwich, MA 02563
Phone: (508) 833-6600
Fax: (508) 833-3150
Dated: JUNE 2019

Registration:

Project Number:

19038

Sheet :

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Sheet Number:

C - 9

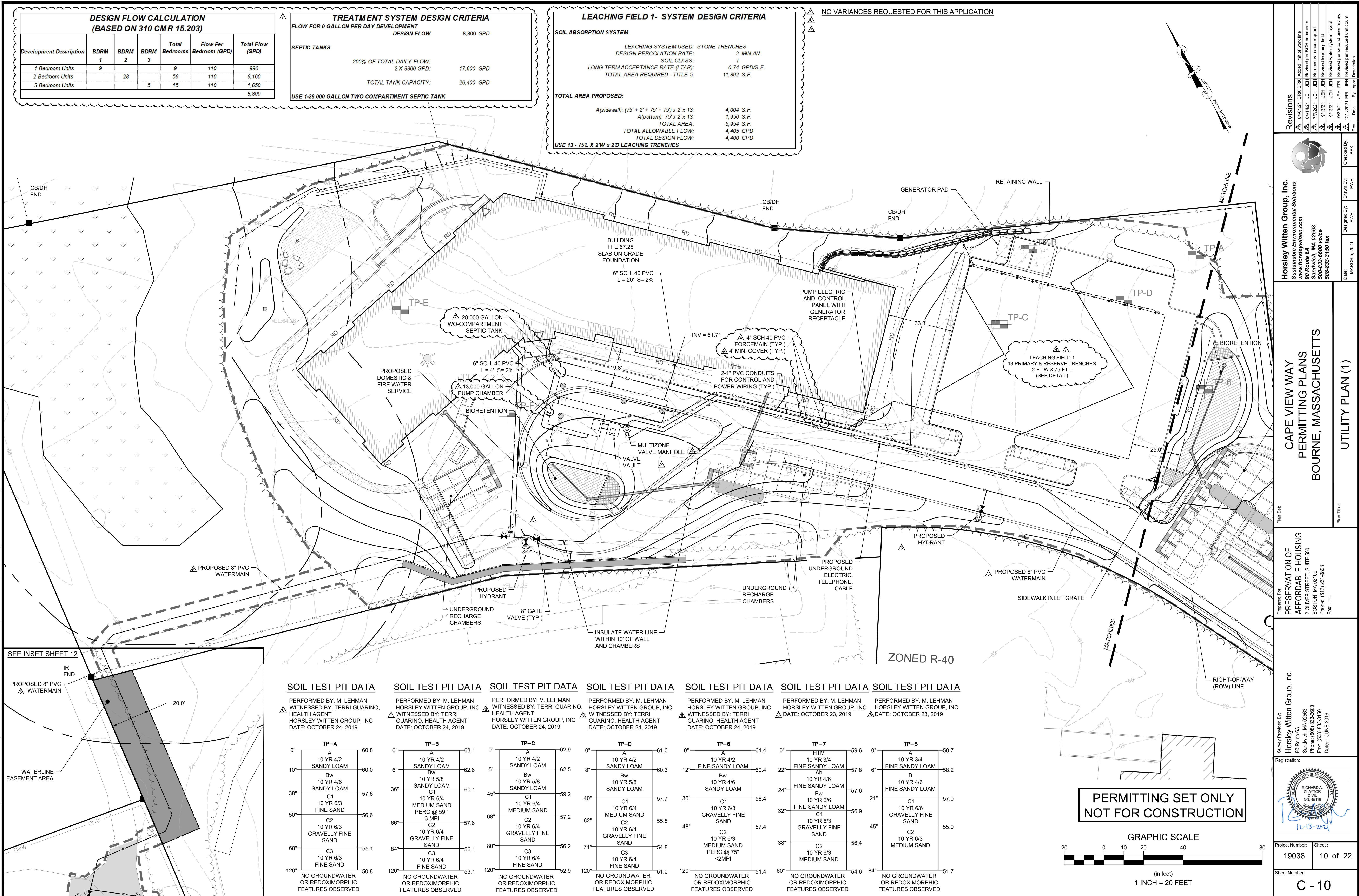
CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS

DRIVEWAY PROFILE

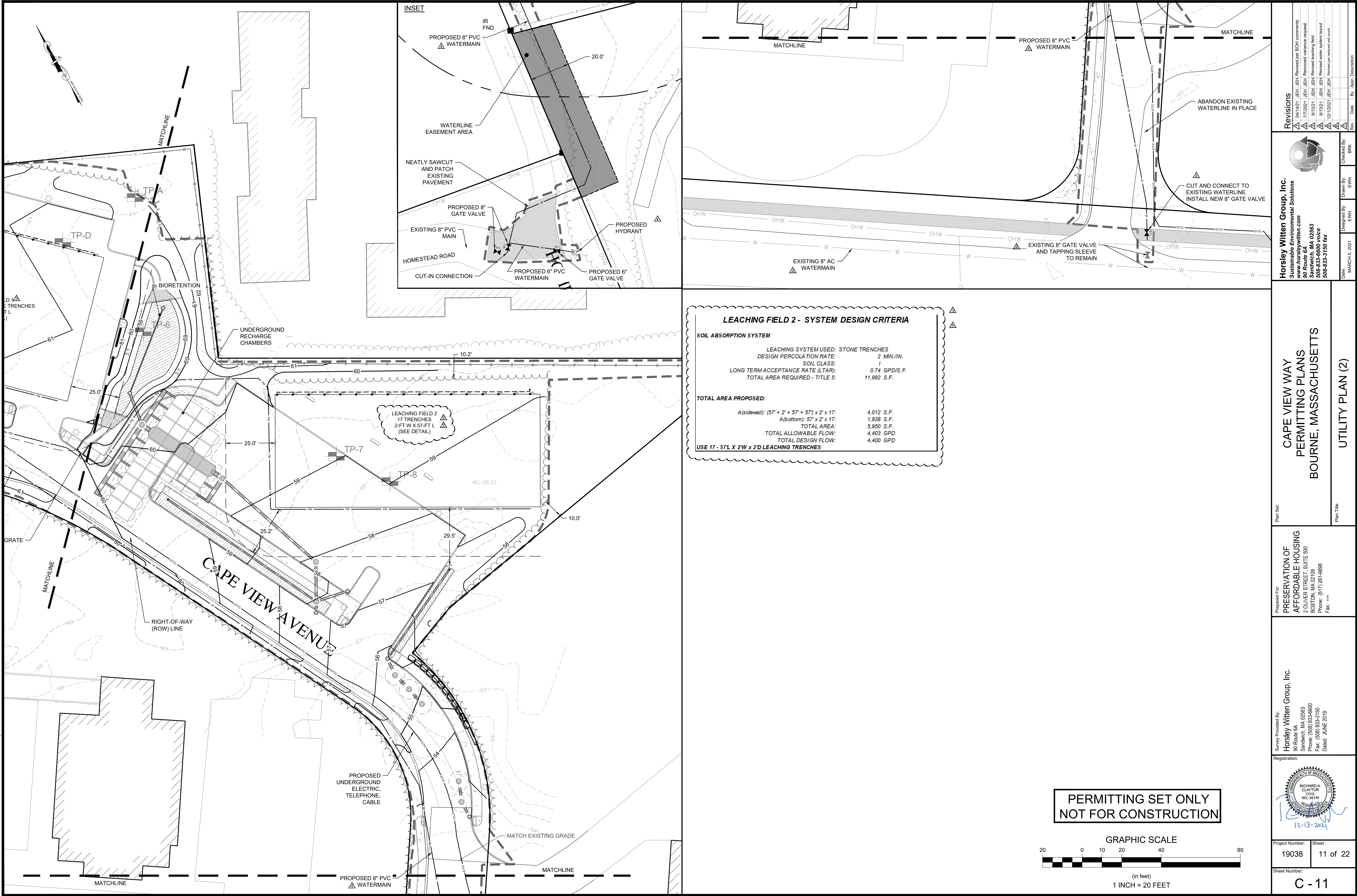
PRESERVATION OF
AFFORDABLE HOUSING
2 OLIVER STREET, SUITE 600
BOSTON, MA 02109
Phone: (617) 261-9898
Fax: ---

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NOT FOR CONSTRUCTION**

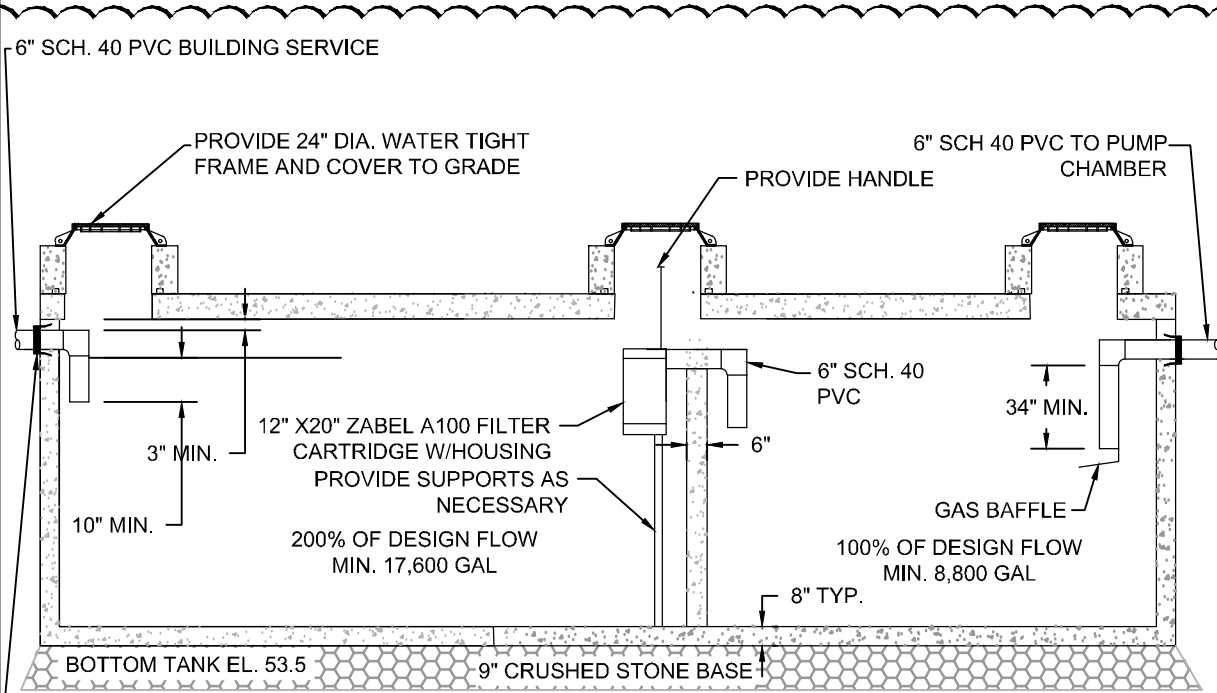
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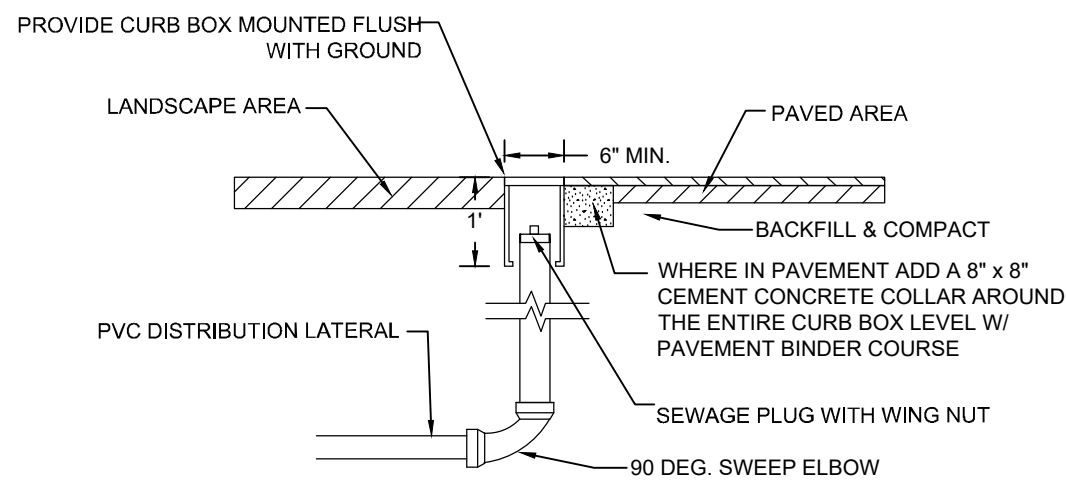
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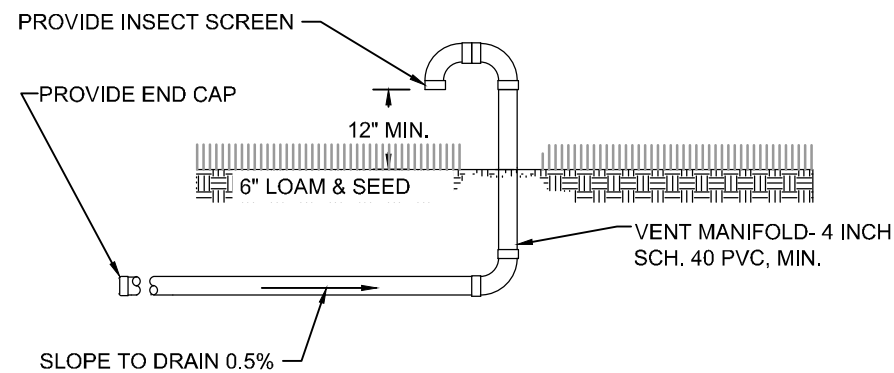
Revisions	
04/14/21	JEH Revised per BOH comments
07/20/21	JEH Revised variance request
09/13/21	JEH Revised leaching field
09/13/21	JEH Revised water system layout
12/17/2021	JEH Revised per radiorail run count
Rev	Date
Horsley Witten Group, Inc. Sustainable Environmental Solutions www.horsleywitten.com 90 Route 6A Sandwich, MA 02563 508-833-6600 voice 508-833-3150 fax	
Drawn By:	Checked By:
EWJ	BRK
Designed By:	Date:
EWJ	MARCH 5, 2021
CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS	
UTILITY PLAN (2)	
Prepared For: PRESERVATION OF AFFORDABLE HOUSING 2 OLIVER STREET, SUITE 500 BOSTON, MA 02109 Phone: (617) 261-9898 Fax: ---	
Survey Provided By: Horsley Witten Group, Inc. 90 Route 6A Sandwich, MA 02563 Phone: (508) 833-6600 Fax: (508) 833-3150 Dated: JUNE 2019	
Registration: 	
Project Number:	Sheet:
19038	11 of 22
Sheet Number: C - 11	



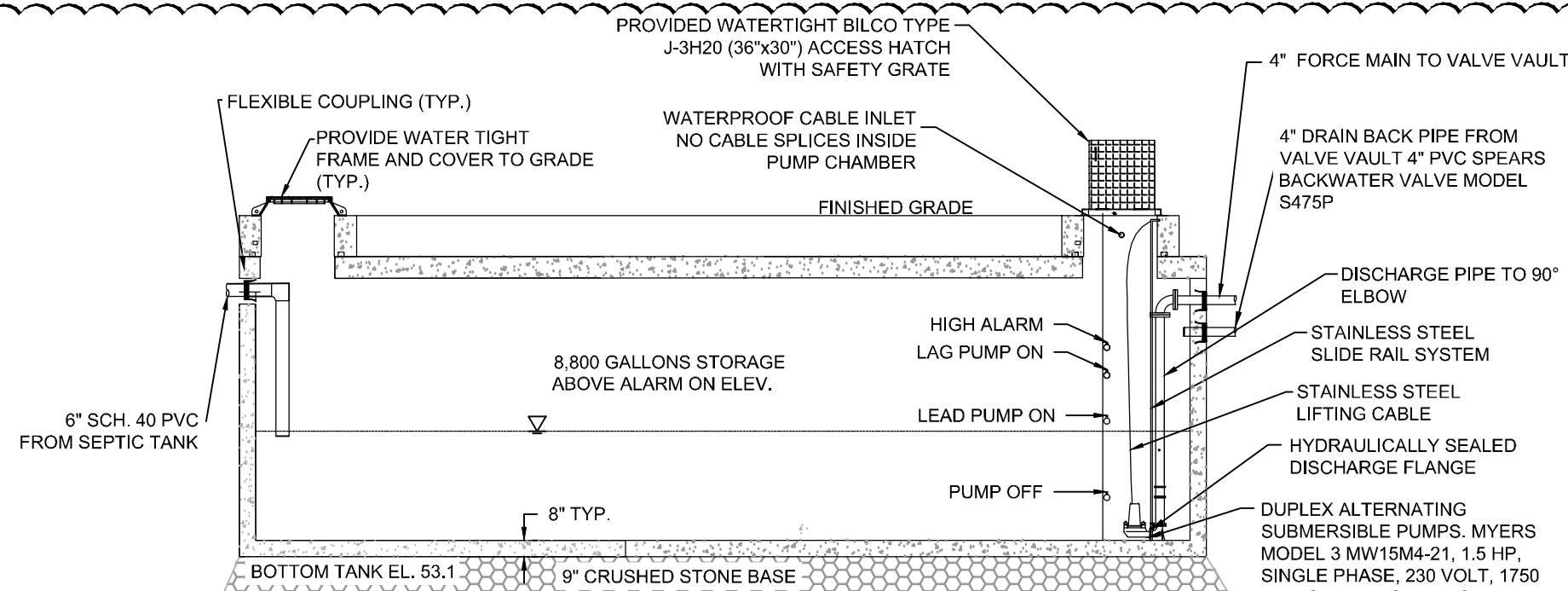
PROPOSED 28,000 GALLON TWO COMPARTMENT SEPTIC TANK
SCITUATE PRECAST OR APPROVED EQUAL
55.5' (ID) X 10' (ID) X 8' (ID)
NOT TO SCALE



TYPICAL LATERAL CLEANOUT DETAIL
NOT TO SCALE



TYPICAL SYSTEM VENT DETAIL
NOT TO SCALE



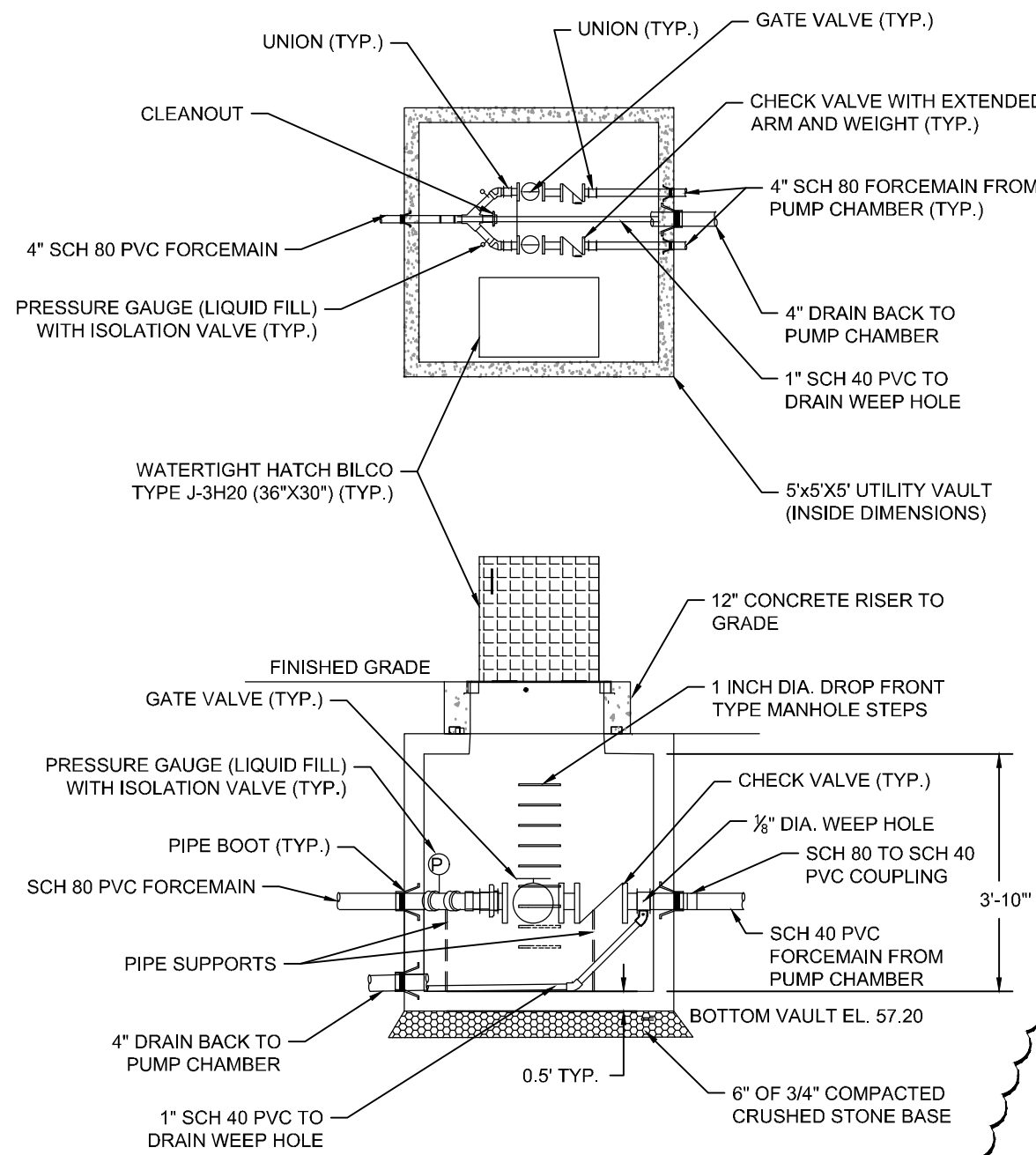
13,000 GALLON PUMP CHAMBER
SCITUATE PRECAST OR APPROVED EQUAL
25.5' (ID) X 10' (ID) X 8' (ID)
NOT TO SCALE

WASTEWATER SYSTEM SCHEDULE OF ELEVATIONS

	INV. EL.
BLDG INVERT	61.71
SEPTIC TANK - INLET	61.47
SEPTIC TANK - OUTLET	61.22
PUMP CHAMBER - INLET	61.14
PUMP CHAMBER - OUTLET	60.17
DRAIN BACK INLET	58.92
VALVE VAULT - INLET	61.00
VALVE VAULT - OUTLET	61.00
DRAIN BACK OUTLET	59.00
MULTIZONE VALVE MANHOLE - INLET	62.17
MULTIZONE VALVE MANHOLE - OUTLET	62.17

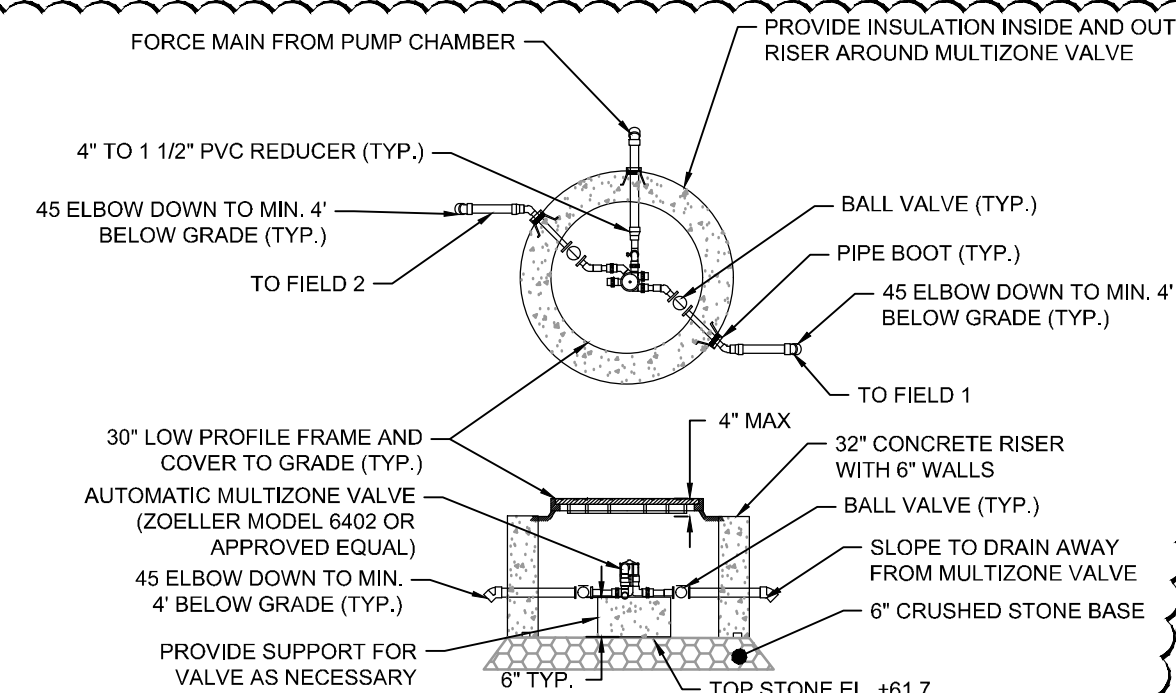
PUMP FLOAT ELEVATIONS

STORAGE (GAL.)	FLOAT SEPARATION (FT)	DESCRIPTION	ELEVATION (FT)
8,800	4.61	EMERGENCY STORAGE	59.64
477	0.25	HIGH ALARM	55.03
477	0.25	LAG PUMP ON	54.78
1,642	0.86	LEAD PUMP ON	54.53
954	0.50	PUMP OFF	53.67
0	0.00	BOTTOM OF TANK	53.17
12,349	6.47		



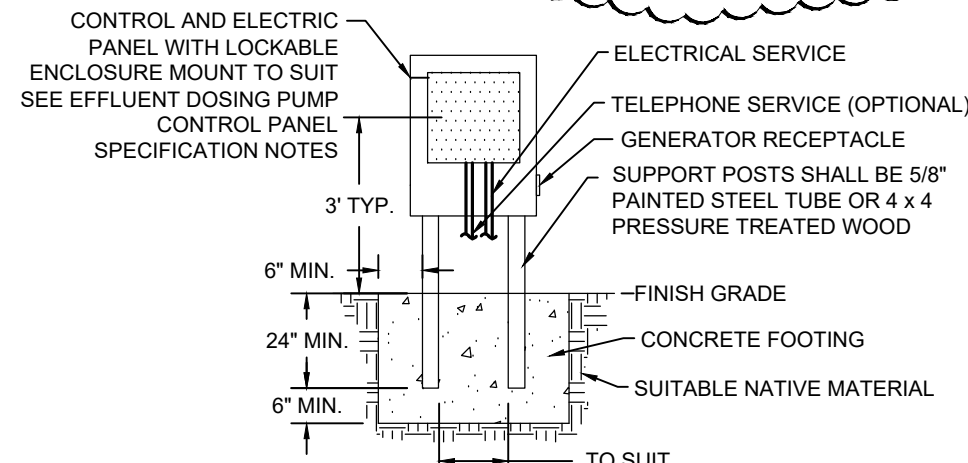
VALVE VAULT

SCITUATE PRECAST OR APPROVED EQUAL
6' L (ID) X 6' W (ID) X 5' D (ID)
NOT TO SCALE



MULTIZONE VALVE MANHOLE DETAIL

SCITUATE PRECAST OR APPROVED EQUAL
28" DIA (ID) X 36" D
NOT TO SCALE



CONTROL PANEL MOUNTING DETAIL

NOT SCALE

- NOTES:
1. A CLEAR WORK AREA OF 3-FT IS REQUIRED IN ALL DIRECTIONS OF THE PEDESTAL.
 2. ALL ELECTRICAL PER MA ELECTRICAL CODE.
 3. SERVICE DISCONNECT SHALL BE INSTALLED IF REQUIRED.
 4. TELEPHONE SERVICE IS OPTIONAL AND MAY BE REQUIRED DEPENDING ON THE REMOTE ALARM MONITORING SYSTEM SELECTED.

