

SPECIAL PERMIT AND SITE PLAN REVIEW PLAN
VMD INDUSTRIES V LLC

Monarch Drive in
Littleton, Massachusetts

Prepared for VMD Industries V LLC

Littleton Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

APPLICANT:
VMD INDUSTRIES V LLC
733 TURNPIKE STREET, ROUTE 114
NORTH ANDOVER, MA 01845

OWNERS:

MAP 10 PARCELS 16 (LOT 1)
CDK REALTY VENTURE ONE, LLC
410 BOSTON POST ROAD, SUITE 28
SUDBURY, MA 01776-3034

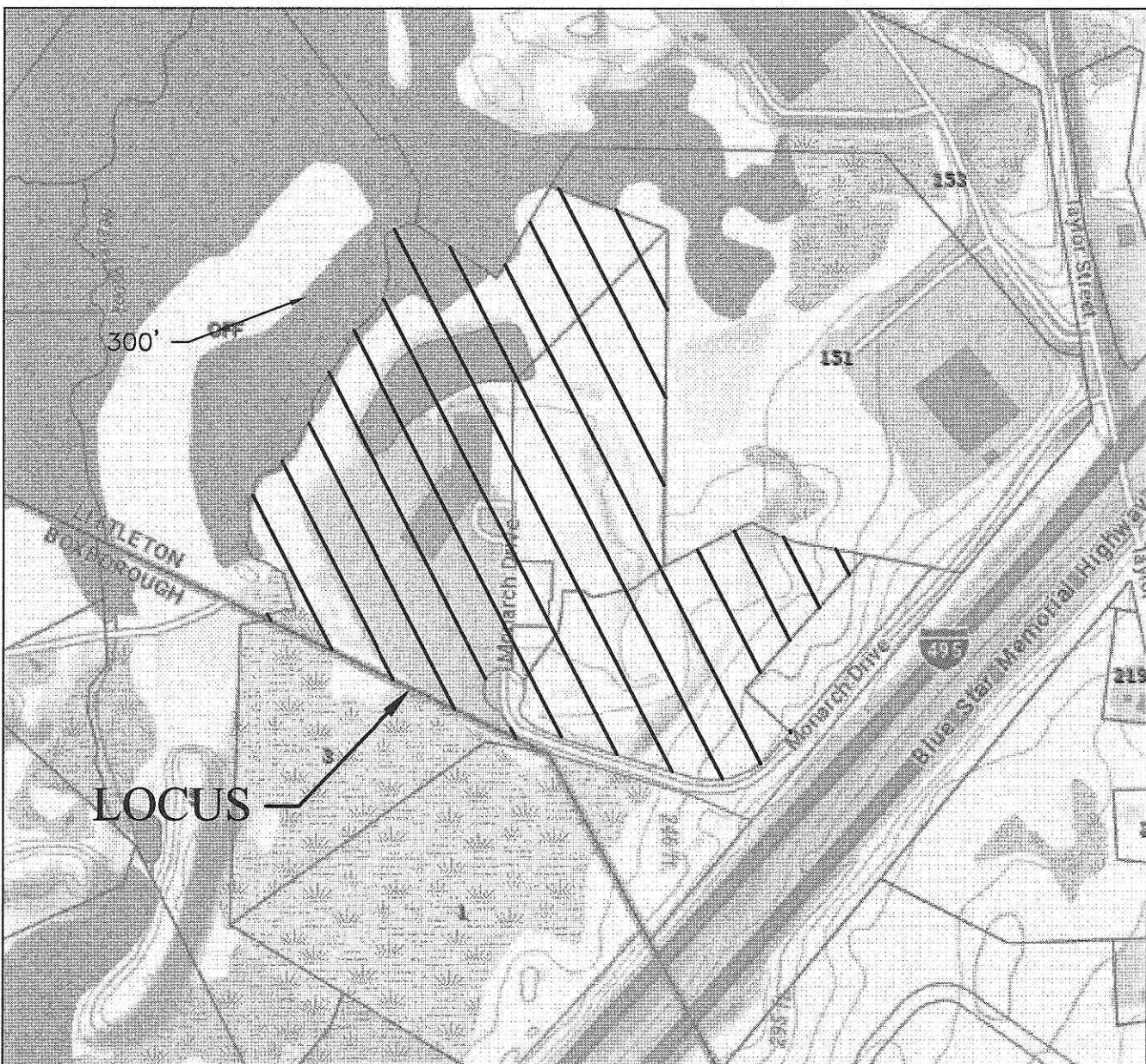
MAP 10 PARCELS 16A AND 16B
(PARCELS 2A AND 2B)
CDK-MEL LLC
410 BOSTON POST ROAD, SUITE 28
SUDBURY, MA 01776-3034

PLANNER, LANDSCAPE ARCHITECT,
CIVIL ENGINEER & SURVEYOR:
Places Associates, Inc.
256 Great Road, Suite 4
Littleton, MA 01460

LITTLETON ASSESSORS DATA
Map: 10 Parcel: 16
Map: 10 Parcel: 16A
Map: 10 Parcel: 16B

REFERENCES
Middlesex District Registry of Deeds
Bk. 62584 Pg. 0122
Bk. 63843 Pg. 0100
Bk. 63843 Pg. 0096

ZONING
R-M Residential Multifamily
R-10 Residential Suburban



LOCUS
SCALE: 1" = 500'

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ZONING COMPLIANCE TABLE

ZONING DISTRICT : INDUSTRIAL A
OVERLAY DISTRICT : AQUIFER PROTECTION DISTRICT

ZONING CRITERIA	REQUIRED	EXISTING	PROPOSED
LOT SIZE	—	20.08 AC.	20.6 AC
LOT FRONTAGE	—	993.04'	993.04'
LOT SETBACK— FRONT	80'	—	145.7'
LOT SETBACK— REAR	50'	—	161.3'
LOT SETBACK— SIDE	50'	—	85.4'
LOT COVERAGE— BUILDING	30%	—	10.9%
LOT COVERAGE— IMPERVIOUS	80%	—	22.7%
BUILDING HEIGHT	40'	—	40'<

AQUIFER DISTRICT CRITERIA	BY RIGHT	SPECIAL PERMIT	PROPOSED
IMPERVIOUS LOT COVERAGE	15%	15-30%	22.7%
GREATER 100 PARKING SPACES	100	>100	202
SEPTIC FLOWS— GPD/1000 S.F. LOT AREA	< 6 GPD	> 6 GPD	5.15 GPD/1000*
% RETENTION LOT IN NATURAL STATE	> 30%	< 30%	67.6% NATURAL**
GRADING LESS 5' ABOVE WATERTABLE	> 5'	<5'	3'

* SEWAGE FLOWS BASED ON LOT AREA OF LOTS 1 & 2 COMBINED SINCE NEW SYSTEMS WILL BE A SHARED SYSTEM
** 67.6% OF SITE WILL REMAIN IN CURRENT STATE — GRAVEL PREVIOUSLY REMOVED FROM SITE

PARKING CALCULATIONS:
INDUSTRIAL BUILDING: 1/2.5 EMPLOYEES ON LARGEST SHIFT
EXACT USE YET TO BE DETERMINED
PARKING PROVIDED:
TOTAL: 202 PASSENGER VEHICLES INCLUDING:
6 HANDICAP SPACES (INCL. 2 VAN ACCESSIBLE)
10 ELECTRIC CHARGING STATION SPACES (INCL.1 HANDICAP)
12 COMPACT CAR SPACES
LOADING DOCKS: 6 PLUS 2 ON GRADE ENTRANCES.

VMD INDUSTRIAL V LLC
COVER

LOCATION: MONARCH DRIVE
TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:
VMD INDUSTRIES V LLC

SCALE: AS NOTED
DATE: APRIL 2022

PLACES Associates, Inc.

Planning
Landscape
Architecture
Civil
Engineering
Surveying

256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 5554
PLAN No.: COVER



GENERAL NOTES:

- PRIOR TO THE PREPARATION OF BIDS AND/OR THE INITIATION OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN AND CAREFULLY EXAMINE THIS PLAN SET, RELATED CONSTRUCTION PLAN SETS FROM OTHER PROFESSIONAL DISCIPLINES, CONSTRUCTION SPECIFICATIONS, MANUFACTURERS INFORMATION AND ANY APPLICABLE PERMIT REQUIREMENTS/CONDITIONS OF APPROVAL FOR THE PROJECT.
- THE EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. DIG SAFE AND THE APPROPRIATE UTILITY COMPANIES SHALL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION.
- NOT ALL UTILITIES WERE ABLE TO BE LOCATED BY RECORD INFORMATION, SITE SURVEYS OR UTILITY LOCATOR SERVICES. THE DESIGN ENGINEER AND BASE PLAN SURVEYOR DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OR SUBSURFACE STRUCTURES WHICH ARE OMITTED OR INACURATELY SHOWN. PRIOR TO THE INITIATION OF WORK, THE CONTRACTOR SHALL VERIFY THE LOCATION/ELEVATION OF EXISTING UTILITIES SHOWN ON THE PLAN.
- THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY DISCREPANCY BETWEEN THE LOCATION/ELEVATION OF ANY EXISTING UTILITIES SHOWN ON THE PLANS AND THAT WHICH IS FOUND IN THE FIELD.
- THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL LAND SURVEYOR TO PROVIDE LAYOUT & CONTROL FOR THE DEVELOPMENT OF THE SITE.
- ALL CONSTRUCTION UNDER AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONSTRUCTED TO WITHSTAND A DIRECT H20 DESIGN LOAD. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL UTILITY/SITE IMPROVEMENT AREAS UNDER LANDSCAPED/NON-TRAFFIC BEARING AREAS FROM TEMPORARY CONSTRUCTION LOADS DURING CONSTRUCTION.
- THE CONSTRUCTION SHOWN ON THESE PLANS REQUIRES AN ORDER OF CONDITIONS BE ISSUED BY THE CONSERVATION COMMISSION. THE CONTRACTOR SHALL OBTAIN A COPY OF SUCH ORDERS OF CONDITIONS PRIOR TO ANY SITE-RELATED DISTURBANCES AND SHALL COMPLY WITH APPROPRIATE CONDITIONS FOR CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ADJACENT PROPERTY FROM DAMAGE. ALL DAMAGES BY THE CONTRACTOR OR SUBCONTRACTORS SHALL BE REPAIRED AT NO COST TO THE OWNER.
- THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING SURVEY MONUMENTS (BOUNDS, PINS, PIPES, DRILL HOLES, ETC.) THROUGHOUT ALL PHASES OF CONSTRUCTION. ANY DISTURBED MONUMENTS SHALL BE REPLACED BY A REGISTERED PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
- THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY CONTRADICTORY, INCOMPLETE OR MISLABELED INFORMATION SHOWN ON THE PLANS OR PLANS PREPARED BY OTHERS. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME FOR THE ENGINEER TO RESPOND/PROVIDE DIRECTION FOR THE PLAN DISCREPANCY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SHOP DRAWINGS OF PRODUCTS/MATERIALS TO THE ENGINEER AND/OR THE LOCAL APPROVING AUTHORITY AS REQUIRED IN THE CONSTRUCTION DOCUMENTS OR IF REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION OVER THE PRODUCT. ADEQUATE TIME SHALL BE ALLOWED FOR THE SHOP DRAWINGS TO BE REVIEWED AND RETURNED TO THE CONTRACTOR PRIOR TO ORDERING THE SPECIFIED PRODUCTS/MATERIALS.
- ALL SUPPLEMENTAL DATA SUBMITTED IN CONJUNCTION WITH THIS PERMIT APPLICATION AS REQUIRED IS HEREBY INCORPORATED AS PART OF THE PLAN SET.
- ALL PERMANENT BOUNDARY AND SURVEY MONUMENTS SHALL BE INSTALLED AFTER THE COMPLETION OF ALL HEAVY SITE WORK.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF WITHIN THE LIMITS OF THE PROJECT. ALL WASTE, TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
- UNLESS OTHERWISE SPECIFIED OR SHOWN, ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM THE STANDARDS DESCRIBED IN THE TOWN'S SUBDIVISION CONTROL REGULATIONS. IF NOT SPECIFIED THEREIN, SUCH CONSTRUCTION SHALL THEN CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MDOT, FORMERLY MASSHIGHWAY) STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST VERSION.
- WETLANDS DELINEATION PERFORMED BY OXBOW ASSOCIATES, INC OF ACTON, MA IN FEBRUARY TO MARCH 2022. LOCATIONS OF FLAGS WERE FIELD-SURVEY LOCATED BY PLACES ASSOCIATES, INC. THE FINAL WETLANDS LIMITS ARE SUBJECT TO REVIEW AND APPROVAL BY THE CONSERVATION COMMISSION.

SITE WORK NOTES:

- THE LIMITS OF WORK SHALL BE FIELD ESTABLISHED PRIOR TO INITIATION OF ANY CONSTRUCTION, SITE EXPLORATIONS OR EARTHEN DISTURBANCE.
- EROSION CONTROLS SHALL BE IMPLEMENTED PRIOR TO SITE CLEARING OR DISTURBANCE. SEE EROSION AND SEDIMENTATION CONTROL PLAN.
- EXCEPT FOR THE SETUP FOR ENTRY TO THE SITE, NO CONSTRUCTION OR CONTRACTOR'S VEHICLES SHALL BE PARKED ON MONARCH DRIVE. UNLESS COORDINATED WITH ADJACENT PROPERTY OWNERS, ALL CONSTRUCTION STAGING, STOCKPILE AND PARKING AREAS SHALL BE ONSITE.
- LOAM SHALL BE STOCKPILED FOR RE-USE ON THE SITE TO THE EXTENT PRACTICAL, SEE EROSION AND SEDIMENTATION CONTROL PLAN.
- NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF WITHIN THE LIMITS OF THE PROJECT. ALL WASTE, TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS. THE SITE SHALL BE KEPT IN A NEAT AND ORDERLY FASHION.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TRENCH OPERATIONS PERMIT PURSUANT TO THE REQUIREMENTS OF THE TOWN AND 520 CMR 14.00 (AKA "JACKIE'S LAW").

MATERIAL DEFINITIONS:

BITUMINOUS
CONCRETE
PAVEMENT

- A. ASPHALTIC CONCRETE SHALL BE A STANDARD PLANT-MIXED, HOT-LAID PAVING MATERIAL FOR ROAD WORK, CONSISTING OF CLEAN, CRUSHED ROCK AGGREGATE, MINERAL FILLER AND ASPHALT CONFORMING TO MDPH SPECIFICATIONS, SECTION M3.11.03, TABLE A.
1. BINDER OR BOTTOM COURSE PAVING MEET THE SPECIFICATIONS FOR MHA BASE COURSE, SHALL HAVE MAXIMUM AGGREGATE SIZE PASSING 20" N. SIEVE, AND BITUMEN CONTENT = 4.4 TO 4.6%± 1/2% BY WEIGHT.
2. TOP OR WEARING COURSE PAVING FOR SHALL BE "HMA SURFACE STANDARD TOP COURSE" HAVING MAXIMUM AGGREGATE SIZE PASSING 5/8 IN. SIEVE, AND BITUMEN CONTENT = 5.9%± 1/2% BY WEIGHT.
3. TOP OR WEARING COURSE FOR CAPE COD BERM PAVING FOR SHALL BE "HMA DENSE MIX" HAVING MAXIMUM AGGREGATE SIZE PASSING 1/2 IN. SIEVE, AND BITUMEN CONTENT = 7.4-7.6%± 1/2% BY WEIGHT.

IF RECLAIMED ASPHALT PAVEMENT (RAP) IS USED IN THE MIXTURE, THE PROPORTION OF RAP TO VIRGIN AGGREGATE SHALL BE LIMITED TO A MAXIMUM OF 40% FOR DRUM MIX PLANTS AND 20% FOR MODIFIED BATCH PLANTS.

CAST IN PLACE
CONCRETE

ALL SITE CAST IN PLACE CONCRETE AND RELATED REINFORCING SHALL MEET THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE, THE AMERICAN CONCRETE INSTITUTE (ACI) AND THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) FOR PRODUCT MATERIALS, FORM WORK, PLACEMENT AND CURING. ALL CAST CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI UNLESS OTHERWISE REQUIRED IN THE CONSTRUCTION DOCUMENTS.

CONTROLLED
DENSITY FILL (CDF)

CONTROL DENSITY FILL SHALL BE A FLOWABLE, SELF-CONSOLIDATING, RIGID SETTING, LOW DENSITY MATERIAL THAT CAN SUBSTITUTE FOR COMPACTED GRAVELS FOR BACKFILLS, FILLS AND STRUCTURAL FILLS. CDF SHALL BE EXCAVATABLE BY HAND TOOLS AND/OR SMALL EQUIPMENT WHEN PLACED AND CURED. CDF SHALL MEET THE REQUIREMENTS OF SSHB M4.0.08, TYPE 2E, AND SHALL MEET THE FOLLOWING REQUIREMENTS:

- A. CDF IS TO BE BATCHED AT A READY MIX PLANT AND IS TO BE USED AT A HIGH OF "VERY HIGH SLUMP FROM 10" TO 12". IT SHALL BE FLOWABLE AND REQUIRE NO VIBRATION AFTER IT HAS BEEN PLACED.
- B. CDF SHALL BE A MIXTURE OF PORTLAND CEMENT, FLYASH, SAND AND WATER DESIGNED TO MEET THE CDF REQUIREMENTS. HIGH AIR ENTRAINMENT MAY BE SUBSTITUTED FOR FLYASH WITH AN ADMIXTURES (25%) ADJUSTMENT IN SAND CONTENT.
- C. CDF MUST MEET THE FOLLOWING STRENGTH REQUIREMENTS:
-28 DAY COMPRESSIVE STRENGTH: 30-80 PSI
-90 DAY COMPRESSIVE STRENGTH: 100 PSI MAX

CRUSHED STONE

CRUSHED STONE SHALL BE THE SIZE AS INDICATED ON THE PLANS. THE STONE SHALL BE FROM A STONE QUARRY THAT PRODUCES HARD, ANGULAR DURABLE WASHED STONE FREE FROM DEBRIS AND ORGANIC MATERIALS. THE STONE SHALL MEET THE REQUIREMENTS OF SSHB M2.01.0

DENSE GRADED
CRUSHED STONE

DENSE GRADED CRUSHED STONE SHALL CONSIST OF THE COMBINATION OF CRUSHER-RUN COARSE AGGREGATES (MEETING SSHB M2.01.0) AND FINE AGGREGATES OF NATURAL SAND OR STONE SCREENING UNIFORMLY PREMISED WITH A PREDETERMINED QUANTITY OF WATER. COARSE AGGREGATE SHALL CONSIST OF HARD, DURABLE PARTICLES OF FRAGMENTS OF STONE MATERIALS THAT BREAK UP WHEN ALTERNATELY FROZEN AND THAWED OR WETTED AND DRIED SHALL NOT BE USED. FINE AGGREGATE SHALL CONSIST OF NATURAL OR CRUSHED SAND. THE GRADATION/MATERIAL SHALL COMPLY WITH THE SPECIFICATIONS OF SSHB M2.01.7

GLACIAL TILL

A. GLACIAL TILL: NATURAL INORGANIC SOLID APPROVED BY THE ENGINEER AND MEETING THE FOLLOWING REQUIREMENTS:

- A. IT SHALL BE FREE OF ORGANIC OR OTHER WEAK OR COMPRESSIBLE MATERIALS, FROZEN MATERIALS AND STONES GREATER THAN TWO INCHES IN MAXIMUM DIMENSION.
- B. IT SHALL BE A SILT LOAM AS DEFINED BY THE U.S. DEPARTMENT OF AGRICULTURE SOIL TEXTURAL CLASSIFICATION.
- C. THE SOIL SHALL CONSIST OF GREATER THAN 50% SILT, 12% TO 27% CLAY, OR 50% TO 80% SILT AND LESS THAN 12% CLAY.

GRAVEL BORROW

GRAVEL BORROW SHALL CONSIST OF INERT MATERIAL THAT IS HARD, DURABLE STONE AND COURSE SAND, FREE FROM CLAY, SURFACE COATINGS, ORGANIC AND DELETERIOUS MATERIAL. ALL GRAVEL BORROW SHALL MEET THE REQUIREMENTS OF SSHB M1.03.0. MAXIMUM STONE SIZE SHALL BE AS FOLLOWS:

TYPE A: 6" LARGEST DIMENSION
TYPE B: 3" LARGEST DIMENSION
TYPE C: 2" LARGEST DIMENSION

LOAM (BORROW)

LOAM SHALL CONSIST OF NATURAL TOPSOIL, FREE FROM SUB-SOIL, OBTAINED FROM AN AREA WHICH HAS NEVER BEEN STRIPPED. LOAM SHALL BE OF UNIFORM QUALITY, FREE FROM HARD CLODS, STIFF CLAY, HARDPAN, SOD, PARTIALLY DISINTEGRATED STONE, LIME, CEMENT, ASHES, SLAG, CONCRETE, TAR RESIDUE, TARRER PAPER, BOARDS, CHIPS OR ANY OTHER UNDESIRABLE MATERIAL.

LOAM SHALL CONTAIN BETWEEN 5.5 AND 7.5 PERCENT ORGANIC MATTER AS DETERMINED BY LOSS ON IGNITION OF A MOISTURE-FREE SAMPLE DRIED IN ACCORDANCE WITH THE CURRENT METHOD OF THE ASSOCIATION OF OPTICAL AGRICULTURAL CHEMISTS.

THE ACIDITY RANGE OF THE LOAM SHALL BE PH 6.5 TO PH 7.5 INCLUSIVE.

THE MECHANICAL ANALYSIS OF THE SOIL SHALL BE AS FOLLOWS:

U.S. SIEVE SIZE & NUMBER	PERCENT PASSING MINIMUM	PERCENT PASSING MAXIMUM
1 INCH & INCH	100%	100%
NO. 100 (SAND)	97%	100%
NO. 100 (SILT & CLAY)	49%	60%
	40%	60%

ORDINARY BORROW

ORDINARY BORROW SHALL CONSIST OF MATERIAL NOT SPECIFIED AS ANY OTHER EARTHEN MATERIAL. ORDINARY BORROW SHALL BE WELL GRADED, NATURAL, INORGANIC MATERIAL ACCEPTABLE TO THE ENGINEER FOR THE GENERAL FILLING TO THE SPECIFIED SUB-GRADE. THE MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS:

- A. IT SHALL BE FREE OF ORGANIC OR OTHER WEAK OR COMPRESSIBLE MATERIAL, OF FROZEN MATERIALS AND OF STONES LARGER THAN 6 INCHES IN MAXIMUM DIMENSION.
- B. IT SHALL BE OF SUCH NATURE & CHARACTER THAT IT CAN BE COMPACTED TO THE SPECIFIED DENSITIES IN A REASONABLE AMOUNT OF TIME.
- C. IT SHALL BE FREE OF HIGHLY PLASTIC CLAYS, OF ALL MATERIALS SUBJECT TO DECAY, DECOMPOSITION, AND OF OTHERS OR OTHER MATERIALS WHICH WILL CORRODE PIPING OR OTHER BURIED MATERIALS.
- D. IT SHALL HAVE A MAXIMUM DRY DENSITY OF NOT LESS THAN 100 POUNDS PER CUBIC FOOT AND LESS THAN 40 % OF THE MATERIAL SHALL PASS THE NUMBER 200 SIEVE.
- E. EXCAVATED ROCK & BOULDERS SMALLER THAN ONE CUBIC YARD IN SIZE MAY BE USED IN FILL AREAS UNDER LAWNS ONLY. PROVIDED THEY ARE A MINIMUM OF 24 INCHES BELOW THE SUBGRADE, PLACED AND COMPACTED IN LAYERS WITH NO VOIDS AND ALL INTERSTICES FILLED.

RIP RAP

RIP-RAP STONE SHALL BE SOUND, DURABLE ROCK, ANGULAR IN SHAPE. RIP RAP SHALL BE FREE FROM DEBRIS, ORGANIC OR DELETERIOUS MATERIAL. ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR SOFT STONE OR RELATIVELY THIN SLABS WILL NOT BE PERMITTED UNLESS SPECIFICALLY PERMITTED BY THE DESIGN ENGINEER. ALL RIP RAP MATERIALS SHALL MEET THE REQUIREMENTS OF SSHB M2.02.0.

SAND BORROW

SAND BORROW SHALL CONSIST OF CLEAN INERT, HARD, DURABLE GRAINS OF QUARTZ OR OTHER HARD DURABLE ROCK, FREE FROM LOAM OR CLAY, SURFACE COATINGS AND DELETERIOUS MATERIALS. THE ALLOWABLE AMOUNT OF MATERIAL PASSING A #200 SIEVE AS DETERMINED BY ASHTO T 11 SHALL BE 1% MAX. ALL SAND BORROW SHALL MEET THE REQUIREMENTS NOT EXCEED 10 OF SSHB M1.04.0. MAXIMUM STONE SIZE SHALL BE AS DEPICTED IN THE PLANS.

MATERIAL DEFINITIONS (CONT.):

COMPACTION
TESTING

ALL EARTHEN MATERIALS SHALL BE COMPACTED TO THE DRY DENSITY INDICATED IN THE CONSTRUCTION DOCUMENTS AND/OR AS IS REQUIRED BY CODE OR REGULATION. MAXIMUM DRY DENSITY SHALL BE DETERMINED FROM A SAMPLE OF THE MATERIAL TO BE USED AND TESTED IN ACCORDANCE WITH THE MODIFIED PROCTOR DRY DENSITY TEST AS DEFINED IN ASTM D1557, METHOD C. AREAS THAT WERE TESTED AND FOUND TO BE INSUFFICIENTLY COMPACTED SHALL BE RE-TESTED AFTER THE ADDITIONAL COMPACTION HAS BEEN COMPLETED.

STRUCTURAL FILL

STRUCTURAL FILL IS FILL OR REPLACEMENT SOIL MATERIALS LOCATED BELOW AND ADJACENT TO ALL STRUCTURAL FOOTINGS, SLABS AND BUILDINGS, (AS DEFINED BY THE MASSACHUSETTS BUILDING CODE) EXTENDING OUT TEN FEET (10'-0") FROM THE EXTERIOR LIMITS OF SUCH STRUCTURES.