WASTEWATER NOTES

1. UNLESS OTHERWISE NOTED, ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE STATE ENVIRONMENTAL CODE AND THE RULES AND REGULATIONS OF THE LOCAL BOARD OF HEALTH.
2. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER AND/OR THE LOCAL BOARD OF HEALTH (BOH) STAFF.
3. FAILING TO PROPERLY INSPECT OR PUMP THE SEPTIC TANKS AND TREATMENT SYSTEM OR CHANGES TO EFFLUENT FLOW, GRADING, OR LANDSCAPING, EITHER ON-SITE OR ADJACENT TO THE SITE, MAY RESULT IN IMPROPER FUNCTIONING OF THE SEPTIC AND LEACHING SYSTEM(S).
4. THIS ON-SITE WASTEWATER TREATMENT SYSTEM IS NOT DESIGNED FOR USE WITH GARBAGE GRINDERS.
5. THE OWNER SHALL INSPECT AND HAVE THE SEPTIC TANK PUMPED EVERY 2 YEARS.
6. PROVIDE WATERTIGHT SEALS BY USE OF NON-SHRINK GROUT AT ALL POINTS WHERE PIPES ENTER OR LEAVE ANY CONCRETE STRUCTURES.
7. USE SCH. 40 PVC PIPING WITH WATERTIGHT JOINTS UNLESS OTHERWISE NOTED ON PLAN. ALL PIPE SHALL BE PLACED ON A COMPACTED FIRM BASE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING A HYDROSTATIC PRESSURE TEST ON THE NEW SEWER FORCE MAIN. THE TEST SHALL CONSIST OF HOLDING A PRESSURE OF 50 PSI IN THE FORCE MAIN FOR A PERIOD OF 1 HOUR. THE TEST SHALL BE WITNESSED BY THE ENGINEER.
9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING OPERATIONS AND MAINTENANCE INFORMATION FOR THE SEPTIC SYSTEM TO THE ENGINEER.
10. THE CONTRACTOR SHALL PROVIDE A DEWATERING PROTOCOL PRIOR TO CONSTRUCTION IF GROUNDWATER IS ANTICIPATED DURING CONSTRUCTION.
11. AREAS UNDER THE LEACHING FIELD FOUND TO HAVE UNSUITABLE SOIL MUST BE REPLACED WITH TITLE 5 SAND AS SPECIFIED IN 310 CMR 15.255(3). ANY AREAS THAT ARE FOUND TO HAVE UNSUITABLE MATERIAL SHALL BE REPORTED TO THE ENGINEER.
12. ALL SEPTIC COMPONENTS SHALL BE INSTALLED WITH MAGNETIC WARNING TAPE.
13. ALL SEPTIC TANKS SHALL BE APPLIED WITH 2 COATS OF DAMP PROOFING OR BITUMINOUS MATERIAL ON THE OUTSIDE OF THE TANKS.
14. THE CONTRACTOR SHALL PROVIDE OPERATOR TRAINING FOR EACH OF THE EQUIPMENT PROVIDED INCLUDING ALARM NOTIFICATION.

EFFLUENT DOSING PUMP CONTROL PANEL SPECIFICATION

1. USE DUPLEX ALTERNATING PUMPS CAPABLE OF 70 GPM AT 32- FEET OF TDH.
2. THE CONTRACTOR IS RESPONSIBLE FOR SETTING UP THE PUMPS, CONTROL PANEL, FLOAT SWITCH ELEVATIONS, AND ALL ELECTRICAL WIRING WITHIN THE PUMP CHAMBER. THE CONTRACTOR SHALL THEN CONDUCT A STARTUP TEST TO DEMONSTRATE THE PUMP CHAMBER IS FUNCTIONING AS DESIGNED PRIOR TO REQUESTING FOR A CLEAR WATER TEST, WHICH SHALL BE WITNESSED BY THE ENGINEER AND/OR THE LOCAL BOH.
3. THE PUMP ALARM PANEL SHALL BE INSTALLED ON A SEPARATE CIRCUIT FROM THE DOSING PUMPS.
6. THE CONTRACTOR SHALL INCLUDE AN ALLOWANCE FOR COORDINATING, INSTALLING AND PAYING FOR A MISSION MODEL 112 (NEMA 4) RTU REMOTE ALARM UNIT OR APPROVED EQUAL INCLUDING THE FIRST YEAR MONITORING FEE. A 110V OUTLET SHALL BE INSTALLED IN CLOSE PROXIMITY TO THE REMOTE ALARM FINAL LOCATION OF THE UNIT SHALL BE FIELD DETERMINED. MONITORING UNIT. THE FOLLOWING ALARMS SHALL BE MONITORED:
 - 6.1. PUMP 1 AND PUMP 2 FAIL
 - 6.2. LOW LEVEL ALARM
 - 6.3. HIGH LEVEL ALARM
 - 6.4. POWER FAIL ALARM
7. DUPLEX PUMP CONTROL PANEL SHALL CONSIST OF THE FOLLOWING:
 - 7.1. NEMA 4X LOCKABLE ENCLOSURE
 - 7.2. HAND-OFF-AUTO SWITCH
 - 7.3. ALARM TEST SWITCH
 - 7.4. PUMP RUN LIGHT
 - 7.5. ALARM LIGHT AND HORN WITH SILENCE SWITCH
 - 7.6. CONDENSATION HEATER
 - 7.7. LOW LEVEL CUT-OFF AND ALARM
 - 7.8. GENERATOR RECEPTACLE
8. PANEL SHALL BE SHIPPED LOOSE FOR REMOTE MOUNTING

WASTEWATER INSTALLATION INSPECTION NOTES

1. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 24 HOURS ADVANCE NOTICE TO THE ENGINEER, DEP AND LOCAL BOARD OF HEALTH FOR ANY INSPECTION.
2. ALL WASTEWATER SYSTEMS, INCLUDING THE LEACHING SYSTEM, SHALL BE INSPECTED BY THE ENGINEER AND A THE LOCAL BOH REPRESENTATIVE PRIOR TO BACKFILLING. AT A MINIMUM THE FOLLOWING ITEMS SHALL BE INSPECTED:
 - 2.1. EXCAVATION OF LEACHING FIELD PRIOR TO PLACING SYSTEM STONE/COMPONENTS
 - 2.2. LEACHING FIELD COMPLETE INSTALLATION PRIOR TO BACKFILL
 - 2.3. ALL SYSTEM COMPONENTS BASE AND INSTALLATION PRIOR TO BACKFILL
 - 2.4. START UP TEST OF SYSTEM WITH ALL COMPONENTS INSTALLED AND FUNCTIONING AS DESIGNED
 - 2.5. FINAL INSPECTION OF BACKFILLED SYSTEM
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN UP-TO-DATE RED LINED DRAWINGS AND NOTES INDICATING THE HORIZONTAL AND VERTICAL LOCATION WITH TWO TIES OF ALL SYSTEM COMPONENTS INSTALLED. THESE AS-BUILT DRAWINGS AND NOTES WILL BE UTILIZED BY THE ENGINEER FOR THE PREPARATION OF RECORD PLANS.

CLEAR WATER TEST PROTOCOL

1. VERIFY ALL FLOATS ARE SET AT THE DESIGN ELEVATION.
2. VERIFY ALL ALARM CONDITIONS ARE FUNCTIONING AS DESIGNED.
3. VERIFY ALL REMOTE ALARMS ARE NOTIFYING THE OPERATOR ACCORDINGLY.
4. VERIFY PUMPS ARE ALTERNATING AS DESIGNED AND DISTAL HEAD REQUIREMENTS ARE MET.

NOTE:

NOTIFY THE ENGINEER 72 HOURS IN ADVANCE OF THE CLEAR WATER TEST. THE SCHEDULE MAY HAVE TO BE ADJUSTED DUE TO AVAILABILITY OF BOH STAFF.

PERMITTING SET ONLY
NOT FOR CONSTRUCTION

Revisions

9/13/21	JEH	JEH REVISED LEACHING FIELD DESIGN
9/20/21	JEH	FPL SECOND PIER REVIEW COMMENT EDITS
12/12/21	FPL	JEH REVISED PER REDUCED AMT COUNT

Plan Set:

Survey Provided By:

Registration:

Horsley Witten Group, Inc.

90 Route 6A
Sandwich, MA 02563
Phone: (508) 833-6600
Fax: (508) 833-3150
Dated: JUNE 2019

Project Number:

Sheet :

19038

12 of 22

Sheet Number:
C - 12

CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS

WASTEWATER DETAILS

Prepared For:

PRESERVATION OF
AFFORDABLE HOUSING
2 OLIVER STREET, SUITE 200
BOSTON, MA 02109
Phone: (617) 261-9898
Fax: ---

Survey Provided By:

Horsley Witten Group, Inc.

90 Route 6A
Sandwich, MA 02563
Phone: (508) 833-6600
Fax: (508) 833-3150
Dated: JUNE 2019

Registration:

RICHARD A. CLAYTOR
CIVIL
NO. 45116
MASSACHUSETTS

12-13-2021

Checked By:

Drawn By:

Designed By:

Date:

BRK

EVH

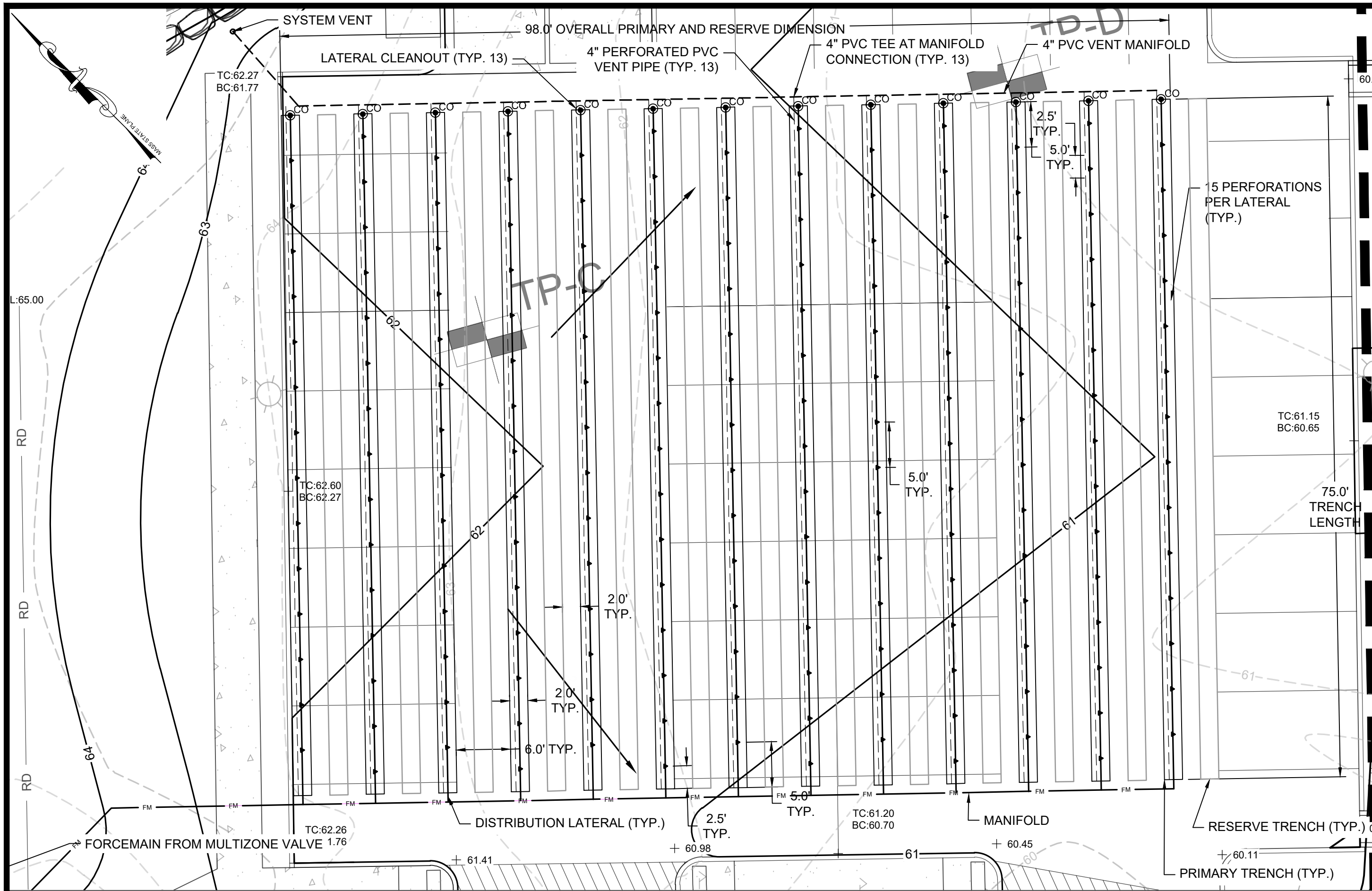
EVH

MARCH 5, 2021

Plan Title:

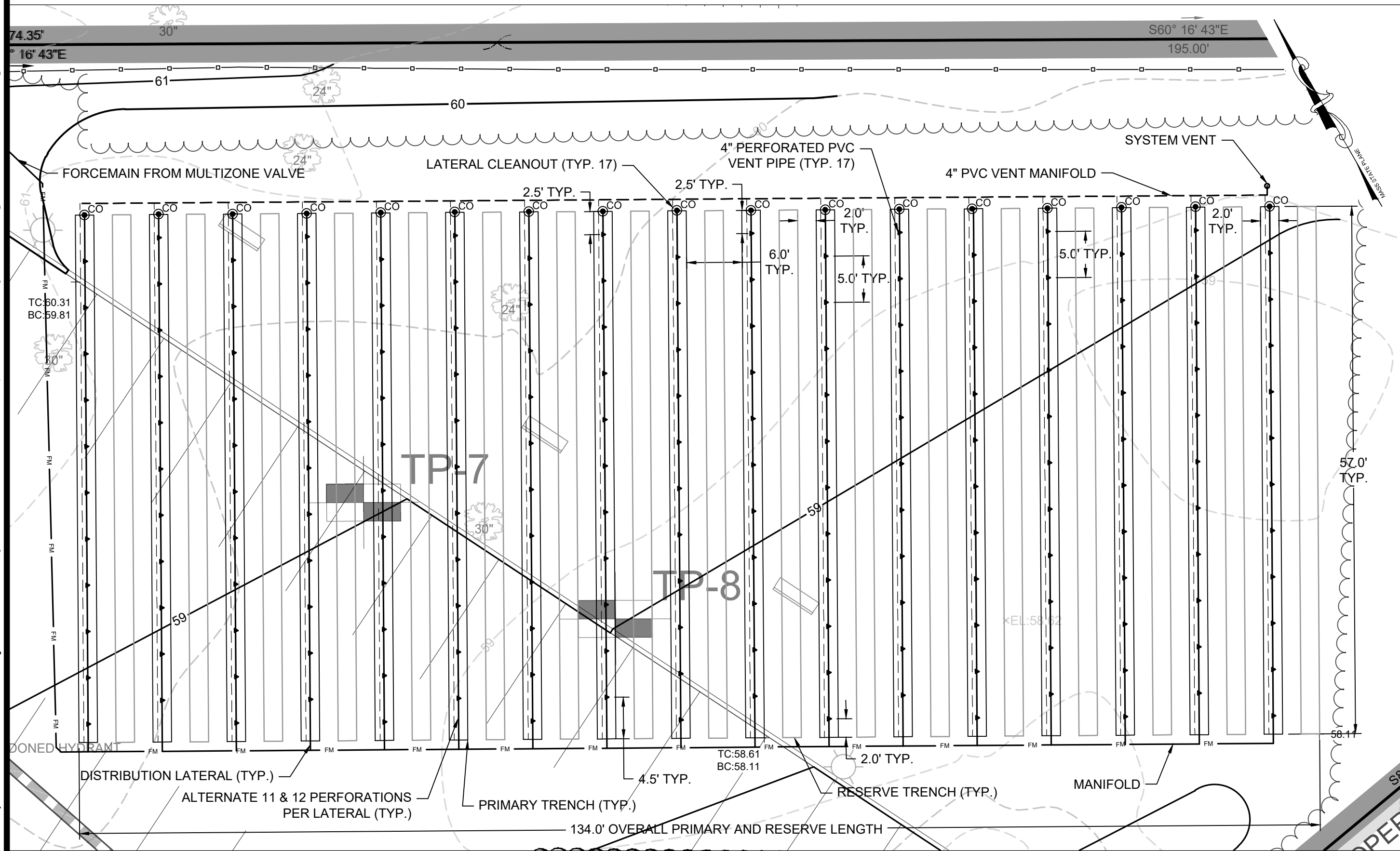
WASTEWATER DETAILS

last modified: 12/13/21 printed: 12/13/21 by eh K:\Projects\2019\19038 Cape View Way\Drawings\19038 UT.dwg



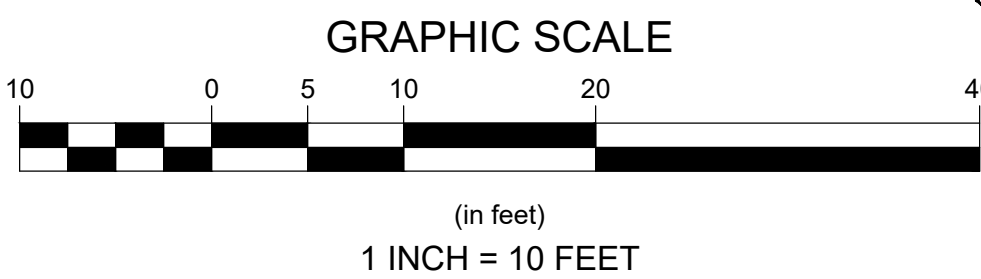
LEACHING FIELD 1 PLAN
SCALE: 1"=10'

NOTE:
SEE PRESSURE DOSE CALCULATIONS FOR PIPE SIZES



LEACHING FIELD 2 PLAN
SCALE: 1"=10'

NOTE:
SEE PRESSURE DOSE CALCULATIONS FOR PIPE SIZES

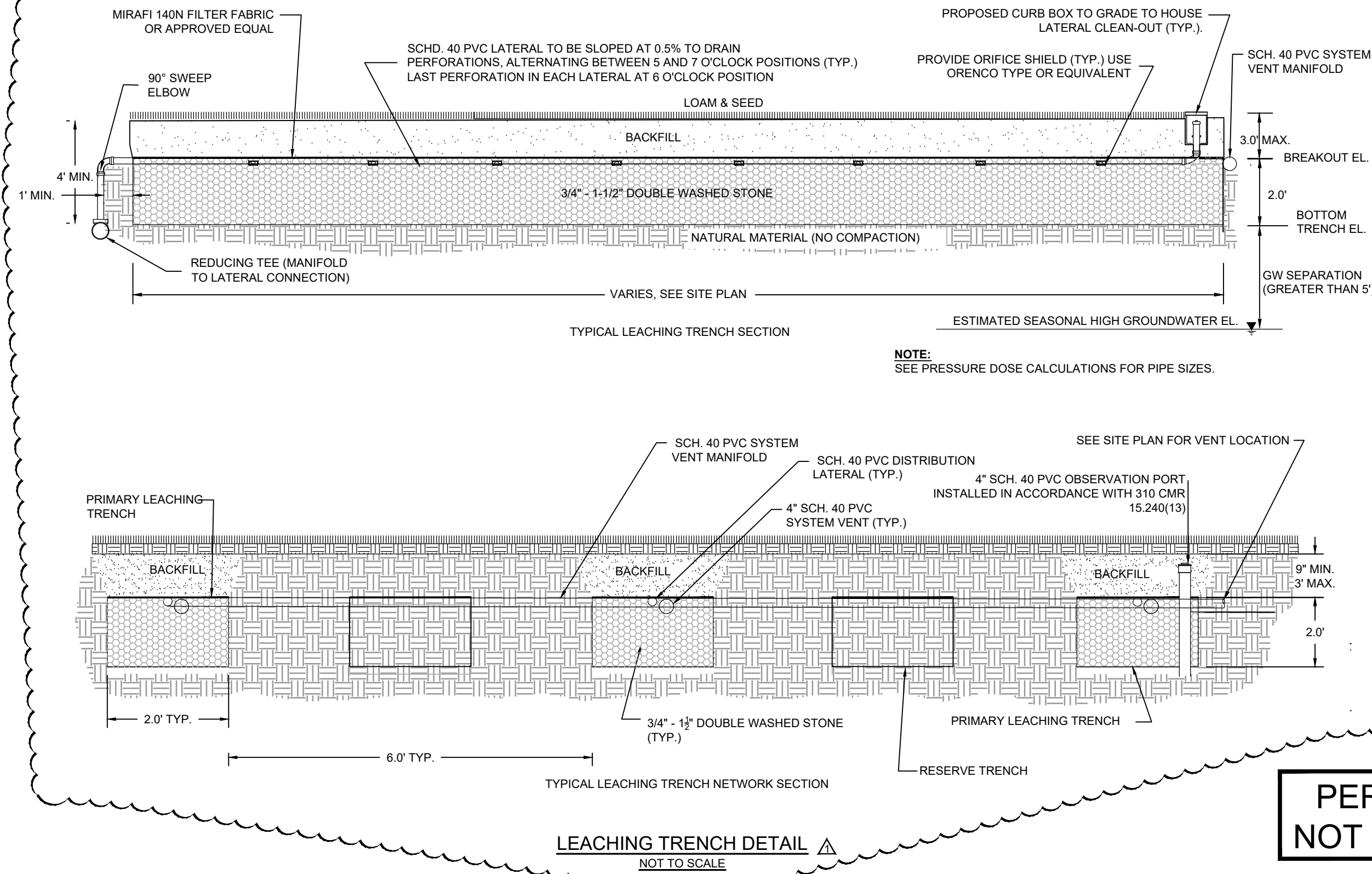


FIELD 1 - PRESSURE DISTRIBUTION CALCULATIONS	
TITLE 5 DESIGN FLOW	4,400 GPD
PERFORATIONS	
PERFORATION DIAMETER, Dp =	1/8 IN.
DISTAL IN-LINE PRESSURE, Hd =	3 FT. (2.5 FT. MIN.)
NUMBER OF PERFORATIONS/LATERAL, N =	15.00
PERFORATION SPACING, S =	5 FT.
LATERALS	
LATERAL SPACING, Ls =	8 FT.
LATERAL DIAMETER, Ld =	2 IN.
LENGTH OF LATERALS, L =	75 FT.
HAZEN-WILLIAMS COEFFICIENT, Ch =	140
NUMBER OF LATERALS, Ln =	13
FORCE MAIN AND MANIFOLD	
FORCE MAIN DIAMETER, Dfm =	4 IN.
LENGTH OF FORCE MAIN, Lfm =	167 FT.
MANIFOLD DIAMETER, Dm =	4 IN.
MANIFOLD LENGTH, Lm =	96 FT.
DISCHARGE RATES	
PERFORATION DISCHARGE RATE, q = 11.79 x (Dp)2 x (Hd)1/2 =	0.32 GPM
LATERAL DISCHARGE RATE, Ql, q x N =	4.80 GPM
SYSTEM DISCHARGE RATE, Q, Ql x Ln =	63 GPM
DOSING CALCULATIONS	
PIPING SYSTEM VOLUME, Vs =	331 GAL.
DOSE VOLUME, (5.0 x Vs) =	1,659 GAL.
DOSE VOLUME 4400 GPD/4 DOSES/DAY =	1,100 GAL.
USE:	
1,431 GALLON DOSE VOLUME	
HEAD LOSSES	
FRICITION LOSS IN FORCE MAIN, fl =	0.5 FT.
FRICITION LOSS IN MANIFOLD, fl =	0.3 FT.
FRICITION LOSS IN FITTINGS AND VALVES, fl =	0.2 FT.
NETWORK LOSSES, nl =	3.9 FT.
HEAD LOSS THROUGH DISTRIBUTION VALVE =	17.0 FT.
STATIC HEAD =	10.0 FT.
TOTAL HEAD =	31.9 FT.
PUMP PARAMETERS	
FLOW, Q =	70 GPM
TOTAL DYNAMIC HEAD =	32.0 FT.
USE PUMPS CAPABLE OF 70 GPM AT 32 FT HEAD	

FIELD 2 - PRESSURE DISTRIBUTION CALCULATIONS	
TITLE 5 DESIGN FLOW	4,400 GPD
PERFORATIONS	
PERFORATION DIAMETER, Dp =	1/8 IN.
DISTAL IN-LINE PRESSURE, Hd =	3 FT. (2.5 FT. MIN.)
NUMBER OF PERFORATIONS/LATERAL, N =	12.00
PERFORATION SPACING, S =	5 FT.
LATERALS	
LATERAL SPACING, Ls =	8 FT.
LATERAL DIAMETER, Ld =	2 IN.
LENGTH OF LATERALS, L =	57 FT.
HAZEN-WILLIAMS COEFFICIENT, Ch =	140
NUMBER OF LATERALS, Ln =	17
FORCE MAIN AND MANIFOLD	
FORCE MAIN DIAMETER, Dfm =	4 IN.
LENGTH OF FORCE MAIN, Lfm =	459 FT.
MANIFOLD DIAMETER, Dm =	4 IN.
MANIFOLD LENGTH, Lm =	128 FT.
DISCHARGE RATES	
PERFORATION DISCHARGE RATE, q = 11.79 x (Dp)2 x (Hd)1/2 =	0.32 GPM
LATERAL DISCHARGE RATE, Ql, q x N =	3.84 GPM
SYSTEM DISCHARGE RATE, Q, Ql x Ln =	66 GPM
DOSING CALCULATIONS	
PIPING SYSTEM VOLUME, Vs =	542 GAL.
DOSE VOLUME, (5.0 x Vs) =	2,714 GAL.
DOSE VOLUME 4400 GPD/4 DOSES/DAY =	1,100 GAL.
USE:	
1,642 GALLON DOSE VOLUME	
HEAD LOSSES	
FRICITION LOSS IN FORCE MAIN, fl =	1.4 FT.
FRICITION LOSS IN MANIFOLD, fl =	0.4 FT.
FRICITION LOSS IN FITTINGS AND VALVES, fl =	0.3 FT.
NETWORK LOSSES, nl =	3.9 FT.
HEAD LOSS THROUGH DISTRIBUTION VALVE =	14.0 FT.
STATIC HEAD =	10.0 FT.
TOTAL HEAD =	30.1 FT.
PUMP PARAMETERS	
FLOW, Q =	70 GPM
TOTAL DYNAMIC HEAD =	31.0 FT.
USE PUMPS CAPABLE OF 70 GPM AT 32 FT HEAD	

LEACHING FIELD 1									
Water Table Mounding Estimate Beneath Center of Entire Drain Field (L'W)									
Meters and Days	Length of Drain Field Subunit	Width of Drain Field Subunit	Separation between Drain Field Subunits	Fraction of Drain Field Subunit that is Trench Area	Horizontal Hydraulic Conductivity	Specific Yield use 0.001 to approximate steady state at 10 years	time use 10 years to approximate steady state		
	L _s	W _s	S _p	f	Kh	S _y	time		
	ft	ft	ft		ft/days	none	days		
	98	75	0	0.25	9	0.001	3650		
	L	W	q effective in subunit x ws	q' effective on LxW	Q	Zmax 12 iterations (Estimated Mound)	Initial Saturated Thickness		
Number of subunits, n	ft	ft	ft/day	ft/day	ft/day	gallons/day	ft		
1	98	75	0.0800	0.3201	0.0800	400	0.622	100	

NOTE: Saturated thickness of Aquifer estimated based on available water table contour and bedrock maps. Horizontal Hydraulic Conductivity is based on conversion of observed percolation rate.



LEACHING FIELD 2									
Water Table Mounding Estimate Beneath Center of Entire Drain Field (L'W)									
Meters and Days	Length of Drain Field Subunit	Width of Drain Field Subunit	Separation between Drain Field Subunits	Fraction of Drain Field Subunit that is Trench Area	Horizontal Hydraulic Conductivity	Specific Yield use 0.001 to approximate steady state at 10 years	time use 10 years to approximate steady state		
	L _s	W _s	S _p	f	Kh	S _y	time		
	ft	ft	ft		ft/days	none	days		
	130	57	0	0.25	9	0.001	3650		
	L	W	q effective in subunit x ws	q' effective on LxW	Q	Zmax 12 iterations (Estimated Mound)	Initial Saturated Thickness		
Number of subunits, n	ft	ft	ft/day	ft/day	ft/day	gallons/day	ft		
1	130	57	0.0794	0.3175	0.0794	4400	0.813	100	

NOTE: Saturated thickness of Aquifer estimated based on available water table contour and bedrock maps. Horizontal Hydraulic Conductivity is based on conversion of observed percolation rate.

LEACHING FIELD 1- SCHEDULE OF ELEVATIONS	
TRENCH INVERT IN BREAKOUT	59.21
LATERAL DISTAL INVERT	58.96
BOTTOM OF SYSTEM	57.38
ESHWG (BASED ON REGIONAL GW DATA)	10.00
MOUNDING (HANTUSH METHOD)	1.38
GW SEPARATION	45.89

LEACHING FIELD 2- SCHEDULE OF ELEVATIONS	
TRENCH INVERT IN BREAKOUT	56.69
LATERAL DISTAL INVERT	56.86
BOTTOM OF SYSTEM	54.86
ESHWG (BASED ON REGIONAL GW DATA)	10.00
MOUNDING (HANTUSH METHOD)	1.38
GW SEPARATION	43.48

PERMITTING SET ONLY
NOT FOR CONSTRUCTION

Revisions

19/03/2021	JEH	FPL	SECOND PIER REVIEW COMMENT EDITS
12/1/2021	JEH	FPL	REVISED PER REDUCED UNIT COUNT

Horsley Witten Group, Inc.

Sustainable Environmental Solutions

80 Route 6A

Sandwich, MA 02563

508-833-6600 voice

508-833-3150 fax

CAPE VIEW WAY

PERMITTING PLANS

BOURNE, MASSACHUSETTS

WASTEWATER LEACHFIELD DETAILS

Prepared For:

PRESERVATION OF AFFORDABLE HOUSING

2 OLIVER STREET, SUITE 200

BOSTON, MA 02109

Phone: (617) 261-9898

Fax: ---

Survey Provided By:

Horsley Witten Group, Inc.

80 Route 6A

Sandwich, MA 02563

Phone: (508) 833-6600

Fax: (508) 833-3150

Date: JUNE 2019

Registration:

Project Number:

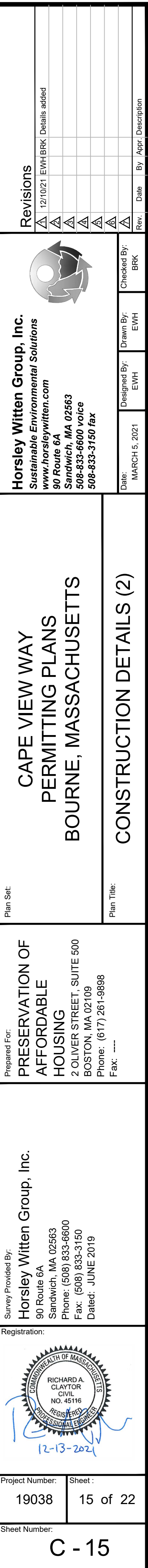
19038

Sheet:

13 of 22

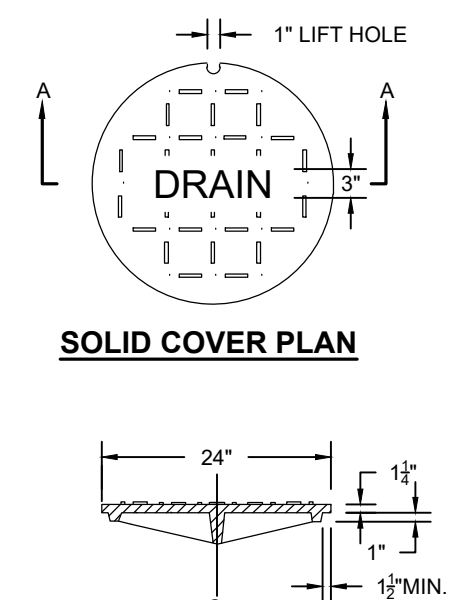
Sheet Number:

C - 13



Sheet Number:
C - 15

2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE.
3. JOINT ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS TO BE PREFORMED BUTYL RUBBER.
5. CATCH BASIN FRAME AND GRATE TO BE SET IN 12" X 12" WIDE MORTAR BED, ADJUST TO COMPLY WITH PRECAST CONCRETE RISER OR BRICK.
6. DO NOT PLACE MORTAR BED AROUND STRUCTURE UNTIL IT IS AT THE REQUIRED FINISH ELEVATION.
7. FRAME AND COVER TO CONFORM TO MASSACHUSETTS STANDARDS HEAVY DUTY (EAST JORDAN, NEEHAW, OR APPROVED EQUIVALENT).
8. HANG PIPE HOOD TO BE 90° BEND FASTENED TO PIPE WITH SEALANT. BEND TO HAVE 1 INCH PUGHOLE DRILLED INTO TOP OF ELBOW.



DRAINAGE STRUCTURE FRAME AND COVER/GRATE
NOT TO SCALE

SECTION C-C

BIORETENTION			
DESIGN STORM ELEVATIONS			
No.	WQv El. ³ (ft.)	25-yr El. ³ (ft)	100-yr El. ³ (ft)
1	58.98	59.50	59.58
2	62.96	63.16	63.21

C - 16

BIORETENTION CONSTRUCTION SEQUENCE

BIORETENTION CONSTRUCTION SEQUENCE
THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, ENGINEERS, AND LANDSCAPE ARCHITECTS AND SUBMIT A PROPOSED CONSTRUCTION SEQUENCE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

9. CONDUCT A PRE-CONSTRUCTION MEETING.
20. CHECK FOR EXISTING UTILITIES PRIOR TO ANY EXCAVATION.
3. CLEAR AND GRUB THE PROPOSED BIOTRETION AREA
4. ROUGH GRADE THE BIOTRETION AREA DURING GENERAL CONSTRUCTION.
5. EXCAVATE PRETREATMENT CELLS AND/OR SEDIMENT FOREBAYS PRIOR TO BIOTRETION CONSTRUCTION.
6. DO NOT CONSTRUCT THE BIOTRETION AREA UNTIL ALL DISTURBED AREAS WITHIN THE CONTRIBUTING DRAINAGE AREAS HAVE BEEN GRADED AND STABILIZED.
7. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS TO DIVERT STORMWATER AWAY FROM THE BIOTRETION AREA.
8. EXCAVATE THE BIOTRETION FACILITY TO THE BOTTOM INVERT OF THE SUBDRAIN SYSTEM. IF USED FOR FLOW CONTROL, THE EROSION MANAGEMENT DURING CONSTRUCTION PROVIDE A SURFACE ELEVATION AT A MINIMUM 1-FOOT ABOVE THE BOTTOM OF UNDERRAIN ELEVATION AS SHOWN IN THE BIOTRETION SCHEDULE. THIS ALLOWS FOR AN OVER-GO OF THE ACCUMULATED SEDIMENT FROM WITHIN THE BIOTRETION AREA PRIOR TO MEDIA/FABRIC INSTALLATION
9. PRIOR TO THE INSTALLATION OF FILTER FABRIC AND MEDIA WITHIN THE BIOTRETION AREAS, REMOVE AND PROPERLY DISPOSE OF SEDIMENT ACCUMULATED IN ANY PARTIALLY CONSTRUCTED OR TEMPORARY BIOTRETION/DRAINAGE AREA USED FOR SEDIMENT CONTROL DURING CONSTRUCTION.
- 10.
11. INSTALL THE FILTER FABRIC ALONG THE EXCAVATION SIDE WALLS. ENGINEER FIELD VISIT AND REPORT REQUIRED SEE NOTE (3) BELOW.
12. RIP THE BOTTOM SOILS TO A DEPTH OF SIX INCHES TO PROMOTE GREATER INFILTRATION.
13. INSTALL THE OVERFLOW OUTLET STRUCTURE AS SPECIFIED IN THE DRAWINGS.
14. INSTALL UNDERDRAIN AS INDICATED ON DRAWINGS. ENGINEER FIELD VISIT AND REPORT REQUIRED PRIOR TO COVERING THE UNDERDRAIN. SEE NOTE (3) BELOW.
15. INSTALL PEA GRAVEL LAYER AS INDICATED ON DRAWINGS.
16. DELIVER APPROVED BIOTRETION SOIL AND STORE ON ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING.
17. BACKFILL WITH APPROVED BIOTRETION SOIL TO THE DESIGN GRADE (UN-COMPACTED) AS INDICATED ON DRAWINGS. THE CONTRACTOR MUST SUBMIT A SOIL SAMPLE (2 LBS) TO THE ENGINEER PRIOR TO SOIL DELIVERY TO THE SITE.
18. STABILIZE ALL REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/OR EROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS. ENGINEER FIELD VISIT AND REPORT REQUIRED SEE NOTE (3) BELOW.
19. INSTALL BIOTRETION PLANTINGS AS INDICATED ON DRAWINGS. DO NOT PLANT BEFORE THE REMAINING DISTURBED AREAS SURROUNDING THE FACILITY ARE STABILIZED.
20. INSTALL MULCH LAYER AS INDICATED ON DRAWINGS. THE CONTRACTOR MUST SUBMIT A MULCH SAMPLE (1 GALLON) TO THE ENGINEER PRIOR TO INSTALLATION TO THE SITE.
21. CONDUCT FINAL CONSTRUCTION INSPECTION WITH ENGINEER. ENGINEER FIELD VISIT AND REPORT REQUIRED SEE NOTE (3) BELOW.
22. REMOVE REMAINING EROSION AND SEDIMENT CONTROLS ONLY AFTER SURROUNDING DISTURBED AREAS HAVE BEEN PROPERLY STABILIZED.

NOTES:

- (1.) SEE GENERAL CONSTRUCTION NOTES FOR OVERALL CONSTRUCTION SEQUENCE.
- (2.) SEE GENERAL NOTES/SPECIFICATIONS/CONSTRUCTION DETAILS FOR DETAILED CONSTRUCTION REQUIREMENTS.
- (3.) MANDATORY NOTIFICATION/APPROVAL OF THE PROJECT ENGINEER IS REQUIRED PRIOR TO PROCEEDING WITH NEXT STAGE. CALL THE ENGINEER (HORSLEY WITTEN GROUP, INC.) AT 508-833-6600 PRIOR TO 12:00 NOON THE PRECEDING DAY TO ARRANGE FOR ANY REQUESTED FIELD VISITS.

CONSTRUCTION NOTES

- 1. EXAMINATION**
- A. VERIFY LAYOUT AND ORIENTATION OF BIORETENTION AREA AND CONNECTIONS.
- B. VERIFY EXCAVATION BASE IS READY TO RECEIVE WORK AND EXCAVATIONS, DIMENSIONS, AND ELEVATIONS ARE AS INDICATED ON DRAWINGS.
- 2. PREPARATION**
- A. CALL DIGSAFE AT 1-888-DIG-SAFE (1-888-344-7233) NOT LESS THAN **THREE** BUSINESS DAYS BEFORE PERFORMING WORK.
- B. REQUEST UNDERGROUND UTILITIES TO BE LOCATED AND MARKED WITHIN AND SURROUNDING CONSTRUCTION AREAS.
- C. IDENTIFY REQUIRED LINES, LEVELS, CONTOURS, AND DATUM.
- D. CLEAR AND GRUB THE PROPOSED BIORETENTION AREA.
- 3. EXCAVATION**
- A. EXCAVATE BIORETENTION AREA IN ACCORDANCE WITH GENERAL NOTES AND SPECIFICATIONS.
- B. TO MINIMIZE COMPACTION, WORK EXCAVATORS OR BACKHOES FROM THE SIDES TO EXCAVATE THE AREA FROM ABOVE AREA TO ITS APPROPRIATE DESIGN DEPTH AND DIMENSIONS. USE EXCAVATING EQUIPMENT WITH ADEQUATE REACH SO THEY DO NOT WORK IN THE FOOTPRINT OF THE BIORETENTION AREA. IF APPLICABLE AND PER THE ENGINEERS DIRECTION USE A CELL CONSTRUCTION APPROACH IN LARGER BIORETENTION BASINS, WHEREBY THE BASIN IS SPLIT INTO 500 TO 1000 SQUARE FOOT TEMPORARY CELLS WITH A 10 TO 15 FOOT EARTH BRIDGE IN BETWEEN, SO THAT CELLS CAN BE EXCAVATED FROM THE SIDE.
- C. EXCAVATE AND SEAL ANY PRETREATMENT CELLS AND/OR SEDIMENT FOREBAYS FIRST AND SEALED TO TRAP SEDIMENTS PER THE DRAWINGS.
- D. ROUGH GRADE THE BIORETENTION AREA DURING GENERAL CONSTRUCTION. EXCAVATE THE BIORETENTION FACILITIES TO WITHIN 1 FOOT OF UNDERDRAIN BOTTOM.
- E. IF THE BIORETENTION AREA IS TO BE USED AS A TEMPORARY DRAINAGE STORAGE BASIN DURING THE EARLY STAGES OF PROJECT CONSTRUCTION, THE SIDE SLOPES SHOULD BE TEMPORARILY STABILIZED WITH EROSION CONTROL FENCE INSTALLED ALONG THE TOE OF THE ROUGH GRADED BIORETENTION SLOPES TO MINIMIZE EXCESSIVE SEDIMENTATION OF THE BIORETENTION FLOOR.
- 4. COMPACTION**
- A. MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
- B. USE EXCAVATOR OR BACKHOES TO EXCAVATE THE BIORETENTION AREA.
- C. IF THE BIORETENTION AREA IS EXCAVATED USING A LOADER, USE ONLY WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND STORAGE VOLUMES AND IS NOT ACCEPTABLE.
- D. COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE PERFORMED TO REFRACTURE THE SOIL PROFILE THROUGH THE 12-IN COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
- E. DO NOT COMPACT BIORETENTION SOIL WITH MECHANICAL EQUIPMENT.
- 5. EMBANKMENT/BERM FILL**
- A. CONSTRUCT EMBANKMENT/BERM IN ACCORDANCE WITH SPECIFICATIONS AND AS INDICATED ON DRAWINGS.
- 6. INSTALLATION**
- A. DO NOT CONSTRUCT THE BIORETENTION AREA UNTIL ALL DISTURBED AREAS WITHIN THE CONTRIBUTING DRAINAGE AREAS HAVE BEEN GRADED AND STABILIZED.
- B. REMOVE SEDIMENT ACCUMULATED ALONG THE EXCAVATION FLOOR DURING SITE CONSTRUCTION PRIOR TO CONTINUING WITH THE BIORETENTION FACILITY CONSTRUCTION.
- C. FORM BOTTOM OF EXCAVATION TO CORRECT ELEVATION.
- D. IF INFILTRATION IS PROMOTED, THEN RIP THE BOTTOM SOILS TO A DEPTH OF SIX INCHES TO PROMOTE GREATER INFILTRATION.
- E. INSTALL THE FILTER FABRIC ALONG THE EXCAVATION SIDE WALLS AS SPECIFIED IN THE DRAWINGS. IF FILTER FABRIC IS TO BE INSTALLED PLACE THE FILTER FABRIC ON THE SIDES OF THE BIORETENTION AREA WITH A MINIMUM SIX-INCH OVERLAP AT ALL JOINTS.
- F. INSTALL ANY TEMPORARY EROSION AND SEDIMENT CONTROLS TO DIVERT STORMWATER AWAY FROM THE BIORETENTION AREA DURING FINAL CONSTRUCTION AND UNTIL IT IS COMPLETED. SPECIAL PROTECTION MEASURES SUCH AS EROSION CONTROL FABRICS MAY BE NEEDED TO PROTECT VULNERABLE SIDE SLOPES FROM EROSION DURING THE CONSTRUCTION PROCESS.
- G. ESTABLISH ELEVATIONS AND PIPE INVERTS FOR INLETS AND OUTLETS AS INDICATED ON DRAWINGS.
- H. INSTALL THE OVERFLOW OUTLET STRUCTURE AS INDICATED ON DRAWINGS.
- I. INSTALL UNDERDRAIN, INCLUDING 4 INCH PERFORATED PIPE, GRAVEL AND FILTER FABRIC ON TOP OF THE UNDERDRAIN GRAVEL AS INDICATED ON DRAWINGS. PLACE GRAVEL AROUND THE UNDERDRAIN PIPE AS INDICATED IN THE DETAILS. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (SEE PLANS FOR LOCATION).
- J. INSTALL PEA GRAVEL LAYER AS INDICATED ON DRAWINGS.
- K. DELIVER EQUIPMENT, BIORETENTION SOIL AND STORE ON ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING.
- 7. BACKFILLING**
- A. BACKFILL WITH APPROVED BIORETENTION SOIL TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
- B. PLACE SOIL IN 12 INCH LIFTS UNTIL DESIRED TOP ELEVATION OF BIORETENTION SOIL IS ACHIEVED. DO NOT EXCEED ANY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. WAIT 3 DAYS TO CHECK FOR

- C. SETTLEMENT, AND ADD ADDITIONAL MEDIA AS NEEDED.
- D. DO NOT COMPACT BIOTRENTION SOIL WITH MECHANICAL EQUIPMENT.
- D. GRADE BIOTRENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- E. STABILIZE ALL REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/OR EROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.

8. **PLANTING**

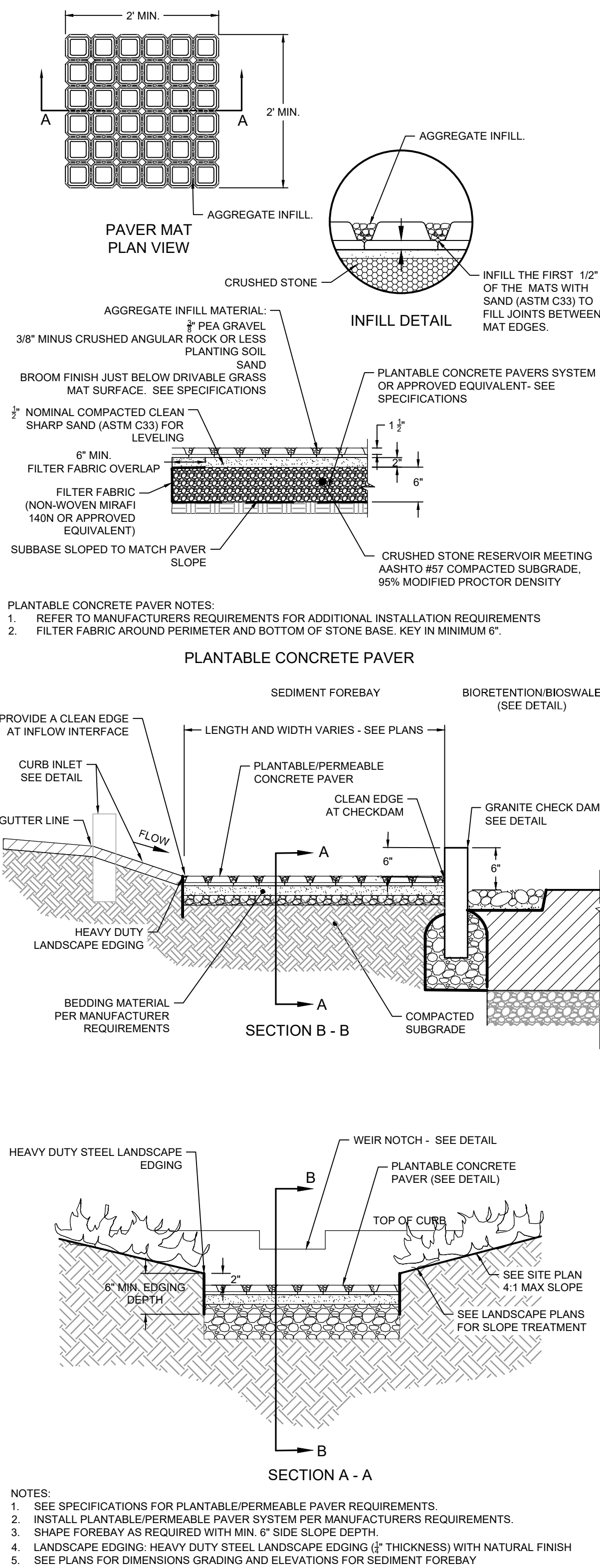
- A. PLANT BIOTRENTION AREA IN ACCORDANCE WITH PLANTING PLANS AND SPECIFICATIONS.
- B. THE PRIMARY FUNCTION OF THE BIOTRENTION STRUCTURE IS TO IMPROVE WATER QUALITY. DO NOT ADD FERTILIZERS OR OTHER SOIL AMENDMENTS TO THE BIOTRENTION SOILS UNLESS INSTRUCTED BY THE ENGINEER. THE PLANTING SOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING.
- C. INSTALL BIOTRENTION PLANTINGS AS INDICATED ON DRAWINGS. WATER DURING WEEKS OF NO RAIN FOR THE FIRST TWO MONTHS.
- D. DO NOT PLANT BEFORE THE REMAINING DISTURBED AREAS SURROUNDING THE FACILITY ARE STABILIZED.
- E. REMOVE SEDIMENT ACCUMULATED IN THE BIOTRENTION AREA DURING THE PLANTING PHASE.
- F. IF SUITABLE VEGETATIVE COVER HAS NOT BEEN ESTABLISHED ALONG THE BIOTRENTION SIDE SLOPES PRIOR TO PLANTING, INSTALL A SILT FENCE PERIMETER AT THE TOE OF THE BIOTRENTION SLOPES AND IN PLACE UNTIL AN APPROVED VEGETATIVE COVER HAS BEEN ESTABLISHED.
- G. INSTALL MULCH LAYER AS INDICATED ON DRAWINGS. MIX APPROXIMATELY HALF OF THE SPECIFIED MULCH LAYER INTO THE BIOTRENTION SOIL TO A DEPTH OF APPROXIMATELY 4 INCHES TO HELP FOSTER A HIGHLY ORGANIC SURFACE LAYER.
- H. REMOVE REMAINING EROSION AND SEDIMENT CONTROLS ONLY AFTER SURROUNDING DISTURBED AREAS HAVE BEEN PROPERLY STABILIZED.
- I. CONDUCT FINAL CONSTRUCTION INSPECTION WITH ENGINEER.