STRUCTURAL FILL SHALL MEET THE FOLLOWING REQUIREMENTS - IN THE ORDER OF PRIORITY:

- A SITE SPECIFIC GEOTECHNICAL REPORT, SPECIFICATION OR REQUIREMENT PREPARED BY A MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER.
- A STRUCTURAL ENGINEERS REPORT, SPECIFICATIONS OR REQUIREMENTS.
- AN ARCHITECT'S REPORT, SPECIFICATION OR REQUIREMENTS.
- CRUSHED STONE BEING 3/4" TO 1 1/2" DIAMETER, MEETING SSHB M2.01.0

ABBREVIATIONS

ABBREVIATION

ASHTO
ABR
AR-1
AR-2
AR-3
ASTM
B&B
BC
BIT. CONC.
BLDG
BM
BR
CAL
CB
CF
CI
CMP
CONC.
CTB
CY
DH
DI
DIOL
DIA
DMH
ELEV
EMH
EXT.
EXT.
FDN
FES
FFE
FG
FND
FSB
FT
GAL
GPM
HDPE
HP
HT
I. PIN
I. PIPE
ID
INV.
LP
MAX
MHB
MIN
MUTED
OC
OD
OSHA
R&P
PSI
PVC
RCP
R & S
REOD
SD
SMH
SPR
S&S
SSHB
STV
TEMP
TC
TMH
TOC
TR
TYP
UP
VERTS
VECTS
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABBREVIATION
ACCESSIBLE RAMP - TYPE 1
ACCESSIBLE RAMP - TYPE 2
ACCESSIBLE RAMP - TYPE 3
AMERICAN SOCIETY FOR TESTING AND MATERIALS
BALL & BURLAP
BOTTOM CURB ELEVATION
BITUMINOUS CONCRETE
BUILDING
BENCHMARK
BOTTOM RAMP ELEVATION
CALIPER
CONCRETE BOUND
CUBIC FOOT
CAST IRON PIPE
CORRUGATED METAL PIPE
CONCRETE
CATCH BASIN
CUBIC YARD
DRILL HOLE
DUCTILE IRON PIPE
DUCTILE IRON CEMENT LINED PIPE
DIAMETER
DRAIN MANHOLE
ELEVATION
ELECTRIC MANHOLE
EXISTING
EXTERIOR
FOUNDATION
FLARED END SECTION
FINISH FLOOR ELEVATION
FINISH GRADE
FOUND
FIELD STONE BOUND
FEET - LINEAR MEASURE
GALLON
GALLONS PER MINUTE
HIGH DENSITY POLYETHYLENE PIPE
HIGH POINT
HEIGHT
IRON PIN
IRON PIPE
INSIDE DIAMETER
PIPE INVERT ELEVATION
LOW POINT
MAXIMUM
MASS HIGHWAY BOUND
MINIMUM
MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
ON CENTER
OUTSIDE DIAMETER
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PLUS & MIN
POUNDS PER SQUARE INCH
POLYVINYL CHLORIDE PIPE
ROUND CONCRETE PIPE
REMOVE & STOCKPILE ITEM
REQUIRED
STONE BOUND
SEWER MANHOLE
SPREAD
STAKE & STONE
STANDARD SPECIFICATIONS OF HIGHWAYS & BRIDGES, THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
SLOPED TO VERTICAL CURB TRANSITION
SEGMENT
TEMPORARY BENCH MARK
TOP OF CURB ELEVATION
TELEPHONE MANHOLE
TOP OF CONCRETE FOUNDATION ELEVATION
TOP OF RAMP ELEVATION
TYPICAL FOR ALL ITEMS SHOWN
UTILITY POLE
VERTICAL GRANITE CURB TRANSITION SEGMENT

LEGEND

EXISTING	PROPOSED
INDEX CONTOUR	-100
INTERMEDIATE CONTOUR	-99
SPOT GRADE	100.00
STONE WALL	
EDGE OF WOODS	
EDGE OF WATER BODY	
100 YEAR FLOOD LINE	
EDGE OF WETLAND	
25' BUFFER	
50' BUFFER	
75' BUFFER	
100' BUFFER	
WETLAND	
WETLAND FLAG	WT#04
RIVERFRONT	
100' RIVER BUFFER	
200' RIVER BUFFER	
SILTATION BARRIER	
BUILDING SETBACK LINE	
WELL	
TREE	
FLAGPOLE	
BOUND	
DRILL HOLE	
IRON PIN	
BENCHMARK	
PERC TEST	
TEST PIT	
SOIL BORING	
EDGE OF GRAVEL	
EDGE OF WALK	
EXPANSION JOINT	
CONSTRUCTION JOINT	
EDGE OF PAVEMENT	
CAPE COD BERM	
BIT CONC. (TYPE 3)	
CONCRETE CURB	
VERT. GRANITE CURB	
SLOPED GRANITE CURB	
STOCKADE FENCE	
CHAIN LINK FENCE	
FENCE - OTHER	
FENCE GATE	
GUARD RAIL	
WOOD GUIDE RAIL	
ROOT BARRIER	
SIGN POST	
FOUNDATION DRAIN	
ROOF DRAIN	
DRAIN LINE	
DRAIN MANHOLE	
CATCHBASIN	
FLARED END IN/OUT	
CLEANOUT	
IRRIGATION LINE	
FIRE PROTECTION LINE	
WATER LINE	
WATER VALVE	
FIRE HYDRANT	
WATER SHUTOFF	
OVERHEAD WIRES	
UNDERGROUND WIRES	
GUY POLE	
UTILITY POLE	
GUY ANCHOR	
UTILITY BOX	
STREETLIGHT	
LAMP POST	
ELECTRIC MANHOLE	
TELEPHONE MANHOLE	
SEWER LINE	
SEWER FORCE MAIN	
LOW PRESSURE SEWER	
SEWER MANHOLE	
GAS LINE	
GAS VALVE	

NOTES AND LEGEND

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

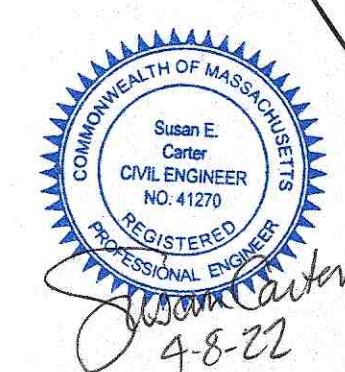
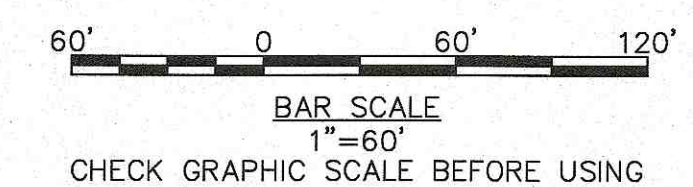
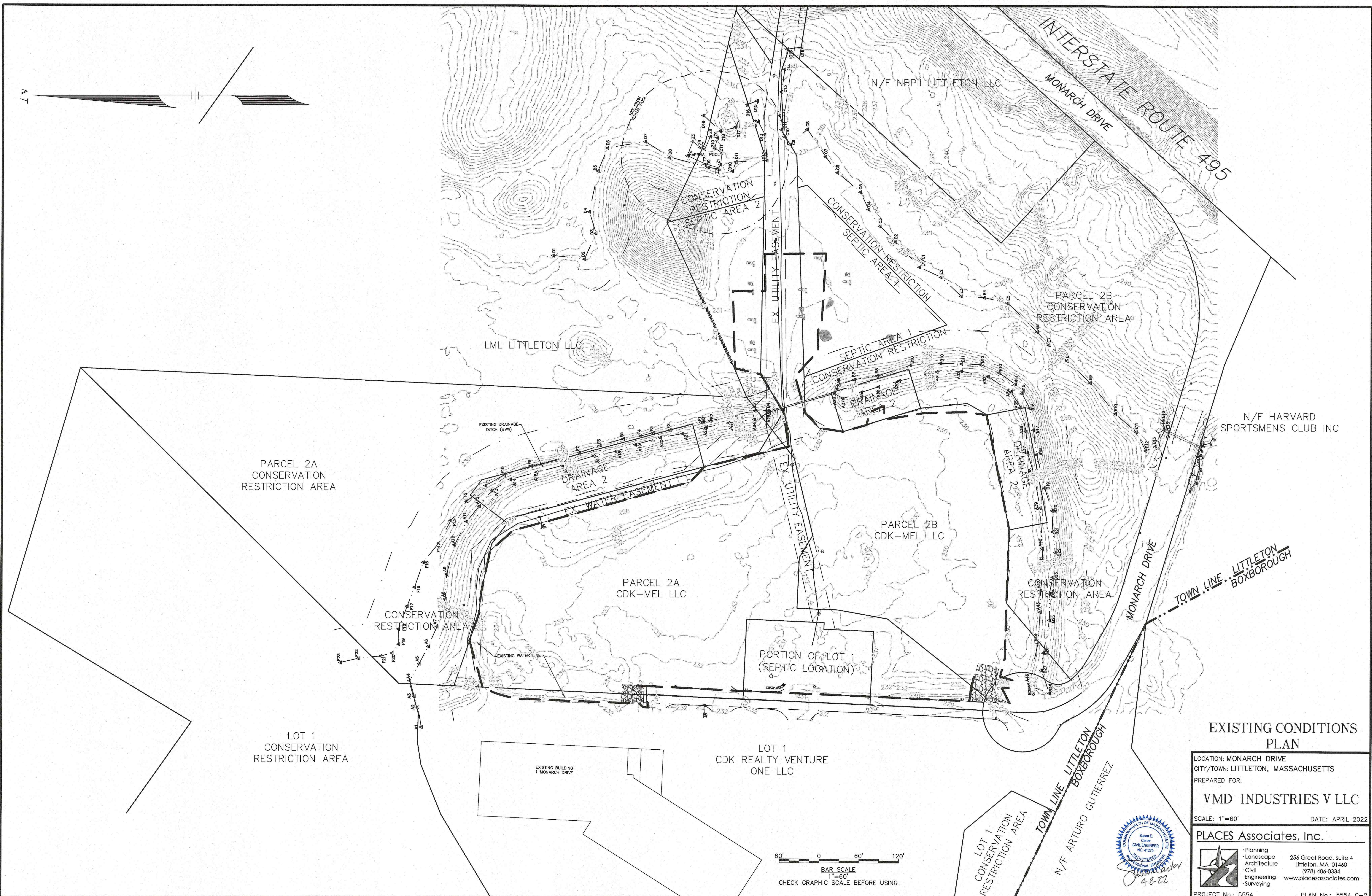
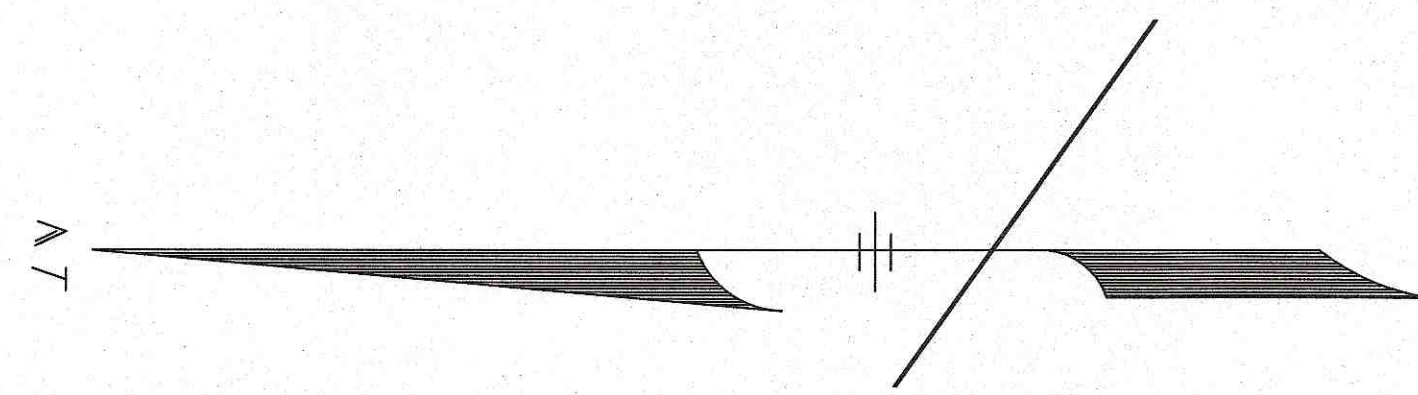
VMD INDUSTRIES V LLC

SCALE: AS NOTED DATE: APRIL 2022

PLACES Associates, Inc.

Planning
Landscape Architecture
Civil Engineering
Surveying
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PROJECT No.: 5554 PLAN No.: 5554 C-1



EXISTING CONDITIONS
PLAN

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V LLC

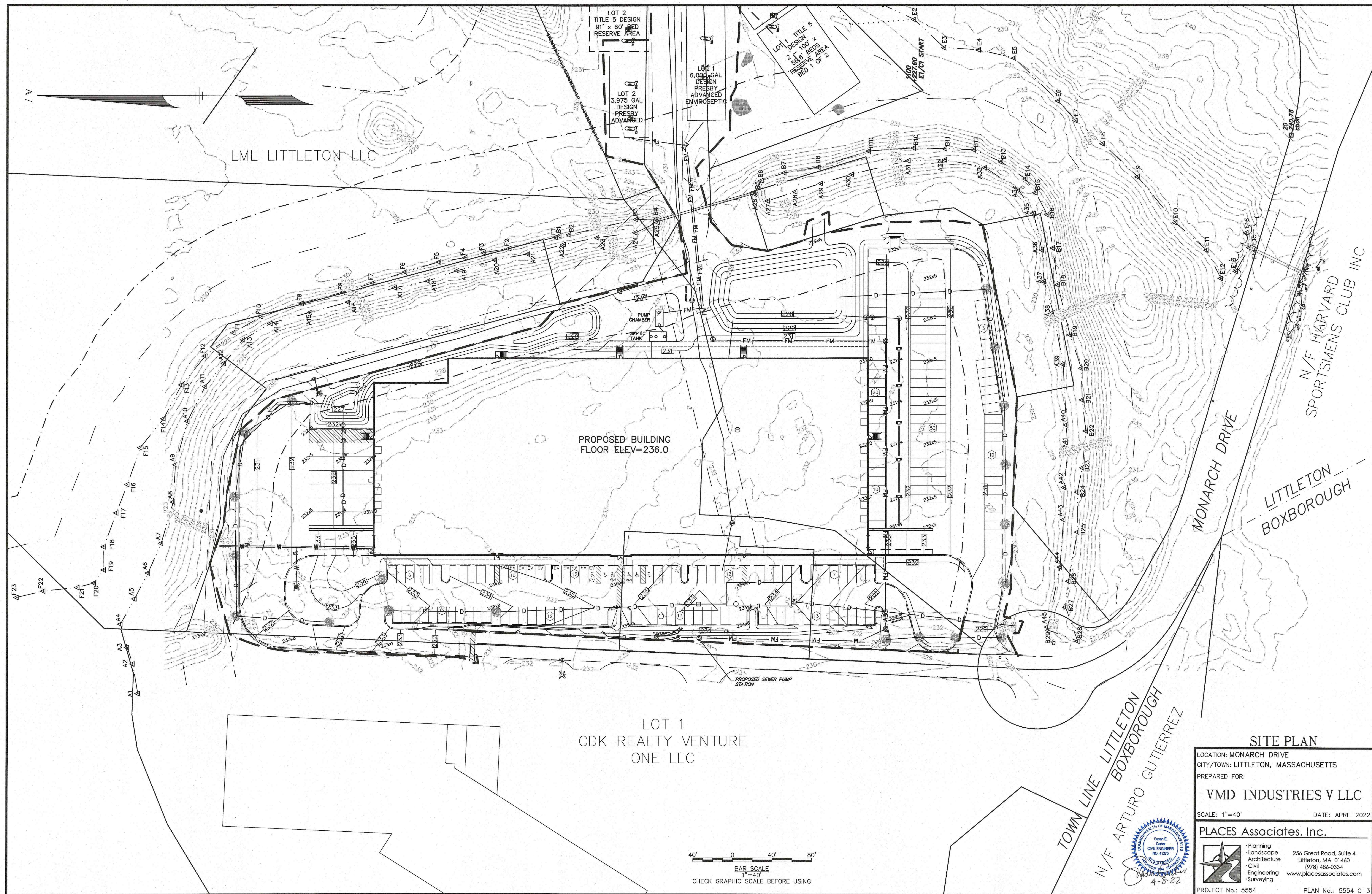
SCALE: 1"=60' DATE: APRIL 2022

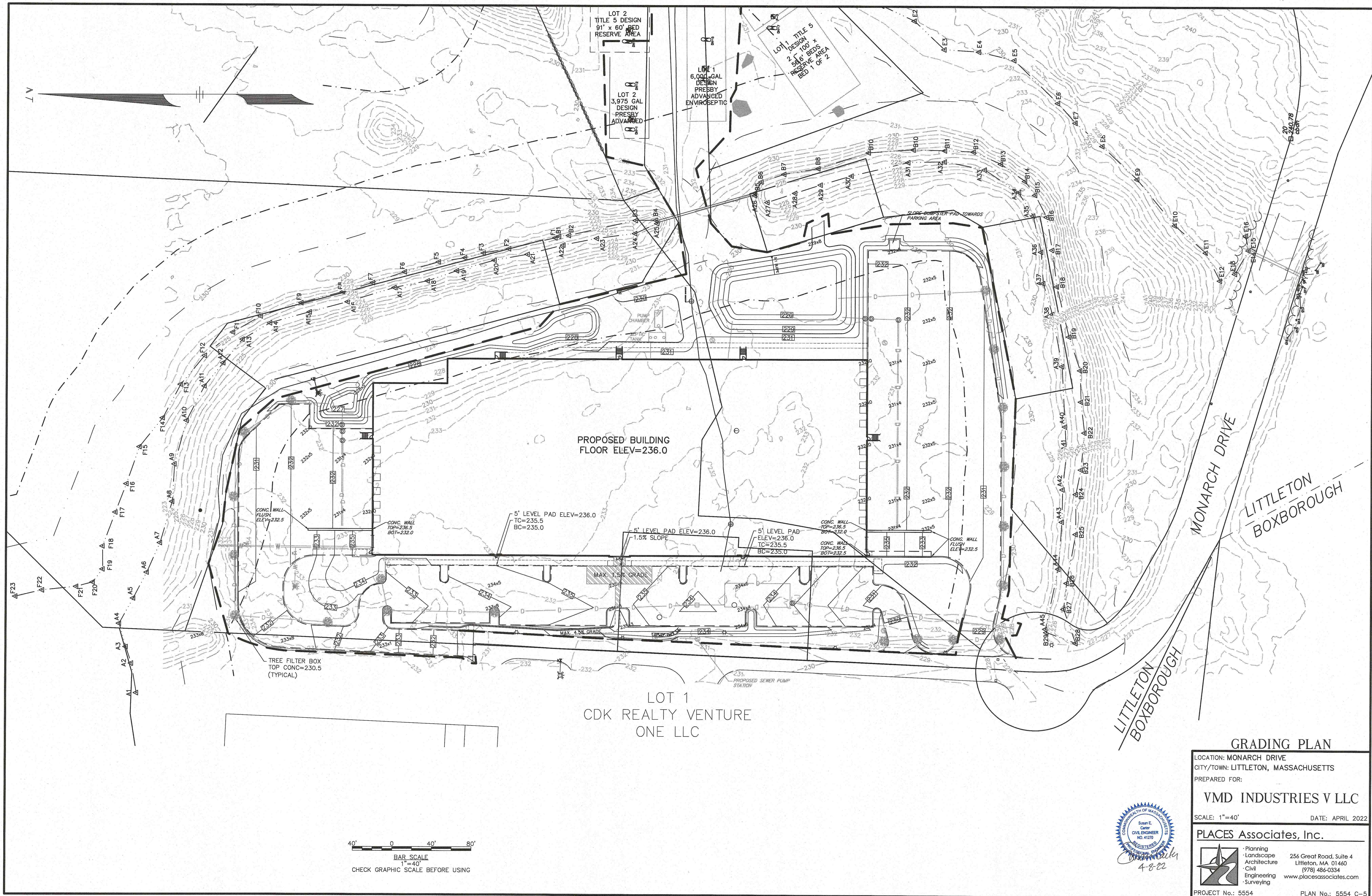
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PROJECT No.: 5554 PLAN No.: 5554 C-2





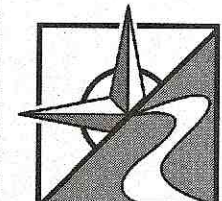
GRADING PLAN

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V LLC

SCALE: 1"=40' DATE: APRIL 2022

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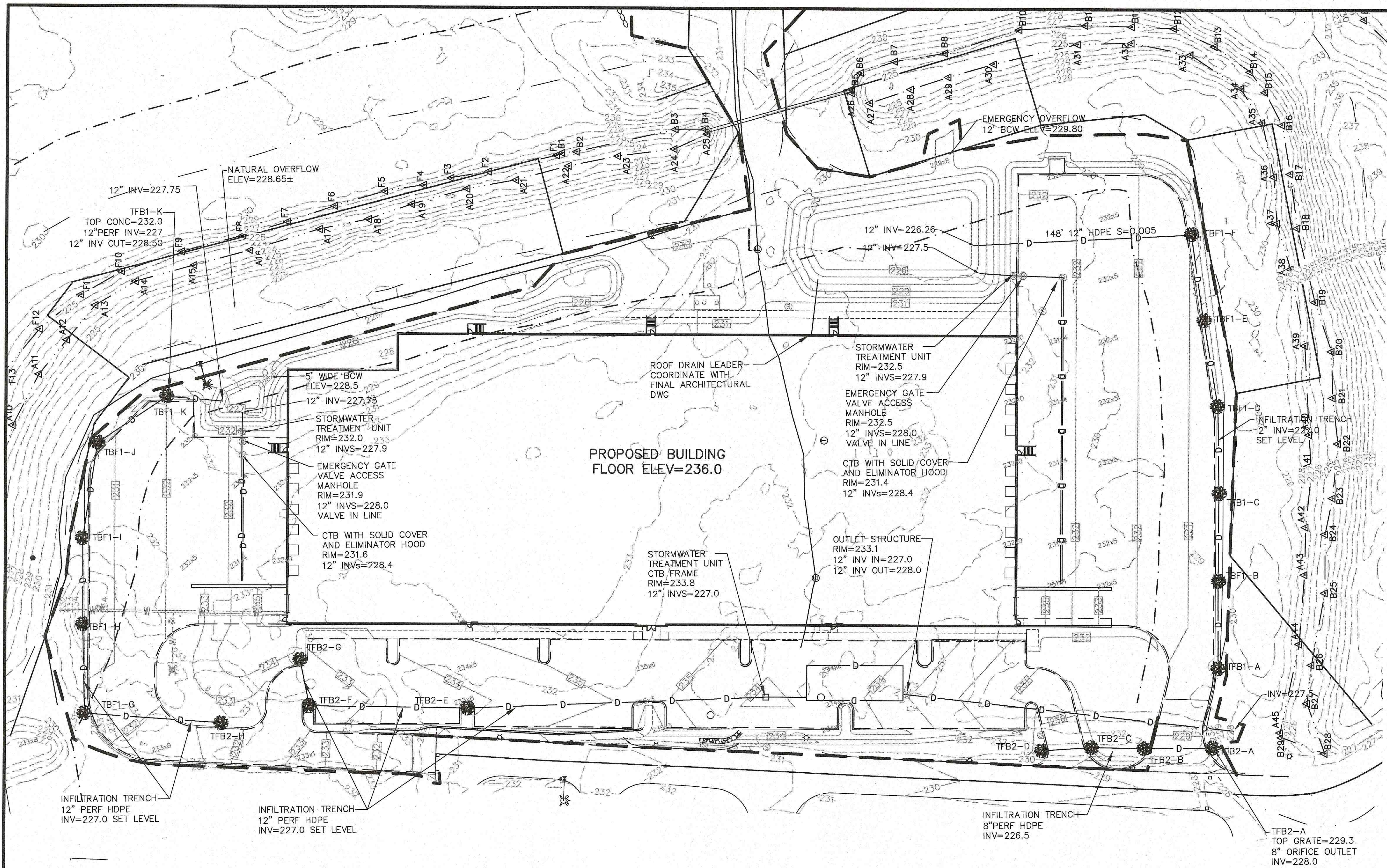
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PROJECT No.: 5554

PLAN No.: 5554 C-5



TREE BOX FILTER TYPE 1
SCHEDULE OF ELEVATIONS

STRUCTURE NO.	TOP OF CONCRETE/RIM	INVERT RECHARGE	ADDITIONAL OUTLETS
TBF1-A	230.5	227.00	
TBF1-B	230.5	227.00	
TBF1-C	230.5	227.00	
TBF1-D	230.5	227.00	
TBF1-E	230.5	227.00	
TBF1-F	230.5	227.00	INV=227.0 148' 12" HDPE S=0.005
TBF1-G	231.5	227.00	
TBF1-H	230.5	227.00	
TBF1-I	230.5	227.00	
TBF1-J	230.7	227.00	
TBF1-K	232.0	227.00	INV=228.5 38' 12" HDPE S=0.02

TREE BOX FILTER TYPE 2
SCHEDULE OF ELEVATIONS

STRUCTURE NO.	INLET ELEVATION	TOP GRATE	INVERT RECHARGE	ADDITIONAL OUTLETS
TBF2-A	228.7	229.3	226.5 (8")	8" ORIFICE INV=228.0
TBF2-B	228.7	229.3	226.5 (8")	
TBF2-C	229.2	229.8	226.5 (8")	
TBF2-D	229.3	229.9	226.5 (8")	
TBF2-E	233.7	234.3	227.0	
TBF2-F	232.6	233.2	227.0	
TBF2-G	232.8	233.4	227.0	
TBF2-H	231.8	232.4	227.0	

200LB. RIP-RAP SPECIFICATIONS:

1. ALL STONE SHALL BE CLEAN DURABLE ANGULAR STONE MEETING THE FOLLOWING SPECIFICATIONS:

STONE SIZE	% OF WEIGHT SMALLER THAN GIVEN SIZE
200 LB.	100%
100 LB.	75%
75 LB.	50%
50 LB.	25%
10 LB.	10%

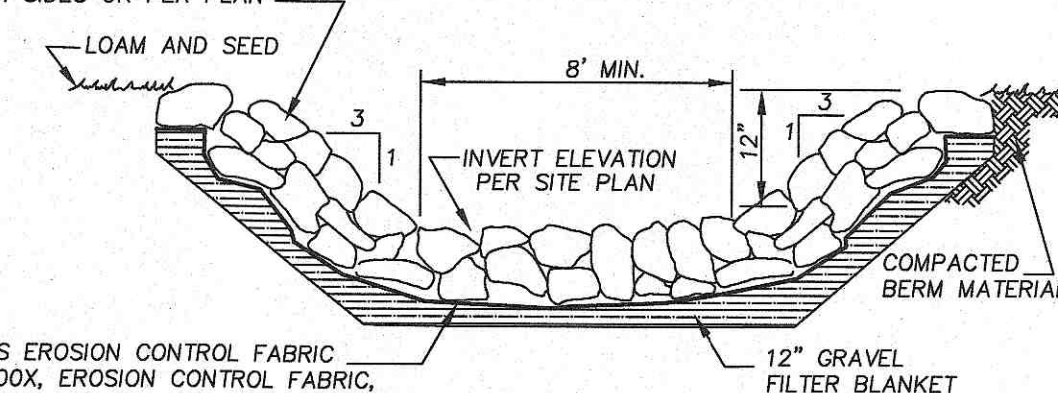
ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLAB SHALL NOT BE ACCEPTABLE.

2. THE RIP-RAP SHALL BE UNDERLAYED WITH A FILTER BLANKET CONSISTING OF CLEAN, COARSE GRAVEL WITH NO STONES OVER 4" IN LONGEST DIMENSION AND NO FEWER THAN 10% OF TOTAL VOLUME PASSING A 200# SIEVE.

3. THE FILTER BLANKET NEED NOT BE COMPACTED, BUT SHALL BE GRADED TO A UNIFORM THICKNESS OF 12".

4. THE FILTER BLANKET SHALL BE OVERLAYED WITH A STRUCTURAL/EROSION CONTROL FABRIC OF THE TYPE SPECIFIED. SUCH FABRIC SHALL BE CONTINUOUS IN LENGTHS, EITHER PARALLEL OR PERPENDICULAR TO THE SLOPE AND MUST BE UNDER ALL RIP-RAPPED SURFACES.

200 LB. RIP-RAP CHINK ALL VOIDS, EXTEND MIN. 20' DOWN HILL BOTH SIDES OR PER PLAN



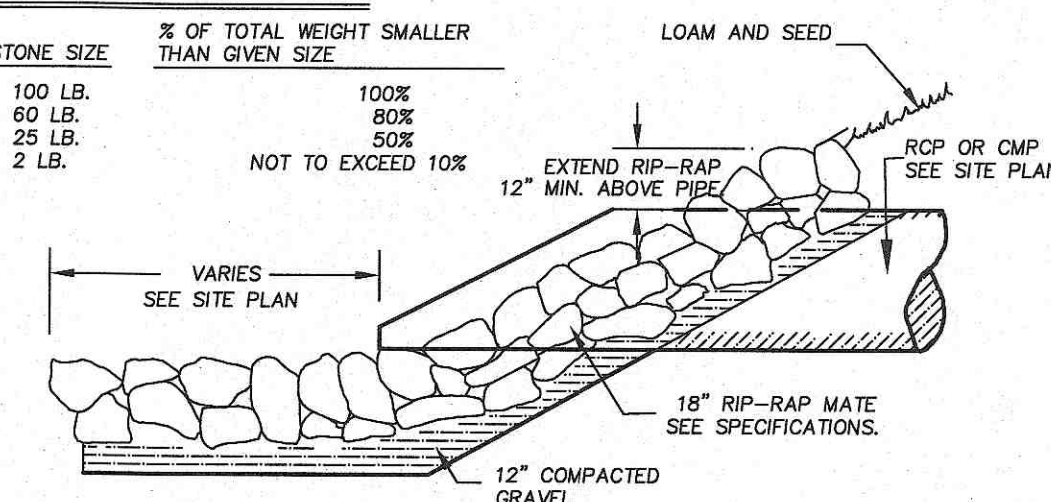
INSTALL CONTINUOUS EROSION CONTROL FABRIC EQUAL TO MIRAFI 700X, EROSION CONTROL FABRIC, OVERLAP & ANCHOR PER MANUFACTURER'S SPECS.

REINFORCED OVERFLOW BROAD-CRESTED WEIR

NOT TO SCALE

RIP-RAP SPECIFICATIONS

STONE SIZE	% OF TOTAL WEIGHT SMALLER THAN GIVEN SIZE
100 LB.	100%
60 LB.	80%
25 LB.	50%
2 LB.	NOT TO EXCEED 10%



FLARED END RIP-RAP INLET/OUTLET

NOT TO SCALE

DRAINAGE PLAN

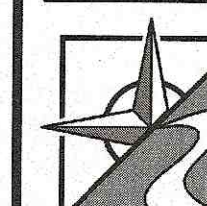
LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V LLC

SCALE: 1"=40'

DATE: APRIL 2022

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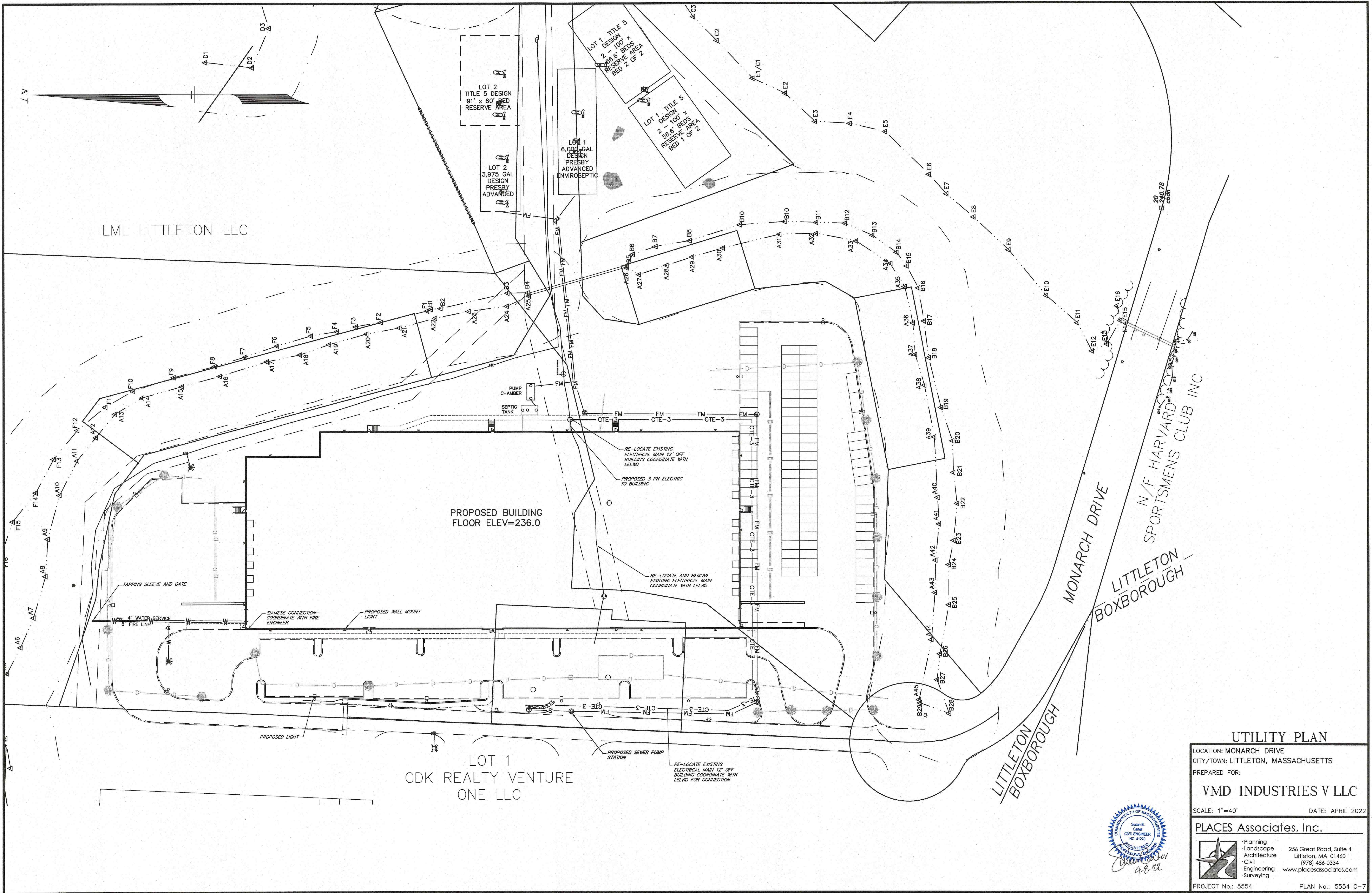


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PROJECT No.: 5554

PLAN No.: 5554 C-6





UTILITY PLAN

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V LLC

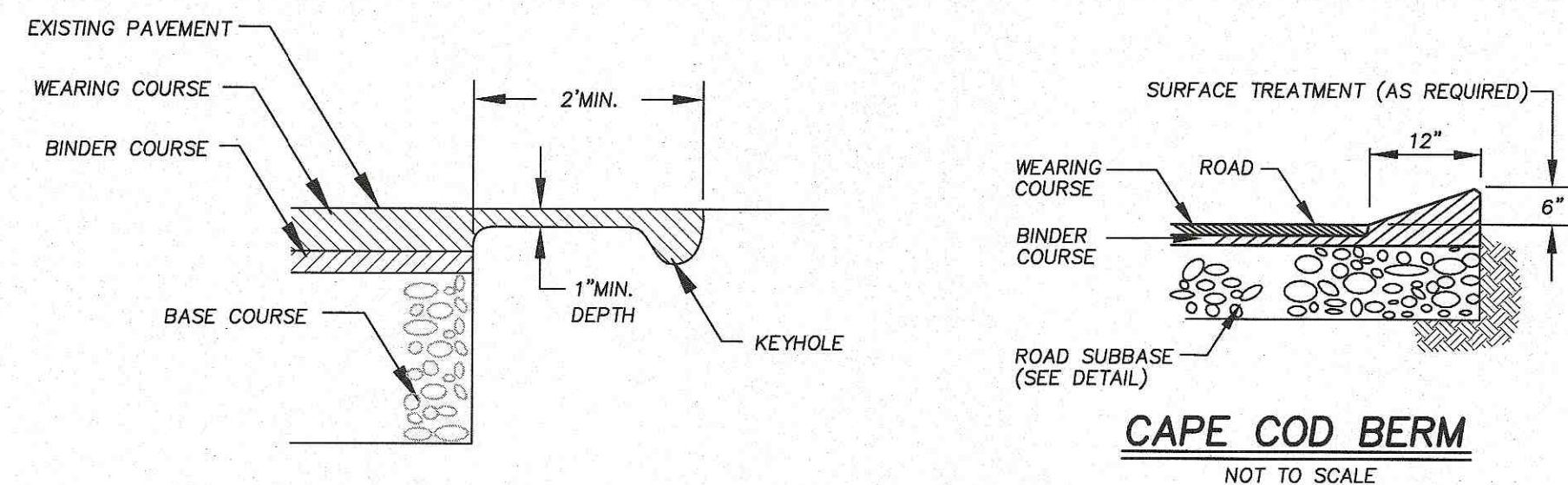
SCALE: 1"=40' DATE: APRIL 2022

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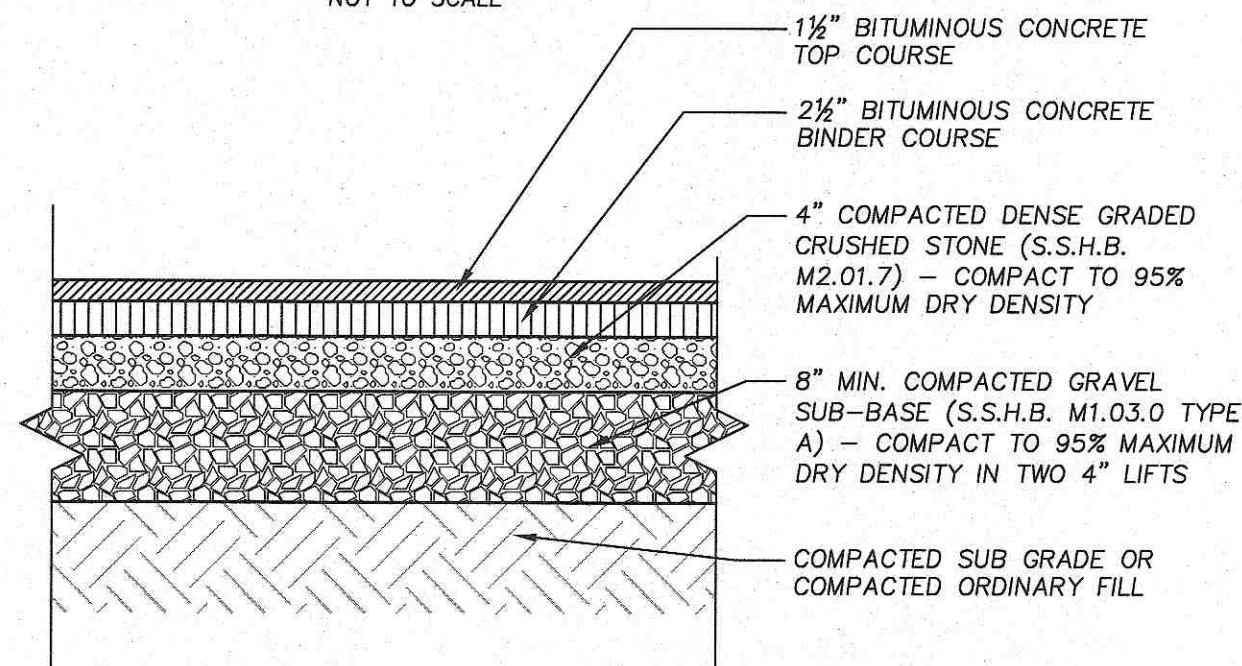
PROJECT No.: 5554 PLAN No.: 5554 C-7





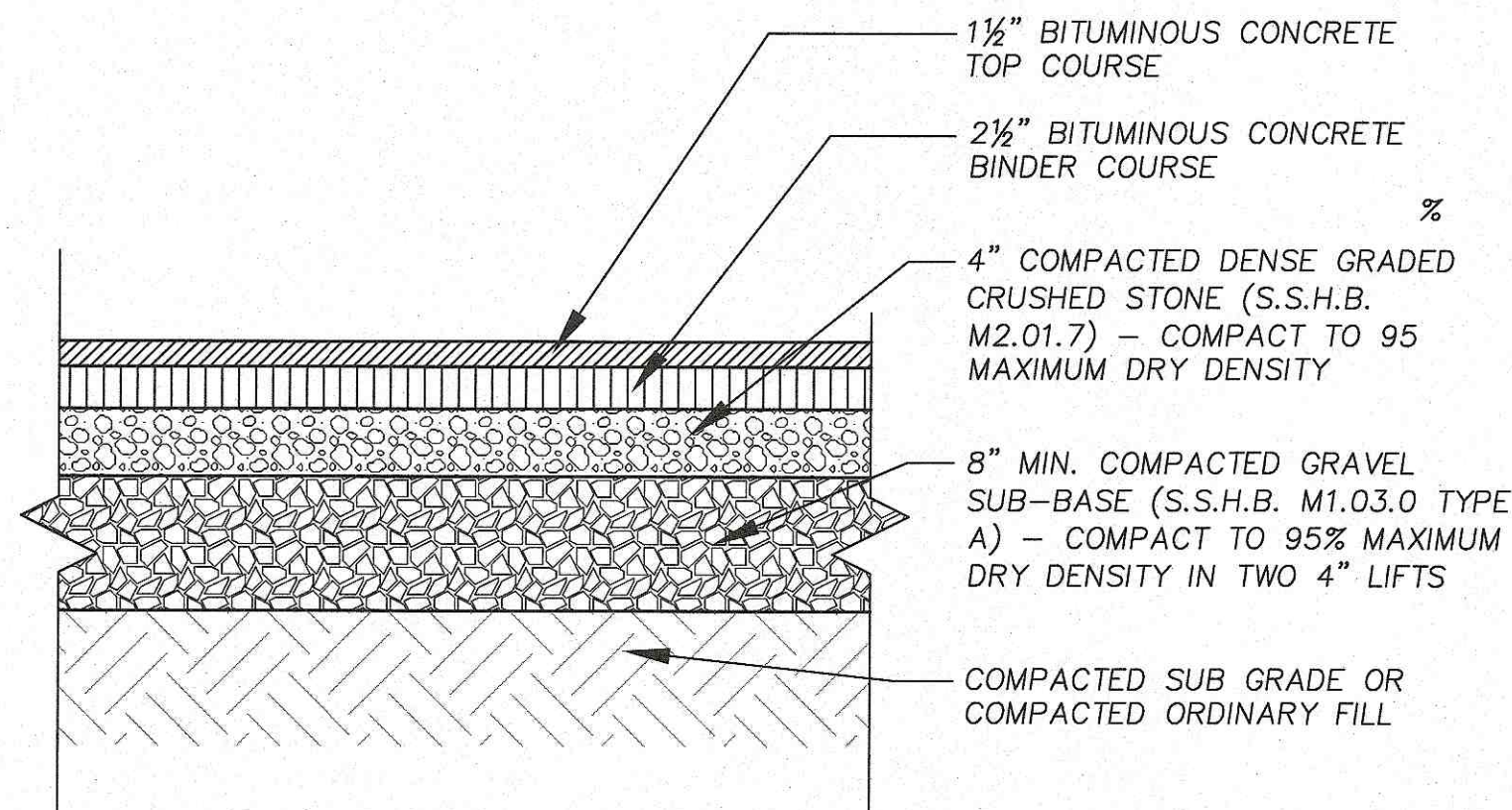
TRANSITION TO EXISTING PAVEMENT

NOT TO SCALE



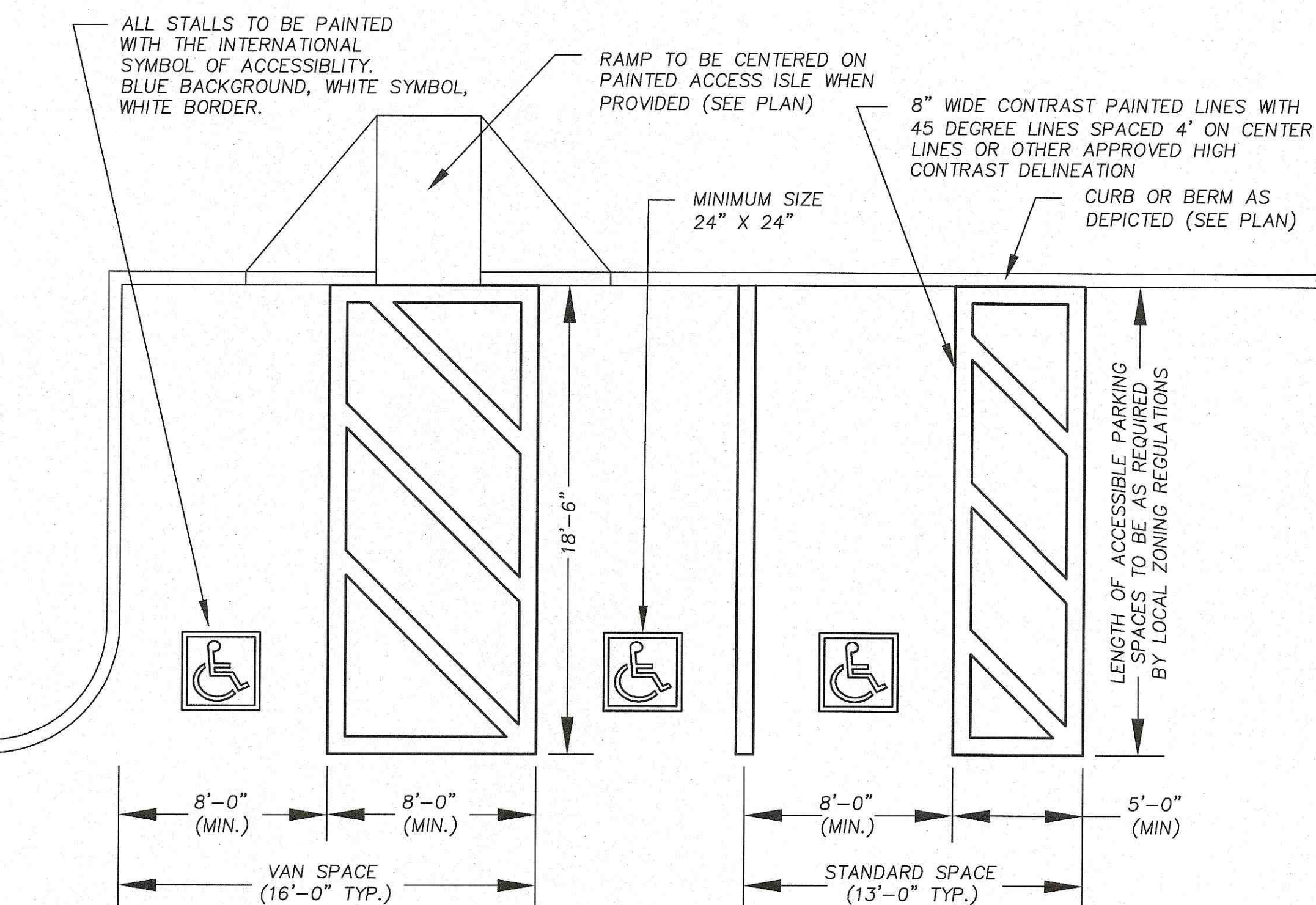
STANDARD DUTY PAVING DETAIL

NOT TO SCALE



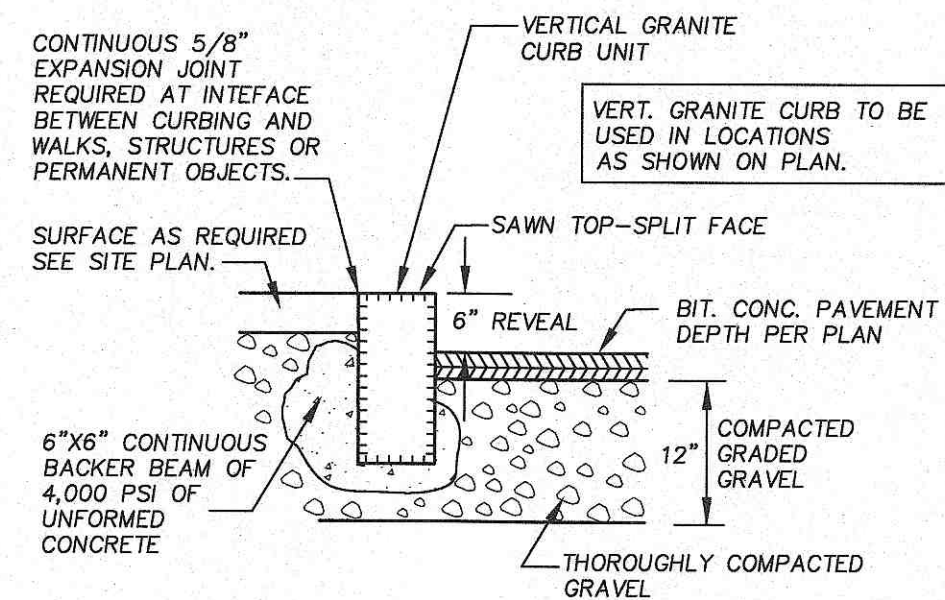
HEAVY DUTY PAVING DETAIL

NOT TO SCALE



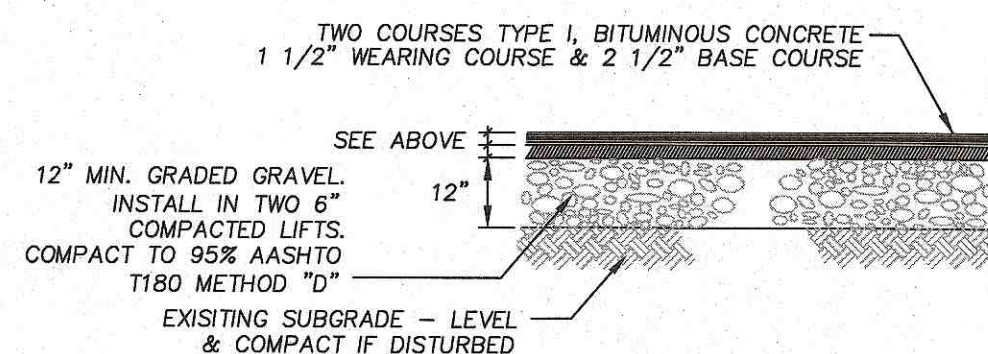
ACCESSIBLE PARKING SPACES

NOT TO SCALE



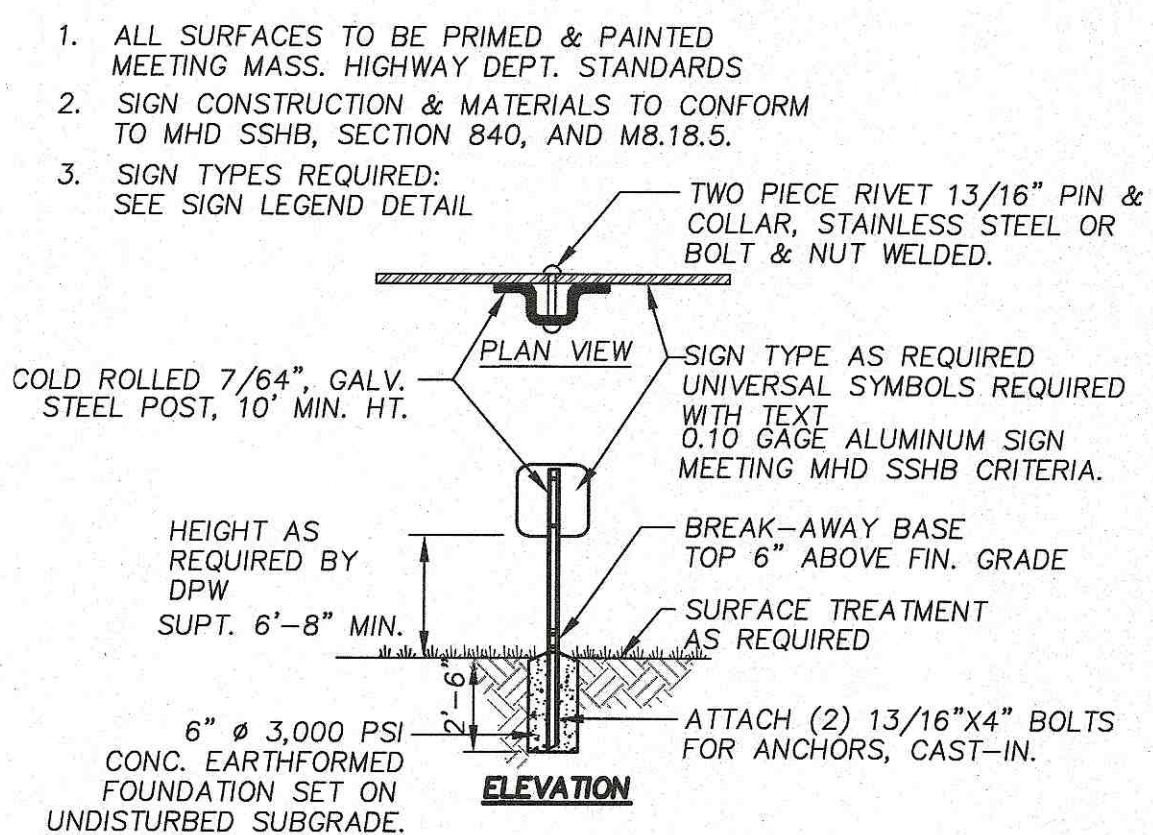
VERTICAL GRANITE CURB

NOT TO SCALE



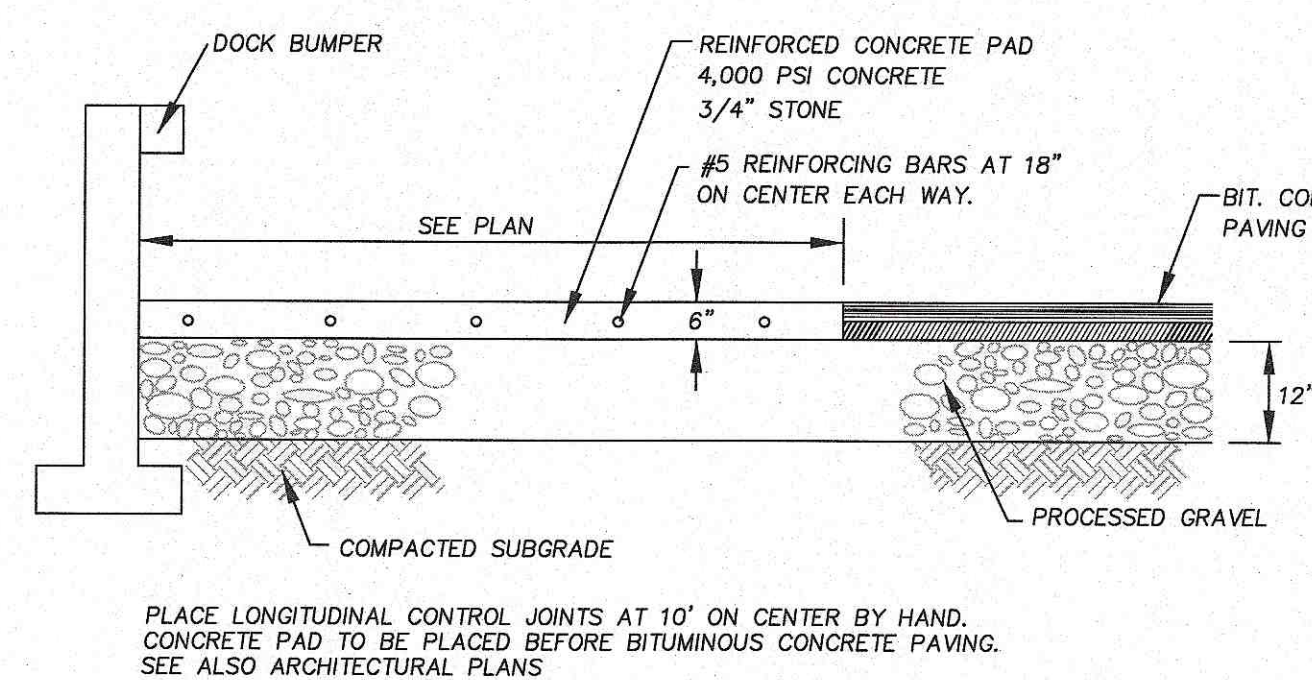
BITUMINOUS CONC. SIDEWALK DETAIL

NOT TO SCALE



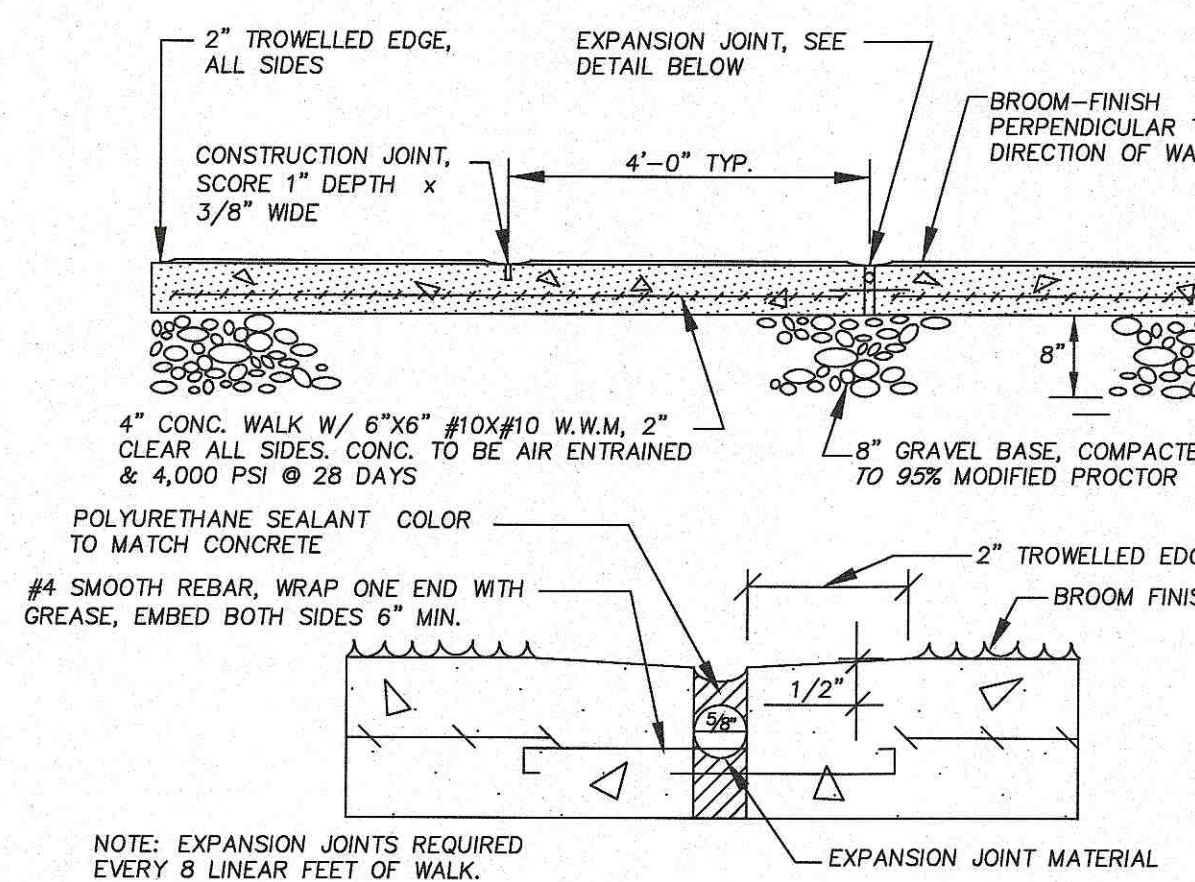
TYPICAL SITE SIGN

NOT TO SCALE



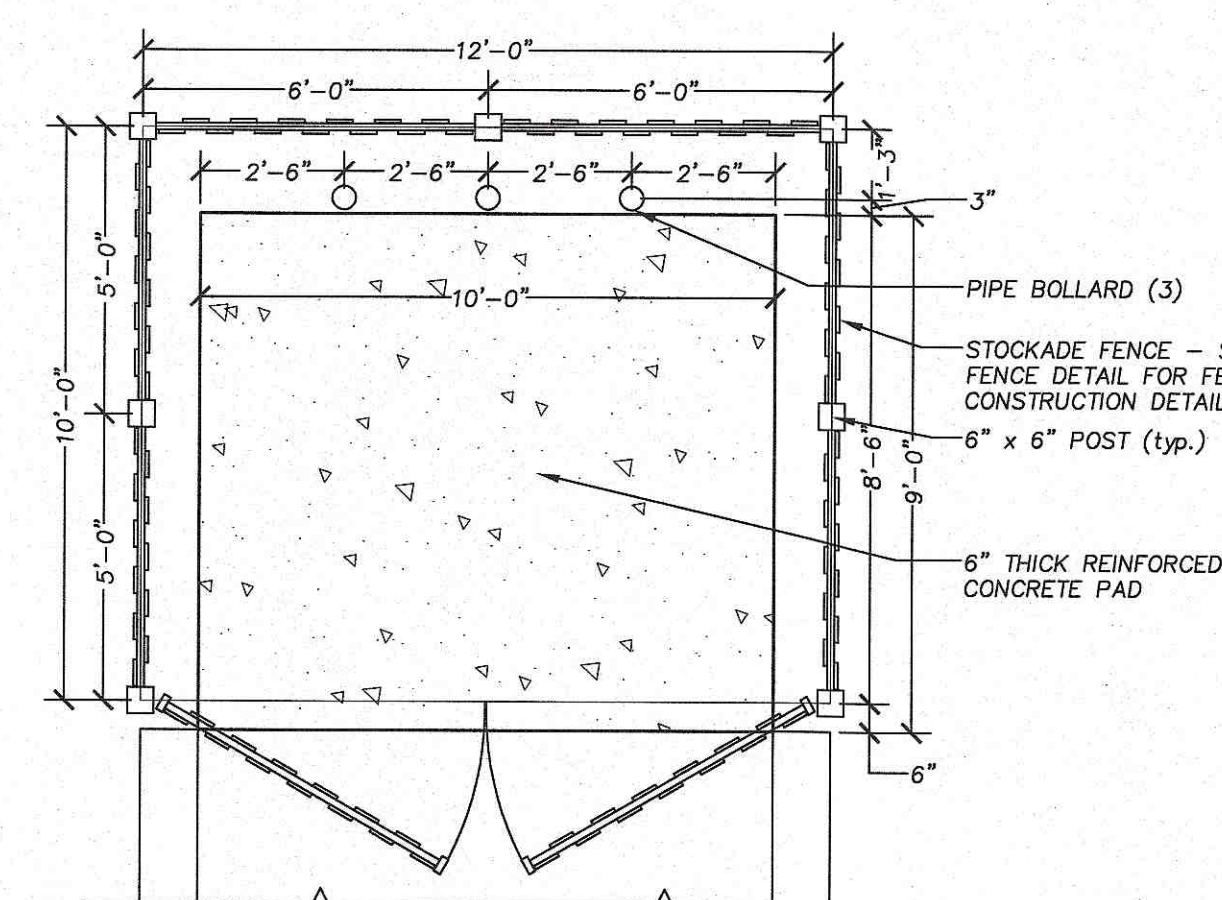
LOADING AREA DETAIL

NOT TO SCALE



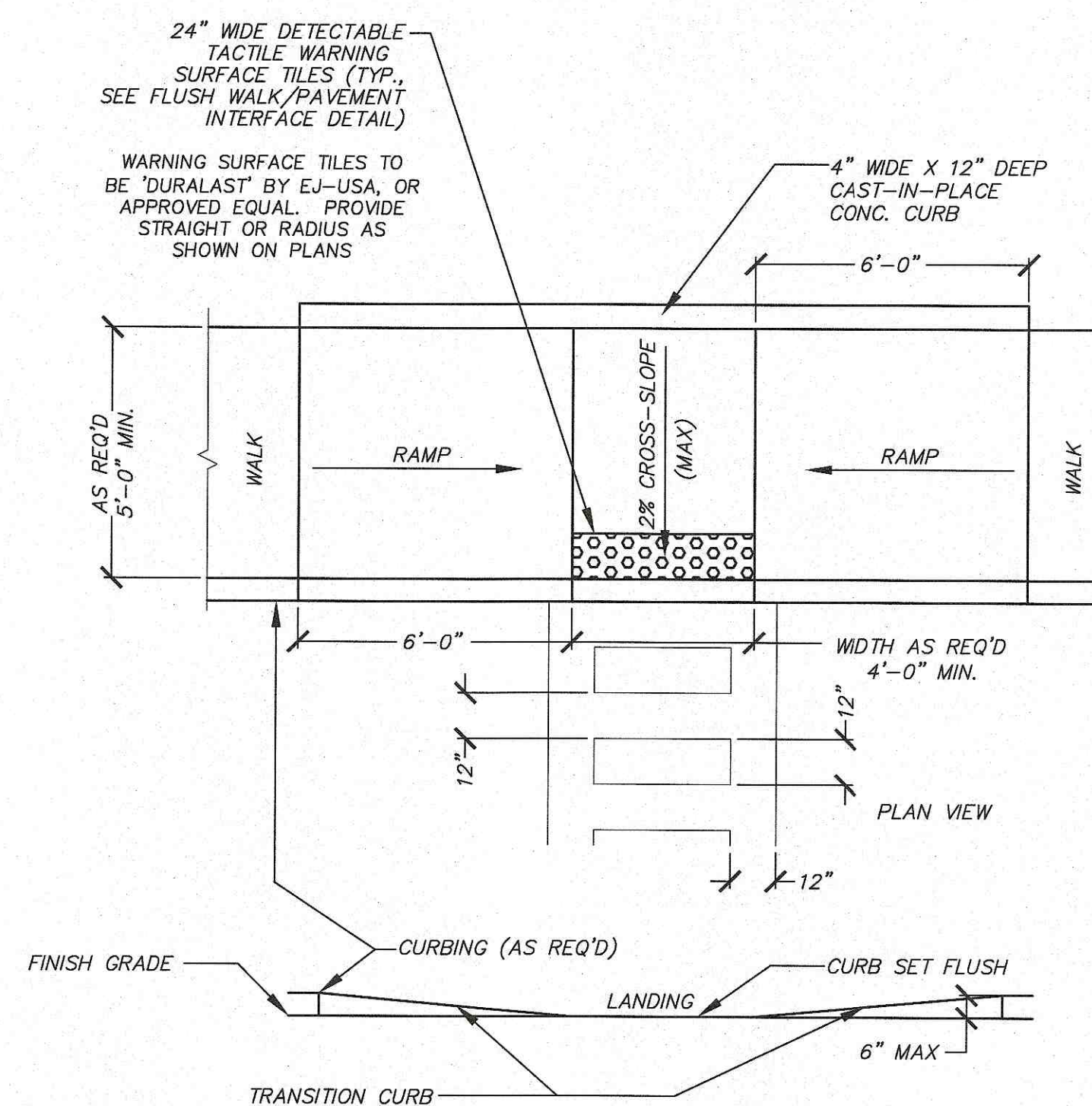
CONCRETE WALK & PADS

NOT TO SCALE



DUMPSTER ENCLOSURE

NOT TO SCALE



TYPE 2 ACCESSIBLE RAMP

NOT TO SCALE

RAMPS SHALL CONFORM TO 521 CMR: MASS. ARCHITECTURAL ACCESS BOARD REQUIREMENTS- SECTIONS 21.8.