MATERIAL SPECIFICATIONS

- BIOTENTATION SOIL**
- SUBMIT SOIL SAMPLE (2LBS) AND TESTING ANALYSIS RESULTS BY A QUALIFIED SOIL TESTING LABORATORY INDICATING ALL INTERPRETING TEST RESULTS FOR COMPLIANCE WITH THE FOLLOWING PARAMETER:
- 1. UNIFORM SOIL MIX, FREE OF NOXIOUS WEEDS AND STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 1 INCH.**
 - B. PROVIDE USDA UNIFIED SOIL CLASSIFICATION: LOAMY SAND**
 - C. PROVIDE A TEXTURAL ANALYSIS INCLUDING THE GRADATION AND PERCENTAGES OF SAND, SILT, AND CLAY CONTENT**
 - 85-88% SAND (< 10% COARSE SAND)
 - 8-12% SILT AND CLAY (< 2% CLAY)
 - D. ORGANIC MATTER: 3%**
 - WELL AGED (6-12 MONTHS), WELL AERATED, LEAF COMPOST OR APPROVED EQUIVALENT
 - E. PROVIDE A SOIL TEST OF THE BIOTENTATION SOIL FOR CONFORMANCE TO THE FOLLOWING CRITERIA:**

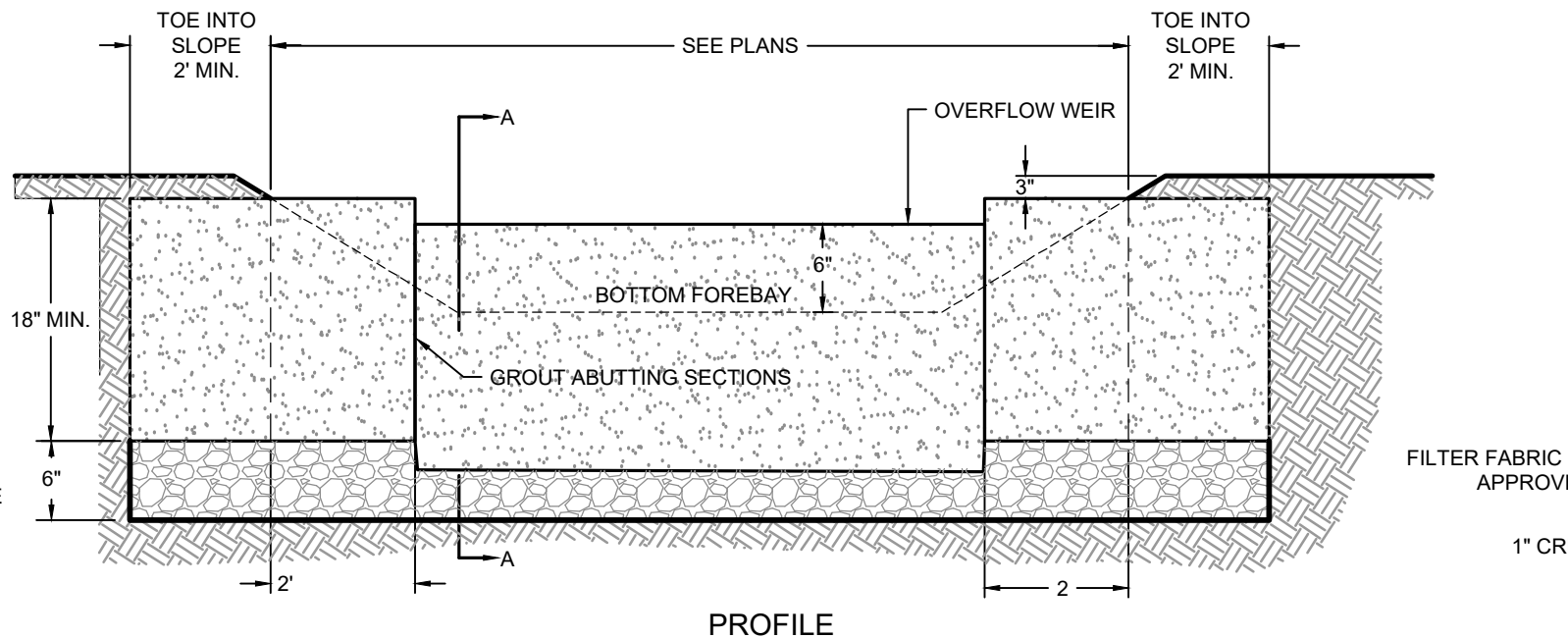
PH RANGE:	5.2-7.0
MAGNESIUM:	MINIMUM 32 PPM.
PHOSPHORUS (P2O5):	NOT TO EXCEED 69 PPM.
POTASSIUM (K2O):	MINIMUM 78 PPM.
SOLUBLE SALTS:	NOT TO EXCEED 500 PPM.

IF THE SOIL PH IS NOT WITHIN THE ACCEPTABLE RANGE, AMEND WITH LIME TO RAISE THE PH OR WITH IRON SULFATE TO LOWER THE PH, AS NECESSARY. ALL TESTING SHOULD BE PERFORMED BY THE SAME TESTING FACILITY TO MAINTAIN CONSISTENT RESULTS. SUBMIT THE SOIL SAMPLE RESULTS TO THE ENGINEER REVIEW AND APPROVAL PRIOR TO DELIVERY TO THE PROJECT SITE.
 - F. VOLUME OF FILTER MEDIA BASED ON 110% OF PLANT VOLUME TO ACCOUNT FOR SETTLING OR COMPACTION.**
 - G. DO NOT MIX, DUMP OR STORE ANY OTHER MATERIALS OR SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE A HINDRANCE TO THE PLANTING MAINTENANCE OR OPERATIONS WITHIN THE BIOTENTATION AREA.**
- 2. FILTER FABRIC**
- A. NON-WOVEN GEOTEXTILE FABRIC WITH FLOW RATE OF > 110 GALLONS/MINUTES/SQUARE FOOT.**
 - C. CLASS "C" APPARENT OPENING SIZE (ASTM-D-4751).**
 - D. GRAB TENSILE STRENGTH (ATSM-D-4632) BURST STRENGTH (ASTM-D-4833).**
- 3. PEA GRAVEL**
- A. 3/8" WASHED STONE**
- 5. UNDERDRAIN GRAVEL**
- A. 3/4" CRUSHED WASHED STONE, CLEAN AND FREE OF ALL FINES AND MEETING AASHTO M-43.**
- 6. PIPE**
- A. UNDERDRAIN**
 - 1" RIGID SCHEDULE 40 PVC PIPE, WITH 3/8" PERFORATIONS @ 6" O.C. MEETING ASTM D 1785 OR AASHTO M-278.
 - TS AND Y5 FITTINGS AS REQUIRED FOR THE UNDERDRAIN CONFIGURATION INDICATED ON DRAWING.
 - B. CONNECTIONS TO STORM DRAIN SYSTEM.**
 - C. UNDERDRAIN CLEANOUTS**
 - NON PERFORATED SCHEDULE 40 PVC PIPE, PVC ELBOW, CAP, AND ALL ASSOCIATED FITTINGS.
- 7. EROSION CONTROL BLANKET (3:1 SIDE SLOPES ONLY)**
- A. WOVEN, 100% BIODEGRADABLE JUTE FIBER 7.70 LBS/1000 SQFT.**
BIONET S150BN OR APPROVED EQUIVALENT.
- 8. PLANTS**
- A. AS INDICATED ON DRAWINGS.**
- 9. SEED (SIDE SLOPES ONLY)**
- A. NEW ENGLAND CONSERVATION/WILDLIFE MIX OR APPROVED EQUIVALENT.**
 - B. APPLICATION RATE 25 LBS/ ACRES OR PER SEED MANUFACTURER'S REQUIREMENTS.**
- 10. OUTLET STRUCTURE**
- A. SIZE AS INDICATED ON DRAWINGS.**
 - B. FIBERGLASS REINFORCED PLASTIC MANHOLES OF SIZE INDICATED ON DRAWINGS.**



SEDIMENT FOREBAY

NOT TO SCALE

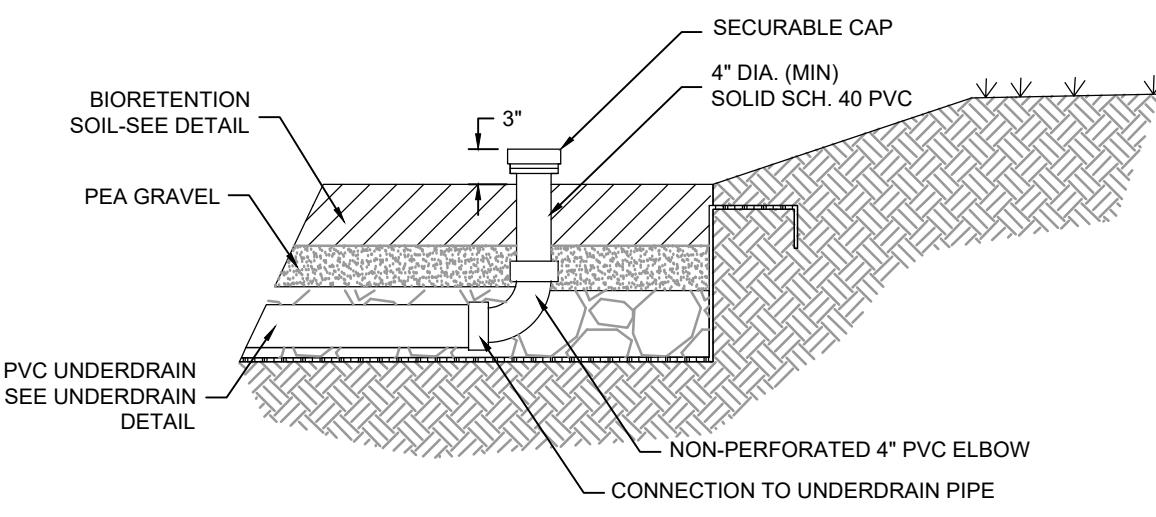


NOTE:

1. KEY GRANITE CURBING INTO THE FOREBAY SIDE SLOPES AND EXTEND A MINIMUM OF 2' TO PREVENT FLOW FROM DIVERTING THE CHECK DAM
2. GROUT ABUTTING SECTIONS OF GRANITE CURBING.

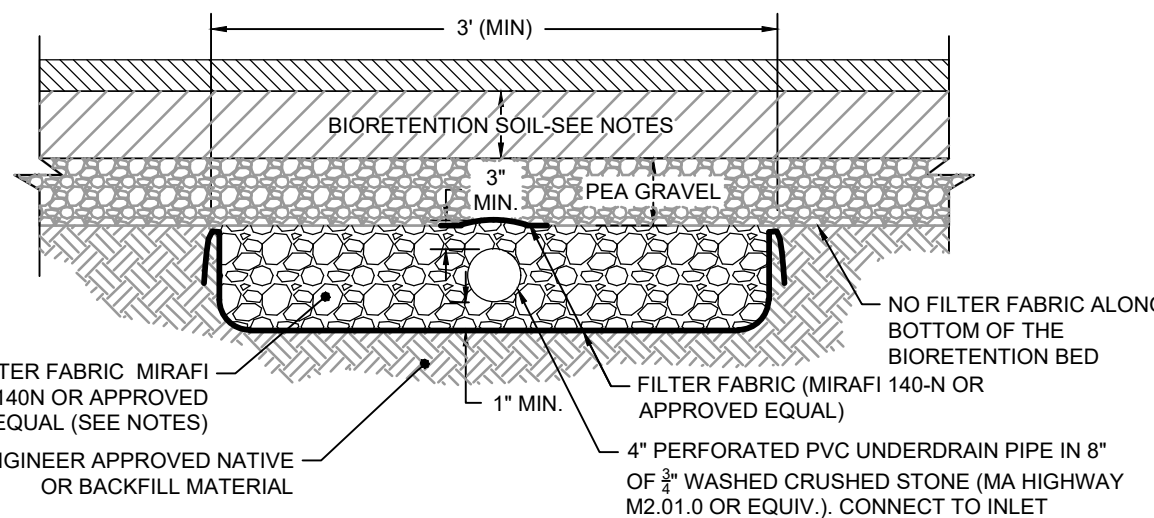
SEDIMENT FOREBAY CHECKDAM

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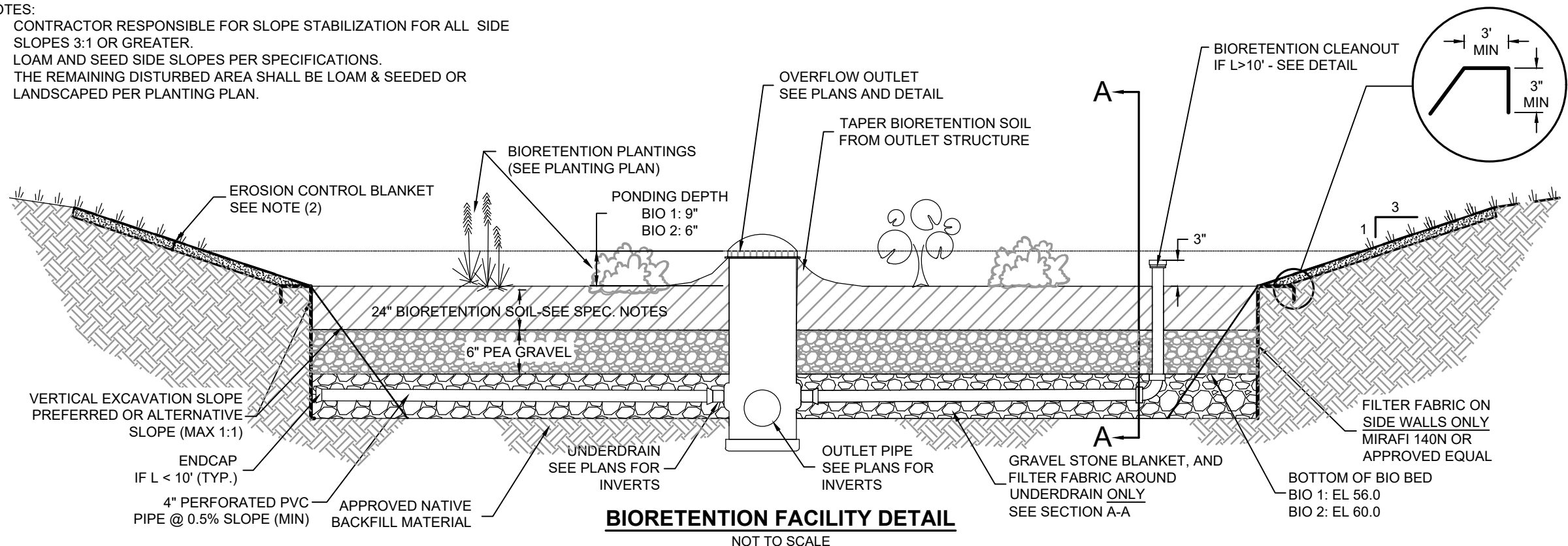
BIORETENTION CLEANOUT

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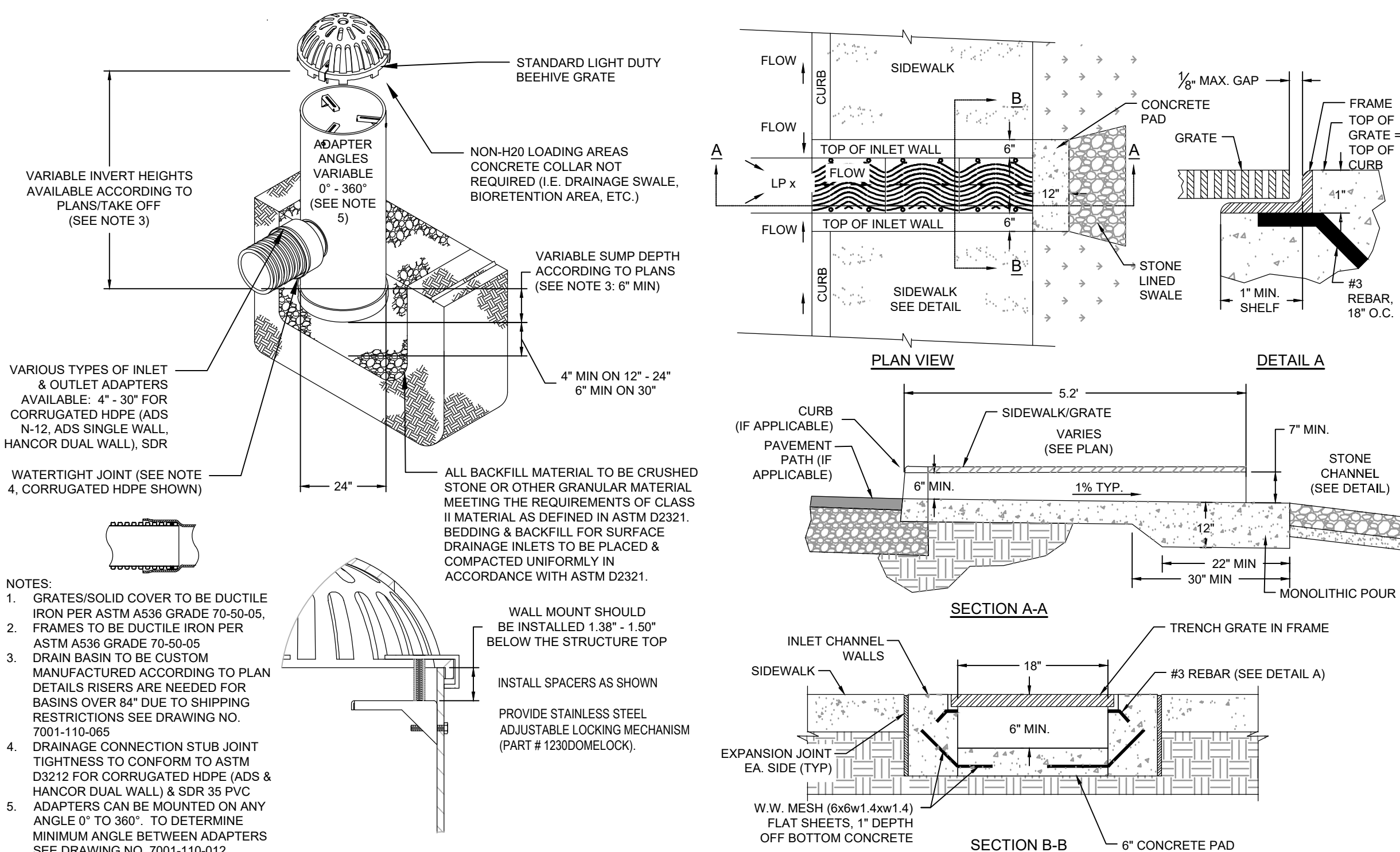


BIORETENTION FACILITY SECTION A-A

NOT TO SCALE



BIORETENTION FACILITY DETAIL

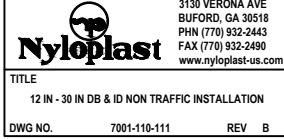


CUTOUT DETAIL

DRAIN BASIN

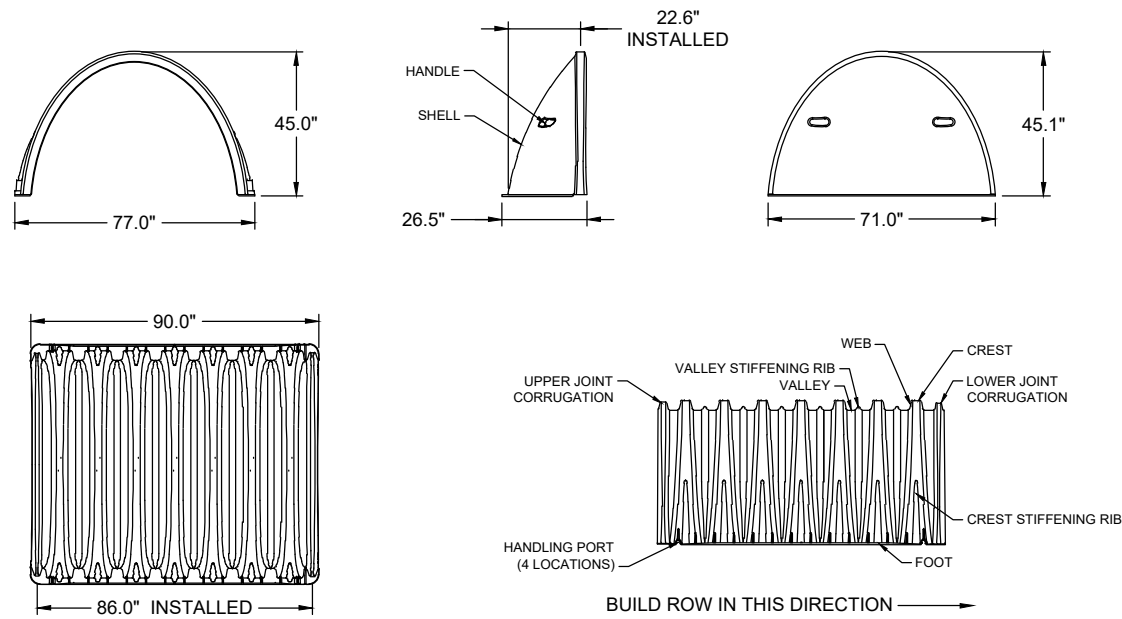
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BY "NYLOPLAST" OR APPROVED EQUIVALENT



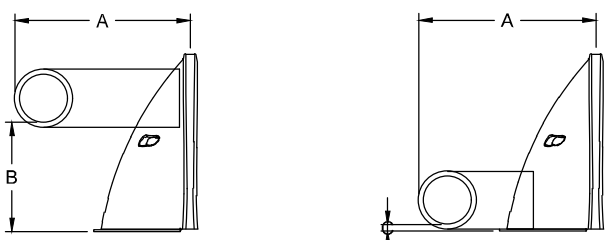
PERMITTING SET ONLY
NOT FOR CONSTRUCTION

- ALL DESIGN SPECIFICATIONS FOR STORMTECH MC-3500 CHAMBERS SHALL BE IN ACCORDANCE WITH THE STORMTECH MC-3500 DESIGN MANUAL
- THE INSTALLATION OF STORMTECH MC-3500 CHAMBERS SHALL BE IN ACCORDANCE WITH THE LATEST STORMTECH MC-3500 INSTALLATION INSTRUCTIONS
- THE CONTRACTOR IS ADVISED TO REVIEW AND UNDERSTAND THE INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION. CALL 1-888-892-2694 OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF THE LATEST STORMTECH MC-3500 INSTALLATION INSTRUCTIONS
- CHAMBERS SHALL MEET THE DESIGN REQUIREMENTS AND LOAD FACTORS SPECIFIED IN SECTION 12.12 OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS



NOMINAL MC-3500 CHAMBER SPECIFICATIONS	
SIZE (L x W x H)	59" x 77" x 45"
CHAMBER STORAGE	113.0 R ³
MINIMUM INSTALLED STORAGE	175.5 R ³
WEIGHT	124 lbs.

NOMINAL MC-3500 END CAP SPECIFICATIONS	
SIZE (L x W x H)	26.5" x 71" x 45"
ENDCAP STORAGE	15.6 R ³
MINIMUM INSTALLED STORAGE	45.6 R ³
WEIGHT	43 lbs.



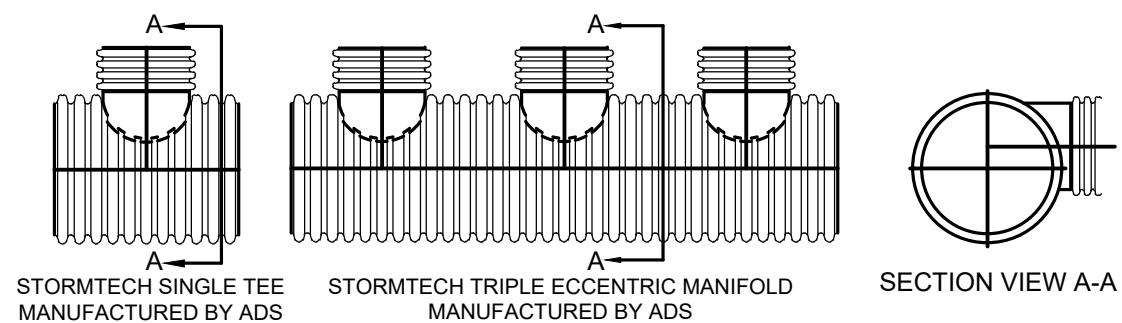
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TN"

PART#	STUB	A	B	C
MC3500TEPE12T	12"	27.62"	29.36"	N/A
MC3500TEPE15T	15"	35.25"	33.39"	N/A
MC3500TEPE16B	16"	33.50"	1.50"	N/A
MC3500TEPE18T	18"	61.39"	20.03"	N/A
MC3500TEPE18B	18"	56.77"	1.77"	N/A
MC3500TEPE24B	24"	N/A	2.66"	N/A

NOTE: ALL DIMENSIONS ARE NOMINAL

STORMTECH INVENTORIED MANIFOLDS AND PRECORED END CAPS INCLUDE 24" BOTTOM (MC3500TEPE24B), 18" BOTTOM (MC3500TEPE18B) AND 15" TOP (MC3500TEPE15T).
OTHER PIPE SIZES AND PRECORED END CAPS ARE AVAILABLE UPON SPECIAL ORDER.