NOTES:

- 1) PARKING SPACES SHALL MEET THE REQUIREMENTS OF THE CODE OF MASSACHUSETTS REGULATIONS ARCHITECTURAL ACCESS BOARD - 521CMR.
- 2) PARKING SPACES AND ACCESS ISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.
- 3) ACCESS ISLES ADJACENT TO ACCESSIBLE PARKING SPACES SHALL BE 5'-0" WIDE MINIMUM, EXCEPT ADJACENT VAN ACCESSIBLE SPACES, THE ACCESS ISLE SHALL BE A MINIMUM 8'-0" WIDE MINIMUM. A MINIMUM OF ONE VAN SPACE SHALL BE PROVIDED PER SITE.
- 4) TWO ACCESSIBLE SPACES MAY SHARE A COMMON ACCESS ISLE.
- 5) A SIGN, IDENTIFYING ACCESSIBLE PARKING SPACES AS RESERVED, SHALL BE LOCATED AT THE HEAD OF EACH SPACE AND NO MORE THAN 10'-0" AWAY. THE SIGN SHALL BE AS SPECIFIED BY THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), R28-31 OR APPROVED EQUAL.
- 6) SIGNS AT THE HEAD OF VAN ACCESSIBLE SPACES SHALL INCLUDE THE WORDS: VAN ACCESSIBLE.

DETAIL SHEET

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIAL V LLC

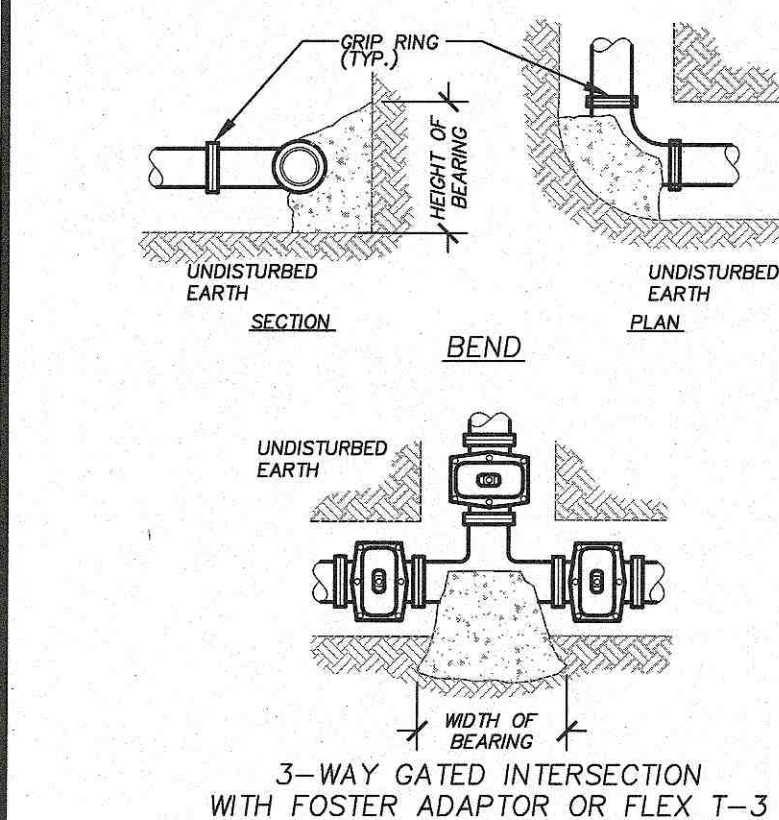
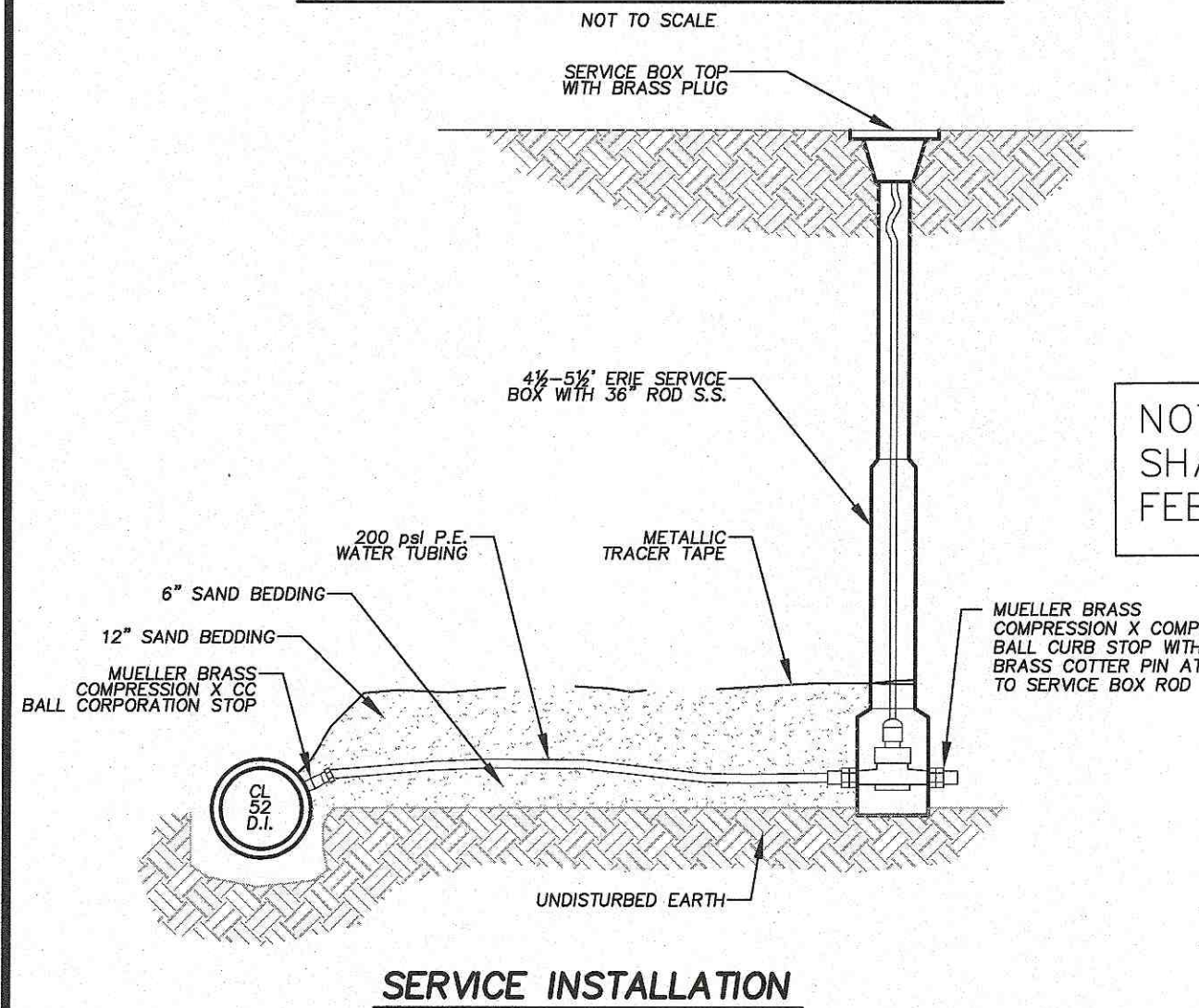
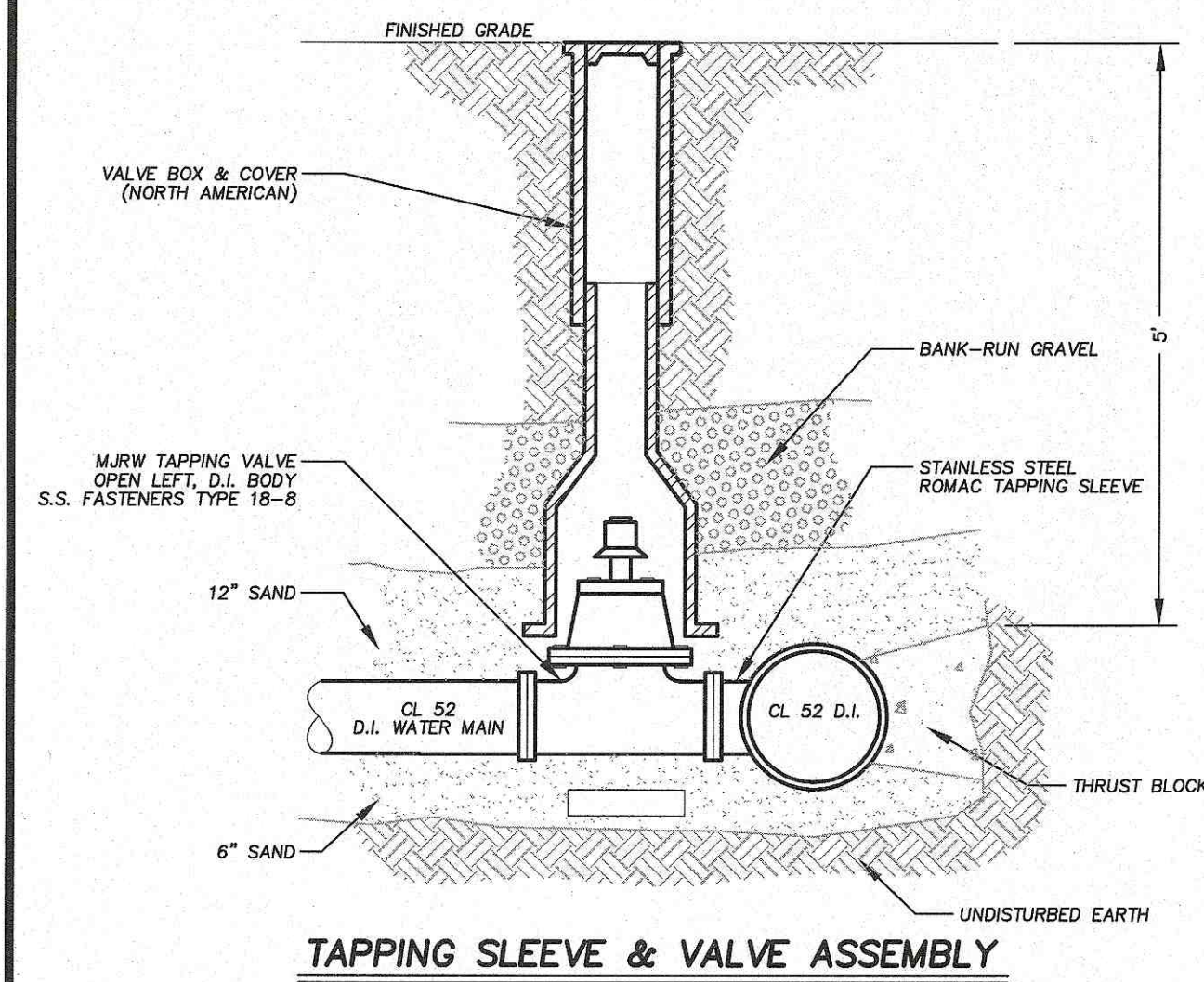
SCALE: AS SHOWN DATE: APRIL, 2022

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PROJECT No.: 5554 PLAN No.: 5554 C-8

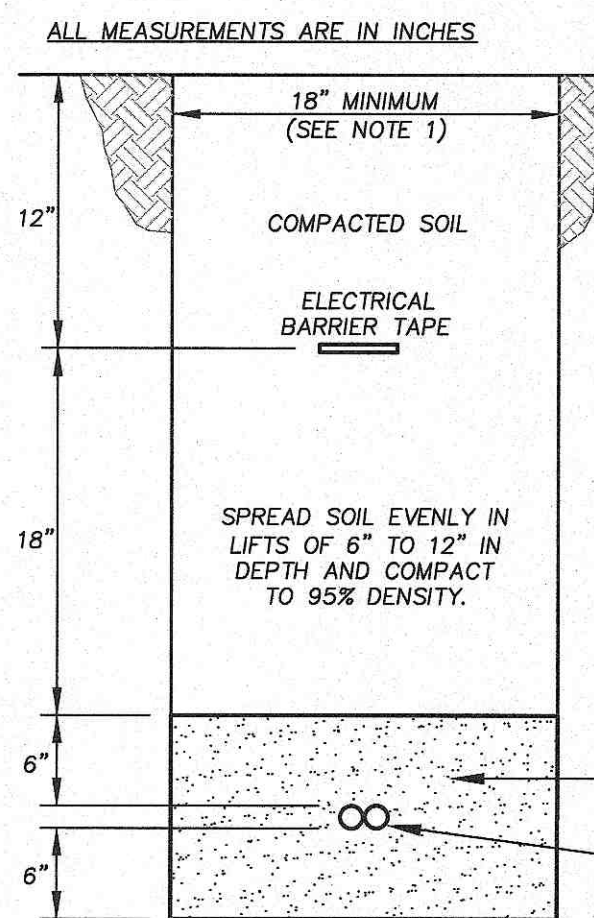
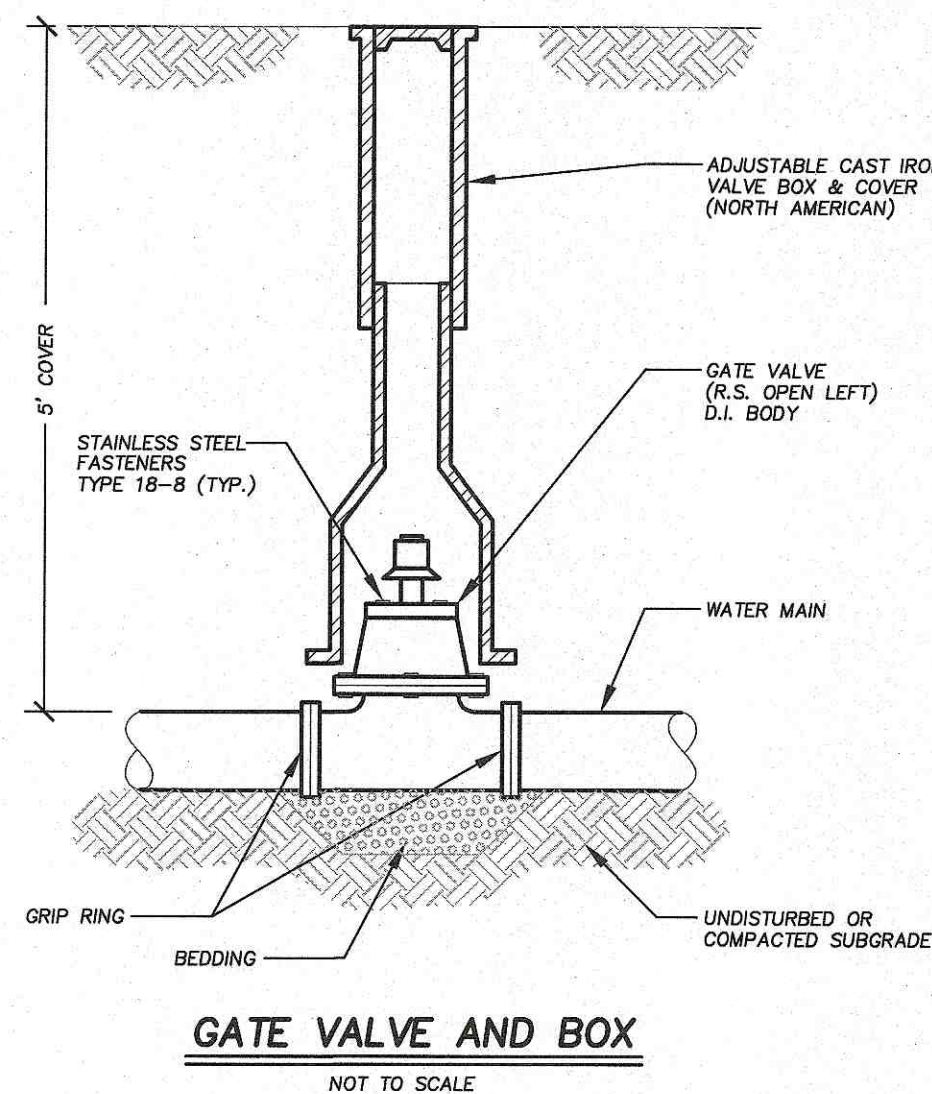
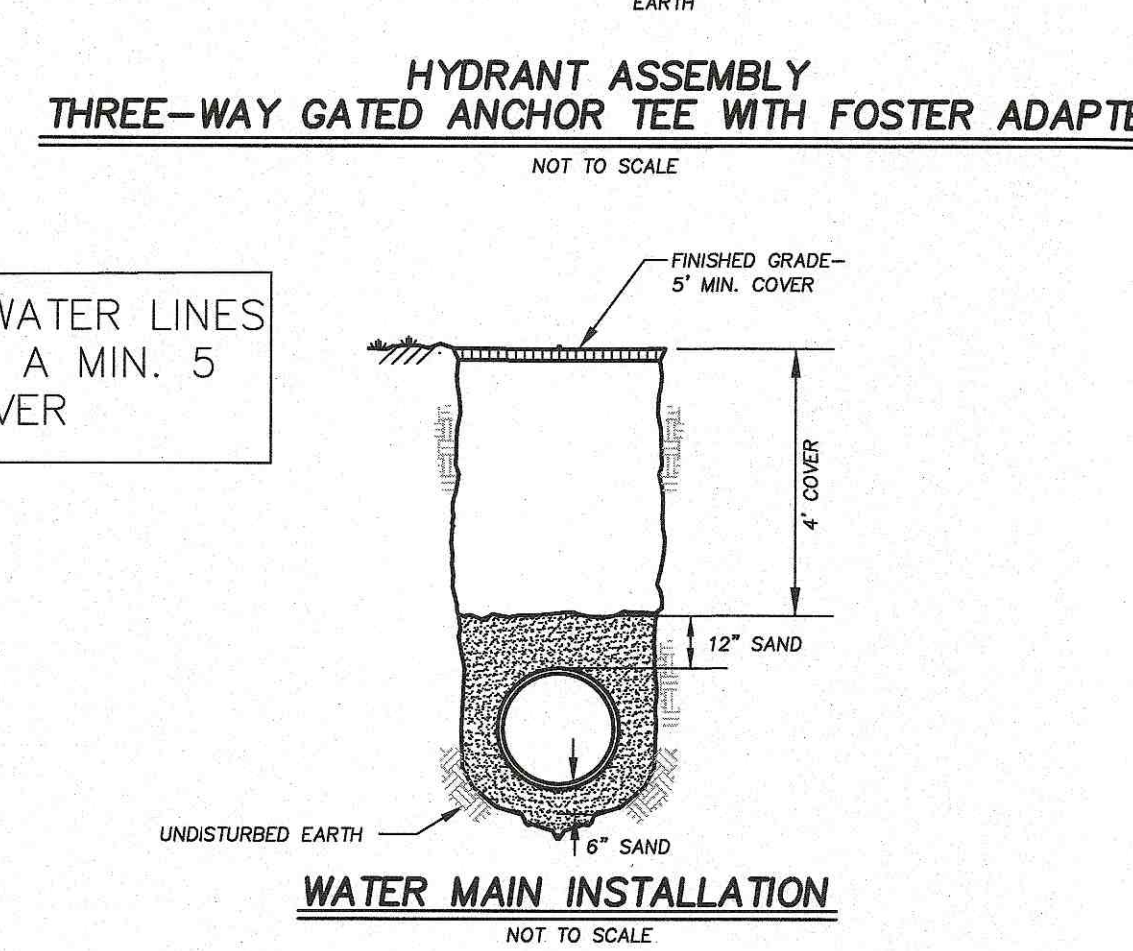
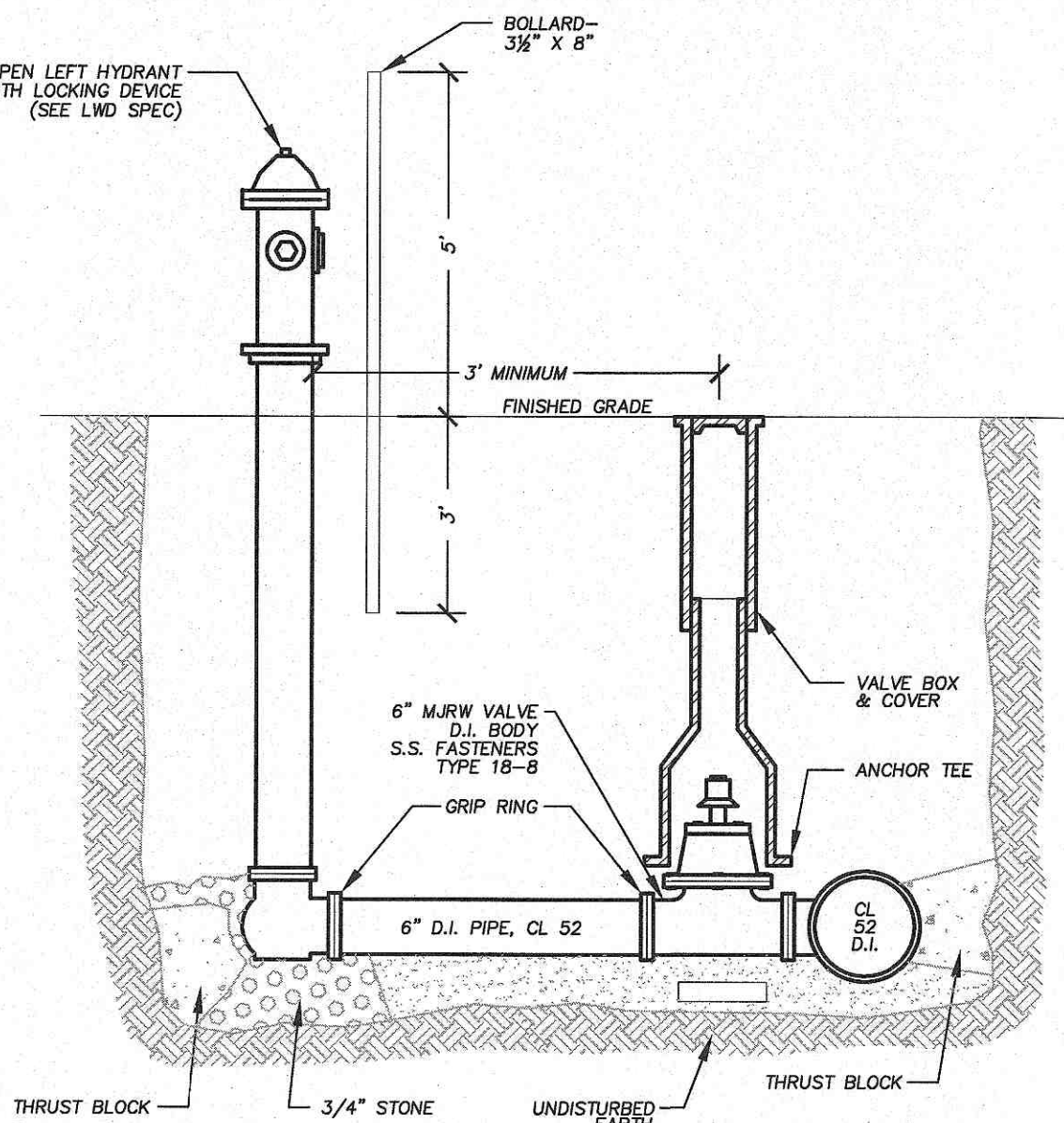




AREA OF BEARING FACE OF CONCRETE THRUST BLOCKS IN SQUARE FEET BASED ON 250 P.S.I. & 1.5 TONS/S.F. ALLOWABLE SOIL BEARING CAPACITY				
PIPE SIZE (M.)	1/4 BEND	1/8 BEND	1/16 BEND	PLUG & TEES
4,6,8	6.0	2.9	2.3	4.5
10	9.6	5.2	2.3	6.7
12	13.3	6.7	3.7	9.6
16	24.0	11.8	3.7	17.0

BEARING AREA - SQ. FT.					
NORMAL FITTING DIAMETER	90° BEND	45° BEND	10°-45° OF TEE	DEAD END	
6"	4	2	2	4	4
8"	7	4	3	6	6

1. ALL BENDS, TEES, WYES, HYDRANTS AND DEAD ENDS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS.
2. BEARING AREA (H X L) IS AREA OF CONE IN CONTACT WITH WALL OF TRENCH.
3. HEIGHT (H) & LENGTH (L) AS REQUIRED TO OBTAIN BEARING AREA IN TABLE.
4. BOULDERS ARE NOT TO BE USED AS THRUST BLOCKS.



- NOTES:
1. THE DEVELOPER SHALL BE RESPONSIBLE (AT HIS COST) FOR CLEARING THE GROUND, ROUGH GRADE (TO WITHIN 6 INCHES), THE TRENCHING AND BACKFILLING OF ALL UNDERGROUND DISTRIBUTION AND SERVICE LINES (SUBJECT TO THE INSPECTION AND APPROVAL OF FG&E ASSIGNED REPRESENTATIVES).
 2. WHEN PVC IS USED, RIGID GALVANIZED STEEL ELBOWS SHALL BE USED WHEREVER ELBOWS ARE REQUIRED.
 3. A) SELECTED SAND BACKFILL SHALL CONSIST OF A FINE GRANULAR MATERIAL OF WHICH 100 % SHALL PASS THROUGH A 1/4" SIEVE.
B) EXCEPTION: NATURALLY OCCURRING SMOOTH ROUND PEBBLES NO GREATER THAN 3/8" IN DIAMETER ARE PERMITTED AS LONG AS THEIR TOTAL VOLUME PER CU. FT. OF SAND DOES NOT EXCEED 1%.
C) THE SAND SHALL BE FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS AND RUBBISH.

ELECTRIC FACILITY TRENCH SPEC.

ALL WATER COMPONENTS TO CONFORM TO THE LITTLETON ELECTRIC LIGHT AND WATER DEPARTMENT SPECIFICATIONS
NOT TO SCALE

Project 151TAYLORS Date 5/6/2020
151 TAYLOR STREET - NORTHBORO PARTNERS

Submitted By
APEX - BOSTON

Catalog Number
LPW32-70-NW-G3-3-UNV-BZ

Notes

TYPE:
WP1

Wall mount

LytePro

LPW32 large wall sconce

Stonco LytePro LED large wall sconce LPW32 features outstanding value in a compact, architectural design. This powerful and precise combination offers outstanding energy savings with excellent photometric performance. LPW32 is ideal for building perimeters and corridors in addition to wall lighting applications requiring strong lateral spacing and forward pattern projection.

Options:

Dimming controls	Motion sensing	Photocontrol	Finish
FAWS Field Adjustable Wattage Selector ¹	IMRIS Motion sensor #3 Lens ^{1,2}	PCB Photocontrol Button ^{1,2}	Textured BZ
BL Bi-level functionality ^{1,4}			WH White BZ Bronze DG Dark Gray MG Medium Gray RAL Specify optional color or RAL (ex: OD-LGP or OC-RAL7024) CC Custom color (Must supply color chip for required factory quote)

Stocked luminaires - Ordering guide

Catalog Number	Description	Master Pack Qty	UPC Code
LPW32-G3-B-DGY	LPW32, 70W, 650mA, 4000K, Type 3, 120-277V, Dark gray textured paint	3	622252818889
LPW32-G3-B-BZ	LPW32, 70W, 650mA, 4000K, Type 3, 120-277V, Bronze textured paint	3	622252818896

Stocked accessories - Ordering guide (Must be ordered separately)

Catalog Number	Description	Master Pack Qty	UPC Code
LPWCVRLT-BZ ¹	LPW Universal wall cover mounting plate, Bronze textured paint	(none)	786034860618

¹ 50W configuration available with emergency battery backup only (EBP)
² Not available in 347 or 480V
³ Not available with BL, FAWS or PCB
⁴ Not available with other control options.