CHAMBER NOT TO SCALE



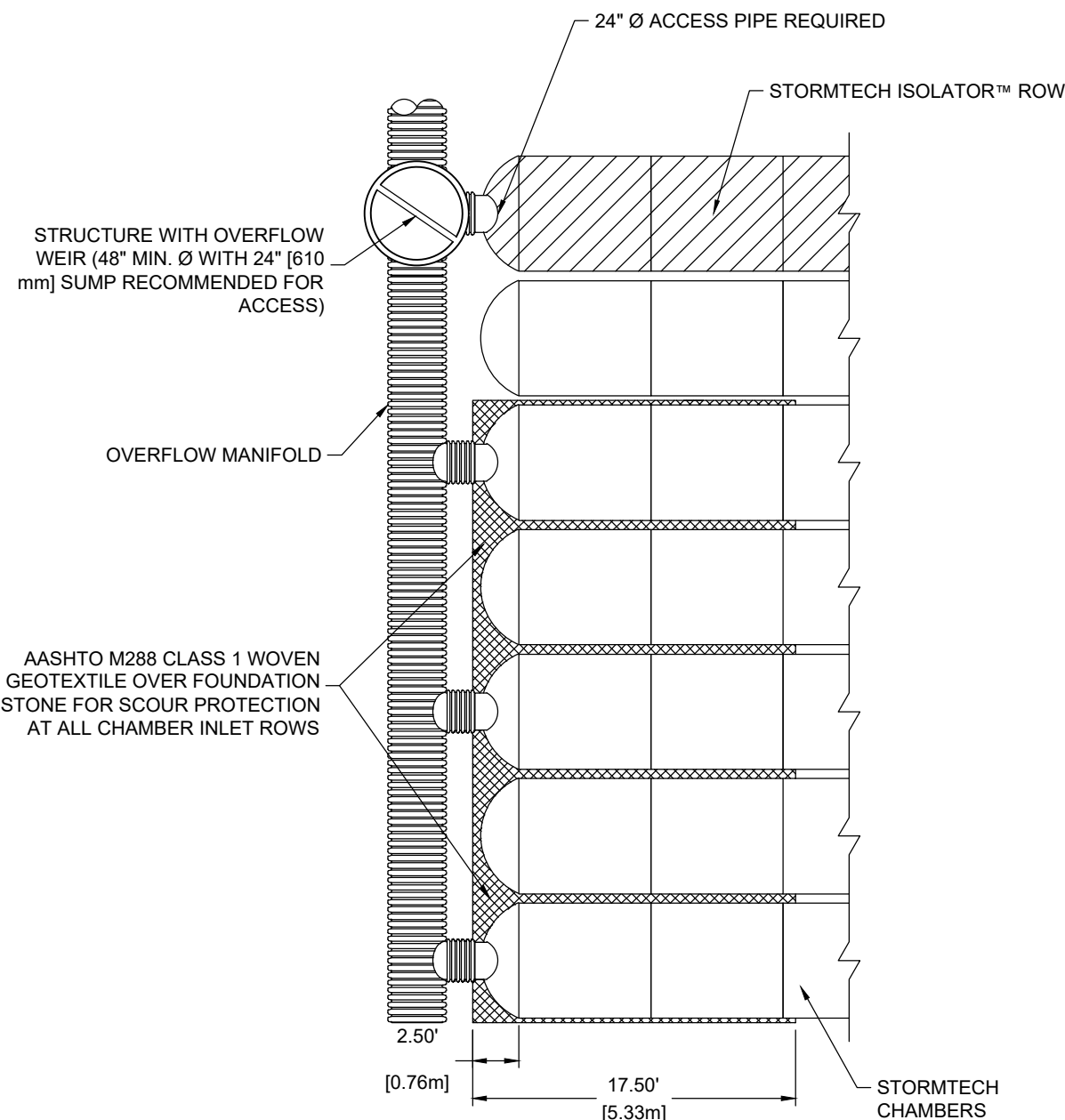
STUB SIZE	48"	42"	36"	30"	24"	18"	15"	12"	10"	8"	6"
12"	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL
10"	-	-	-	-	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	-
8"	-	-	-	-	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	-
6"	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL	AVAIL

AVAIL - STANDARD HEADERS AVAILABLE

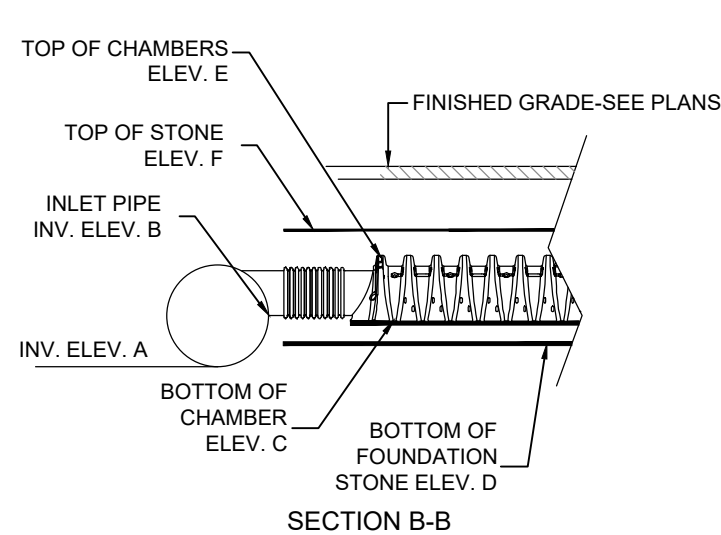
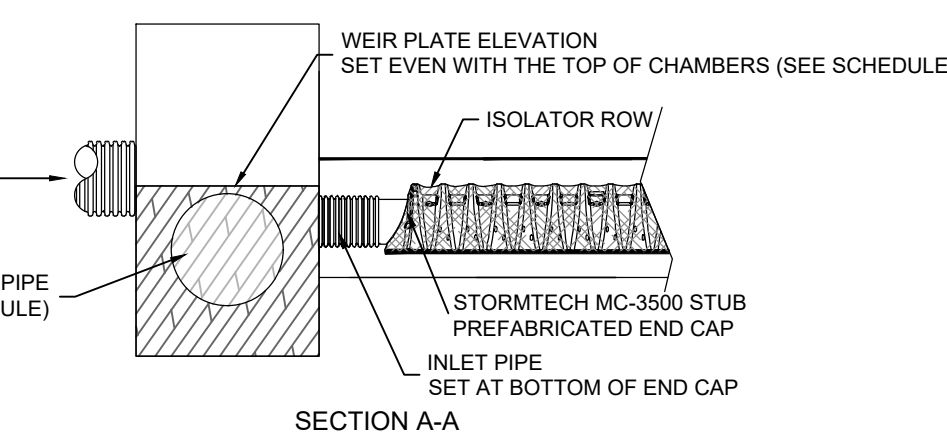
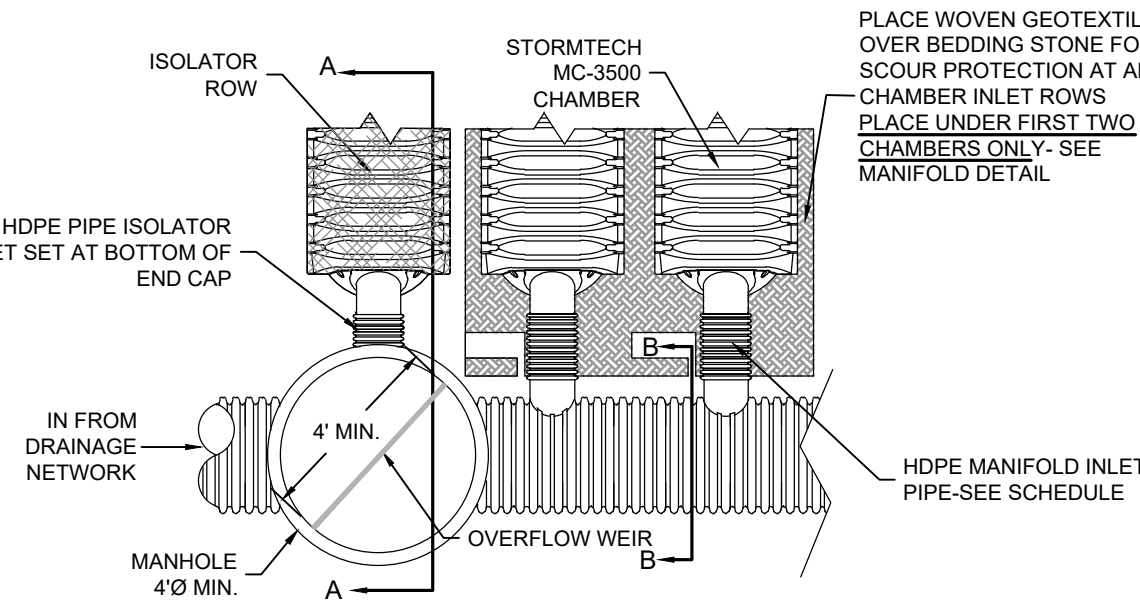
MANIFOLDS ARE DESIGNED TO BE COUPLED TO STORMTECH PREFABRICATED END CAPS. WHEN USING STANDARD END CAPS, CORRUGATED PIPE UP TO 10 INCHES CAN BE INSERTED DIRECTLY INTO THE END CAP. FOR 12" INLET PIPES, A CORRUGATED TO SMOOTH PIPE ADAPTER IS REQUIRED.

ADS MANIFOLD DETAIL NOT TO SCALE

FOR INFORMATION
CALL 1-888-892-2694



MANIFOLD NOT TO SCALE



STORMTECH SYSTEM DETAIL NOT TO SCALE

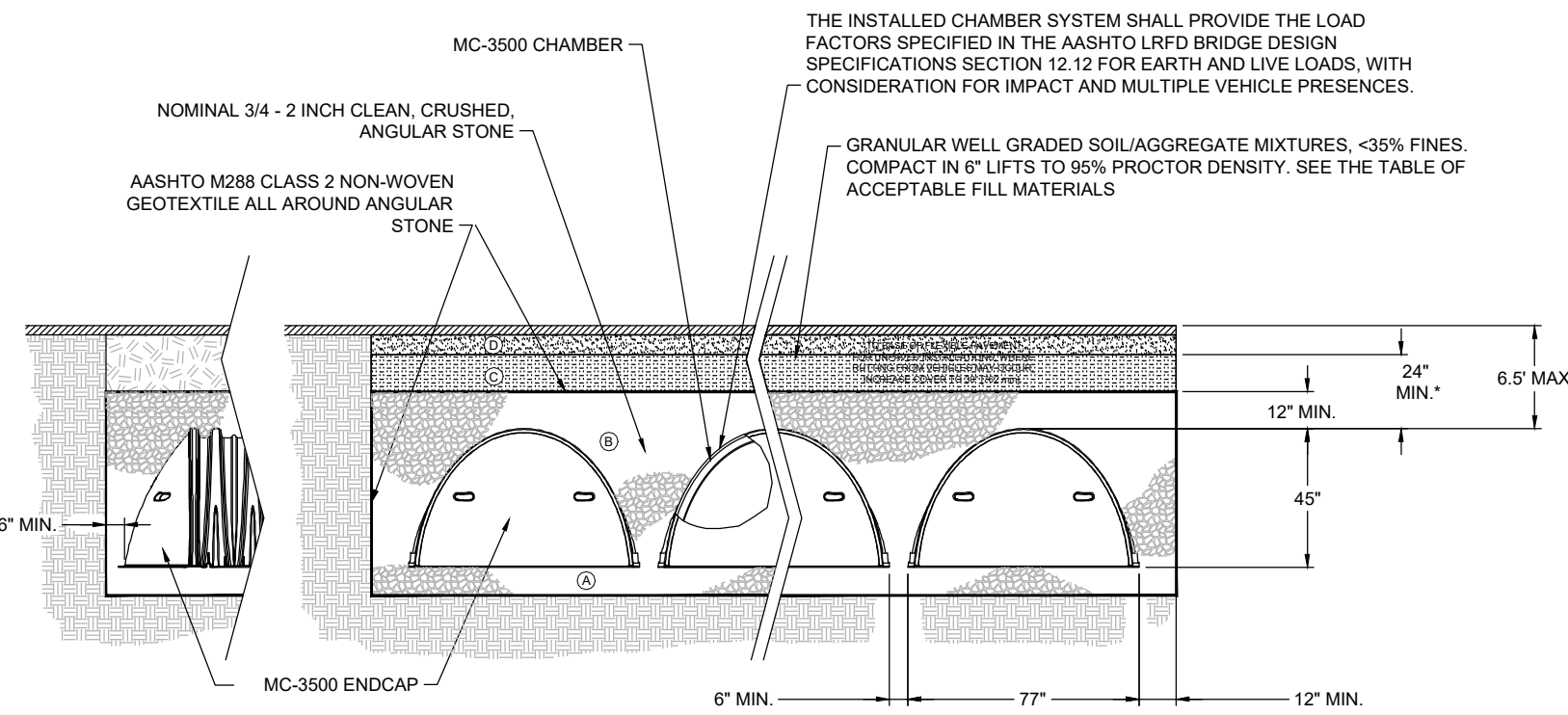
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION ¹	COMPACTION/DENSITY REQUIREMENT
① 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.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (BY LAYER) TO 2" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THIS LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, < 35% FINES. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTION AFTER 24" OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY.
③ EMBEDMENT STONE SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE. NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
④ FOUNDATION STONE BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE. NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH	3, 35, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY.

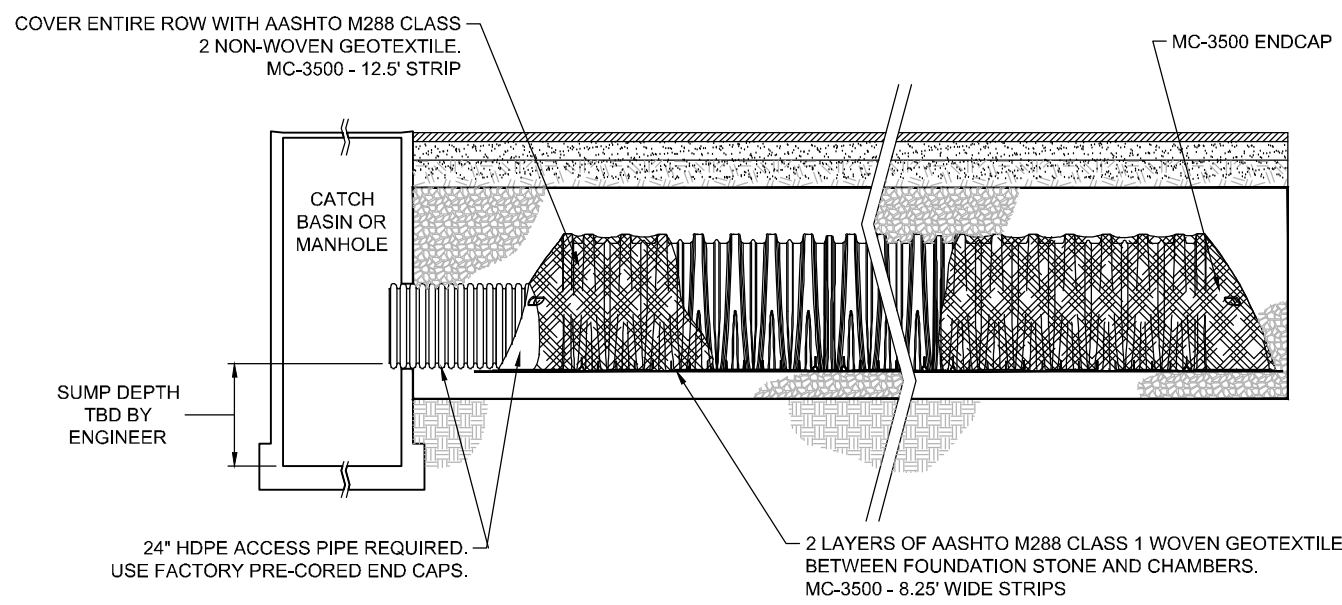
PLEASE NOTE:

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".

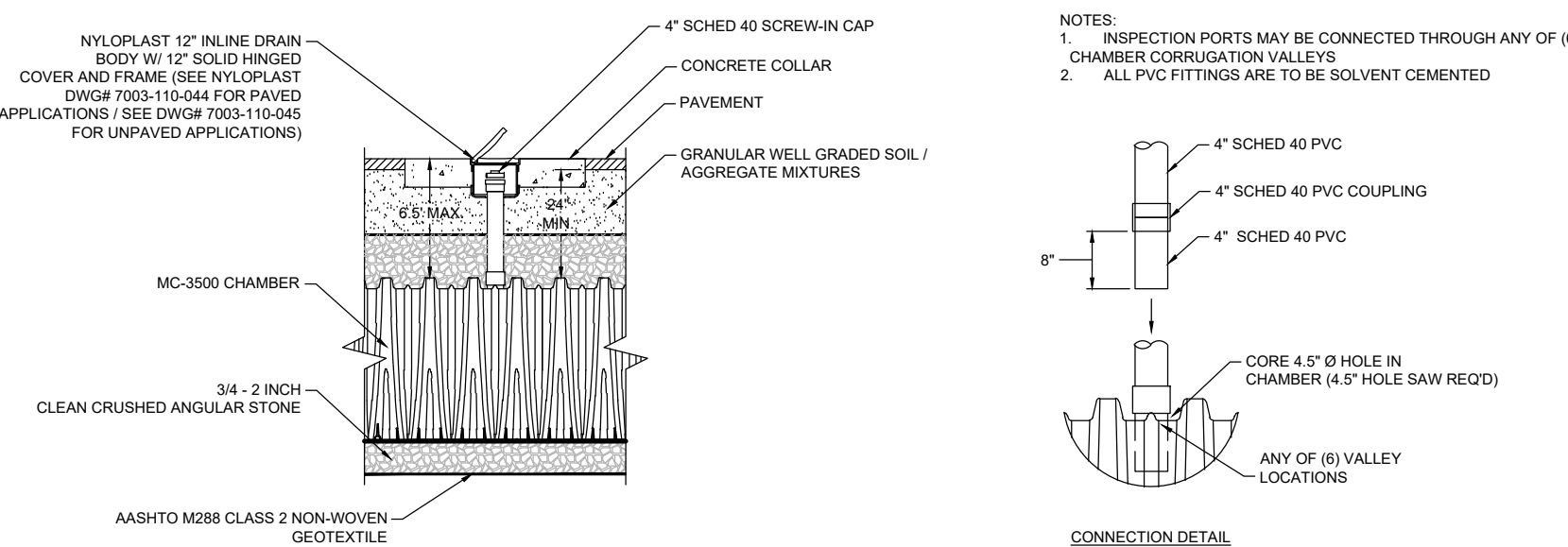
2. AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'X' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.



STANDARD CHAMBER CROSS SECTION NOT TO SCALE



ISOLATOR ROW NOT TO SCALE



INSPECTION PORT NOT TO SCALE

UNDERGROUND CHAMBERS							
				ELEVATIONS			
NUMBER	COVER TYPE	NUMBER OF UNITS	CHAMBER TYPE/ MODEL	ELEV. A INVERT MANIFOLD (FT)	ELEV. B MANIFOLD STUB INVERT (FT)	ELEV. C BOTTOM OF CHAMBER S (FT)	ELEV. D BOTTOM OF STONE (FT)
URC-1	Pavement	34	STORMTECH SC-3500d	51.80	52.80	50.60	48.60
URC-2	Pavement	25	STORMTECH SC-3500d	57.70	58.70	56.50	54.50
URC-3	Pavement	12	STORMTECH SC-3500d	59.00	60.00	57.80	56.30

PERMITTING SET ONLY
NOT FOR CONSTRUCTION

Revisions	Date	By	Description
1	9/10/21	EWHERK	Revised per peer review comments
2	12/10/21	EWHERK	Revised schedule
3			
4			
5			
6			
7			
8			
9			
10			

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Designed By: EWH
Drawn By: EWH
Checked By: BRK
Date: MARCH 5, 2021

CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS

CONSTRUCTION DETAILS (5)

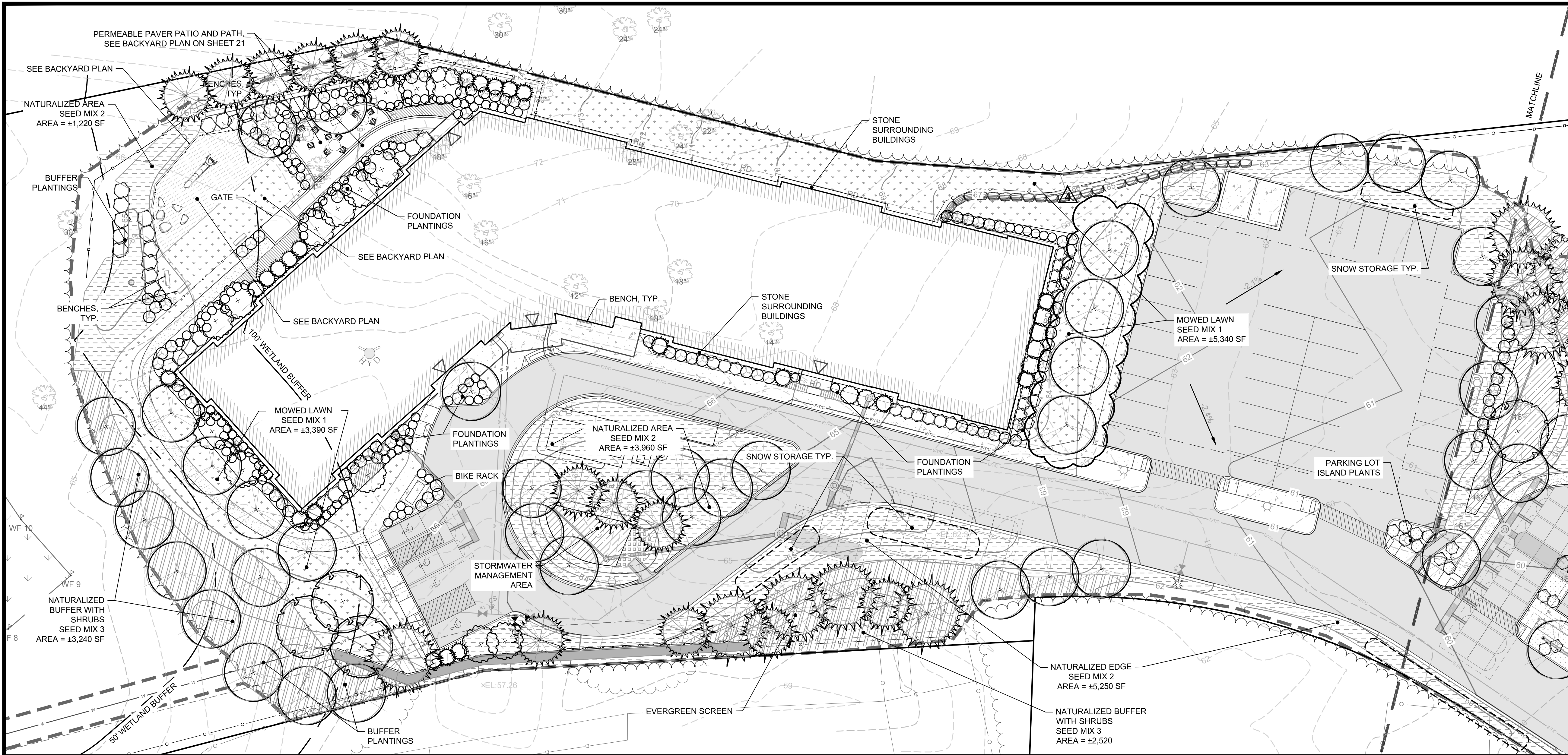
Prepared For:
PRESERVATION OF AFFORDABLE HOUSING
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BOSTON, MA 02109
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Survey Provided By:
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Dated: JUNE 2019

Registration:
RICHARD A. CLAYTOR
CIVIL
NO. 45116
MASSACHUSETTS

Project Number: 19038
Sheet: 18 of 22
Sheet Number: C - 18

last modified: 12/13/21 printed: 12/13/21 by bk H:\Projects\2019\19038 Cape View Way\Drawings\19038 LA.dwg



Proposed Plant List

Trees	
Street/Large Deciduous	
<i>Acer rubrum</i>	Red Maple
<i>Nyssa sylvatica</i>	Tupelo
<i>Quercus alba</i>	White Oak
<i>Quercus coccinea</i>	Scarlet Oak
<i>Quercus rubra</i>	Red Oak
<i>Ulmus americana</i>	American Elm
Ornamental	
<i>Amelanchier</i> sp.	Serviceberry
<i>Betula papyrifera</i>	Paper Birch
<i>Betula populifolia</i>	Gray Birch
Evergreen	
<i>Juniperus virginiana</i>	Eastern Red Cedar
<i>Pinus strobus</i>	White Pine
Foundation Plants	
Shrubs	
<i>Aronia</i> sp.	Chokeberry
<i>Clethra alnifolia</i>	Summersweet Clethra
<i>Comptonia peregrina</i>	Sweetfern
<i>Cornus sericea</i>	Red Twig Dogwood
<i>Ilex glabra</i>	Inkberry
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea
<i>Hypericum kalmianum</i>	Kalm St. Johnswort
<i>Morella pensylvanica</i>	Bayberry
<i>Physocarpus opulifolius</i>	Ninebark
<i>Rhus aromatica</i> 'Gro Low'	Fragrant Sumac
<i>Vaccinium</i> sp.	Blueberry
<i>Viburnum dentatum</i>	Arrowwood
Perennials/Grasses/Groundcovers	
<i>Geum fragarioides</i>	Appalachian Barren Strawberry
<i>Geranium maculatum</i>	Wild Geranium
<i>Heuchera macrorhiza</i>	Coral Bells
<i>Oenothera fruticosa</i>	Evening Primrose
<i>Osmunda cinnamomea</i>	Cinnamon Fern
<i>Pycnanthemum</i> sp.	Mountain Mint
<i>Schizachyrium scoparium</i>	Little Bluestem
<i>Sporobolus heterolepis</i>	Prairie Dropseed

Buffer Plants	
Trees	
<i>Acer rubrum</i>	Red Maple
<i>Amelanchier</i> sp.	Serviceberry
<i>Nyssa sylvatica</i>	Tupelo
<i>Prunus serotina</i>	Black Cherry
<i>Quercus alba</i>	White Oak
<i>Quercus bicolor</i>	Swamp White Oak
Shrubs	
<i>Clethra alnifolia</i>	Summersweet Clethra
<i>Viburnum dentatum</i>	Arrowwood Viburnum
Perennials/Grasses/Groundcovers	
<i>Carex</i> sp.	Sedge sp.
<i>Osmunda cinnamomea</i>	Cinnamon Fern
Parking Lot Islands	
Shrubs	
<i>Comptonia peregrina</i>	Sweetfern
<i>Hypericum</i> sp.	St. Johnswort
<i>Rhus aromatica</i> 'Gro Low'	Fragrant Sumac
Perennials/Grasses/Groundcovers	
<i>Coreopsis</i> sp.	Coreopsis
<i>Baptisia tinctoria</i>	Yellow Wild Indigo
<i>Eupatorium hyssopifolium</i>	Hyssop Leaved Boneset
<i>Geum fragarioides</i>	Appalachian Barren Strawberry
<i>Oenothera fruticosa</i>	Sundrops
<i>Sporobolus heterolepis</i>	Prairie Dropseed
Stormwater Management Areas	
Trees	
<i>Betula</i> sp.	Birch
<i>Nyssa sylvatica</i>	Tupelo
Shrubs	
<i>Clethra alnifolia</i>	Summersweet Clethra
<i>Cornus sericea</i>	Red Twig Dogwood
Perennials/Grasses/Groundcovers	
<i>Asclepias</i> sp.	Milkweed sp.
<i>Carex</i> sp.	Sedge sp.
<i>Eragrostis spectabilis</i>	Purple Lovegrass
<i>Eupatorium hyssopifolium</i>	Hyssop Leaved Boneset
<i>Juncus</i> sp.	Rushes
<i>Panicum virgatum</i>	Switchgrass
<i>Penstemon digitalis</i>	Beardtongue
<i>Pycnanthemum</i> sp.	Mountain Mint
<i>Schizachyrium scoparium</i>	Little Bluestem
<i>Solidago</i> sp.	Goldenrod

PROPOSED SEED MIXES

SEED MIX 1: MOWED LAWN
(MOW EVERY OTHER WEEK OR AS NEEDED)
COLONIAL SEED HARMONY MIX

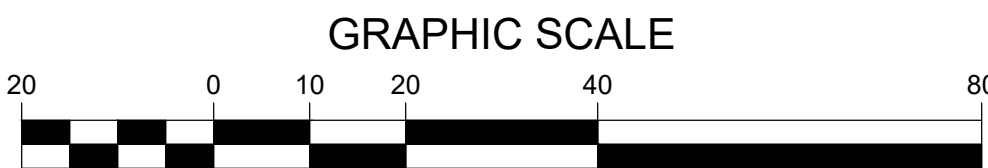
SEED MIX 2: NATURALIZED AREAS (MOW ANNUALLY)
COLONIAL SEED - STABILIZER MIX

SEED MIX 3: NATURALIZED BUFFER WITH SHRUBS (NO MOW)
NEW ENGLAND WETLAND PLANTS ROADSIDE MATRIX UPLAND SEED MIX

NOTES:

- ANY DISTURBED AREAS AROUND THE BUILDING TO BE SEEDED WITH SEED MIX #1. AREAS OF DISTURBANCE CLOSER TO EXISTING WOODLAND VEGETATION TO BE SEEDED WITH SEED MIX #2.
- TREES AND PLANTS AROUND PARKING LOTS AND BUILDING TO BE A MINIMUM OF 3" CALIPER AND 24" HIGH, RESPECTIVELY.

PERMITTING SET ONLY
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Revisions

7/13/21	BRK	BRK	One tree added
7/13/21	BRK	BRK	Replaced decid. trees with evergreen
11/20/21	HLC	BRK	Updated per bldg & ST plan revisions
12/10/21	KJK	BRK	Updated sidewalk tree location

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Plan Set:

Plan Title:

Prepared For:

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Dated: JUNE 2019

Registration:

Project Number:

19038

Sheet :

19 of 22

Sheet Number:

C - 19

Drawn By:

HLC

Designed By:

HLC

Date:

MARCH 5, 2021

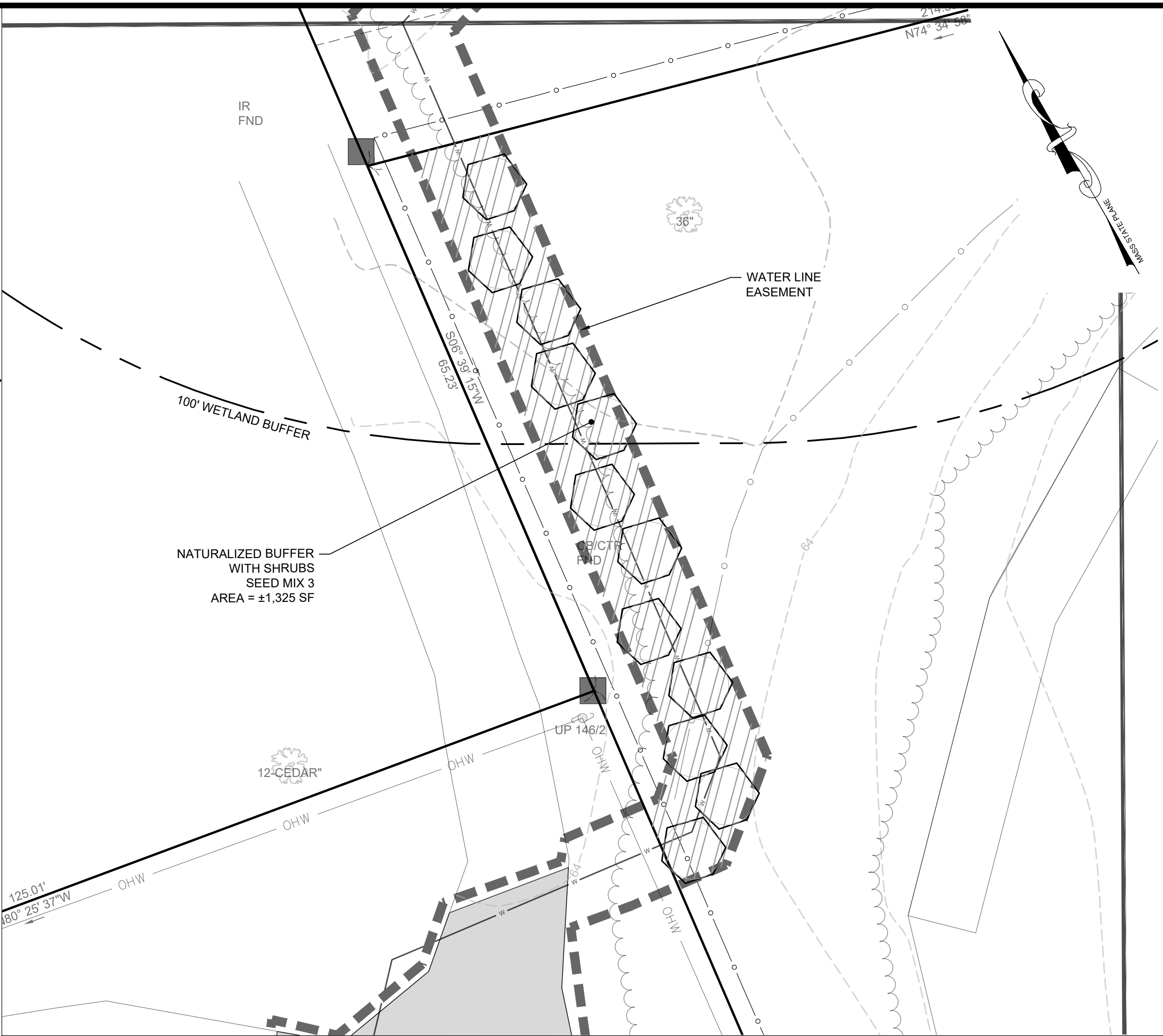
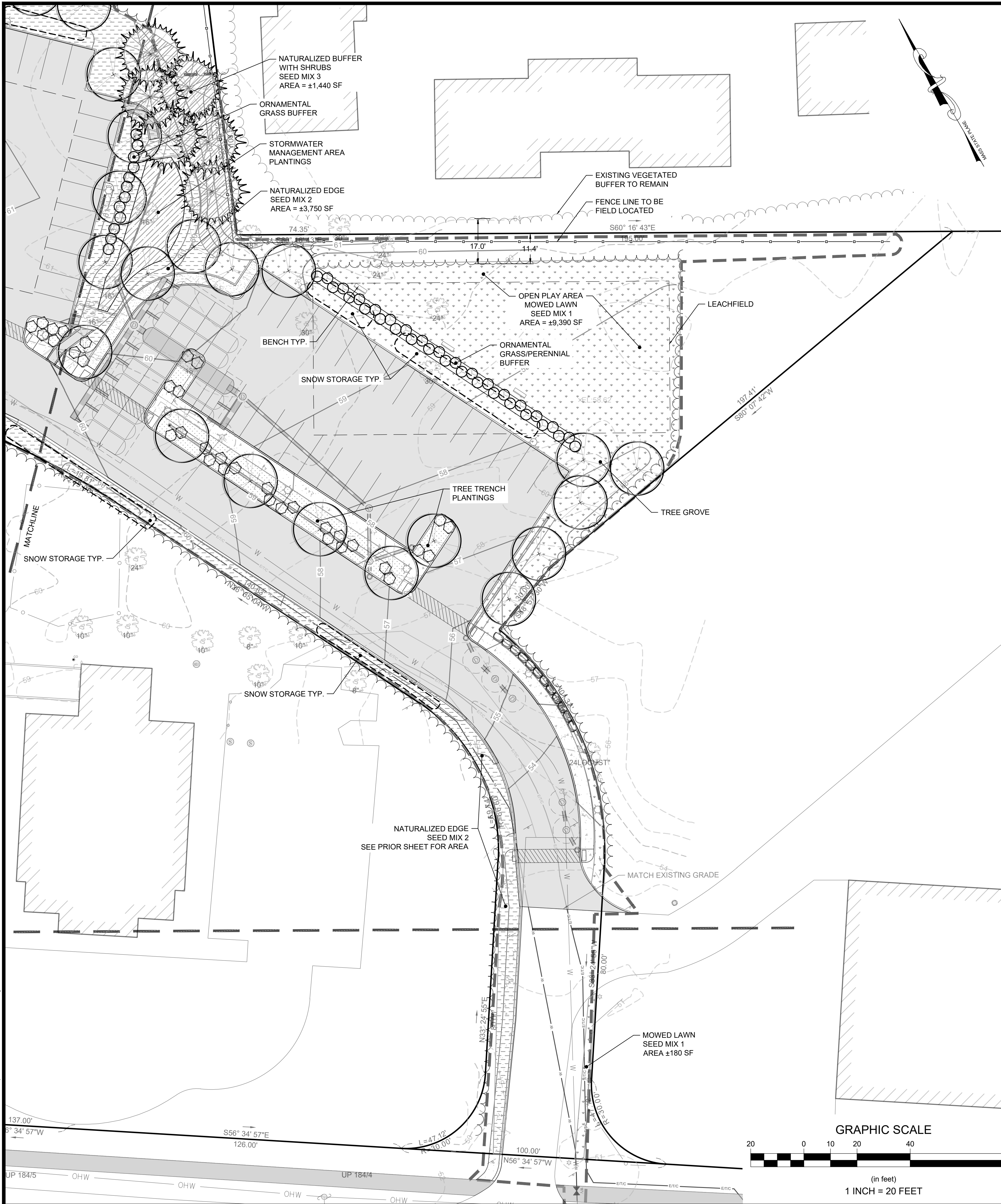
Checked By:

BRK

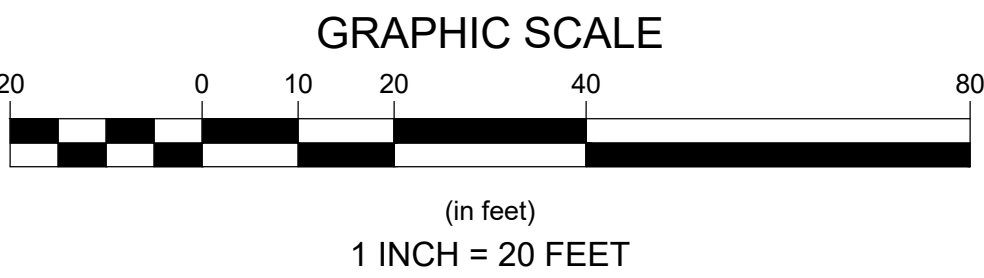
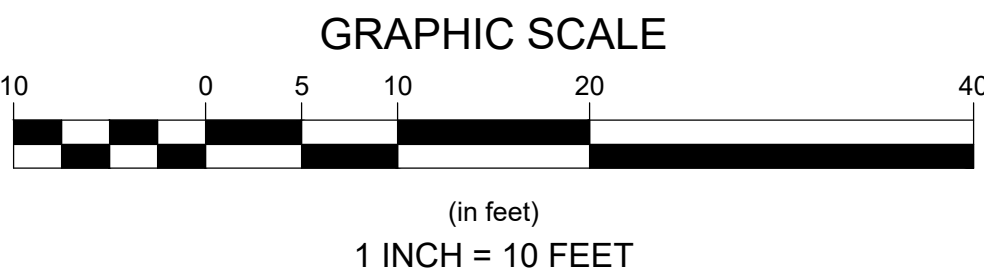
Rev:

By: Adapt Description

last modified: 12/13/21 printed: 12/13/21 by eh K:\Projects\2019\19038 Cape View Way\Drawings\19038 LA.dwg



Proposed Plant List	
Water Line Easement	
Shrubs	
Aronia sp.	Chokeberry
Ilex glabra	Inkberry
Morella pensylvanica	Bayberry



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Revisions

07/13/21	BRK	BRK	Revised w/ leachfield area
07/13/21	BRK	BRK	Revised snow storage area
07/13/21	BRK	BRK	Relocated trees (3)
11/29/21	HLC	BRK	Updated per bid & ST plan revisions
Rev	Date	By	Appr. Description

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Plan Title:

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Dated: JUNE 2019

Registration:

Project Number:

19038

Sheet:

20 of 22

Sheet Number:

C - 20

DATE: MARCH 5, 2021

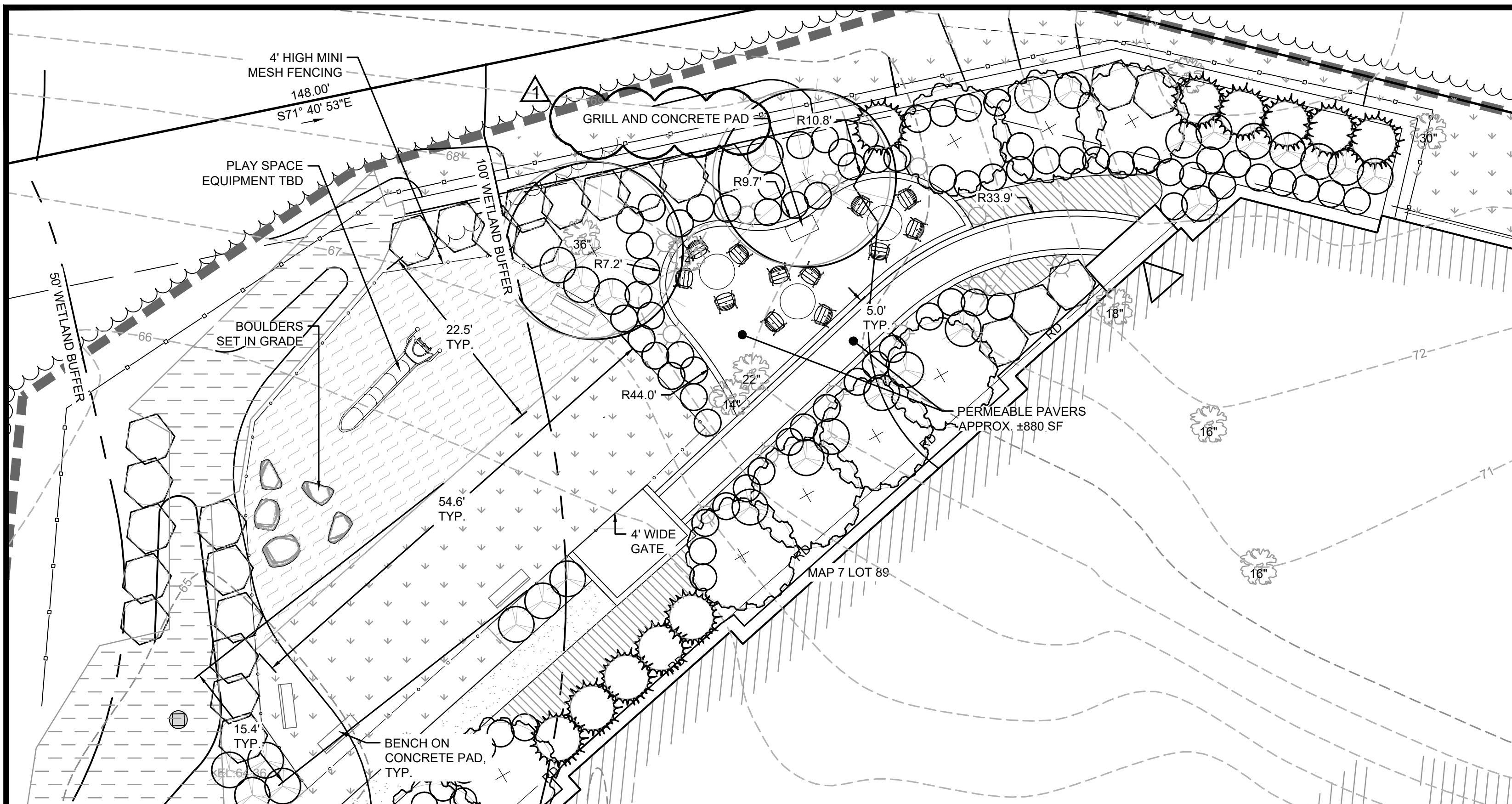
DESIGNED BY: HLC

DRAWN BY: HLC

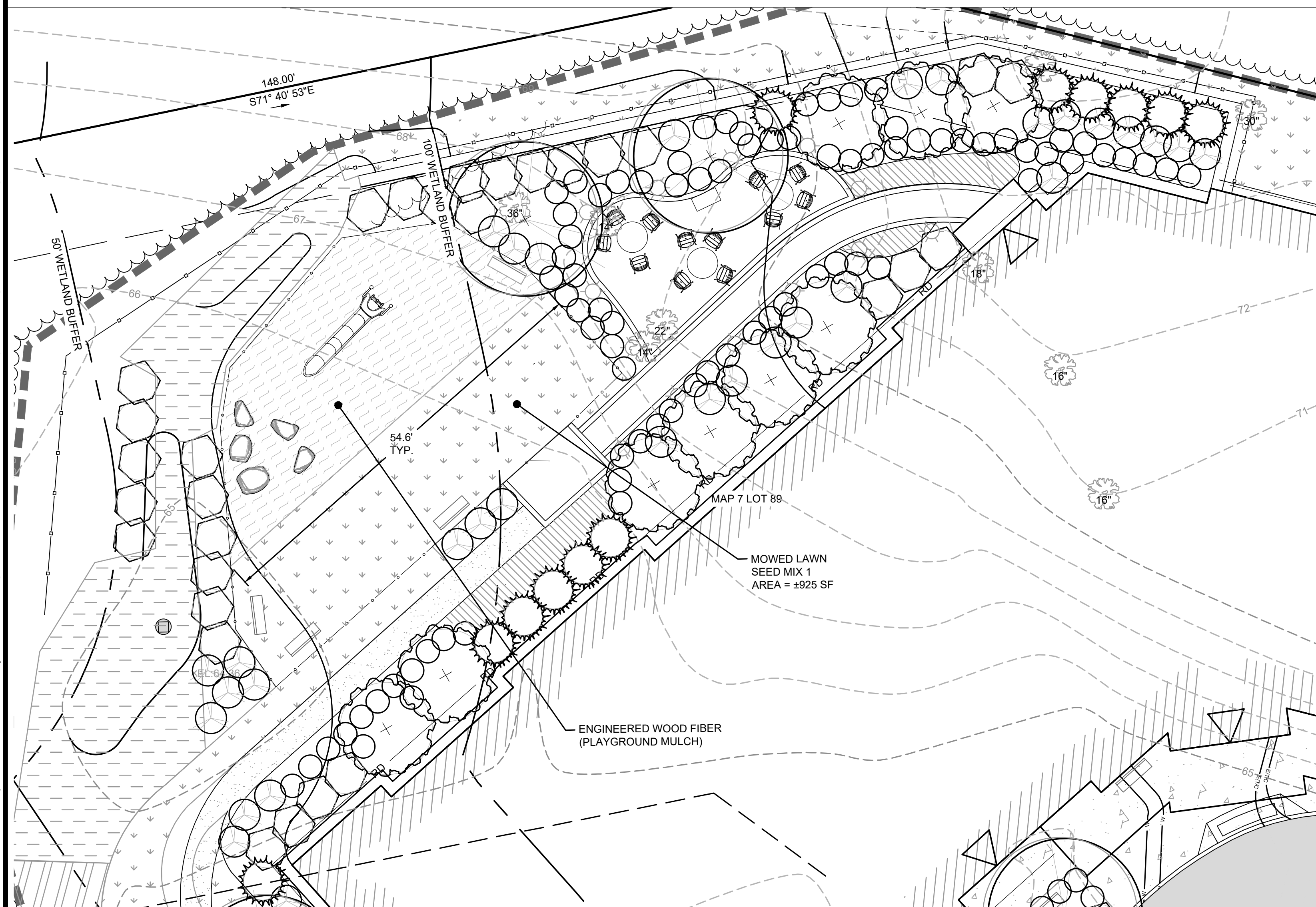
CHECKED BY: BRK

CAPE VIEW WAY
PERMITTING PLANS
BOURNE, MASSACHUSETTS

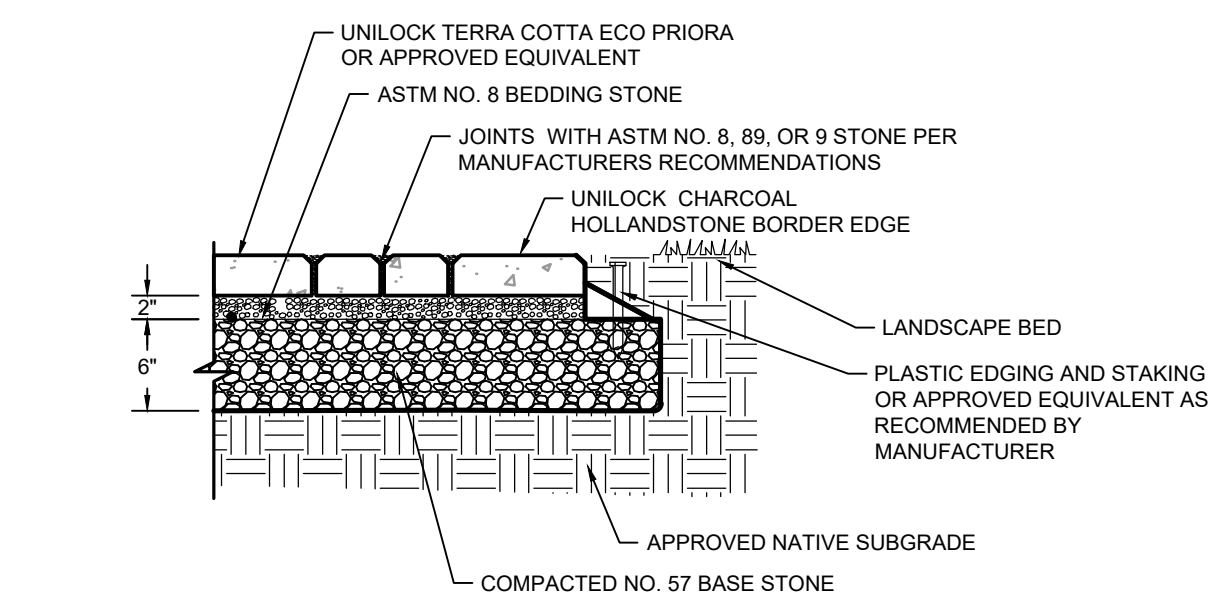
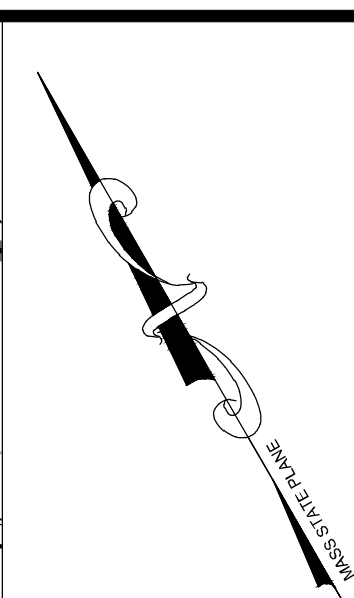
LANDSCAPE PLAN (2)