¹ Available only with BL dimming option
² Must specify voltage
³ Other colors available upon request as made-to-order

LPW32_LytePro_sconce 03/19 page 1 of 3

Project 151TAYLORS Date 5/6/2020
151 TAYLOR STREET - NORTHBORO PARTNERS

Submitted By
APEX - BOSTON

Catalog Number
LPW32-70-NW-G3-3-UNV-BZ

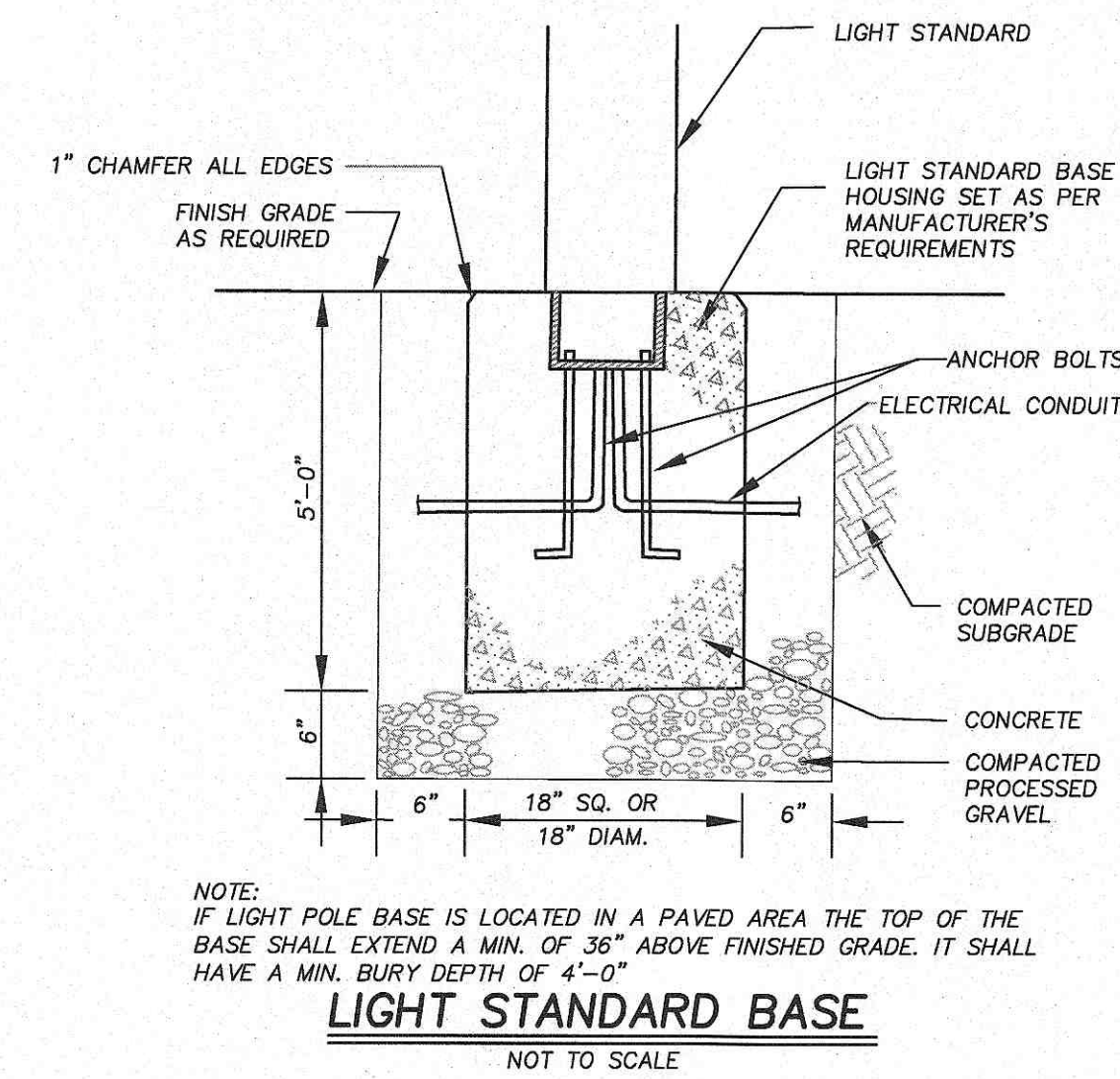
Notes

TYPE:
WP1

Wall mount

LytePro

LPW32 large wall sconce



NOTE:
IF LIGHT POLE BASE IS LOCATED IN A PAVED AREA THE TOP OF THE BASE SHALL EXTEND A MIN. OF 36" ABOVE FINISHED GRADE. IT SHALL HAVE A MIN. BURY DEPTH OF 4'-0"

LIGHT STANDARD BASE

NOT TO SCALE

Project 151TAYLORS Date 5/6/2020
151 TAYLOR STREET - NORTHBORO PARTNERS

Submitted By
APEX - BOSTON

Catalog Number
LPW32-70-NW-G3-3-UNV-BZ

Notes

TYPE:
WP1

Wall mount

LytePro

LPW32 large wall sconce

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Options:

Dimming controls	Motion sensing	Photocontrol	Finish
FAWS Field Adjustable Wattage Selector ¹	IMRIS Motion sensor #3 Lens ^{1,2}	PCB Photocontrol Button ^{1,2}	Textured BZ
BL Bi-level functionality ^{1,4}			WH White BZ Bronze DG Dark Gray MG Medium Gray RAL Specify optional color or RAL (ex: OD-LGP or OC-RAL7024) CC Custom color (Must supply color chip for required factory quote)

Stocked luminaires - Ordering guide

Catalog Number	Description	Master Pack Qty	UPC Code
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Stocked accessories - Ordering guide (Must be ordered separately)

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¹ 50W configuration available with emergency battery backup only (EBP)
² Not available in 347 or 480V
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¹ Available only with BL dimming option
² Must specify voltage
³ Other colors available upon request as made-to-order

LPW32_LytePro_sconce 03/19 page 1 of 3

NOTE: ALL WATER COMPONENTS TO CONFORM TO THE LITTLETON ELECTRIC LIGHT AND WATER DEPARTMENT SPECIFICATIONS

NOTE: MAXIMUM MOUNTING HEIGHT OF LIGHTS IS 20' PER SECTION 173-49 OF LITTLETON ZONING BYLAWS.

DETAIL SHEET

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIAL V LLC

SCALE: AS SHOWN DATE: APRIL, 2022

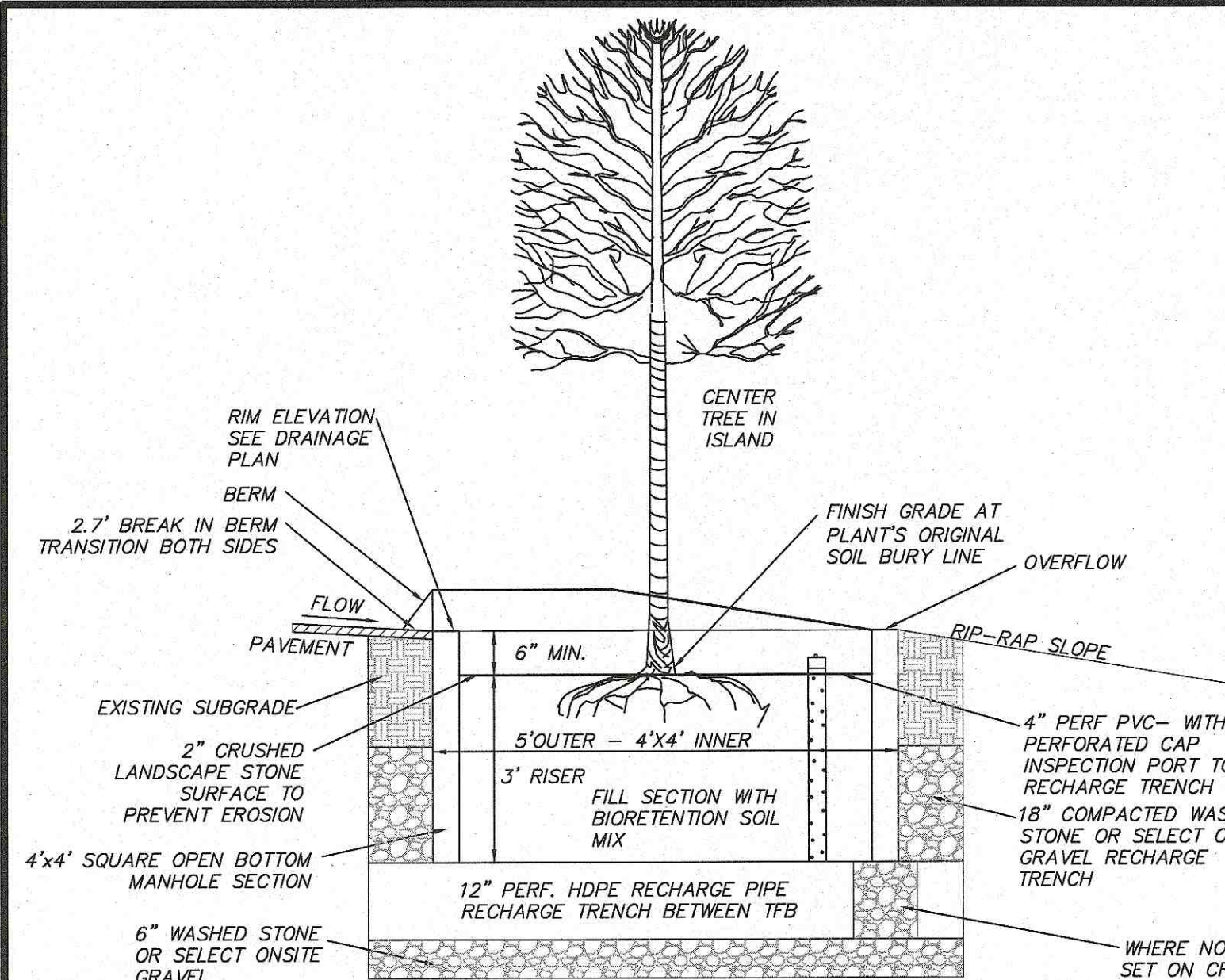
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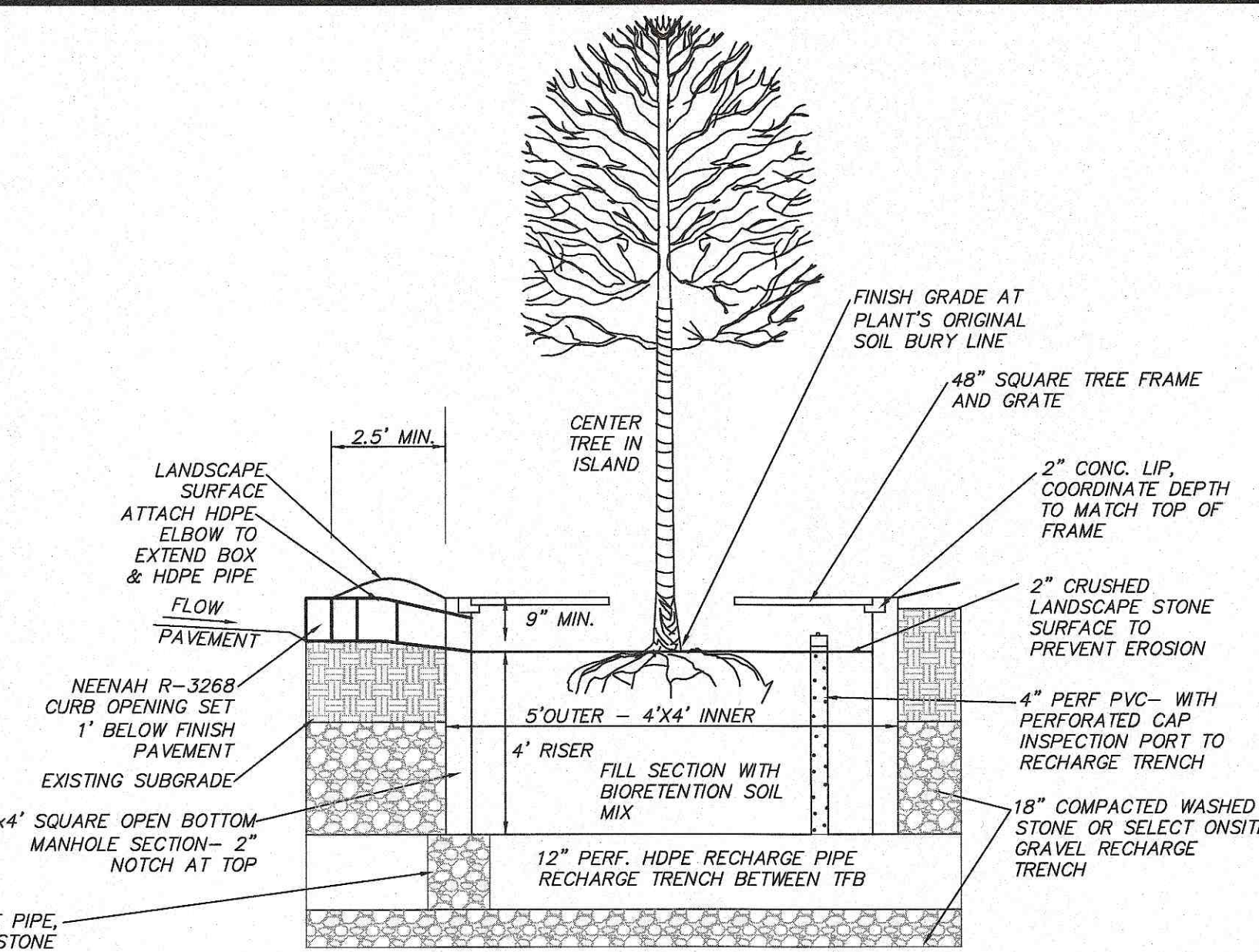
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PROJECT No.: 5554 PLAN No.: 5554 C-9





TREE FILTER BOX - TYPE 1



TREE FILTER BOX - TYPE 2 (GRADED)

SOILS

- THE SOIL MIX FOR BIOTRETION AREAS SHOULD BE A MIXTURE OF SAND, COMPOST AND SOIL. SOIL: COARSE SAND, 25% TOPSOIL, AND 25% COMPOST (MINIMUM INFILTRATION RATE OF 2 INCHES/ HOUR).
- THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. CLAY CONTENT SHOULD NOT EXCEED 2%.
- SOIL PH SHOULD GENERALLY BE BETWEEN 5.5-6.5, A RANGE THAT IS OPTIMAL FOR MICROBIAL ACTIVITY AND ADSORPTION OF NITROGEN, PHOSPHORUS, AND OTHER POLLUTANTS.
- USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.
- THE SAND COMPONENT SHOULD BE GRAVELLY SAND THAT MEETS ASTM D 422.
- 2-INCH 100
- 1/2-INCH 70-100
- 3/4-INCH 50-80
- US NO. 40 15-40
- US NO. 200 0-3
- THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.
- THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASSDEP, SEE [WISER/NO PESTICIDES/NO BIOLOGICALS](#).
- THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.

PLANT LIST

SEE LANDSCAPE PLAN FOR PLANT TYPES, SIZES AND LOCATIONS.

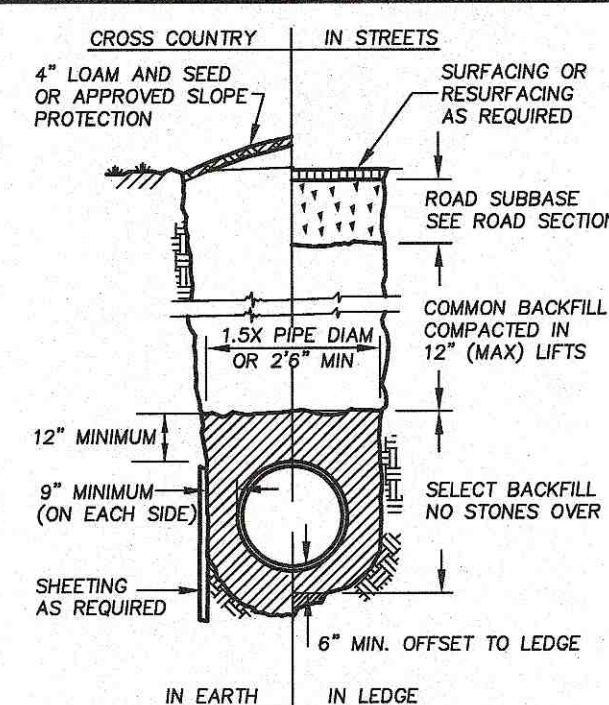
CONCRETE

CONCRETE TO BE PRE-CAST SQUARE UNIT, MIN. WALL THICKNESS 4", 4,000 PSI 28 DAYS, REINFORCEMENT MEETING ASTM A-185, PROVIDE CAST-IN OPENING FOR PIPE- DO NOT CUT.

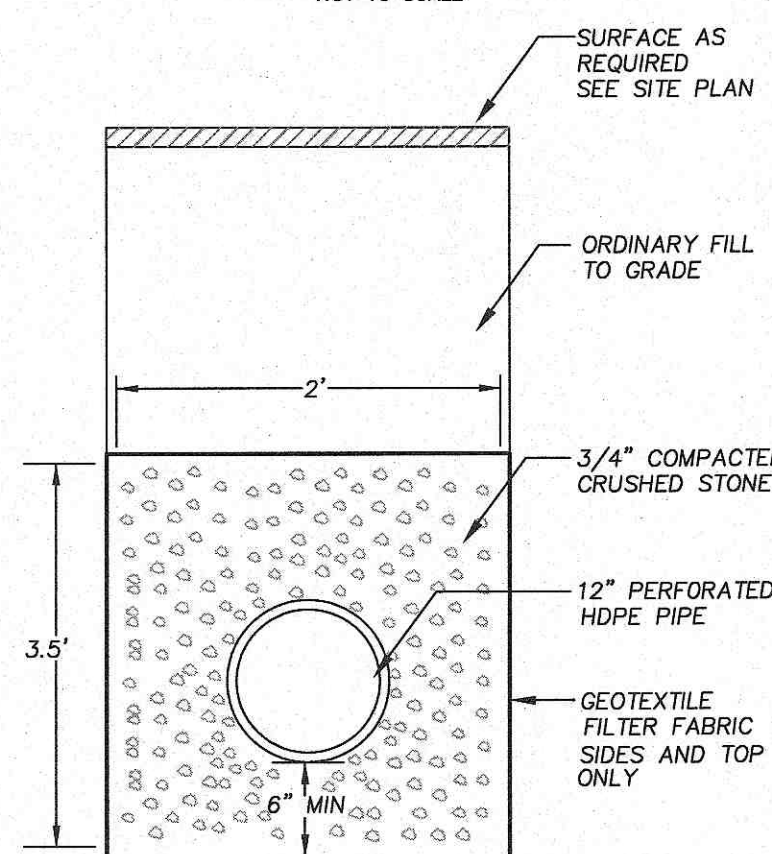
TOP TO BE KEPT TO ACCEPT TREE GRATE FRAME & GRATE. TOP OF GRATE TO BE LEVEL WITH TOP OF CONCRETE. CAST-IN-PLACE STRUCTURES NOT ALLOWED.

OPERATION AND MAINTENANCE

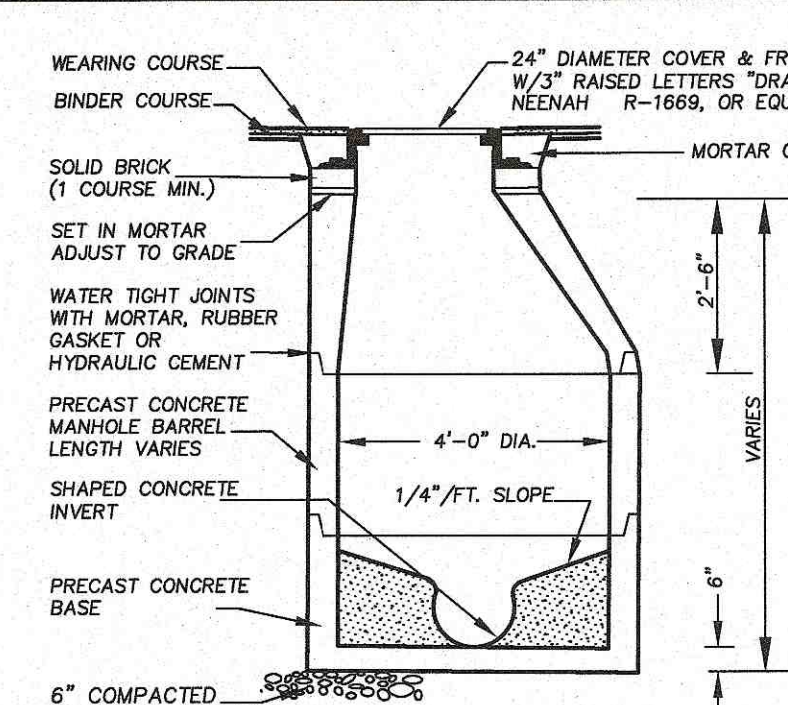
INSPECT TREE FILTER BOXES TWICE A YEAR, RAKE MEDIA SURFACE TO MAINTAIN PERMEABILITY TWICE A YEAR. INSPECT TREES ANNUALLY, TREES HAVE A LIFE EXPECTANCY OF 5-10 YEARS. WHEN TREE IS REPLACED, REPLACE GROWING MEDIA.