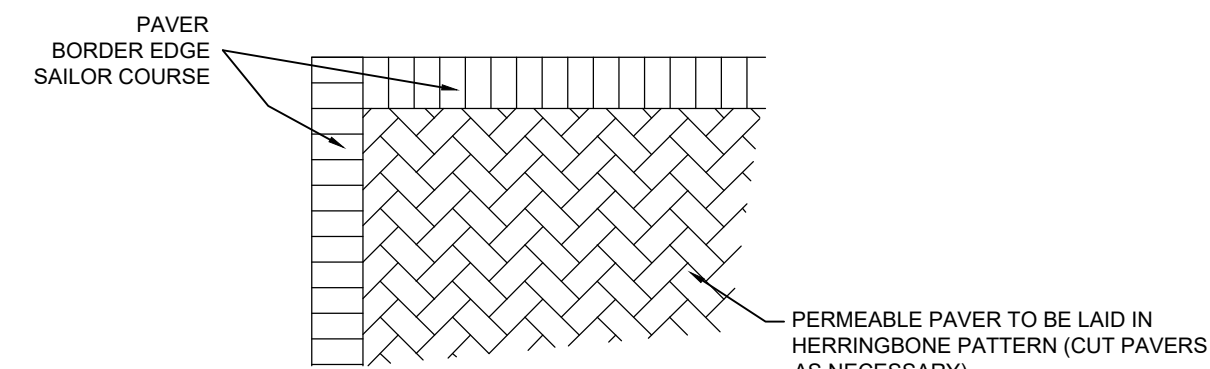
BACKYARD LAYOUT PLAN



BACKYARD PLANTING PLAN



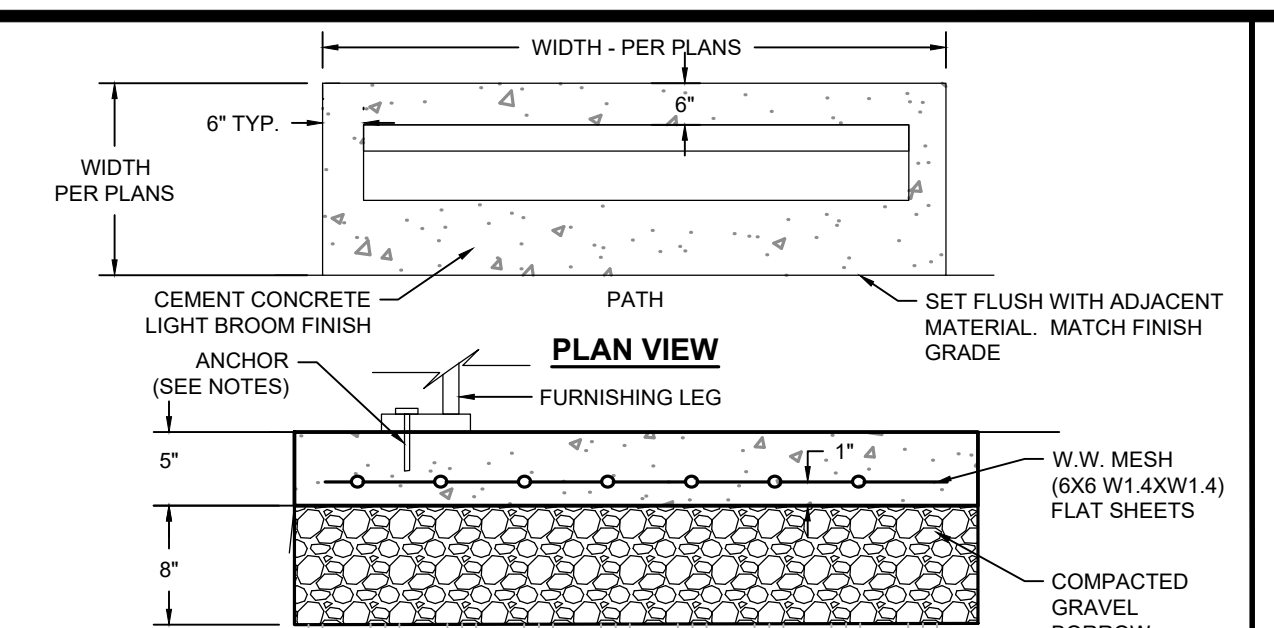
SECTION



HERRINGBONE PATTERN 45

PLAN VIEW

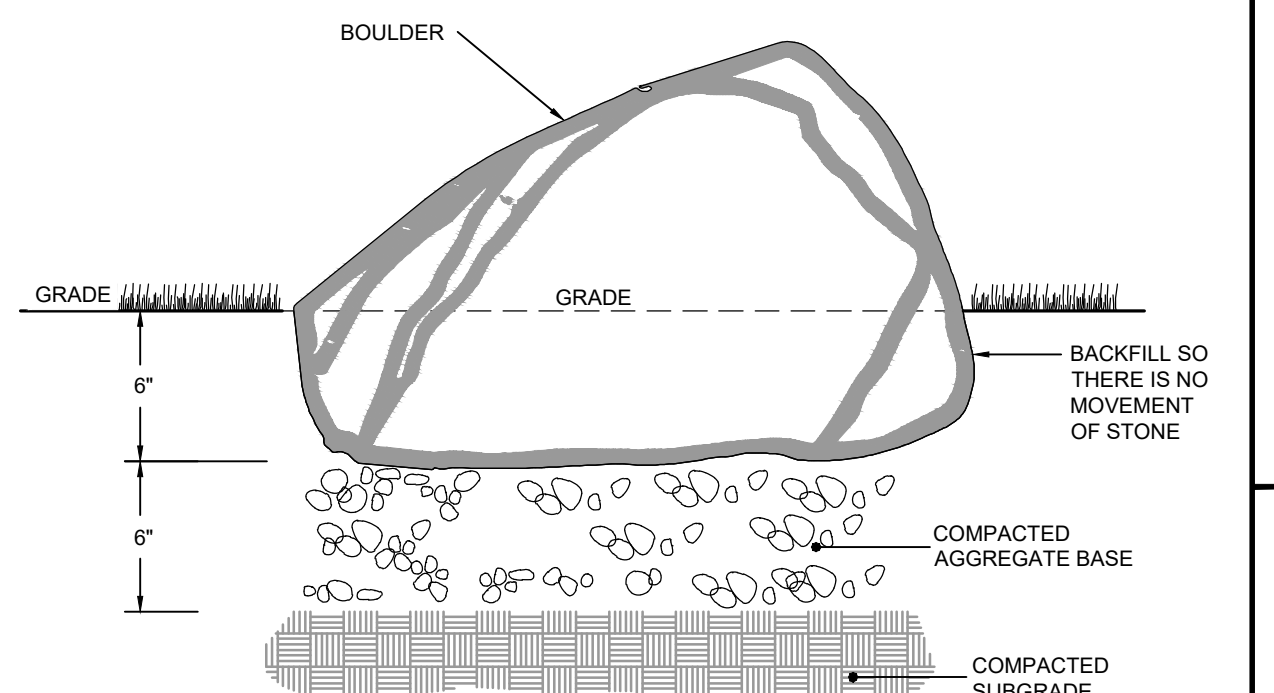
- NOTES:
1. PEDESTRIAN AND RESIDENTIAL USE ONLY.
 2. MATERIALS AND CONSTRUCTION GUIDELINES TO FOLLOW ICPI GUIDE SPECIFICATIONS.
 3. EXCAVATE ANY UNSUITABLE, UNSTABLE OR UNCONSOLIDATED MATERIAL FROM SUBGRADE.
 4. COMPACT BASE AS NECESSARY.
 5. SOIL SUBGRADE MAX. SLOPE: 1/2% SLOPE AWAY FROM BUILDING.
 6. PAYER, DRAINAGE AGGREGATE, AND JOINTING COMPOUND COLOR TO BE DETERMINED BY THE OWNER.



SECTION VIEW

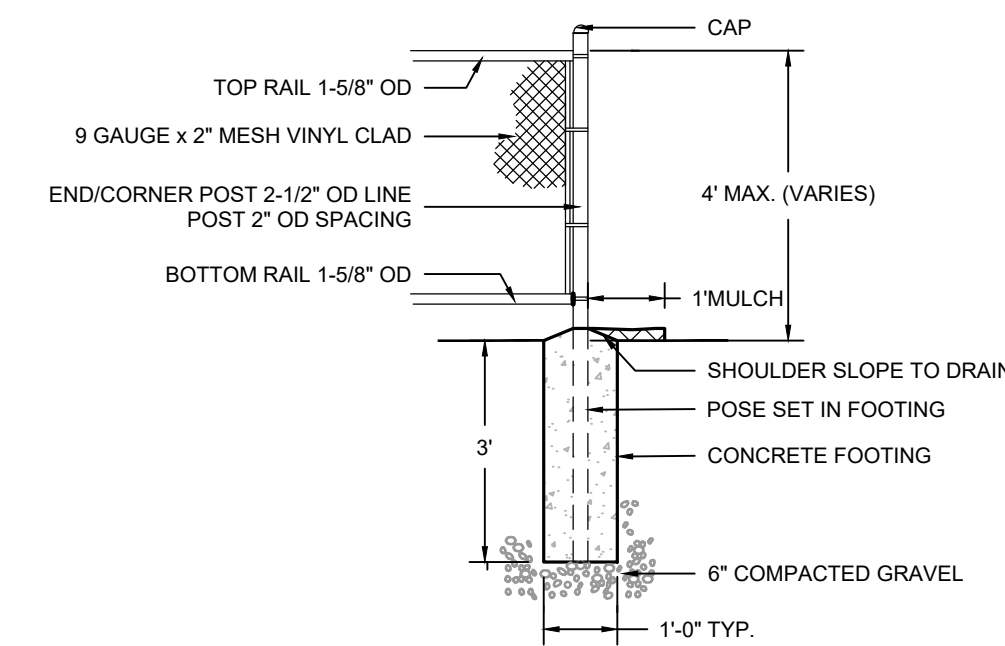
BENCH CONCRETE PAD

NOT TO SCALE



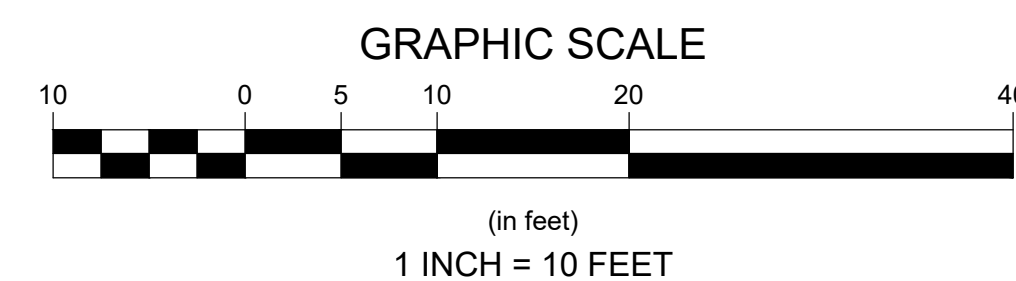
BOULDER SET IN GRADE

NOT TO SCALE



MINI MESH FENCE

NOT TO SCALE



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<p>Survey Provided For: Prepared For: Project Title:</p>		<p>Survey Provided By: Drawn By: Checked By:</p>	
<p>Horsley Witten Group, Inc. 90 Route 6A Sandwich, MA 02563 Phone: (508) 833-6600 Fax: (508) 833-3150 Date: JUNE 2019</p>		<p>Horsley Witten Group, Inc. Sustainable Environmental Solutions www.horsleywitten.com 90 Route 6A Sandwich, MA 02563 508-833-6600 voice 508-833-3150 fax</p>	
<p>Registration:</p>		<p>Revisions</p>	
<p>Project Number: 19038</p>		<p>12/10/21 KJK BRK Revised layout and planning plan</p>	
<p>Sheet: 21 of 22</p>		<p>Rev. Date By Aspt Description</p>	

GENERAL PLANTING NOTES:

- THE FOLLOWING NOTES ARE PROVIDED AS GENERAL PLANTING GUIDELINES ONLY. THOROUGHLY REVIEW THE PROJECT SPECIFICATIONS FOR ALL LANDSCAPE REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY LANDSCAPE WORK. SUBMIT IN WRITING TO THE LANDSCAPE ARCHITECT ANY QUESTIONS OR CLARIFICATIONS REQUIRED AT A MINIMUM OF 30 DAYS PRIOR TO ORDERING ANY MATERIALS OR BEGINNING ANY LANDSCAPE CONSTRUCTION.
2. SUBMIT TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL ALL REQUIRED LANDSCAPE SUBMITTALS AS DESCRIBED IN THE SPECIFICATIONS INCLUDING A PLANT LIST WITH PLANT SIZE AND QUANTITIES TO BE ORDERED PRIOR TO DELIVERY TO THE PROJECT SITE.
3. FURNISH AND INSTALL ALL PLANTS AS SHOWN ON THE DRAWINGS AND IN THE SIZE AND QUANTITIES SPECIFIED ON THE PLANTING SCHEDULE. PLANT SUBSTITUTION SELECTION MUST BE APPROVED BY BIOLOGIST OR LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
4. ALL PLANTS TO COMPLY WITH APPLICABLE REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION INC.
5. PLANTS TO BE GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST TWO (2) YEARS. USE HEALTHY NURSERY GROWN PLANTS THAT HAVE A WELL DEVELOPED ROOT SYSTEM. PLANTS MUST BE FREE OF DISEASE, INSECTS, EGGS OR LARVAE.
6. INSTALL PLANTS WITHIN ONE (1) WEEK OF PURCHASE. IF PLANTS ARE TO BE STORED AT THE SITE PRIOR TO PLANTING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THEY ARE PROPERLY MAINTAINED, WATERED, AND REMAIN HEALTHY.
7. PROCEED WITH PLANTING ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT. SUBMIT TO THE LANDSCAPE ARCHITECT IN WRITING THE PROPOSED PLANTING SCHEDULE. OBTAIN APPROVAL OF PLANTING SCHEDULE FROM THE LANDSCAPE ARCHITECT PRIOR TO PERFORMING ANY WORK.
8. SEASONS FOR PLANTING:
- | | | |
|---------|---------------|-----------------------------|
| SPRING: | DECIDUOUS: | APRIL 1 TO JUNE 15 |
| | EVERGREEN: | APRIL 1 TO JUNE 15 |
| | PERENNIALS: | APRIL 15 TO JUNE 1 |
| | GROUNDCOVERS: | APRIL 15 TO JUNE 1 |
| FALL: | DECIDUOUS: | SEPTEMBER 15 TO NOVEMBER 15 |
| | EVERGREEN: | SEPTEMBER 15 TO NOVEMBER 15 |
| | PERENNIALS: | SEPTEMBER 15 TO NOVEMBER 15 |
| | GROUNDCOVERS: | SEPTEMBER 15 TO NOVEMBER 15 |
9. PLANTING UNDER FROZEN CONDITIONS IN EITHER THE SPRING OR FALL WILL NOT BE PERMITTED. PLANTING BEFORE OR AFTER THE ABOVE REFERENCED PLANTING DATES WILL INCREASE THE LIKELIHOOD OF PLANT OR GRASS SEED ESTABLISHMENT FAILURE. ANY DEVIATION FROM THE ABOVE REFERENCED PLANTING DATES IS UNDERTAKEN AT SOLE RISK OF THE CONTRACTOR AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY ADDITIONAL MAINTENANCE AND WATERING WHICH MAY BE REQUIRED TO ENSURE SATISFACTORY PLANT AND SEED ESTABLISHMENT.
10. FURNISH ONE YEAR MANUFACTURER WARRANTY FOR TREES, PLANTS, AND GROUND COVER AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. EXCEPTIONS ARE DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE, NEGLECT OR ABUSE BY OWNER, OR ABNORMAL WEATHER CONDITIONS UNUSUAL FOR WARRANTY PERIOD. THE DATE OF FINAL ACCEPTANCE OF ALL COMPLETED PLANTING WORK ESTABLISHES THE END OF INSTALLATION AND INITIAL MAINTENANCE PERIOD AND THE COMMENCEMENT OF THE GUARANTEE PERIOD.
11. ALL TREES WITHIN 5'-0" OF WALKWAYS AND SIDEWALKS TO HAVE A 6'-8" STANDARD BRANCHING HEIGHT.
12. INSPECT ALL AREAS TO BE PLANTED OR SEEDED PRIOR TO STARTING ANY LANDSCAPE WORK. REPORT ANY DEFECTS SUCH AS INCORRECT GRADING, INCORRECT SUBGRADE ELEVATIONS OR DRAINAGE PROBLEMS, ETC. TO THE LANDSCAPE ARCHITECT AND ENGINEER PRIOR TO BEGINNING WORK. COMMENCEMENT OF WORK INDICATES ACCEPTANCE OF SUBGRADE AREAS TO BE PLANTED, AND THE LANDSCAPE CONTRACTOR ASSUMES RESPONSIBILITY FOR ALL LANDSCAPE WORK.
13. PROVIDE PROPER PREPARATION OF ALL PROPOSED PLANTED AND SEEDED AREAS PER THE NOTES AND SPECIFICATIONS.
14. ALL PLANT LAYOUT AND ACTUAL PLANTING LOCATIONS ARE TO BE FIELD VERIFIED BY LANDSCAPE ARCHITECT PRIOR TO PLANTING. NOTIFY THE LANDSCAPE ARCHITECT AT A MINIMUM OF 48 HOURS IN ADVANCE PRIOR TO SCHEDULING ANY FIELD INSPECTIONS.
15. BALL AND BURLAP: REMOVE BURLAP AND WIRE BASKETS FROM TOPS OF BALLS AND FROM TOP HALF OF ROOTBALL AS INDICATED ON DRAWINGS. REMOVE PALLETIS, IF ANY, BEFORE SETTING.
16. POTTED PLANTS: REMOVE THE PLANT FROM THE POT AND LOOSEN OR SCORE THE ROOTS BEFORE PLANTING TO PROMOTE OUTWARDS ROOT GROWTH INTO THE SOIL.
17. PLUGS: PLANT UPRIGHT AND NOT AT AN ANGLE. DIG PLANTING HOLES LARGE ENOUGH AND DEEP ENOUGH TO ACCOMMODATE THE ENTIRE ROOT MASS. PLANT PLUGS WITH NO TWISTED OR BALLED ROOTS AND WITH NO ROOTS EXPOSED ABOVE THE GRADE LINE. HAND PACK THE SOIL AROUND THE ENTIRE PLUG ROOT MASS.
18. DIG THE PLANTING HOLE TO THE SAME DEPTH AS THE ROOT BALL AND TWO TO THREE TIMES WIDER. SCORE ALL SIDES OF THE HOLE. PLACE THE PLANT IN THE HOLE SO THE TOP OF ROOT BALL IS EVEN WITH SOIL SURFACE. FILL THE HOLE HALFWAY AND THEN ADD WATER ALLOWING IT TO SEEP INTO BACK FILLED MATERIAL. BE SURE TO REMOVE ALL AIR POCKETS FROM BACK FILLED SOIL. DO NOT SPREAD SOIL ON TOP OF THE ROOTBALL. IF SOIL IS EXTREMELY POOR, REPLACE BACK FILL WITH GOOD QUALITY TOP SOIL. AMEND THE SOIL, AS NECESSARY.
19. CREATE A 2" TO 4" BERM AROUND THE EDGE OF PLANTING HOLE WITH REMAINING SOIL TO RETAIN WATER.
20. REMOVE ALL PLANT TAGS AND FLAGS FROM THE PLANTS.
21. MULCH ALL PLANTING BEDS AS INDICATED ON DRAWINGS. UNLESS NOTED OTHERWISE, ALL PLANTS TO RECEIVE 2-3 INCHES OF MULCH. DO NOT PILE OR MOUND MULCH AROUND THE PLANT STEMS OR TRUNK.
22. TRIM BROKEN AND DEAD BRANCHES FROM TREES AND SHRUBS AFTER PLANTING. NEVER CUT A LEADER.

GENERAL SEEDING NOTES:

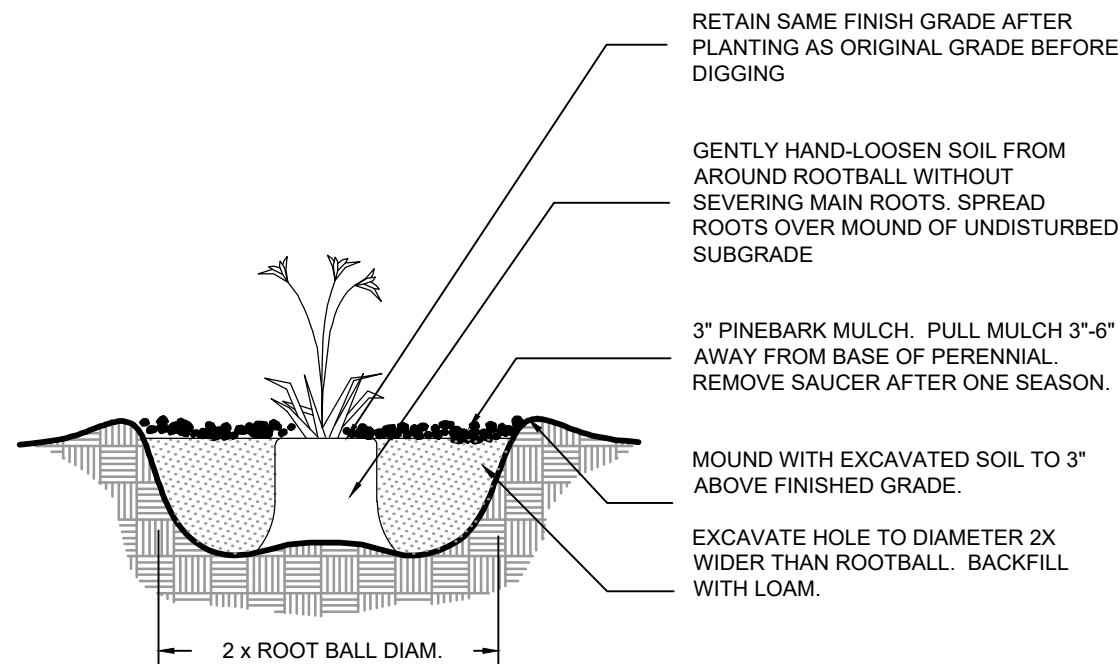
1. SEND A REPRESENTATIVE SAMPLE OF THE TOPSOIL TO A TESTING LABORATORY FOR STANDARD SOIL ANALYSIS AS DESCRIBED IN THE SPECIFICATIONS. SUBMIT TO THE LANDSCAPE ARCHITECT AND ENGINEER TEST RESULTS WITH RECOMMENDED SOIL TREATMENTS TO PROMOTE PLANT AND GRASS GROWTH. CORRECT DEFICIENCIES IN THE LOAM AND STOCKPILED TOPSOIL AS DIRECTED BY THE TESTING AGENCY.
2. ALL AREAS THAT ARE DISTURBED AND/OR GRADED DURING CONSTRUCTION ARE TO BE BROUGHT TO FINISHED GRADE WITH AT LEAST 6" MINIMUM DEPTH OF GOOD QUALITY LOAM AND SEEDDED WITH A QUICK GERMINATING GRASS SEED AS SPECIFIED ON THE PLANS.
3. PRIOR TO THE PLACEMENT OF TOP SOIL, LOOSEN THE SUBGRADE OF ALL PROPOSED SEEDED AREAS TO A DEPTH OF 6" AND RAKE TO REMOVE STONES LARGER THAN 1 INCH, STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER AND LEGALLY DISPOSE TO AN OFF SITE LOCATION.
4. DO NOT SPREAD TOPSOIL IF THE SUBGRADE IS FROZEN, EXCESSIVELY WET, COMPACTED OR NOT PROPERLY PREPARED PER THE NOTES AND SPECIFICATIONS.
5. SEE SPECIFICATIONS FOR SEASONAL REQUIREMENTS FOR SEEDING.

WATERING NOTES:

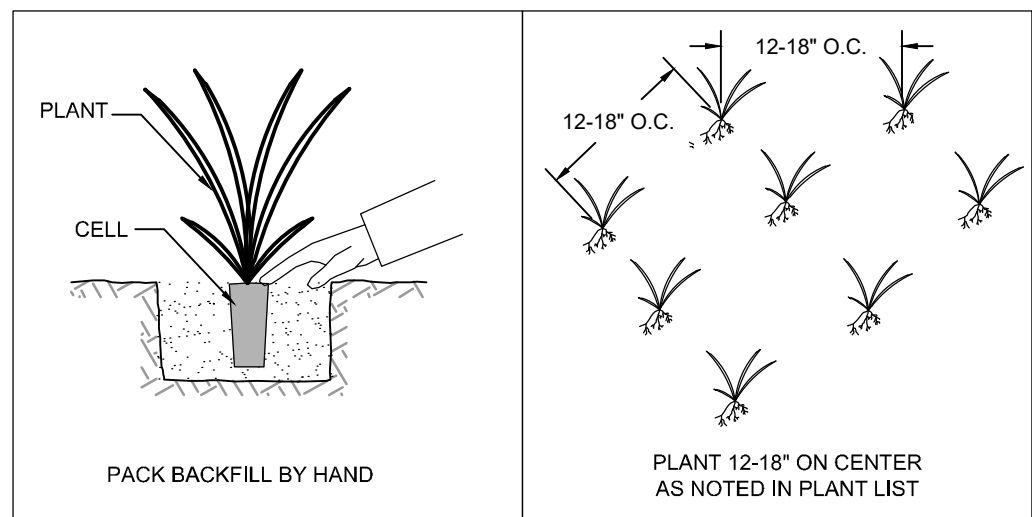
1. PROVIDE PROPER PLANT CARE, MAINTENANCE AND WATERING ON SITE UNTIL SUCH TIME AS THE LANDSCAPING IS ACCEPTED BY THE PROPERTY OWNER AS SATISFACTORY PER THE SPECIFICATIONS OR AS DETERMINED BY ANY WRITTEN AGREEMENTS BETWEEN THE CONTRACTOR AND PROPERTY OWNER.
2. ESTABLISH AN APPROPRIATE WATERING SCHEDULE FOR ALL PLANT MATERIAL BASED UPON PLANT SPECIES REQUIREMENTS AND PROVIDE IN WRITING TO THE LANDSCAPE ARCHITECT AND OWNER FOR REVIEW AND APPROVAL. ADHERE TO THE APPROVED SCHEDULE UNTIL PLANTS ARE FULLY ESTABLISHED.
3. AT A MINIMUM THE NEWLY SEEDDED AND/OR HYDROSEEDED LAWNS SHOULD BE WATERED DAILY. SPECIAL CARE SHOULD BE TAKEN TO ENSURE THAT THE LAWN IS NOT SATURATED DURING WATERING. IF AN IRRIGATION SYSTEM IS NOT PROVIDED A TEMPORARY IRRIGATION SYSTEM OR HANDHOLED GARDEN HOSE SHALL BE USED FOR WATERING SEEDING AREAS. THE AREA MUST BE MAINTAINED CONSISTENTLY MOIST FOR THE BEST GERMINATION RESULTS. ADDITIONAL WATERING WILL BE REQUIRED IF PLANTING AND SEEDING OCCUR OUTSIDE OF THE RECOMMENDED PLANTING SEASONS.