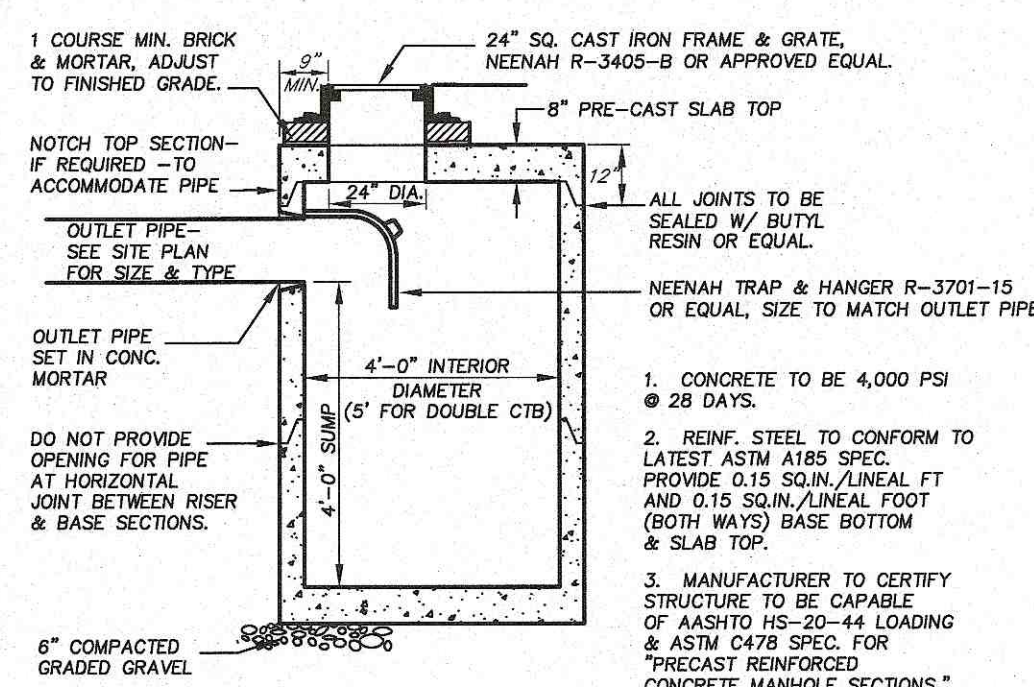
DRAINAGE TRENCH



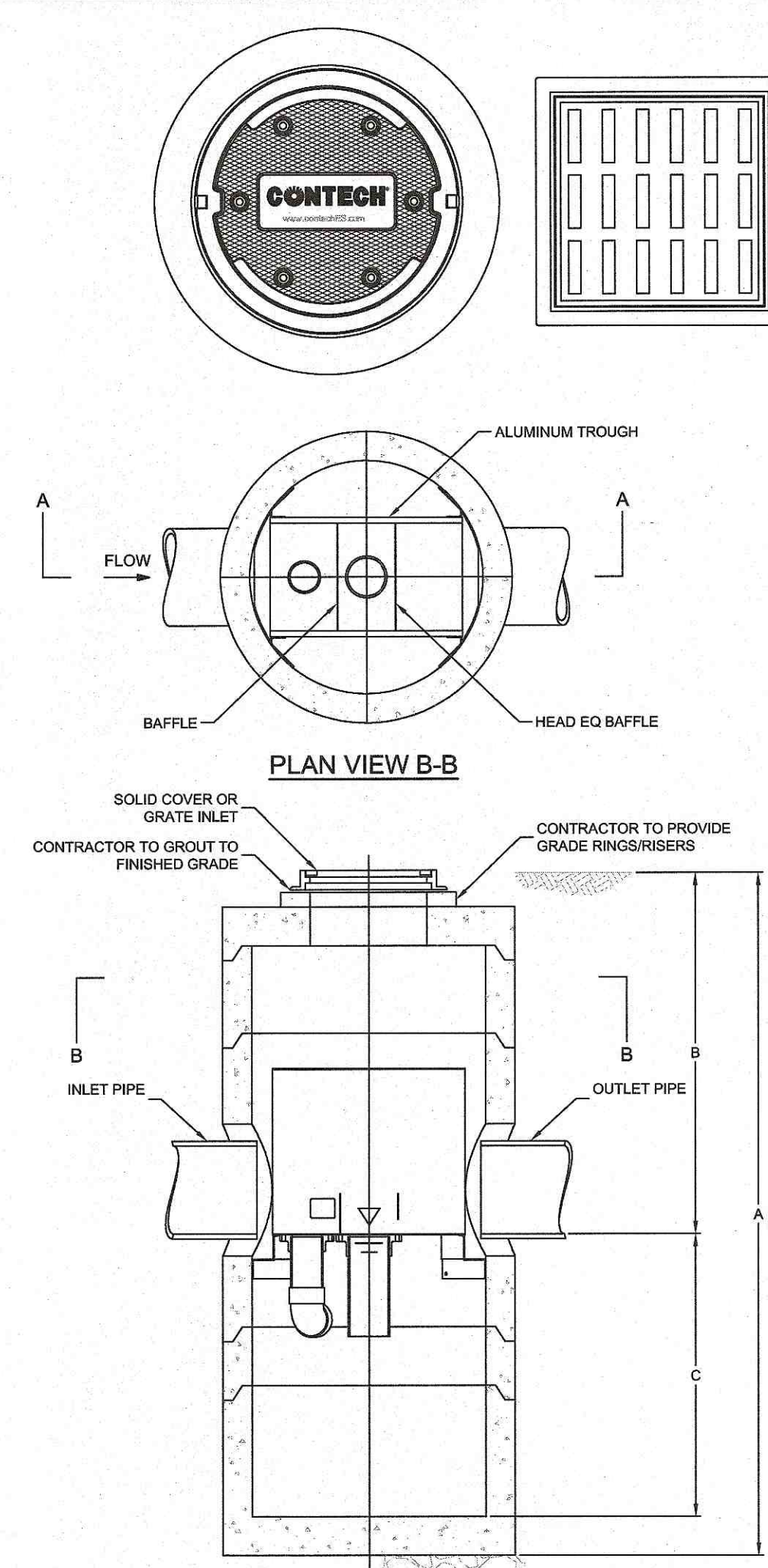
LEACHING TRENCH



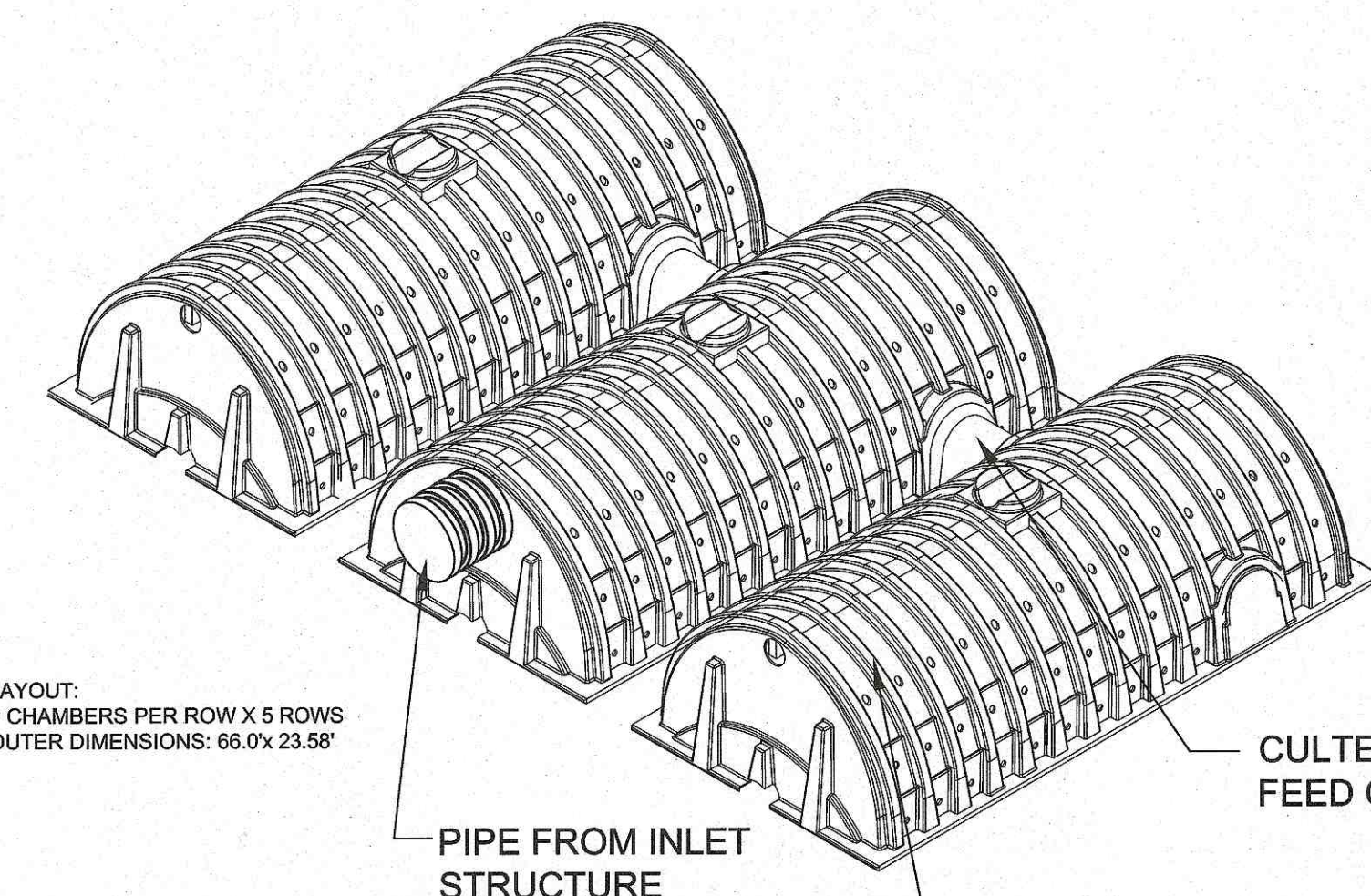
DRAIN MANHOLE DETAIL



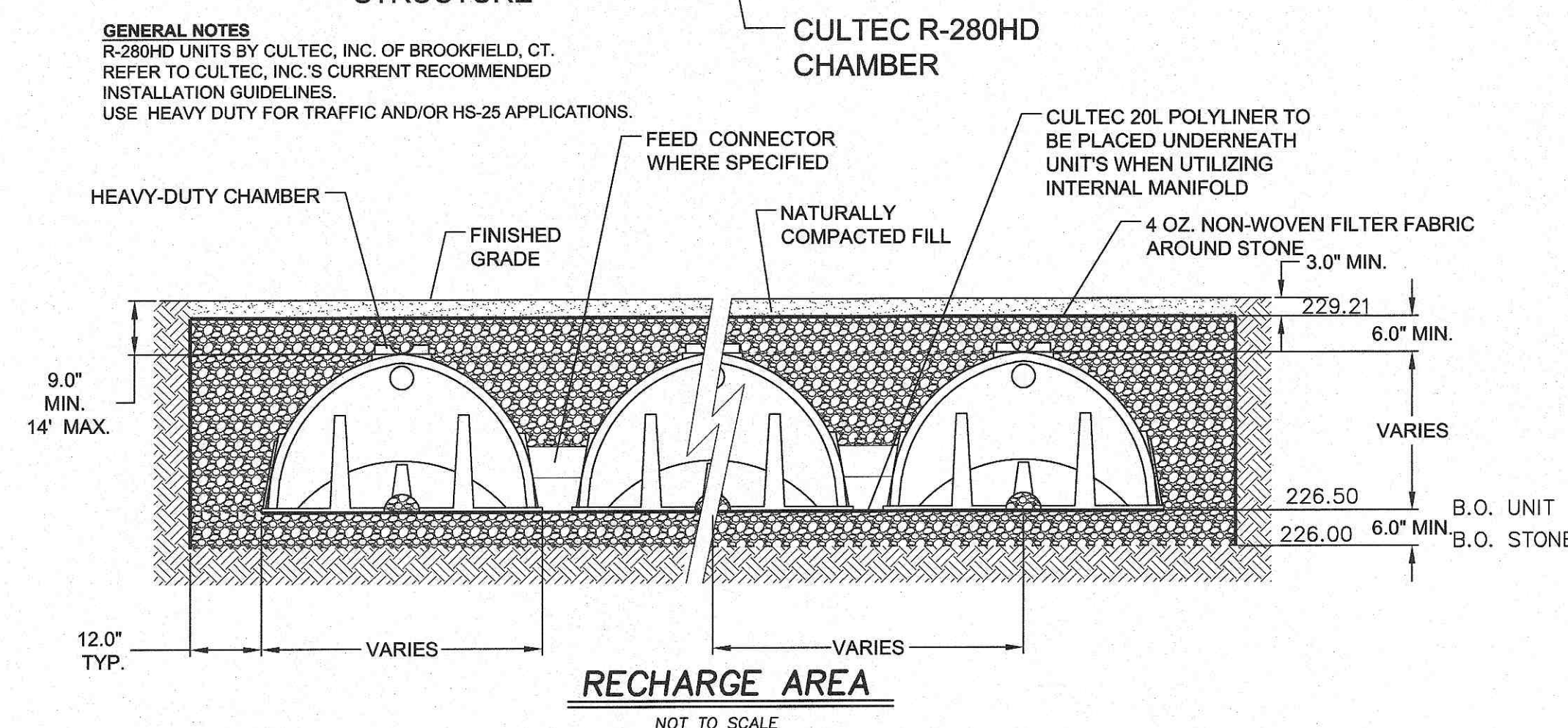
PRECAST FLAT TOP CATCHBASIN



SECTION A-A



CULTEC R-280HD CHAMBER



RECHARGE AREA

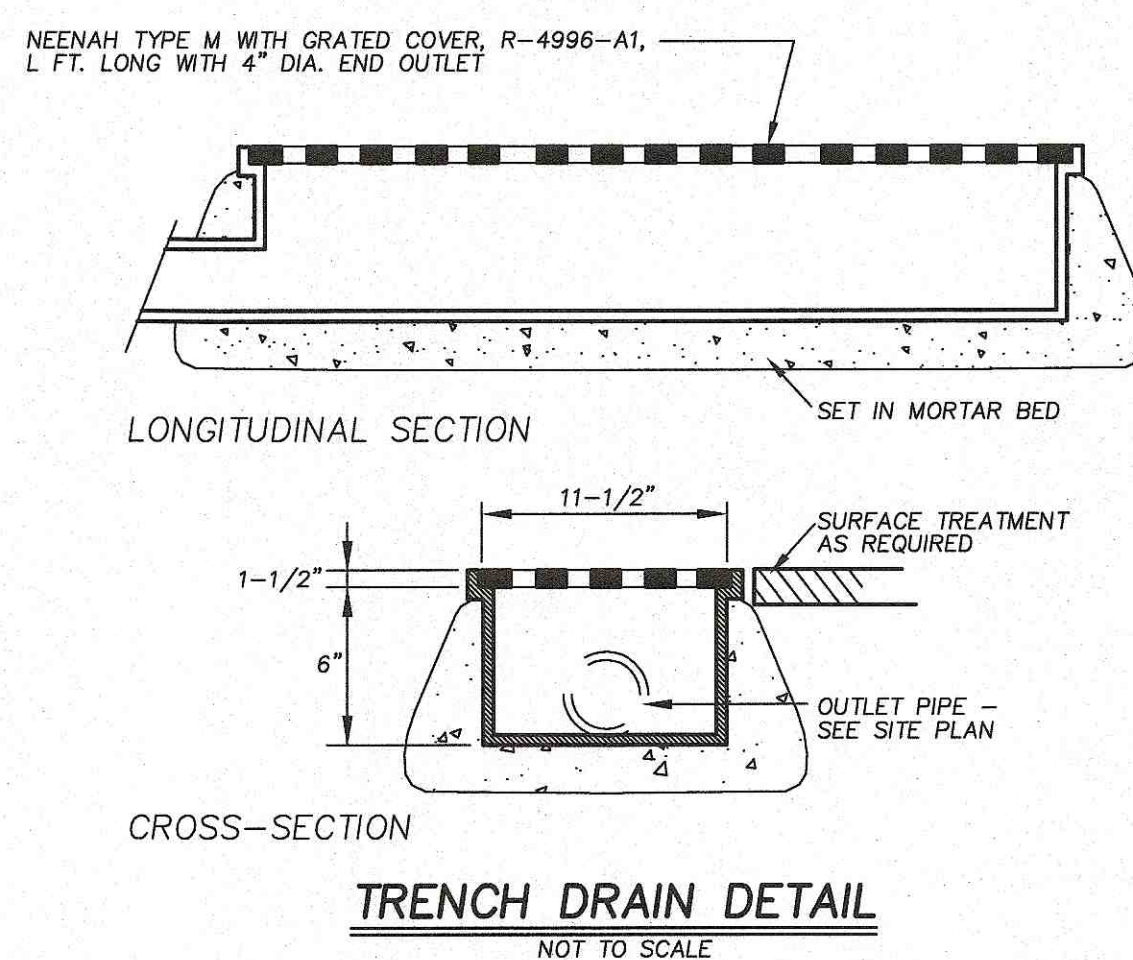
NOT TO SCALE

LAYOUT:
9 CHAMBERS PER ROW X 5 ROWS
OUTER DIMENSIONS: 66.0' X 23.5'

MANUAL VALVE DIMENSIONS (Inches)(mm)

Size	A	B	C	D	E	F	G
10 PVC	35	48.5	18	11.5	16.99	13.75	5
12 PVC	35	48.5	18	13.5	18	15.375	6

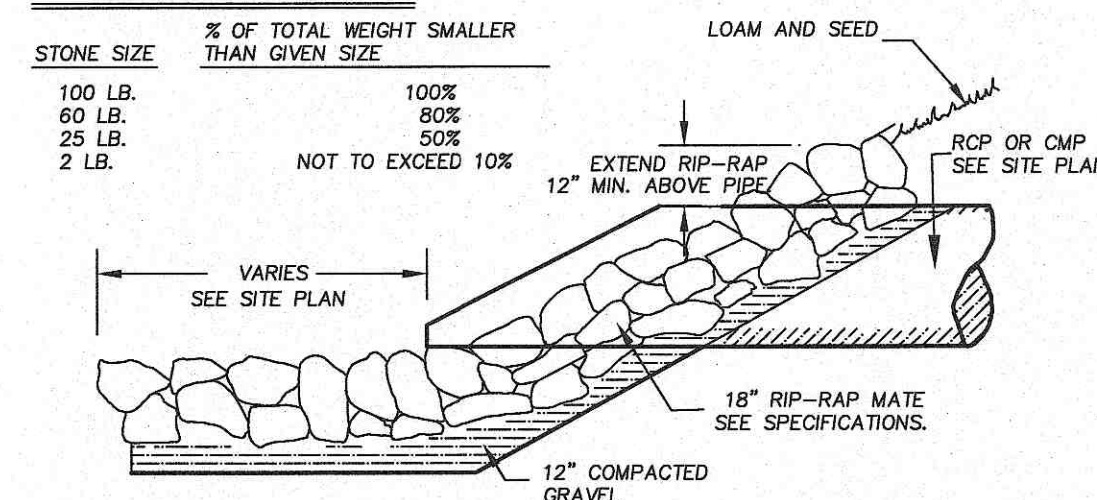
EMERGENCY GATE VALVE DETAIL



TRENCH DRAIN DETAIL

NOT TO SCALE

RIP-RAP SPECIFICATIONS



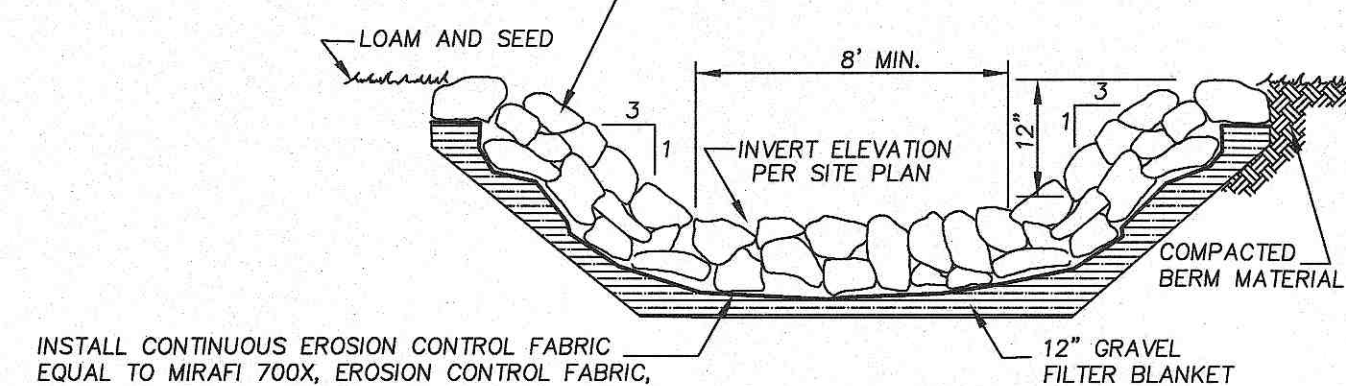
FLARED END RIP-RAP INLET/OUTLET

NOT TO SCALE

200LB. RIP-RAP SPECIFICATIONS:

- ALL STONE SHALL BE CLEAN DURABLE ANGULAR STONE MEETING THE FOLLOWING SPECIFICATIONS:
STONE SIZE: 200 LB. 100%
75 LB. 75%
50 LB. 50%
25 LB. 25%
10 LB. 10%
- THE RIP-RAP SHALL BE UNDERLAYED WITH A FILTER BLANKET CONSISTING OF CLEAN, COARSE GRAVEL WITH NO STONES OVER 4" IN LONGEST DIMENSION AND NO FEWER THAN 10% OF TOTAL VOLUME PASSING A 200# SIEVE.
- THE FILTER BLANKET NEED NOT BE COMPACTED, BUT SHALL BE GRADED TO A UNIFORM THICKNESS OF 12".
- THE FILTER BLANKET SHALL BE OVERLAYED WITH A STRUCTURAL/EROSION CONTROL FABRIC OF THE TYPE SPECIFIED. SUCH FABRIC SHALL BE CONTINUOUS IN LENGTHS, EITHER PARALLEL OR PERPENDICULAR TO THE SLOPE AND MUST BE UNDER ALL RIP-RAPPED SURFACES.

200 LB. RIP-RAP CHINK ALL VOIDS; EXTEND MIN. 20' DOWN HILL BOTH SIDES OR PER PLAN



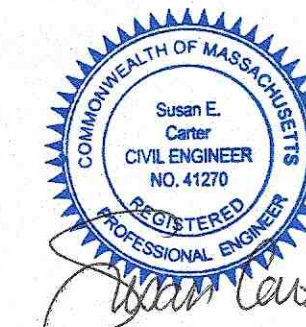
REINFORCED OVERFLOW BROAD-CRESTED WEIR

NOT TO SCALE

VORTSENTRY HS GENERAL INFORMATION											
Model	Manhole Diameter (ID)		Total Treatment Flow Rate	Typical Total Distance Rim to Outside Bottom		Typical Distance Rim to Invert		Typical Depth Below Invert (Inside)		Approximate Minimum Distance Rim to Invert	
	FT	mm	CFS	FT	m	FT	m	FT	m	FT	m
HS36	3	900	0.55	15.6	3.10	4.08	1.24	5.58	1.70	3.00	0.91
HS48	4	1200	1.20	34.0	10.36	6.00	1.83	6.75	2.05	4.00	1.22
HS60	6	1800	2.20	62.3	18.99	6.50	1.98	7.98	2.43	4.82	1.47
HS72	6	1800	3.70	104.6	31.89	6.75	2.06	9.15	2.78	5.59	1.70
HS84	7	2100	5.60	158.6	48.29	7.75	2.36	10.35	3.15	5.00	1.52
HS96	8	2400	8.10	229.4	69.87	8.50	2.59	11.54	3.51	6.91	2.11

VortSentry VORTSENTRY DETAIL

NOT TO SCALE



DETAIL SHEET

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

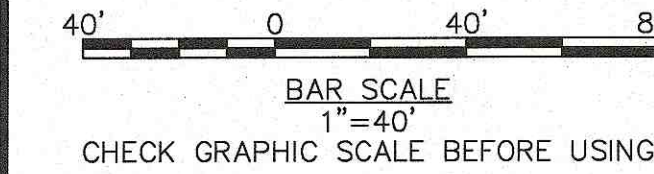
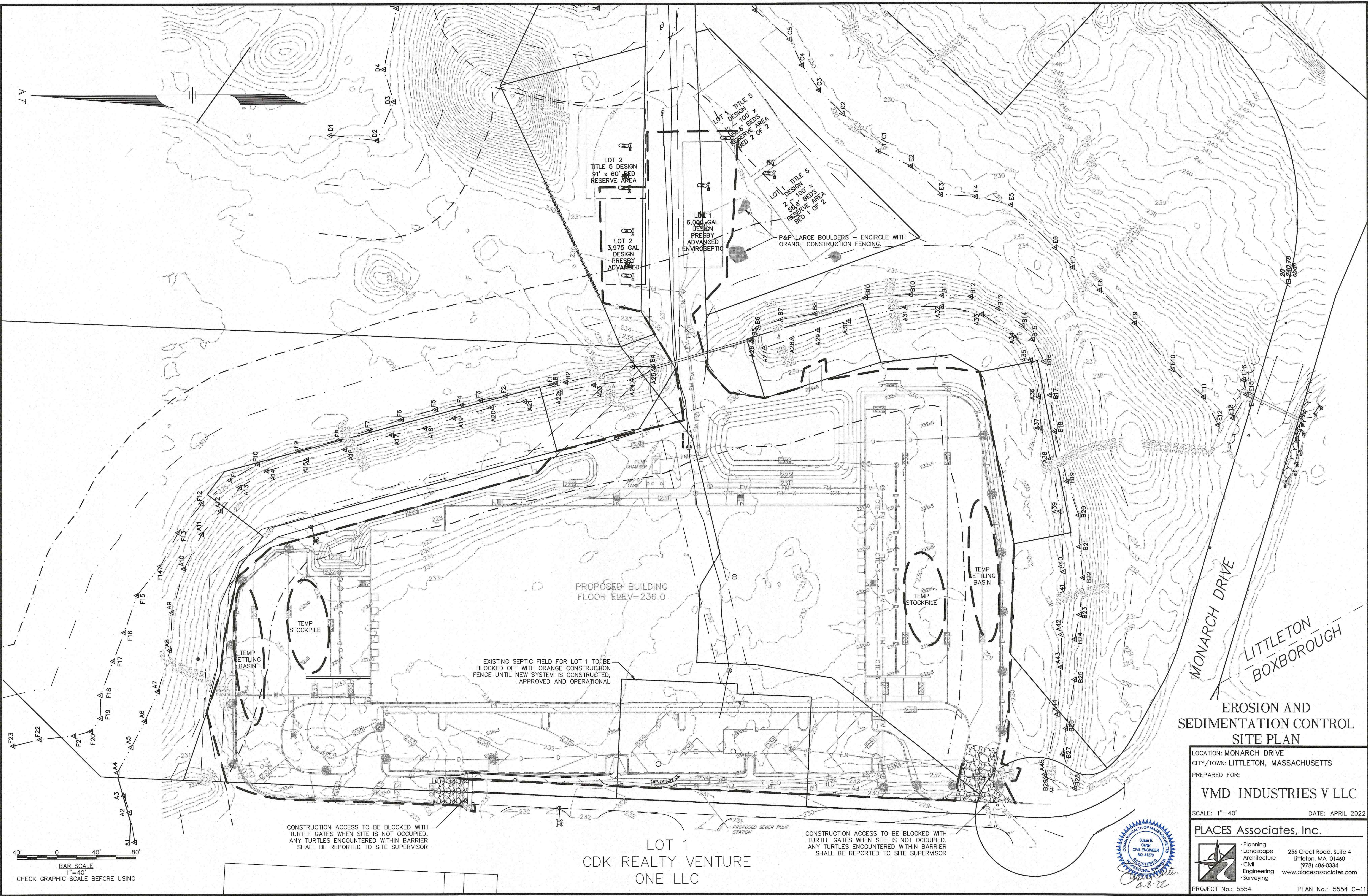
VMD INDUSTRIAL V LLC

SCALE: AS SHOWN DATE: APRIL, 2022

PLACES Associates, Inc.

Planning
Landscape Architecture
Civil
Engineering
Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 5554 PLAN No.: 5554 C-10



LOT 1
CDK REALTY VENTURE
ONE LLC

EROSION AND
SEDIMENTATION CONTROL
SITE PLAN

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V LLC

SCALE: 1"=40' DATE: APRIL 2022

PLACES Associates, Inc.

Planning
Landscape
Architecture
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256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 5554 PLAN No.: 5554 C-11



DRAINAGE SYSTEM OPERATIONS & MAINTENANCE PLAN EROSION & SEDIMENTATION CONTROL PLAN

STORM WATER COLLECTION SYSTEM:

THE STORMWATER COLLECTION SYSTEM SERVING THIS SITE IS INTENDED TO BOTH COLLECT STORM WATER RUNOFF AND TO PROVIDE TREATMENT OF THE STORMWATER PRIOR TO ITS DISCHARGE. THIS SYSTEM COLLECTS RUNOFF GENERATED FROM THE SITE THROUGH THE USE OF STORMWATER BEST MANAGEMENT PRACTICES (BMP'S). WHEN THESE BASIC CONTROL MECHANISMS ARE FUNCTIONING PROPERLY THEY PROVIDE FOR A REDUCTION OF CONTAMINANTS AND DEBRIS ENTERING THE STORMWATER COLLECTION SYSTEMS, AND THEREFORE DOWNSTREAM RECEIVING WATERS/WETLANDS.

STORMWATER SYSTEMS RELY UPON PROPER MONITORING, OPERATIONS AND MAINTENANCE TO FUNCTION AS DESIGNED AND INTENDED. A PROGRAM OF MONITORING, OPERATIONS AND MAINTENANCE MUST BE ONGOING THROUGHOUT THE LIFE AND USE OF THE SITE, AND IS THE OWNER'S RESPONSIBILITY SOLELY. THESE ACTIVITIES, AS DESCRIBED BELOW, ARE TO BE INITIATED AFTER COMPLETION OF THE PROJECT AND ARE NOT RELATED TO THE CONSTRUCTION OF THE SITE, EXCEPT AS SPECIFICALLY PROVIDED. THIS PLAN IS SPECIFICALLY FOR SITE-RELATED ACTIVITIES, NOT ACTIVITIES WHICH ARE INTERIOR TO BUILDINGS, THOUGH THERE ARE NECESSARY IMPLICATIONS AND CORRELATION'S BETWEEN THE TWO.

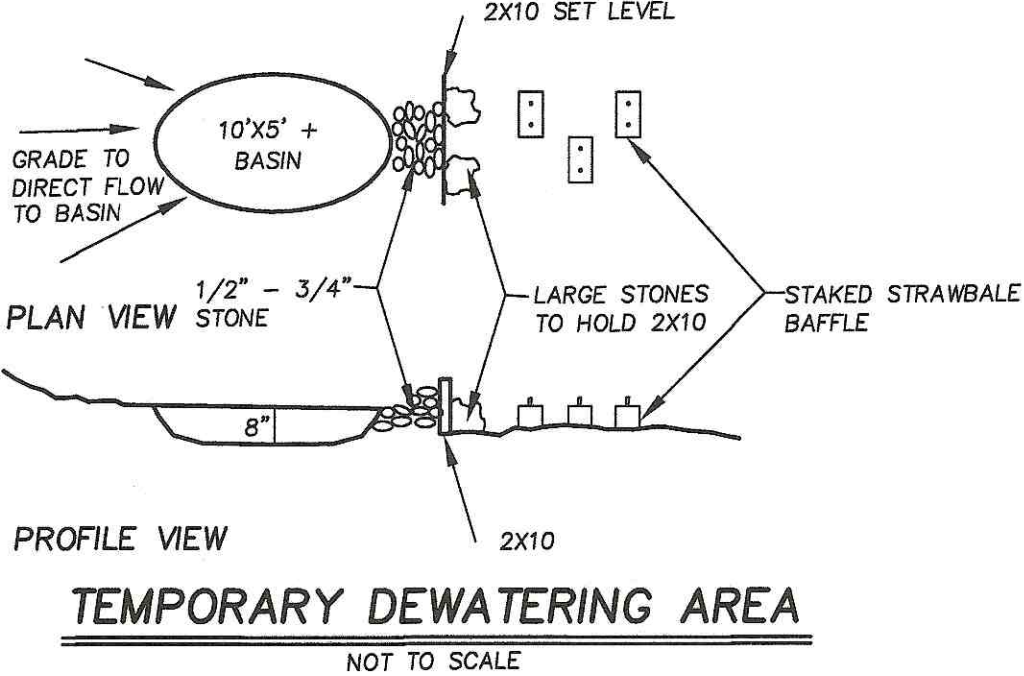
MONITORING: THE DRAINAGE SYSTEMS ARE REQUIRED TO BE MONITORED BY THE DESIGNATED SYSTEM MANAGER. THE NAME, ADDRESS AND DAY AND NIGHT (OR EMERGENCY) TELEPHONE NUMBER OF THIS PERSON OR ENTITY SHALL BE PROVIDED TO THE TOWN PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE OF CONSTRUCTION. THIS INDIVIDUAL SHALL BE REQUIRED TO KEEP A LOG OF ALL REQUIRED INSPECTIONS, OBSERVATIONS AND MAINTENANCE ACTIVITIES DRAINAGE SYSTEM COMPONENTS SHALL BE REFERRED TO BY SPECIFIC LOCATION OR THE DESIGN PLAN DESIGNATION, (E.G. CTB # 10) TO AVOID CONFUSION OR MISIDENTIFICATION THE LOG SHALL BE MADE AVAILABLE TO ANY MUNICIPAL OR STATE AGENCY HAVING JURISDICTION WITHIN TEN (10) DAYS OF A WRITTEN REQUEST BY THAT AGENCY.

MONITORING FOR THIS SITE SHALL CONSIST OF THE FOLLOWING:

- ALL CATCHBASINS SHALL BE INSPECTED TO ENSURE THEY ARE WATER-TIGHT (HOLDING WATER), HAVE ADEQUATE SUMP CAPACITY, ALL OIL/GAS TRAPS ARE IN-PLACE, ALL GRATES AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, AND ARE DRAINING FREELY. THIS MONITORING SHALL OCCUR AT A MINIMUM OF FOUR (4) MONTH INTERVALS (QUARTERLY).
- ALL DRAINAGE MANHOLES SHALL BE INSPECTED TO ENSURE THAT THEY ARE WATER-TIGHT, ALL LIDS AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, ARE DRAINING FREELY AND ARE NOT PONDING WATER. THIS MONITORING SHALL OCCUR A MINIMUM OF ONCE PER YEAR.
- OTHER DRAINAGE SYSTEMS SHALL BE INSPECTED TO ENSURE THAT NO EROSION IS OCCURRING AT OUTLETS, ALL OUTLETS ARE FREE-FLOWING AND NO DAMAGE HAS OCCURRED AS PART OF SITE MAINTENANCE OR ACTIVITIES.
- PROVIDE MAINTENANCE AND MONITORING OF THESE AND OTHER COMPONENTS AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL (O&M).

OPERATIONS:

- GOOD HOUSE KEEPING AND MATERIAL MANAGEMENT REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF. A POLLUTION PREVENTION PLAN SHALL BE DEVELOPED WHICH SHALL INCLUDE THE FOLLOWING AT A MINIMUM:
 - ALL MATERIALS STORED ON-SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
 - PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
 - SUBSTANCES SHOULD NOT BE MIXED WITH ONE ANOTHER, UNLESS RECOMMENDED BY THE MANUFACTURER.
 - WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF A CONTAINER.
 - THE SYSTEM'S MANAGER SHALL INSPECT THE SITE DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE, DURING ALL CONSTRUCTION PHASES. ORIGINAL MATERIALS LABELS AND MATERIAL SAFETY DATA SHEETS SHALL BE KEPT; THEY RETAIN IMPORTANT INFORMATION.
 - ALL ONSITE VEHICLES AND PARKING AREAS SHALL BE REGULARLY MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO PREVENT LEAKAGE.
 - PETROLEUM PRODUCTS SHALL BE STORED UNDER COVER AND SHALL BE IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED.
 - FERTILIZERS SHALL ONLY BE USED IN THE MINIMUM AMOUNTS AS RECOMMENDED BY THE MANUFACTURER.
 - THE CONTENTS OF ANY UNUSED FERTILIZER SHALL BE TRANSFERRED TO A CLEARLY LABELED, SEALABLE PLASTIC BIN, TO AVOID SPILLAGE.
 - ALL PAINTS AND SOLVENTS SHALL BE STORED IN ORIGINAL MANUFACTURER'S CONTAINERS IN A COVERED LOCATION.
 - THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
- SPILL CONTROL PRACTICES:
 - MANUFACTURER'S RECOMMENDED METHODS SHALL BE CLEARLY POSTED FOR SPILL CLEANUP AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATIONS OF CLEANUP INFORMATION AND SUPPLIES.
 - MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT ON-SITE IN A DESIGNATED MATERIAL STORAGE AREA. EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO, BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, ABSORBENT MATERIALS, SAND, SAWDUST AND PLASTIC & METAL TRASH CONTAINERS SPECIFICALLY KEPT AND LABELED FOR THIS PURPOSE.
 - ALL SPILLS WILL BE CLEANED-UP IMMEDIATELY AFTER DISCOVERY.
 - SPILLS OF TOXIC OR HAZARDOUS MATERIAL OR NATURE WILL BE REPORTED TO THE APPROPRIATE STATE, LOCAL OR FEDERAL AGENCY, AS REQUIRED BY-LAW. THE SPILL PREVENTION PLAN WILL INCLUDE PROVISIONS TO ADAPT THE PLAN TO ENSURE THAT SPILLS WILL NOT REOCCUR, AND HOW TO CLEANUP THE SPILL IF THERE IS ANOTHER ONE.
- SITE OPERATIONS AND DAILY USE SHALL CONSIDER THE ULTIMATE DISPOSITION OF STORMWATER AND OTHER SITE-GENERATED FORMS OF RUNOFF.
- SNOW PLOWING - SNOW PLOWING OPERATIONS SHALL STOCKPILE SNOW, ICE AND ACCUMULATED MATERIALS IN AREAS WHERE SNOW MELT WILL FLOW INTO THE ON-SITE DRAINAGE SYSTEMS. NO PLOWING OR STORAGE OF SNOW INTO WETLANDS.
- SALT USE SITE-WIDE SHALL BE APPLIED TO THE MINIMUM EXTENT POSSIBLE TO MAINTAIN SAFE CONDITIONS, AND ONLY IF NOT SPECIFICALLY EXCLUDED BY ANY SPECIAL CONDITIONS.



MAINTENANCE:

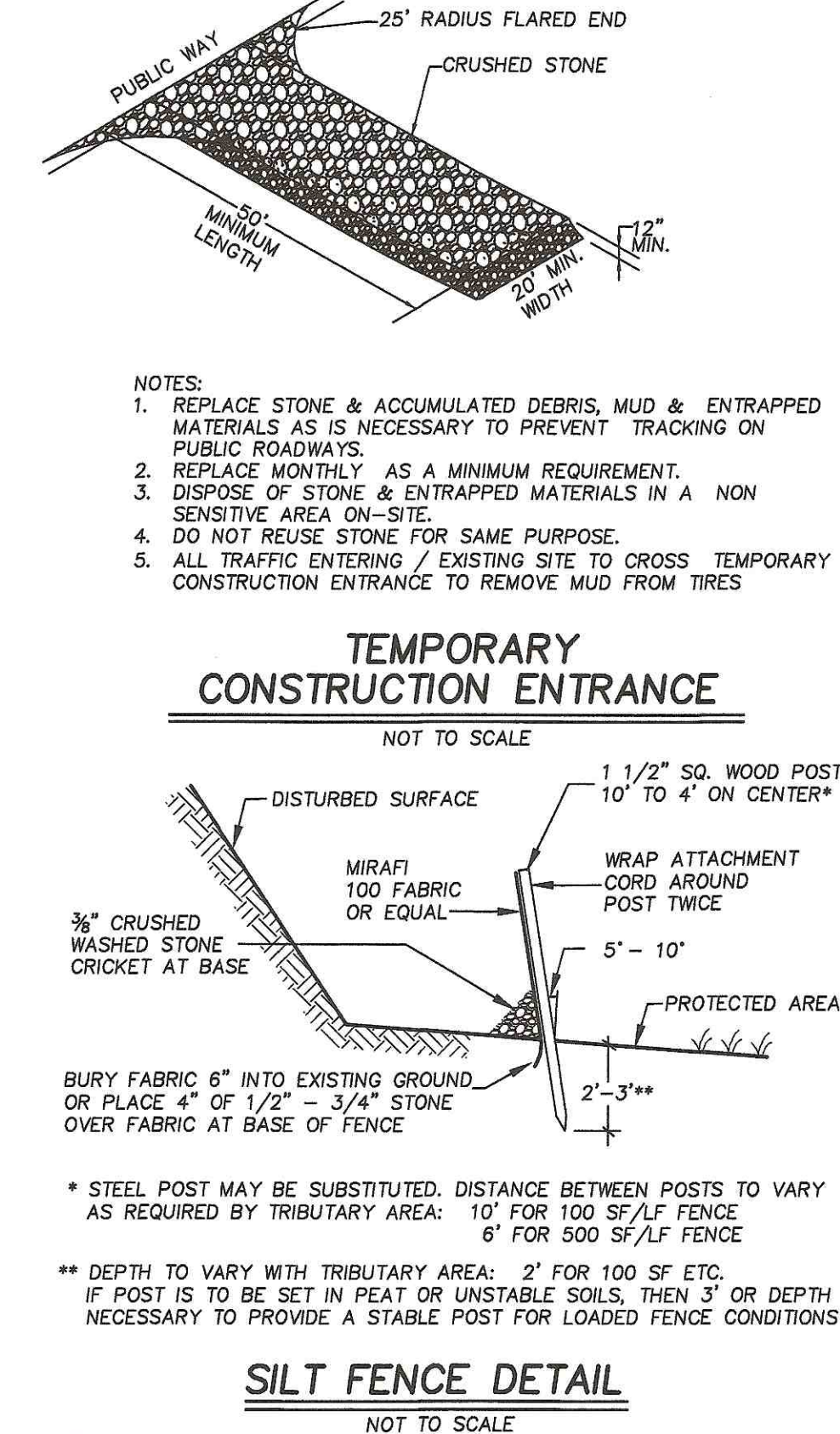
- PARKING AREAS, ROAD AND ACCESS WAYS AND GUTTERS SHALL BE SWEEP CLEAN OF DEBRIS AND ACCUMULATION ON A REGULAR BASIS. AT A MINIMUM, A SPRING AND FALL CLEANING SCHEDULE IS RECOMMENDED.
- ALL CATCHBASINS SHALL HAVE THE SUMPS CLEANED AT ANY TIME OF THE YEAR WHEN 2' OR LESS SPACE EXISTS BELOW THE OUTLET INVERT, OR A MINIMUM OF ONCE PER YEAR, REGARDLESS OF SUMP ACCUMULATION. ALL DEBRIS FROM THE CLEANING SHALL BE DISPOSED OF OFF-SITE AND IN A MANNER AS PROSCRIBED BY LAW.
- ALL HYDROCARBON TRAPS SHALL BE CHECKED FOR PHYSICAL INTEGRITY AND SEALED IMMEDIATELY AFTER EACH CATCHBASIN CLEANING.
- OIL ABSORBING "PILLOWS" OR OTHER MEANS SHALL BE USED TO REMOVE ACCUMULATIONS OF HYDROCARBONS (OIL/GREASE) IN CATCHBASINS THAT ARE REGULARLY OBSERVED TO CONTAIN HYDROCARBONS, WHICH DO NOT EVAPORATE BETWEEN INSPECTIONS.
- ALL BROKEN, LEAKING OR OTHERWISE DAMAGED STRUCTURES SHALL BE REPAIRED PROMPTLY UPON DISCOVERY. CATCHBASIN GRATES OR MANHOLE LIDS SHALL BE REPLACED WITH SIMILAR WEIGHT AND LOADING CHARACTERISTIC REPLACEMENT PARTS.
- ALL EROSION SHALL BE REPAIRED.
- THE REPLACEMENT OF ANY PIPE OR DRAINAGE STRUCTURE SHALL MATCH THE ORIGINAL DESIGN SPECIFICATIONS.
- PROVIDE MAINTENANCE AND MONITORING AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL (O&M).

NPDES GENERAL NOTES:

- THIS PLAN IS INTENDED TO BE UTILIZED AS PART OF THE INFORMATION REQUIRED TOWARD MEETING THE NATIONAL STORM WATER POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) OF SECTION 402 OF THE FEDERAL CLEAN WATER ACT. THE CONSTRUCTION OF DRIVEWAYS, PARKING AREAS, BUILDINGS AND APPURTENANT STRUCTURES WILL RESULT IN MORE THAN 1 ACRE OF TOTAL DISTURBED AREA, REQUIRING THE SUBMITTAL OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS SITE.
- IT IS ANTICIPATED THAT THE SITE AS DESIGNED WILL MEET THE CRITERIA FOR A NPDES GENERAL PERMIT. THE SUBMISSION OF THE NPDES NOTICE OF INTENT (NPDES NOI), THIS PLAN AND SUPPORTING DOCUMENTATION MUST BE POSTMARKED A MINIMUM OF TWO (2) WEEKS PRIOR TO THE INITIATION OF ANY SITE DISTURBANCE OR CONSTRUCTION, WHICH SHALL NOT COMMENCE UNTIL AN ORDER OF CONDITIONS HAS BEEN ISSUED.
- A COPY OF THE NPDES SUBMITTAL AND THIS PLAN MUST BE KEPT ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE MADE AVAILABLE TO ALL INTERESTED PARTIES.
- RECORDS MUST BE MAINTAINED BY THE PERMITEE FOR A PERIOD OF THREE (3) YEARS FROM THE DATE OF STABILIZATION OF THE SITE. STABILIZATION OCCURS WHEN THE SITE HAS OVER 70% VEGETATIVE GROWTH AND/OR MECHANICAL STABILIZATION THROUGHOUT FOR ONE COMPLETE GROWING SEASON.
- ALL INSPECTIONS SHALL BE CONDUCTED BY EPA CERTIFIED AND QUALIFIED PERSONNEL, WHO SHALL PRODUCE WRITTEN QUANTITATIVE AND QUALITATIVE REPORTS ON THE METHODS, SUITABILITY OF STRUCTURES AND THE GENERAL CONSTRUCTION.
- INSPECTIONS ARE REQUIRED DURING SITE ALTERATIONS A MINIMUM OF ONCE EVERY SEVEN (7) DAYS WHILE SURFACES ARE UNSTABILIZED. INSPECTIONS ARE REQUIRED WITHIN 24 HOURS OF STORMS WHICH PRODUCE 0.25" OF PRECIPITATION OR GREATER.
- WHEN THE SITE IS FULLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT MONTHLY INTERVALS FOR A PERIOD OF 3 YEARS OR AS SPECIFIED IN THE O&M AND OR SWPPP.

LOCAL PERMITTING:

- THIS PLAN IS PART OF A SET OF DOCUMENTS WHICH INCLUDE LOCAL PERMITS, LOCAL REVIEW AND MODIFICATIONS TO PROPOSED SWPPP'S CREATED BY THE ABOVE LISTED CRITERIA.
- CONTRACTORS SHALL ACCOMMODATE LOCAL REVIEW TIMELINES AS PART OF ALL SUBMISSIONS FOR SWPPP'S.
- IF CONSTRUCTION OCCURS DURING WINTER CONDITIONS, A WINTER EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE PREPARED AND SUBMITTED TO THE CONSERVATION COMMISSION, IF REQUIRED.



GENERAL:

- THIS PLAN IS PART OF A SET OF DOCUMENTS THAT ARE TO BE VIEWED AND REVIEWED IN THEIR ENTIRETY, SUCH DOCUMENTS INCLUDE THE CONSTRUCTION SPECIFICATIONS, CONSTRUCTION PLANS AND ANY PERMITS ISSUED BY THE TOWN OR OTHER REGULATORY AGENCIES.
- THIS IS A PERFORMANCE SPECIFICATION WHICH THE CONTRACTOR SHALL APPLY APPROPRIATE MEANS AND METHODS TO ACHIEVE.
- EROSION CONTROL MEASURES DESCRIBED HEREIN SHALL ALSO BE APPLICABLE TO INDIVIDUAL LOT DEVELOPMENT.

EROSION CONTROL MEASURES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EROSION AND SEDIMENTATION ARE CONTROLLED. THIS PLAN SHALL BE ADAPTED TO FIT THE CONTRACTOR'S EQUIPMENT, WEATHER CONDITIONS, AND ANY ORDERS OF CONDITIONS ISSUED BY THE TOWN OR ANY OTHER REGULATORY AGENCY.
- THE MOST IMPORTANT ASPECTS OF CONTROLLING EROSION AND SEDIMENTATION ARE LIMITING THE EXTENT OF DISTURBANCE AND STABILIZING SURFACES AS SOON AS POSSIBLE. OF SECONDARY IMPORTANCE IN EROSION CONTROL IS THE LIMITING THE SIZE AND LENGTH OF THE TRIBUTARY DRAINAGE AREA WITHIN THE WORK SITE AND DRAINAGE STRUCTURES. THESE FUNDAMENTAL PRINCIPLES SHALL BE THE KEY FACTOR IN THE CONTRACTOR'S CONTROL OF EROSION ON THE SITE.
- WHILE THE EXISTING SOIL CONDITIONS HAVE LIMITED POTENTIAL FOR RUNOFF, THE CONTRACTOR SHALL PLAN FOR ADVERSE CONDITIONS INCLUDING INTENSE RUNOFF OR RUNOFF ON PARTIALLY FROZEN GROUND.
- THE CONTRACTOR SHALL CONSTRUCT TEMPORARY DIVERSION SWALES AND SETTLING BASINS IN AREAS OF FUTURE CONSTRUCTION. NO CONSTRUCTION IS PERMITTED BEYOND THE LIMIT OF DISTURBANCE DUE TO EXISTING CONSERVATION RESTRICTIONS. THE LIMIT OF DISTURBANCE LINE SHALL BE THE EROSION CONTROL BARRIER.
- ALL DISTURBED SURFACES SHALL BE STABILIZED A MINIMUM OF 14 DAYS AFTER CONSTRUCTION IN ANY PORTION OF THE SITE HAS CEASED OR IS TEMPORARILY HALTED UNLESS ADDITIONAL CONSTRUCTION IS INTENDED TO BE INITIATED WITHIN 21 DAYS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF ALL EROSION CONTROL DEVICES ON-SITE. ALL EROSION CONTROL DEVICES SHALL BE REGULARLY INSPECTED. ANY SEDIMENTS REMOVED FROM THE CONTROL DEVICES SHALL BE DISPOSED OF OUTSIDE OF THE 100' WETLANDS BUFFER ZONE.
- AT NO TIME SHALL SILT-LADEN WATER BE ALLOWED TO ENTER SENSITIVE AREAS (WETLANDS, OFF-SITE AREAS AND DRAINAGE SYSTEMS). ANY RUNOFF FROM DISTURBED SURFACES SHALL BE DIRECTED THROUGH SETTLING BASINS AND EROSION CONTROL BARRIERS PRIOR TO ENTERING ANY SENSITIVE AREAS.

PRELIMINARY SITE WORK:

- MATERIAL REMOVED SHOULD BE STOCKPILED, SEPARATING THE TOPSOIL FOR FUTURE USE ON THE SITE. EROSION CONTROLS SHALL BE UTILIZED ALONG THE DOWNSLOPE SIDE OF THE PILES IF THE PILES ARE TO REMAIN MORE THAN THREE WEEKS OR SUBJECT TO EROSION CONDITIONS SUCH AS INTENSE RAIN, WIND OR OTHER EXPOSURE.
- STOCKPILES SHALL BE LOCATED AS SPECIFIED HEREIN AND AS REQUIRED. SHOULD ADDITIONAL AREAS BE NEEDED THEY SHALL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE, IN AREAS OF MINIMAL IMPACT. IF A STOCKPILE IS LOCATED ON A SLOPE, THE RUNOFF SHALL BE DIRECTED AWAY FROM THE PILE.
- IF INTENSE RAINFALL IS ANTICIPATED, THE INSTALLATION OF SUPPLEMENTAL STRAW BALES, SILT FENCES, OR ARMORED DIKES SHALL BE UTILIZED.
- IF THE SITE CONSTRUCTION OCCURS AT ANY TIME OTHER THAN THE MAY - NOVEMBER CONSTRUCTION SEASON, THE SITE DRAINAGE BASIN AND CAPTURE SYSTEM SHALL BE INSTALLED FIRST, MAINTAINING HYDRAULIC CAPACITY, PRIOR TO ANY ROUGH GRADING IN THE BUFFER ZONE.
- INLET SEDIMENT CONTROL DEVICES SHALL BE INSTALLED ON ALL CATCHBASINS ADJACENT TO THE LIMIT OF WORK, EVEN IF OUTSIDE THE DELINEATED LIMIT OF WORK. THE GENERAL CONTRACTOR SHALL MONITOR AND EMPTY AND/OR REPLACE ON AN AS NEEDED BASIS.

DRAINAGE SYSTEM:

- THE DRAINAGE SYSTEM SHALL BE INSTALLED FROM THE DOWNSTREAM END UP.
- A SILT FENCE SHALL BE INSTALLED AT THE OUTFALL OF ALL TEMPORARY BASINS AND SWALES. IT SHALL REMAIN IN PLACE UNTIL ALL TRIBUTARY AREAS ARE STABILIZED.
- WATER SHALL NOT BE ALLOWED TO ENTER PIPES FROM UN-STABILIZED SURFACES. SILT FENCE SHALL BE MONITORED, CLEANED & REPLACED AS NEEDED ON A REGULAR BASIS. SEE NPDES SWPPP REQUIREMENTS, IF APPLICABLE.
- TRENCH EXCAVATIONS SHALL BE LIMITED TO THE MINIMUM LENGTH REQUIRED FOR DAILY PIPE INSTALLATION. ALL TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE. THE ENDS OF PIPES SHALL BE CLOSED NIGHTLY WITH PLYWOOD AND BACKER BOARD.
- IF UNSTABLE AREAS ARE ENCOUNTERED DUE TO NATURAL SPRINGS OR GROUNDWATER BREAKOUT, INTERCEPTOR DRAINS SHALL BE INSTALLED TO DIRECT THE RUNOFF INTO THE DRAINAGE SYSTEM. SEE DETAILS.
- IT IS IMPORTANT THAT THE BINDER COURSE, WITH BERMS, BE INSTALLED ON THE LIMITS OF THE PARKING LOT AND ACCESS ROADS AS SOON AS FEASIBLE AS THESE AREAS WILL FUNCTION AS A CONDUIT FOR RUNOFF.

INTENSE WEATHER PREPARATIONS:

- THIS SECTION SPECIFICALLY APPLIES TO ANY RAINFALL EVENTS PREDICTED TO PRODUCE 2" OR MORE OF RAINFALL IN A 24 HOUR PERIOD OR MULTIPLE HIGH INTENSITY BACK TO BACK STORMS OR THE ISSUANCE OF A FLASH FLOOD WATCH.
- THE CONTRACTOR SHALL HAVE ADDITIONAL EROSION CONTROL BARRIERS, STONE AND SAND BAGS OR SIMILAR MATERIALS TO CONTAIN AND DIRECT HIGH VELOCITY RAINFALL.
- WHEN INTENSE RAINFALL IS PREDICTED, THE INLET SEDIMENT DEVICES (SILT-SAC OR SIMILAR), SHALL BE REMOVED FROM LOW POINTS IN THE ROAD OR CRITICAL CATCHBASINS NEEDED TO DIRECT RUNOFF TO THE APPROPRIATE STORMWATER BASIN. CLEAN INLET SEDIMENT DEVICES SHALL BE RE-INSTALLED IN THE CATCHBASINS AT THE END OF THE STORM EVENT AFTER ANY SEDIMENT HAS BEEN REMOVED FROM THE ROADWAY.
- SAND BAGS OR EQUIVALENT SHALL BE INSTALLED IN AN ARC SHAPE, ADJACENT TO CATCHBASINS ON THE DOWN-GRADIENT SIDE TO CONTAIN RUNOFF AND MINIMIZE BYPASS FLOWS. ADDITIONAL SAND BAGS SHALL BE AVAILABLE ON SITE TO ALLOW MODIFICATIONS AS NEEDED DURING THE STORM EVENT TO CONTROL AND CONTAIN RUNOFF.
- CONSIDERATION SHALL BE GIVEN TO THE INSTALLATION OF CHECK DAMS ALONG SWALES OR DRIVEWAY SHOULDERS TO MINIMIZE EROSION VELOCITIES.
- IF EXPOSED SOILS ARE DIRECTLY ADJACENT TO PAVEMENT ON STEEP SLOPES, A 3' WIDE 3-6"STONE STRIP SHALL BE INSTALLED ON THE SHOULDERS TO MINIMIZE EROSION POTENTIAL OF THE SLOPES. WHERE THE ROADWAY IS IN FILL WITH SOFT SHOULDERS, SAND BAGS SHALL BE INSTALLED TO CONTAIN RUNOFF WITHIN THE ROADWAY AND DIRECT IT TO CATCHBASINS.
- IF RILLS OR GULLIES HAVE OCCURRED DURING PREVIOUS RAINFALL EVENTS, CONSIDERATION SHALL BE GIVEN TO THE INSTALLATION OF RIP RAP IN THESE AREAS PRIOR TO THE INTENSE RAINFALL.
- ALL STORMWATER BASINS SHALL BE EVALUATED FOR STABILITY AND VOLUME. IF THE PRE-STORM VOLUME OF WATER IN THE BASIN EXCEEDS ONE-HALF THE TOTAL DEPTH OF THE POND, THE WATER LEVEL SHALL BE REDUCED VIA PUMPING. PUMPING SHALL DISCHARGE TO A FILTER FABRIC BAG WHICH SHALL BE LOCATED IN A CONTROLLED AREA, PREFERABLY PAVED AREA FLOWING TO A CATCHBASIN WHICH IS NOT TRIBUTARY TO THE BASIN.
- A HIGH INTENSITY RAINFALL EVENT MAY REQUIRE THE CONTRACTOR TO BE PRESENT THROUGHOUT THE STORM TO ADJUST AND CONTROL ANY UNCONTROLLED EROSION TO MINIMIZE ANY BREAKTHROUGH FLOW.

INSTALLATION OF UTILITIES:

- CARE SHALL BE TAKEN TO ASSURE THAT THE UTILITY TRENCHES DO NOT CHANNELIZE RUNOFF TOWARDS EXISTING STREETS OR OTHER OFF-SITE AREAS.
- THE INSTALLATION OF SUBSURFACE UTILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.
- TRENCH EXCAVATIONS SHALL BE LIMITED TO THE MINIMUM LENGTH REQUIRED FOR DAILY UTILITY INSTALLATION. ALL TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE.

LANDSCAPING:

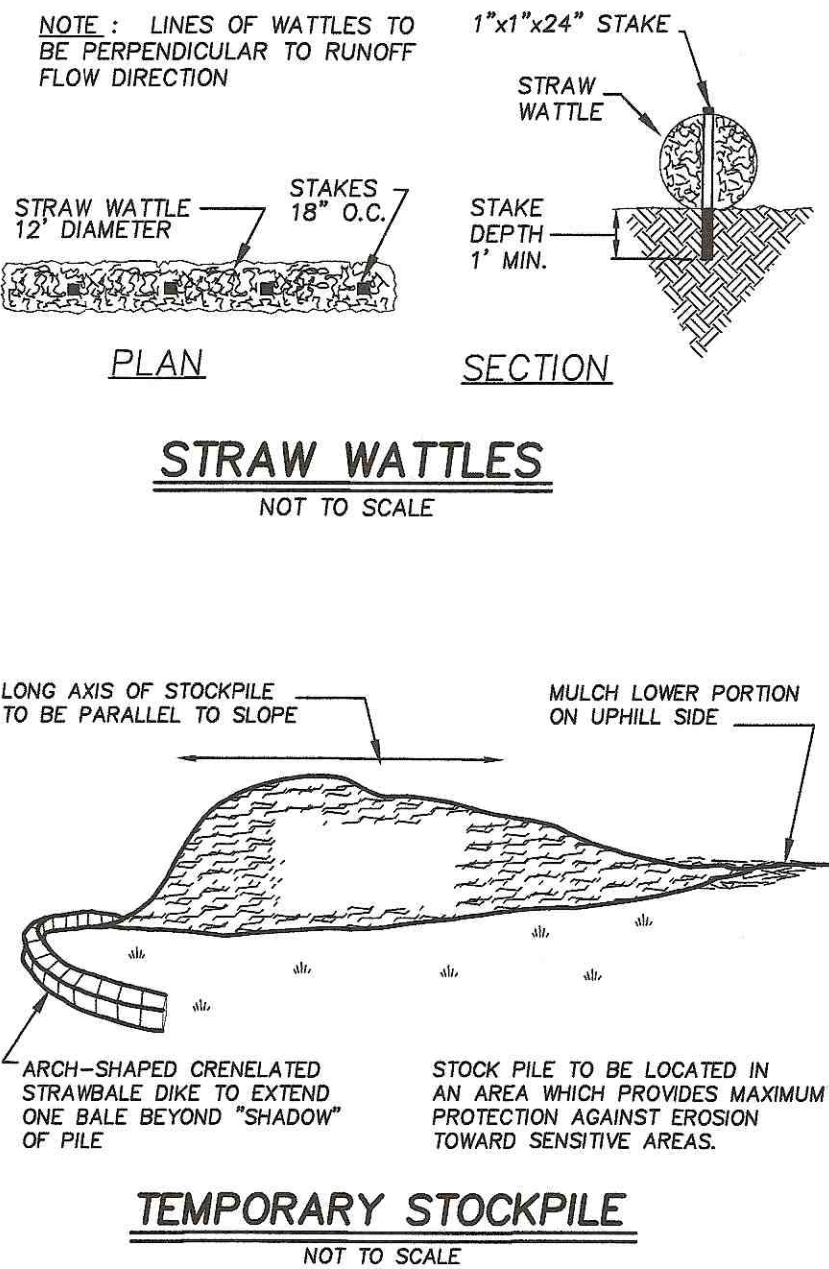
- LANDSCAPING SHALL OCCUR AS SOON AS POSSIBLE TO PROVIDE PERMANENT STABILIZATION OF DISTURBED SURFACES.
- CONTRACTOR SHALL UTILIZE A VARIETY OF SLOPE STABILIZATION METHODS AND MATERIALS WHICH SHALL BE ADJUSTED TO THE SITE CONDITIONS. EROSION CONTROL BLANKETS OR MIRAFI MIRAMAT (OR SIMILAR PRODUCTS) SHALL BE AVAILABLE ON SITE, AND USED ON ANY SLOPES 3:1 OR STEEPER.
- IF THE SEASON OR ADVERSE WEATHER CONDITIONS DO NOT ALLOW THE ESTABLISHMENT OF VEGETATION, TEMPORARY MULCHING WITH STRAW, TACKIFIED WOOD CHIPS OR OTHER METHODS SHALL BE PROVIDED.
- A MINIMUM OF 6" TOPSOIL SHALL BE PLACED AND ITS SURFACE SMOOTHED TO THE SPECIFIED GRADES.
- SEED APPLICATIONS SHALL BE IN ACCORDANCE WITH THE GRASS AND SLOPE COVER SPECIFICATIONS.

PRE-CONSTRUCTION:

- AN EROSION CONTROL BARRIER SHALL BE INSTALLED AS DEPICTED ON THE SITE PLAN, BETWEEN THE AREAS TO BE DISTURBED AND WETLAND AREAS. THIS BARRIER SHALL REMAIN IN PLACE UNTIL ALL TRIBUTARY SURFACES HAVE BEEN FULLY STABILIZED. THE EROSION CONTROL BARRIERS AS SHOWN ON THE SITE PLAN ARE THE MINIMUM REQUIRED TO PROTECT THE ON & OFF SITE DRAINAGE SYSTEMS.
- PHOTOGRAPHS AND/OR VIDEO IMAGES OF THE PRE-CONSTRUCTION CONDITION OF THE SITE AND SURROUNDING AREAS, ESPECIALLY THE ADJACENT STREETS SHALL BE TAKEN, DEVELOPED AND DATED. A COPY OF THESE MATERIALS SHALL BE SUBMITTED TO THE PERMIT GRANTING AUTHORITY AND OWNER FOR THEIR FILES. THESE PICTURES AND IMAGES SHALL REFERENCE EXISTING SITE CONDITIONS AND PERMANENT REFERENCE MARKS TO ENABLE RECOGNITION OF THE AREA BEING PHOTOGRAPHED, AND SHALL REPRESENT A COMPREHENSIVE VIEW OF THE SITE PRIOR TO DEVELOPMENT.
- THE CONTRACTOR SHALL ESTABLISH A STAGING AREA ON A PORTION OF THE AREA TO BE DISTURBED FOR THE OVERNIGHT STORAGE OF EQUIPMENT AND STOCKPILING OF MATERIALS. THE STAGING AREA SHALL BE OUTSIDE OF THE 100' WETLANDS BUFFER ZONE.
- IN THE STAGING AREA, THE CONTRACTOR SHALL HAVE A STOCKPILE OF MATERIALS REQUIRED TO CONTROL EROSION ON-SITE TO BE USED TO SUPPLEMENT OR REPAIR EROSION CONTROL DEVICES. THESE MATERIALS SHALL INCLUDE, BUT ARE NOT LIMITED TO: STRAWBALES, SILT FENCE AND CRUSHED STONE.
- A TEMPORARY STONE CONSTRUCTION ENTRANCE IS REQUIRED TO PREVENT TRACKING OF SILT, MUD, ETC. ONTO EXISTING ROADS. THE STONE SHALL BE REPLACED REGULARLY AS WELL AS WHEN THE STONE IS SILT LADEN OR EQUIPMENT IS OBSERVED TO BE TRACKING SOIL ONTO THE ROADWAYS.
- THE CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL ON SITE AND SHALL UTILIZE EROSION CONTROL MEASURES WHERE NEEDED, REGARDLESS OF WHETHER THE MEASURES ARE SPECIFIED HEREIN, ON THE PLAN OR IN ANY ORDER OF CONDITIONS.

GENERAL CONSTRUCTION REQUIREMENTS:

- ANY REFUELING OF CONSTRUCTION VEHICLES AND EQUIPMENT SHALL TAKE PLACE OUTSIDE OF THE 100 FOOT BUFFER ZONE TO THE ENTRANCE TO THE DRAINAGE SYSTEM AND SHALL NOT BE CONDUCTED IN PROXIMITY TO SEDIMENTATION BASINS OR DIVERSION SWALES, AND BE PERFORMED OFF-SITE IF POSSIBLE.
- NO ON-SITE DISPOSAL OF SOLID WASTE, INCLUDING BUILDING MATERIALS IS ALLOWED IN THE 100 FOOT BUFFER ZONE. THE BURIAL OF STUMPS, CONSTRUCTION DEBRIS OR OTHER MATERIALS SHALL NOT BE ALLOWED ANYWHERE ON-SITE.
- NO MATERIALS SHALL BE DISPOSED OF INTO THE WETLANDS OR EXISTING OR PROPOSED DRAINAGE SYSTEMS. ALL CONTRACTORS INCLUDING: CONCRETE SUPPLIERS, PAINTERS AND PLASTERERS, SHALL BE INFORMED THAT THE CLEANING OF EQUIPMENT IS PROHIBITED IN AREAS WHERE THE WASH-WATER WILL DRAIN DIRECTLY TO THE SITE DRAINAGE SYSTEMS.
- CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL WHICH SHALL INCLUDE STREET SWEEPING OF ALL PAVED SURFACES WITHIN THE SITE AND OFF-SITE AREAS THAT ARE IMPACTED BY SITE CONSTRUCTION ON A REGULAR BASIS, AS NEEDED.
- ALL SUBCONTRACTORS SHALL BE NOTIFIED THAT CLEANING OF EQUIPMENT WITHIN THE 100' WETLAND BUFFER IS NOT PERMITTED. INCLUDING, BUT NOT LIMITED TO, CONCRETE TRUCKS, PAINTERS, PLASTERERS, ETC.