PLANTING LAYOUT NOTES

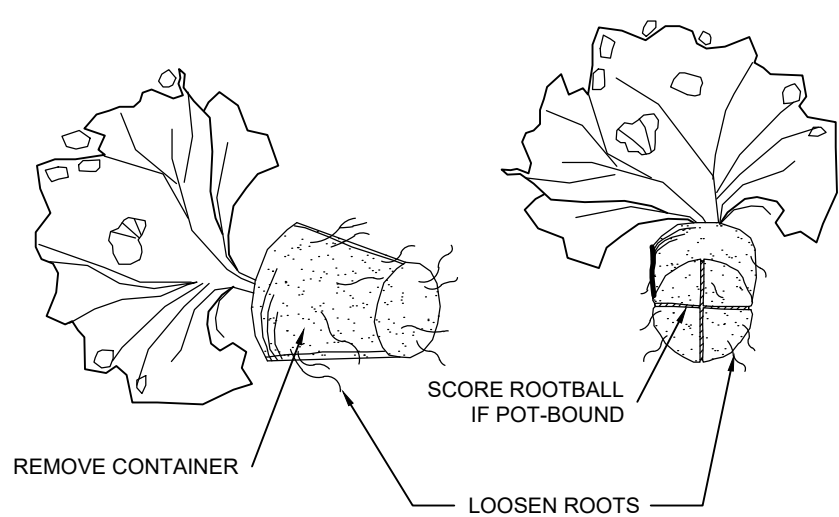
1. HATCHED AREAS DO NOT PLANT LARGE AREAS OF THE SAME SPECIES. RANDOMLY PLANT AS INDICATED ON THE PLANTING PLANS INTO SMALL GROUPINGS OF THE SAME SPECIES TO CREATE A MORE NATURALISTIC APPEARANCE. PLANT THE SAME PLANT SPECIES IN GROUPS OF 3-7 AND NOT LARGER THAN 7, DEPENDING ON THE OVERALL NUMBER OF PLANTINGS.



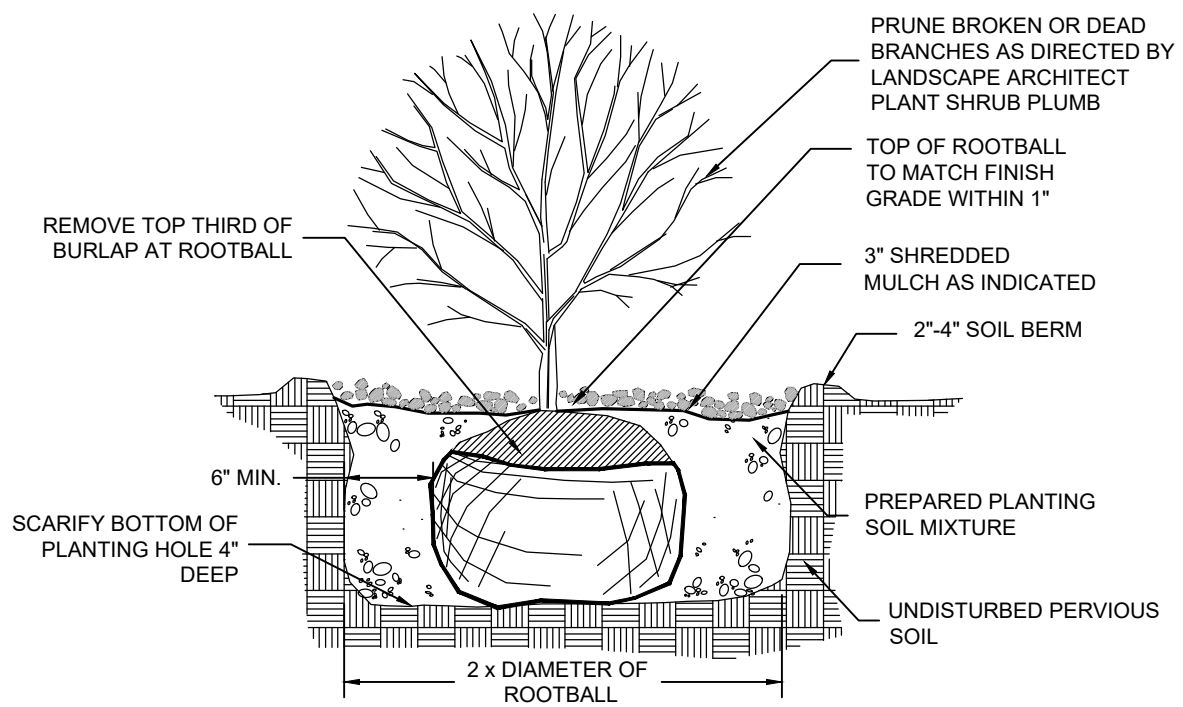
PERENNIAL PLANTING DETAIL
NOT TO SCALE



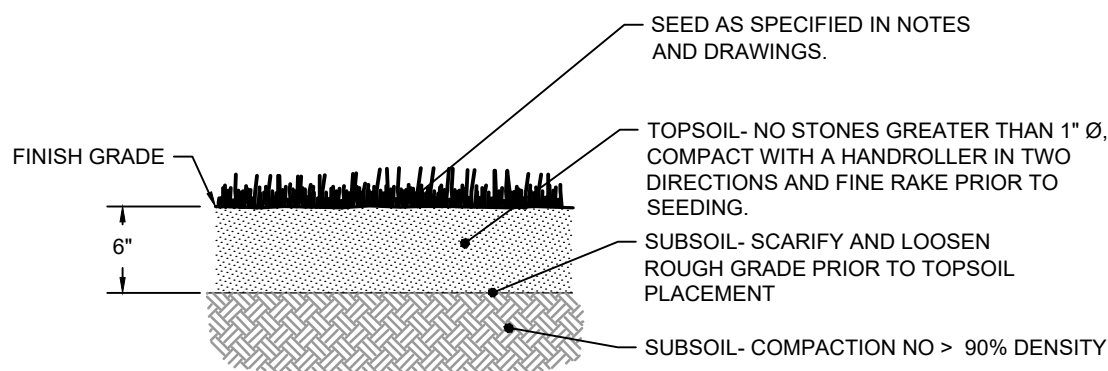
PLUG PLANTING DETAIL
NOT TO SCALE



CONTAINER PLANT ROOTBALL TREATMENT

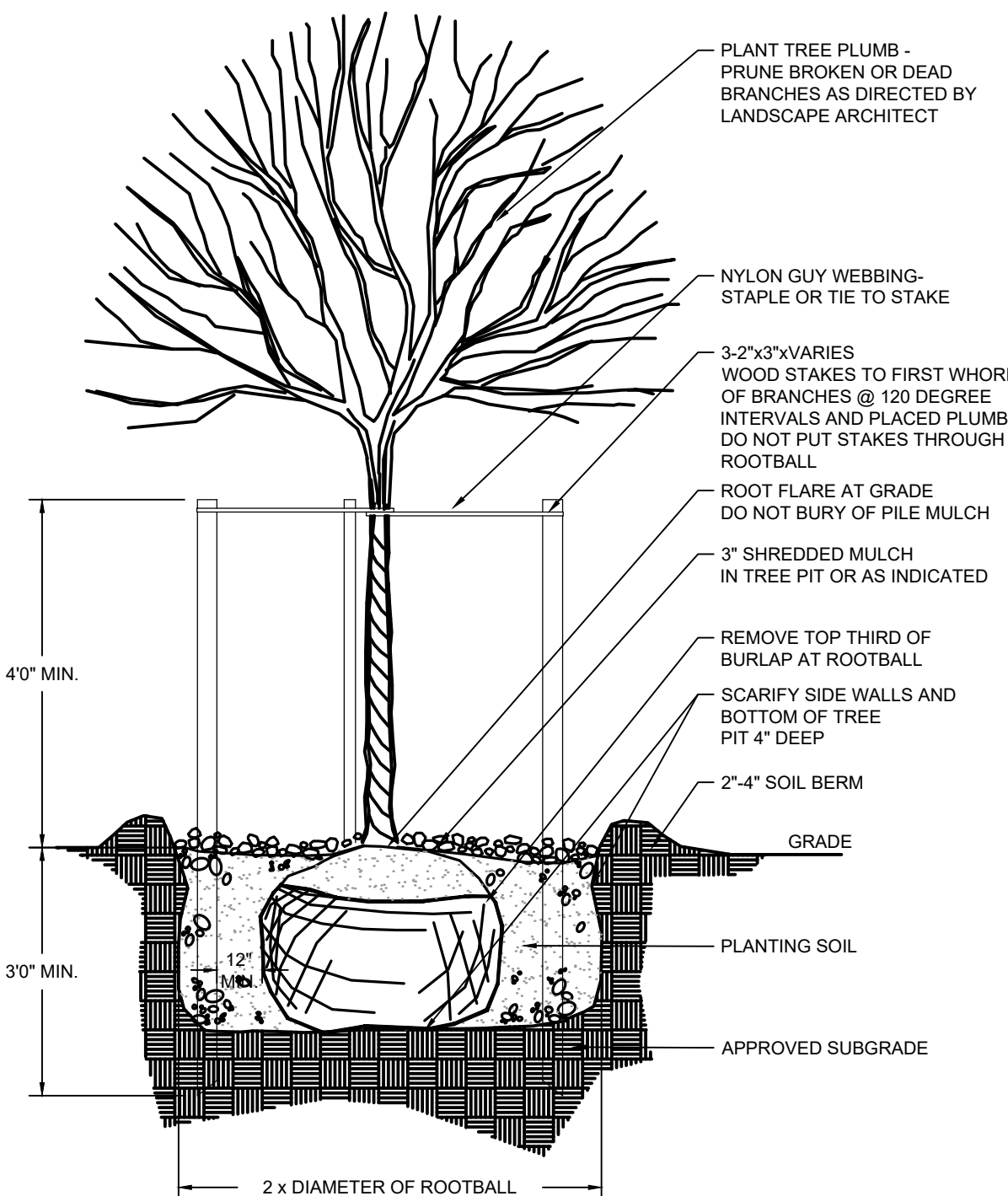


SHRUB PLANTING DETAIL
NOT TO SCALE

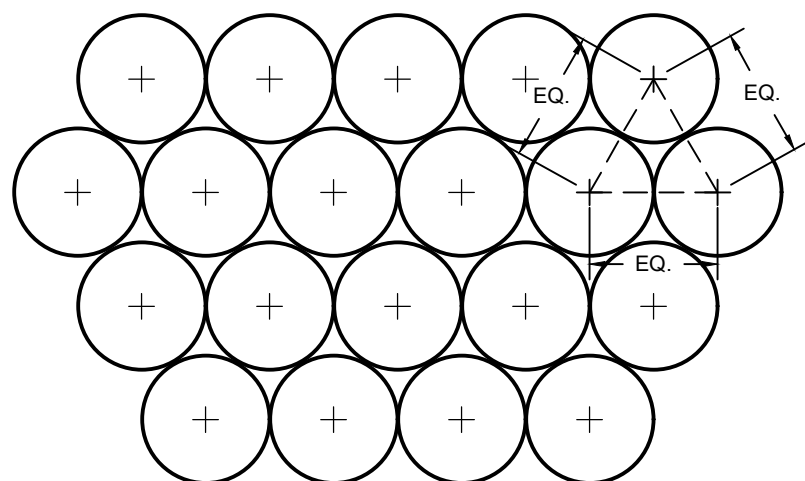


- NOTES:
1. SEE LANDSCAPE GRADING SPECIFICATIONS FOR TOPSOIL REQUIREMENTS.
 2. CONFIRM SUBGRADES ARE CORRECT AND POSITIVE DRAINAGE IS MAINTAINED PRIOR TO PLACEMENT OF TOPSOIL.
 3. NOTIFY ENGINEER/LANDSCAPE ARCHITECT FOR REVIEW OF SUBGRADE PRIOR TO PLACEMENT OF THE TOPSOIL.

LOAM AND SEED DETAIL
NOT TO SCALE

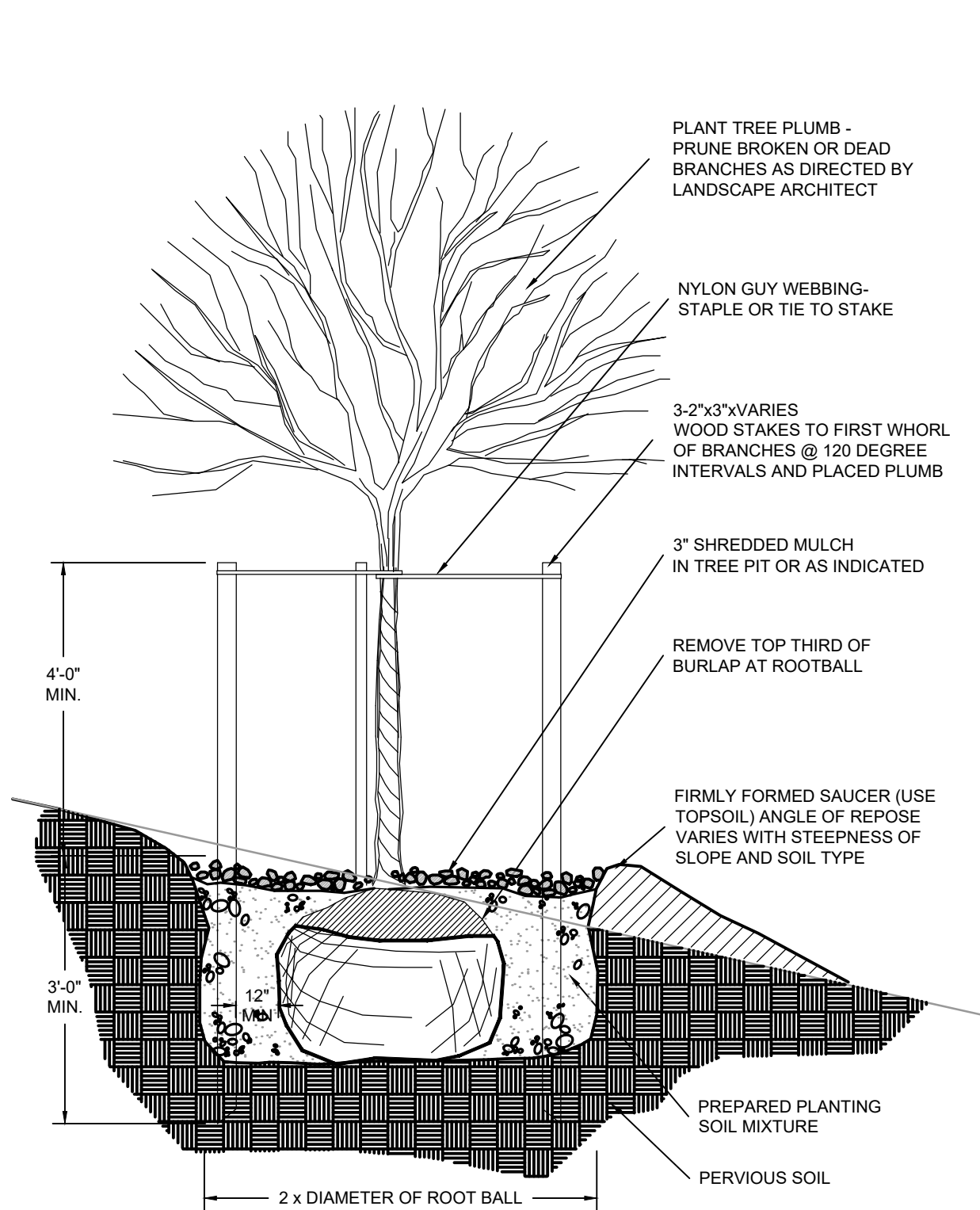


TREE PLANTING DETAIL
NOT TO SCALE

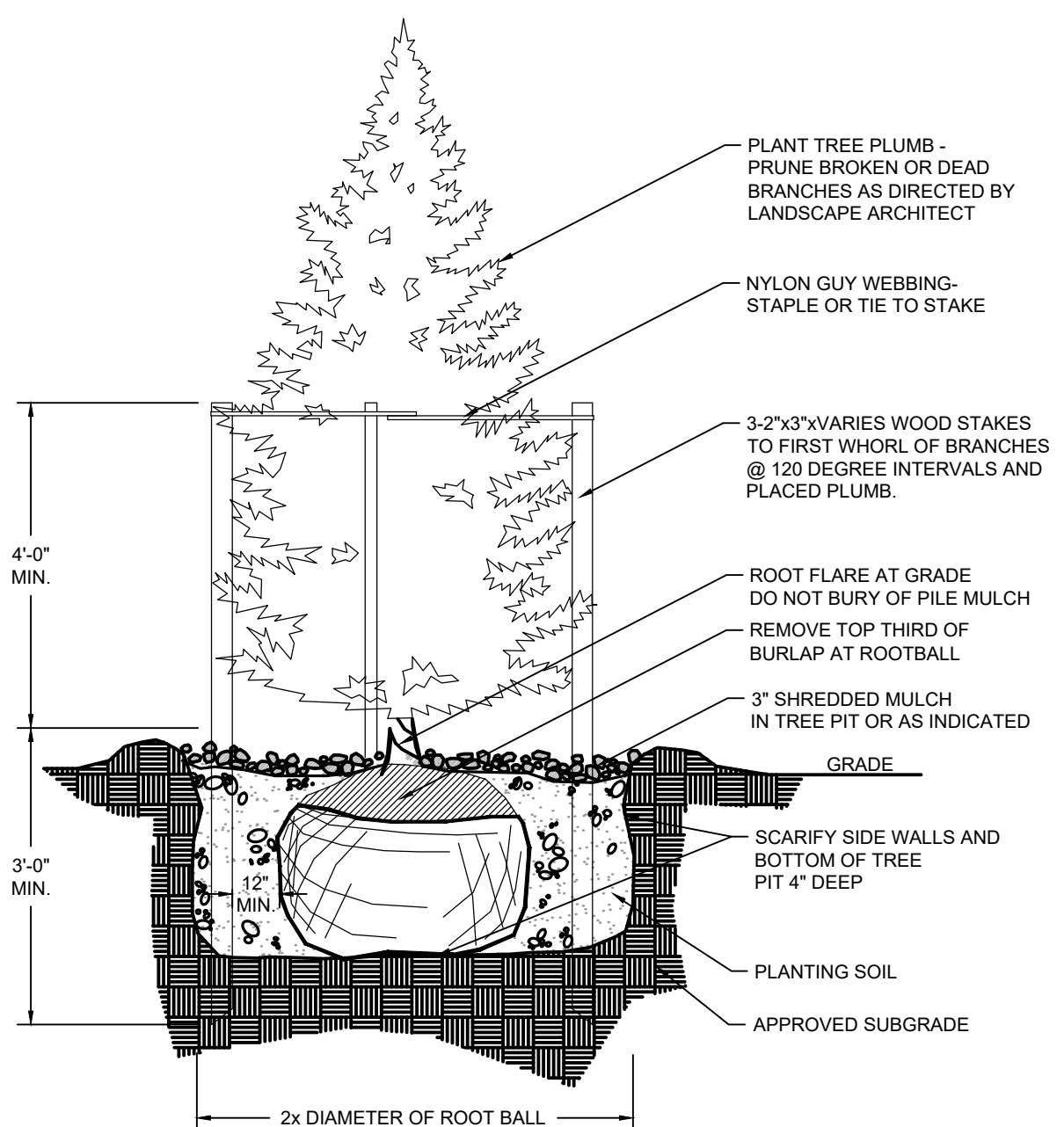


USE EQUIDISTANT TRIANGULAR SPACING FOR PLANTS - FOR ACTUAL SPACING
SEE PLANS OR PLANTING SCHEDULE

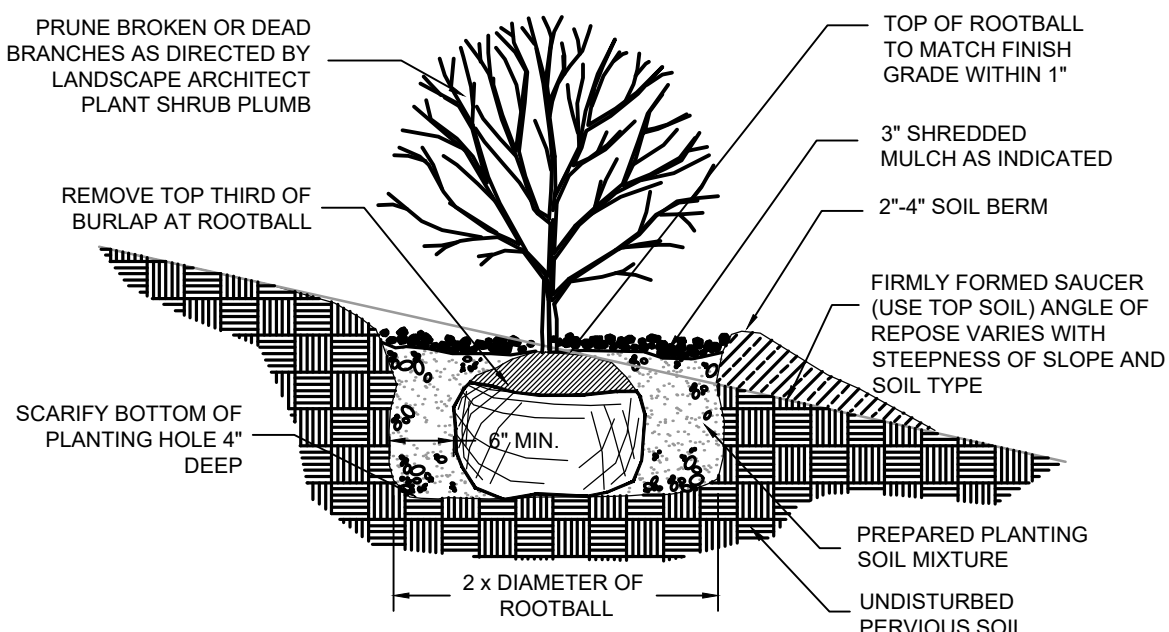
PLANTING SPACING DETAIL
NOT TO SCALE



TREE PLANTING ON SLOPE DETAIL
NOT TO SCALE



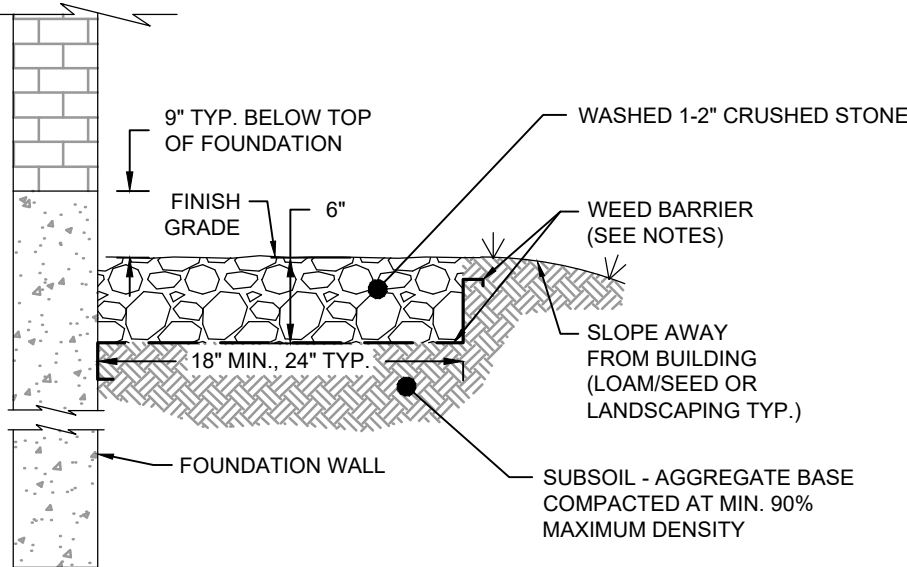
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



- NOTES:
1. PLANTING BACKFILL: 1/3 LOAM, 1/3 SAND, 1/3 PEAT, BY VOLUME.
 2. WHEN PLANTING ON SLOPE-MODIFY SLOPE AS SHOWN.

SHRUB PLANTING ON SLOPE DETAIL
NOT TO SCALE

- NOTES:**
1. WEED BARRIER SHALL BE TENCATE NICOLON GROUND COVER FABRIC OR EQUAL.
 2. ANCHOR FABRIC MN. 6" INTO SOIL. NO EXPOSED FABRIC.
 3. STONE SURFACING AROUND BUILDINGS SHALL BE A CONSISTENT WIDTH.



STONE SURROUNDING BUILDINGS
NOT TO SCALE

PERMITTING SET ONLY
NOT FOR CONSTRUCTION

Project Number: 19038		Sheet: 22 of 22	
Sheet Number: C - 22			
Registration: <div style="text-align: center;"> </div>			
Prepared By: Horsley Witten Group, Inc. 90 Route 6A Sandwich, MA 02563 Phone: (508) 833-6600 Fax: (508) 833-3150 Dated: JUNE 2019			
Plan Set: <div style="text-align: center;"> CAPE VIEW WAY PERMITTING PLANS BOURNE, MASSACHUSETTS </div>			
Plan Title: PLANTING DETAILS			
Date: MARCH 5, 2021			
Designed By: HLC		Drawn By:	
Checked By:		Checked By:	
Date:		Date:	
By:		By:	
Description:		Description:	
Revisions:		Revisions:	
Sustainable Environmental Solutions 90 Route 6A Sandwich, MA 02563 508-833-6600 voice 508-833-3150 fax			