INLET SEDIMENT CONTROL DEVICE

EROSION & SEDIMENTATION CONTROL PLAN AND STORMWATER O & M

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:
VMD INDUSTRIAL V LLC
SCALE: AS SHOWN DATE: APRIL, 2022
PLACES Associates, Inc.
Planning
Landscape Architecture
Civil
Engineering
Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com
PROJECT No.: 5554 PLAN No.: 5554 C-12

LANDSCAPE NOTES:

1. THE SPECIES AND VARIETIES LISTED SHALL BE ADHERED TO IN ALL CASES. WHERE A SUBSTITUTION IS PROPOSED, THE CONTRACTOR SHALL PROVIDE THE OWNER A LISTING OF COST DIFFERENTIALS AND ALL SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.
2. SEE SITE PLANS AND PLANS WHICH DEPICT WORK OF OTHER TRADES FOR THE LOCATIONS OF BURIED UTILITIES, UNDERGROUND STRUCTURES AND OTHER OBSTACLES THAT MAY IMPACT THE PLANTING SHOWN HEREON.
3. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD, CONTRACTOR SHALL ACCOMMODATE THIS IN BASE BID.
4. IN CASE OF CONFLICT BETWEEN LANDSCAPE PLAN AND PLANTING SCHEDULE, THE GREATER NUMBER OR LARGER QUANTITY SHALL BE PROVIDED.
5. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
6. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
7. ALL PLANTS AND PLANTING METHODS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF "RECOMMENDED STANDARD SPECIFICATION FOR PLANTINGS" AS COMPILED AND ISSUED BY THE ASSOCIATED LANDSCAPE CONTRACTORS OF MASSACHUSETTS. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 4" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH.
8. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING, UNLESS OTHERWISE APPROVED BY LANDSCAPE ARCHITECT.
9. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
10. ALL PLANTS SHALL BE WARRANTED FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT. SHOULD ANY PLANTS DIE, EXHIBIT UNDESIRABLE DIE-BACK OR DISEASE DAMAGE, THEY SHALL BE REPLACED, AT NO ADDITIONAL COST TO THE OWNER WITH PLANTS MEETING THE ORIGINAL SPECIFICATIONS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ADEQUATE WATER SUPPLIES TO THE PLANT MATERIALS UNTIL ACCEPTANCE OF THE LANDSCAPE BY THE LANDSCAPE ARCHITECT HAS OCCURRED.
12. THE CALIPER OF ALL TREES SHALL BE MEASURED FOUR (4') FEET ABOVE THE ROOT BALL OR GROUND LINE, WHICHEVER IS HIGHER.
13. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
14. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 18" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
15. PLANTING SEASONS:
SPRING SEASON:
FOR ALL PLANTING IS FROM APRIL 1ST TO JULY 15TH
FALL SEASON:
FOR ALL EVERGREEN MATERIALS IS FROM AUGUST 15TH TO NOVEMBER 15TH
FOR ALL DECIDUOUS TREES, SHRUBS AND GROUND COVERS IS FROM AUGUST 15TH TO NOVEMBER 1ST.
16. FERTILIZER USE & APPLICATION SHALL CONFORM TO 330 CMR 31.00 FOR NON-AGRICULTURAL APPLICATION OF NITROGEN FERTILIZERS. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
17. CONTRACTOR RESPONSIBLE FOR ALL LAWN AND PLANTED GROUND COVER AREAS AND WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
18. ALL SLOPES IN EXCESS OF 3:1 (HORIZONTAL TO VERTICAL) SHALL BE STABILIZED SLOPES, SEE THE PROVISIONS OF SPECIFICATION SECTION-EROSION AND SEDIMENTATION CONTROL AND RELATED SECTIONS.
19. IF FLAMMABLE MATERIALS EXIST ON THE BUILDING WITHIN 18" OF EXTERIOR FINISHED GRADE, A MINIMUM 18" WIDE BARRIER OF 1" GRAY OR TAN PEASTONE SHALL BE INSTALLED IN ALL PLANT BEDS WHICH ABUT THE BUILDING. NO MULCH IS ALLOWED WITHIN 18" OF ALL BUILDINGS WITH FLAMMABLE MATERIALS IN THE SILL OR WITHIN 18" OF EXTERIOR FINISHED GRADE PER THE LATEST EXECUTIVE OFFICE OF PUBLIC SAFETY AND SECURITY DEPARTMENT OF FIRE SERVICES REGULATION (527 CMR 17.00). INSTALL 6" DEEP OF PEASTONE WITH MIRAFI WEED FABRIC BENEATH AND STEEL EDGING BETWEEN THE PEASTONE AND ADJACENT MULCH BED.
EXCEPTION: ANY BUILDING, REGARDLESS OF THE EXISTENCE OF FIRE SEPARATIONS, CONTAINING SIX DWELLING UNITS OR LESS.

SEEDING NOTES:

1. ALL DISTURBED AREAS, INCLUDING SLOPES AND THE DETENTION BASIN, SHALL BE GRADED AND STABILIZED BY PLANTING OR OTHER METHOD AS SHOWN OR SPECIFIED ON THE PLANS.
2. A MINIMUM OF 6" OF LOAM SHALL BE APPLIED TO ALL SURFACES TO BE SEEDED. LOAM SHALL BE UNIFORMLY APPLIED, SHAPED AND SMOOTHED.
3. LOAM ACIDITY SHALL BE CHECKED AND ADJUSTED TO A PH OF 6.5, APPLY LIME AT A MINIMUM RATE OF 50 LBS PER 1,000 SQUARE FEET, IF NECESSARY. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
4. ORGANIC-SLOW RELEASE FERTILIZER OF A TYPE 5-2-2 APPLIED AT A RATE OF 50 LBS PER 500 SQUARE FEET. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
5. RAKE A SEED BED USING A YORK RAKE OR HAND RAKING TO A MINIMUM DEPTH OF 3" THOROUGHLY INCORPORATING LIME AND FERTILIZER.
6. SEEDING MAY BE PERFORMED BY HAND, MECHANICAL OR TRACTOR MOUNTED SPREADER. HYDROSEEDING IS RECOMMENDED.
7. SEEDING BEFORE APRIL 15 OR AFTER OCTOBER 15, SHALL BE REAPPLIED BETWEEN THESE DATES IF A MINIMUM GERMINATION OF 90%, DETERMINED BY SURFACE AREA COVERAGE, HAS NOT OCCURRED OR IF THE SURFACE AREA HAS ERODED OR BECOME UN-STABILIZED.
8. SEEDING

8.1. HAND SEEDING:

8.1.1. SEED SHALL BE APPLIED BY HAND OR BROADCAST SPREADER TO PROVIDE A UNIFORM DISTRIBUTION OF SEED.

8.1.2. SEED SHALL BE LIGHTLY RAKED INTO A DEPTH OF 1/2"-1", WITH ALL RAKING TO BE PERPENDICULAR TO THE SLOPE.

8.1.3. SEED IS TO BE ROLLED WITH A WATER BALLAST ROLLER TO INSURE CONTACT OF SEED WITH SOIL, DO NOT COMPACT SOIL.

8.1.4. AREA SHALL BE MULCHED USING SEED-FREE STRAW TO ADEQUATELY COVER THE AREA TO A DEPTH OF 1/2"-1", INSURING A UNIFORM COVER OF 75% OF THE SURFACE AREA.

8.1.5. MULCH SHALL BE SECURED BY MEANS OF SECURED LANDSCAPE FABRIC, EROSION CONTROL NETTING (3/4" - 1" MESH), OR OTHER BIODEGRADABLE MATERIAL WHICH WILL INSURE ADEQUATE COVER UNTIL THE SURFACE HAS GROWN TO 90% GERMINATION, OR ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

8.2. HYDROSEEDING

8.2.1. HYDROSEEDING IS ENCOURAGED FOR ALL AREAS, ESPECIALLY FOR LARGE AREAS AND STEEP SLOPES.

8.2.2. HYDROSEEDING SHALL BE PERFORMED IN A SINGLE UNIFORM LAYER.

8.2.3. A TRACK EQUIPPED MACHINE SHALL TRAVEL PERPENDICULAR TO ANY SLOPE TO PROVIDE SHALL COMPACTED SURFACE DEPRESSIONS FOR HYDROSEEDING TO CATCH. SUCH TRACKS SHALL BE A MINIMUM OF THREE (3') FEET ON CENTER FOR THE TOTAL LENGTH OF THE SLOPE.

8.2.4. APPLICATION RATES ON SLOPES GREATER THAN 3:1 (HORIZONTAL TO VERTICAL) OR GREATER SHALL HAVE A MINIMUM SEEDING RATE OF 4LBS/1000SF.

8.2.5. A LATEX OR FIBER TACKIFIER SHALL BE USED ON ALL AREAS AT THE RATE RECOMMENDED BY THE MANUFACTURER AND ON ALL SLOPES IDENTIFIED ABOVE (NO. 4). A MINIMUM RATE OF 50LBS OF TACKIFIER PER 500GALS OF WATER SHALL BE USED.

8.2.6. FERTILIZER AND LIME MAY BE INCORPORATED INTO THE HYDROSEED MIXTURE IN THE QUANTITIES AND TYPE IDENTIFIED PREVIOUSLY. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
9. SEED MIXTURE

9.1. ALL SEED SHALL BE OF THE PREVIOUS YEAR'S CROP AND SHALL HAVE A QUANTIFIED MIXTURE ANALYSIS ATTACHED. NO MORE THAN 10% OF TOTAL MIXTURE SHALL CONSIST OF WEED SEED SPECIES.

9.2. SEED MIXTURE TYPE "A": SEED MIXTURES FOR LAWN AREAS SHALL CONSIST OF A STANDARD LAWN MIX CONTAINING A MINIMUM OF 80% PERENNIAL SPECIES, AND SHALL CONFORM TO THE FOLLOWING STANDARDS:
MINIMUMS (BY TOTAL WEIGHT OF MIX):
40% KENTUCKY BLUEGRASS
20% CHEWINGS FESCUE
20% PERENNIAL RYEGRASS
20% ANNUAL RYE OR OTHER ANNUAL SPECIES*

* NO MORE THAN 20% OF THE TOTAL MIX, BY WEIGHT, SHALL CONSIST OF ANNUAL RYE OR OTHER ANNUAL SPECIES. APPLY AT A RATE OF 4 LBS PER 1,000 SQUARE FEET, OR 170 LBS. PER ACRE.

9.3. SOD: SPECIFICATIONS TO MEET SEED MIX A OR APPROVED EQUAL FOR SOD.

9.4. SEED MIXTURE TYPE "C": SEED MIXTURES FOR SLOPED AREAS SHALL CONSIST OF A STANDARD CONSERVATION MIX CONFORMING TO THE RECOMMENDATIONS OF THE U.S. NATURAL RESOURCES SERVICES GUIDELINES (FORMERLY THE SOIL CONSERVATION SERVICE, SCS) AND SHALL CONFORM TO THE FOLLOWING STANDARDS:
MINIMUMS (BY TOTAL WEIGHT OF MIX):
20% ANNUAL RYE*
15% RED TOP FESCUE
10% WHITE CLOVER
5% LADINO CLOVER

*NO MORE THAN 40% OF THE TOTAL MIX, BY WEIGHT, SHALL CONSIST OF ANNUAL RYE OR OTHER ANNUAL SPECIES. APPLY AT A RATE OF 4 LBS PER 1,000 SQUARE FEET.

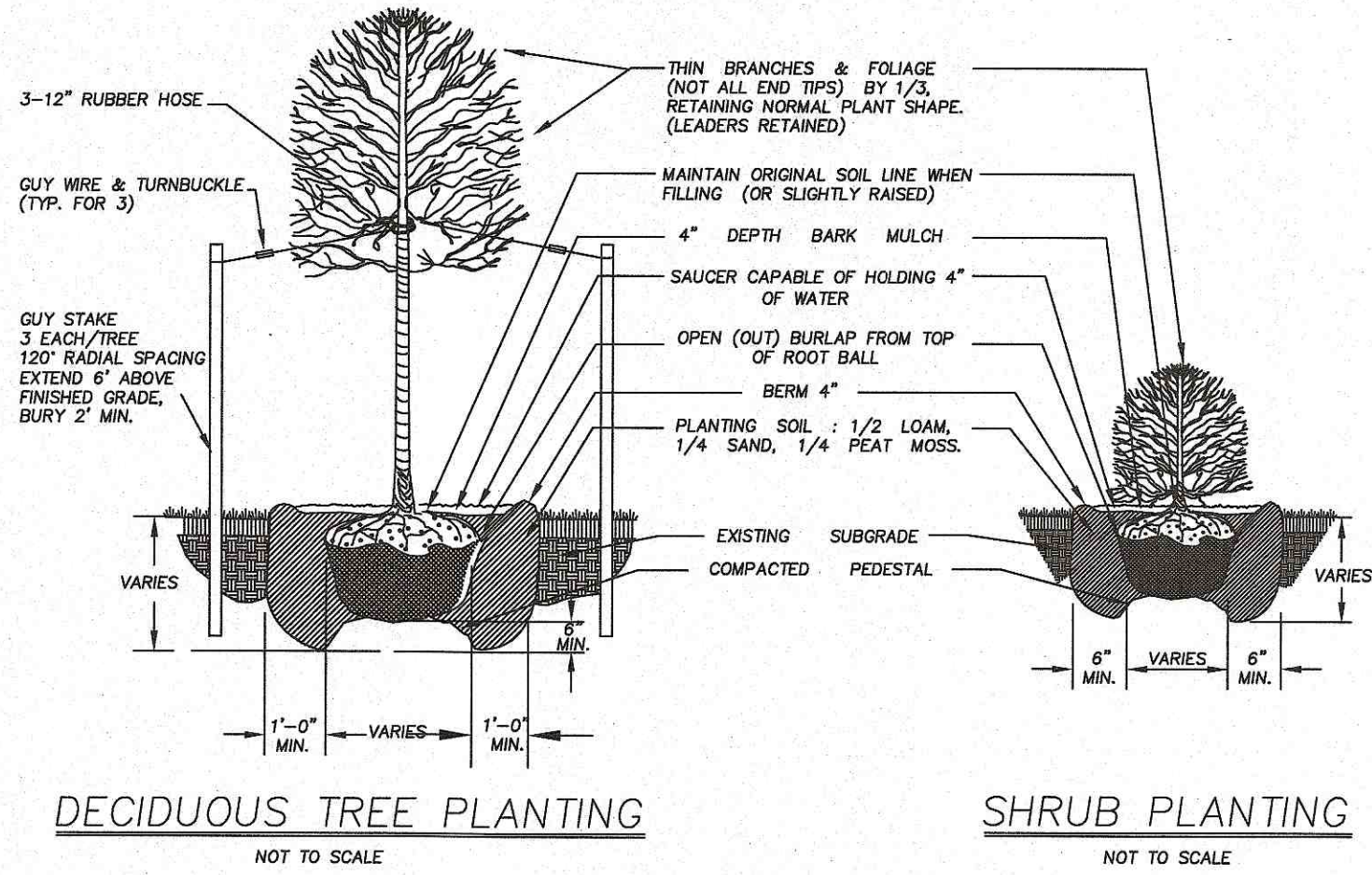
9.5. SEED MIXTURE TYPE "D": BASIN MIX SHALL BE AS MANUFACTURED BY NEW ENGLAND WETLANDS PLANTS, INC., AMHERST, MA, "WET MIX".

9.6. WILDFLOWER MEADOW MIX SHALL BE "NEW ENGLAND WILDFLOWER MIX" BY NEW ENGLAND WETLANDS PLANTS, INC, AMHERST, MA, OR "NATIVE NORTHEAST WILDFLOWER SEED MIX" BY AMERICAN MEADOWS, WILLISTON, VT

PLANT SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	CAL	SIZE	FIELD1	QTY
	Acer x freemanii 'Jeffersred' / Autumn Blaze Maple	B & B	25"Cal		Street Tree/Filter Box	10
	Syringa reticulata/ Summer Snow Jap. Tree Lilac	B & B	1.25" Cal	8'-10'H	Filter Tree Box	6
	Quercus borealis / Northern Red Oak	B & B	2"Cal		Shade Tree	5
	Gladiolus triacanthos var. inermis/Shademaster Honeylocust	B & B	2"Cal	12' Ht.	Shade Tree	3
	Crataegus crusgalli var. inermis/ Cimson Cloud Thornless Hawthorne	B & B	1.5"Cal		Filter Box Tree	2
	Picea glauca densata/ Black Hills Spruce	B & B	8'-10'ft ht.		Evergreen	6

GROUND COVERS	BOTANICAL NAME / COMMON NAME	CONT	FIELD2	FIELD3	SPACING	QTY
	Hemerocallis x ' / Daylily	1 gal	Perennial Flowering Plant	Flowering color to be selected	24" o.c.	90
	Juniperus horizontalis 'Blue Chip / Blue Chip creeping Juniper	2 gal	Groundcover evergreen		48" o.c.	22



PLANTING NOTES:

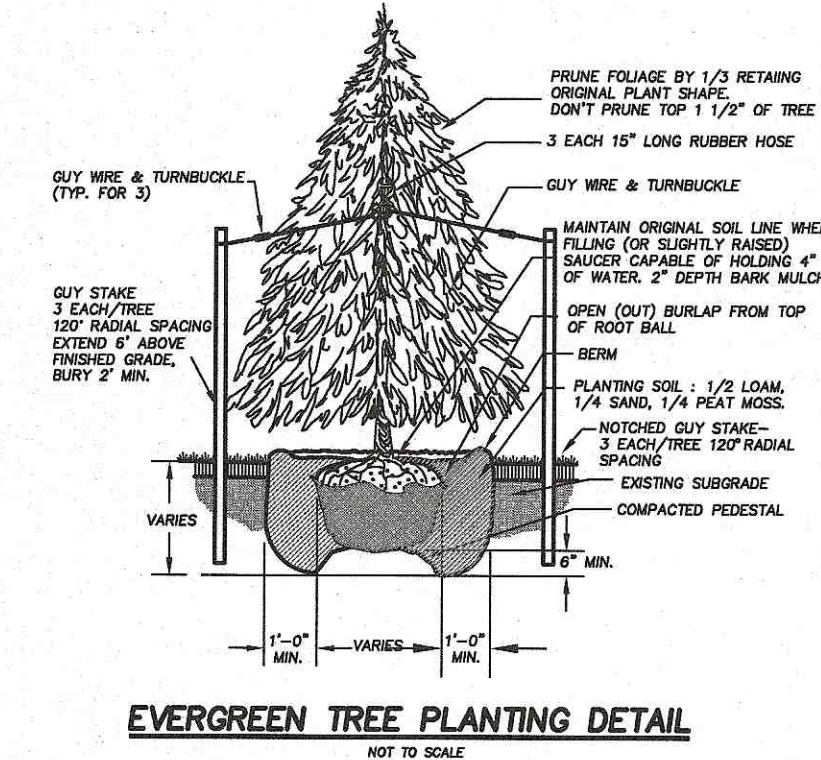
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2. SEE SITE PLANS AND PLANS FROM OTHER TRADES FOR THE LOCATIONS OF BURIED UTILITIES, UNDERGROUND STRUCTURES AND OTHER OBSTACLES THAT MAY IMPACT THE PLANTING SHOWN HEREON.
3. THE LOCATION OF PLANTS AND PLANT GROUPINGS SHALL BE MODIFIED IN THE FIELD TO ENSURE EQUAL SPACING. THE CORRECT PLANT FACING AND TO PROVIDE FIELD ADJUSTMENTS TO ACCOMMODATE CONSTRUCTION CONDITIONS AND OBSTACLES.
4. IN CASE OF CONFLICT BETWEEN LANDSCAPE PLAN AND PLANTING SCHEDULE, THE GREATER NUMBER OR LARGER QUANTITY SHALL BE PROVIDED.
5. ALL PLANTS AND PLANTING METHODS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF "RECOMMENDED STANDARD SPECIFICATION FOR PLANTINGS" AS COMPILED AND ISSUED BY THE ASSOCIATED LANDSCAPE CONTRACTOR'S OF MASSACHUSETTS.
6. ALL PLANTING BEDS SHALL RECEIVE A MINIMUM OF 6" DEPTH OF SHREDDED BARK MULCH.
7. ALL PLANTS SHALL BE WARRANTED FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT. SHOULD ANY PLANTS DIE, EXHIBIT UNDESIRABLE DIE-BACK OR DISEASE DAMAGE, THEY SHALL BE REPLACED, AT NO ADDITIONAL COST TO THE OWNER WITH PLANTS MEETING THE ORIGINAL SPECIFICATIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ADEQUATE WATER SUPPLIES TO PLANT MATERIALS UNTIL ACCEPTANCE OF THE LANDSCAPE BY THE LANDSCAPE ARCHITECT HAS OCCURRED.
9. THE CALIPER OF ALL TREES SHALL BE MEASURED FOUR (4') FEET ABOVE THE ROOT BALL OR GROUND LINE, WHICHEVER IS HIGHER.
10. PLANTING SEASONS:

10.1.SPRING SEASON FOR ALL PLANTING IS FROM APRIL 1ST TO JULY 15TH.

10.2.FALL SEASON:

10.2.1. FOR ALL EVERGREEN MATERIALS IS FROM AUGUST 15TH TO NOVEMBER 15TH.

10.2.2. FOR ALL DECIDUOUS TREES, SHRUBS AND GROUNDCOVERS IS FROM AUGUST 15TH TO NOVEMBER 1ST
11. TREE PLANTINGS IN TREE BOXES SHALL CONFORM TO THE REQUIREMENTS DEPICTED AND DESCRIBED IN THOSE SPECIFIC DETAILS.

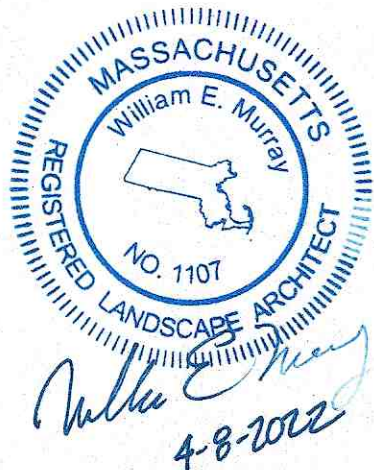


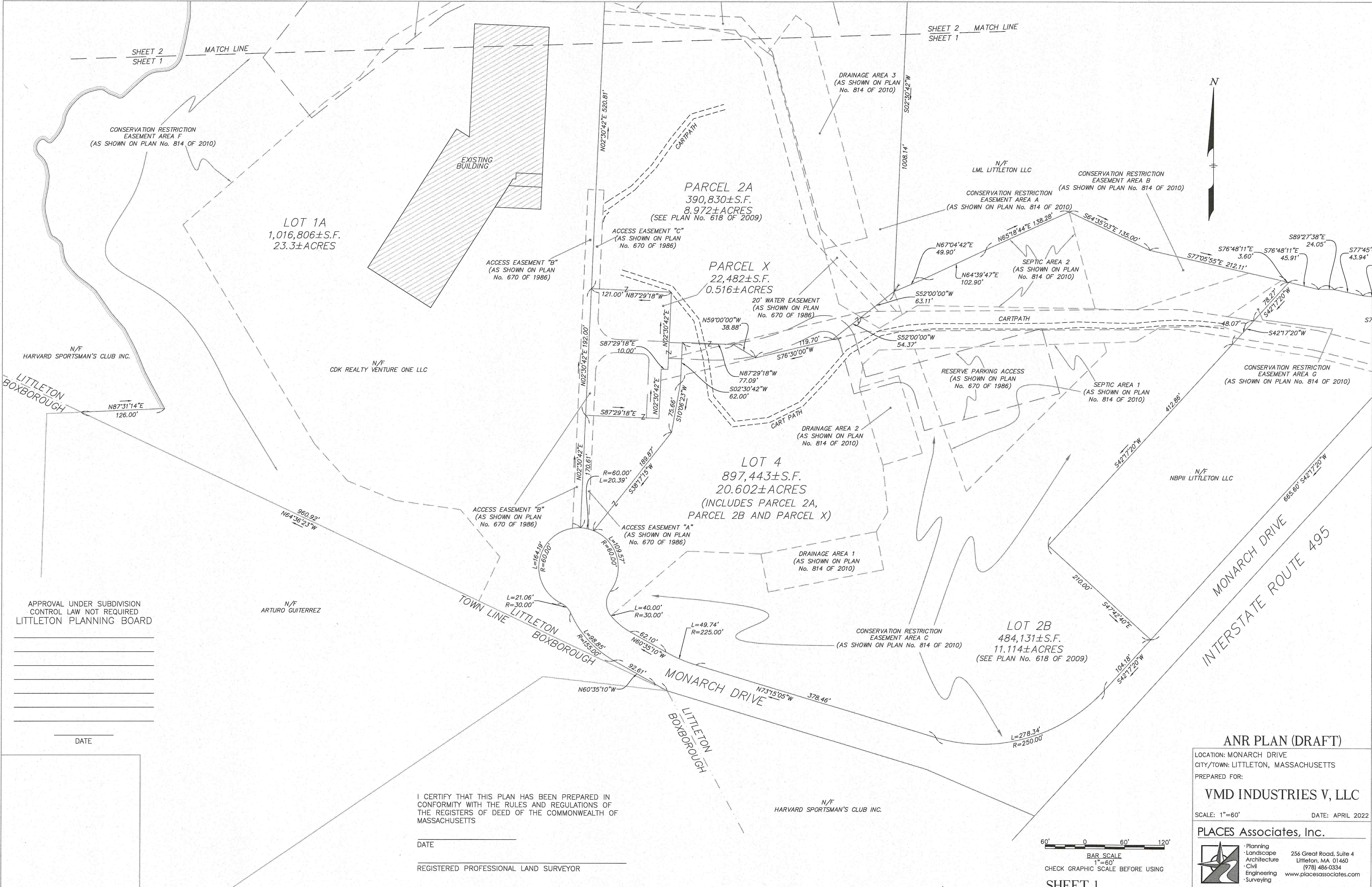
LANDSCAPE PLAN

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:
VMD INDUSTRIES V LLC
SCALE: 1"=40' DATE: APRIL 2022

PLACES Associates, Inc.
Planning
Landscape Architecture
Civil Engineering
Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 5554 PLAN No.: 5554 L-2





APPROVAL UNDER SUBDIVISION
CONTROL LAW NOT REQUIRED
LITTLETON PLANNING BOARD

DATE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN
CONFORMITY WITH THE RULES AND REGULATIONS OF
THE REGISTERS OF DEED OF THE COMMONWEALTH OF
MASSACHUSETTS

DATE

REGISTERED PROFESSIONAL LAND SURVEYOR

ANR PLAN (DRAFT)

LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:
VMD INDUSTRIES V, LLC

SCALE: 1"=60' DATE: APRIL 2022

PLACES Associates, Inc.

Planning
Landscape
Architecture
Civil
Engineering
Surveying

256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
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PROJECT No.: 5554 PLAN No.: 5554ANR1.1

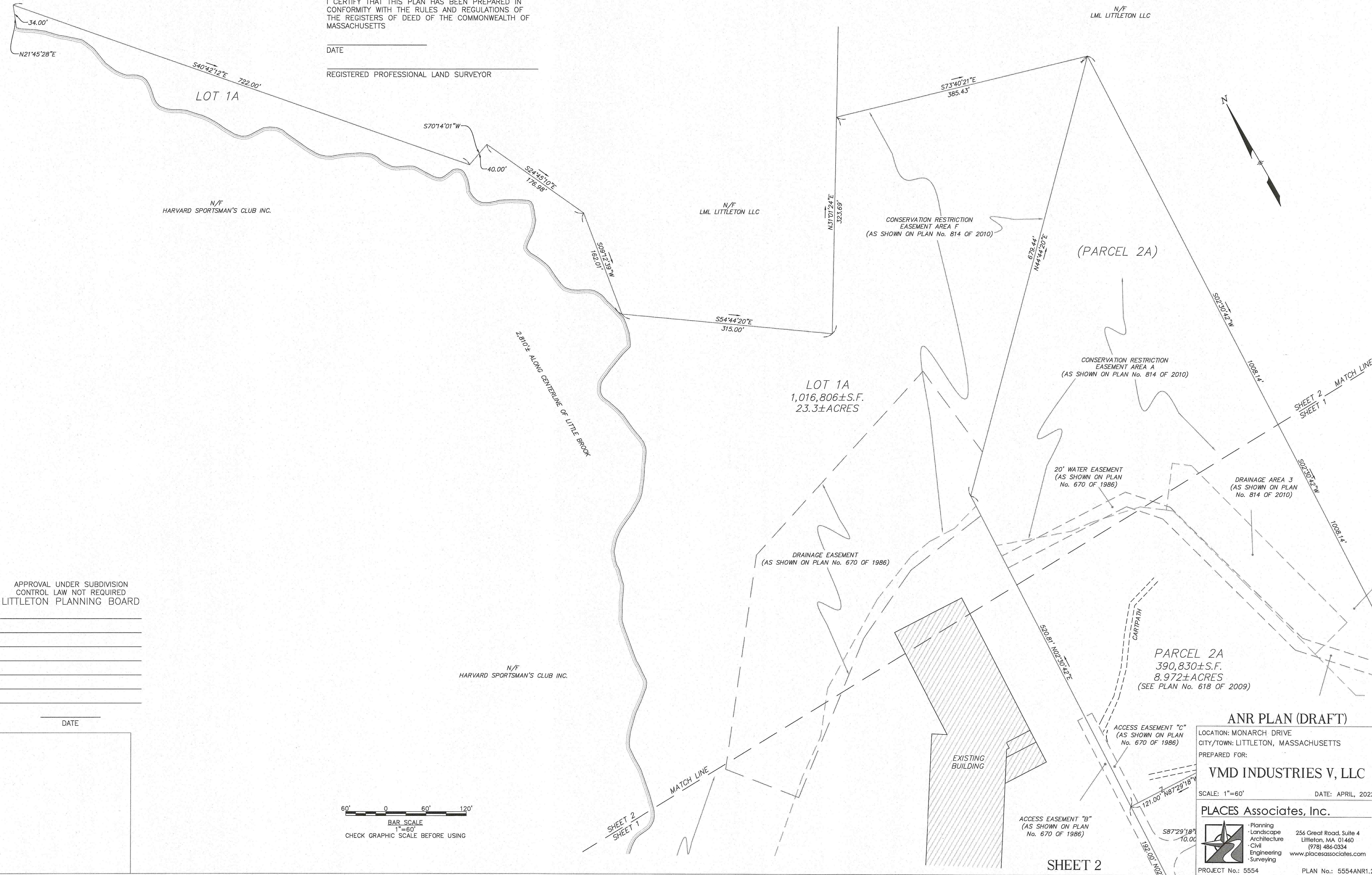
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BAR SCALE
1"=60'
CHECK GRAPHIC SCALE BEFORE USING

SHEET 1

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEED OF THE COMMONWEALTH OF MASSACHUSETTS

DATE _____

REGISTERED PROFESSIONAL LAND SURVEYOR



APPROVAL UNDER SUBDIVISION
CONTROL LAW NOT REQUIRED
LITTLETON PLANNING BOARD

DATE _____

60' 0 60' 120'
BAR SCALE
1"=60'
CHECK GRAPHIC SCALE BEFORE USING

ANR PLAN (DRAFT)

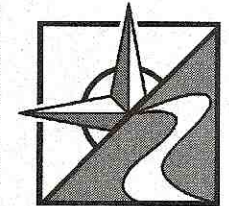
LOCATION: MONARCH DRIVE
CITY/TOWN: LITTLETON, MASSACHUSETTS
PREPARED FOR:

VMD INDUSTRIES V, LLC

SCALE: 1"=60'

DATE: APRIL, 2022

PLACES Associates, Inc.



Planning
Landscape
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PROJECT No.: 5554

PLAN No.: 5554ANR1.2