LIBERTY PARKING EXPANSION

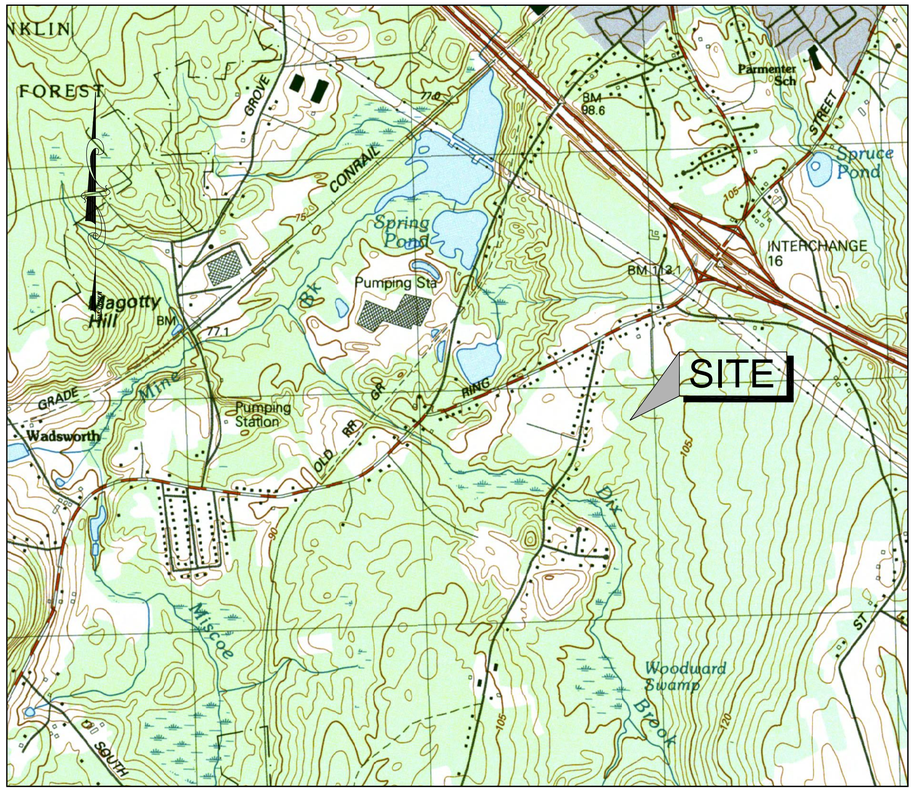
OLIVER STREET CAPITAL

15 LIBERTY WAY

FRANKLIN, MASSACHUSETTS

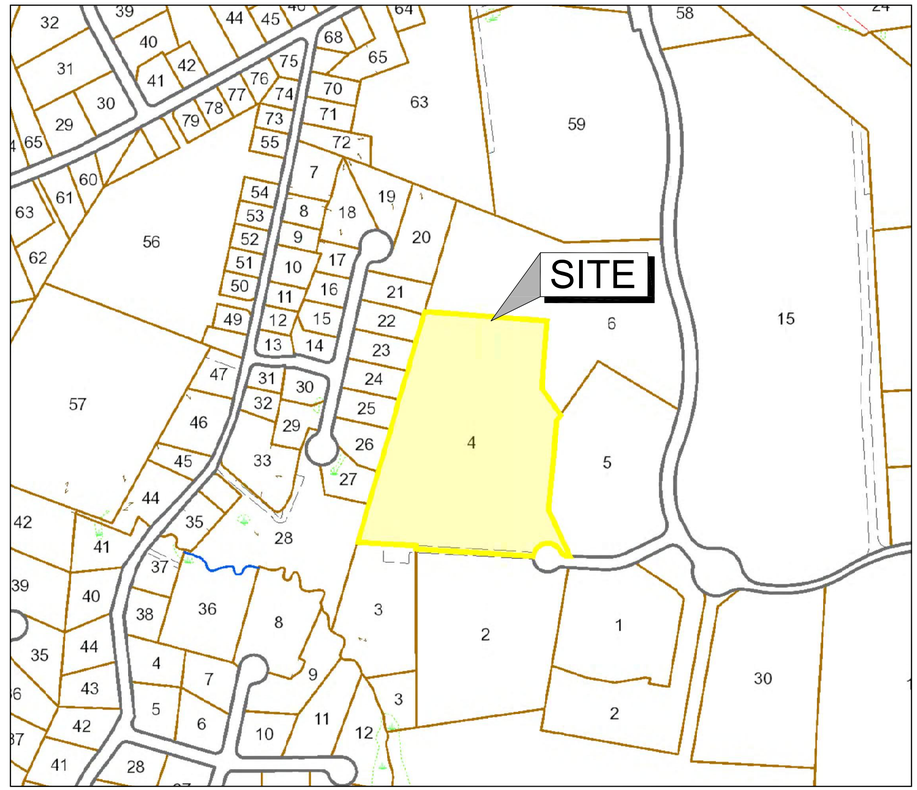
DATE: JANUARY 13, 2023

NO	DATE	REVISIONS



USGS MAP

SCALE: 1"= 1,000'±



ASSESSORS MAP

SCALE: 1"= 300'±

APPLICANT:

OLIVER STREET CAPITAL
125 HIGH STREET, SUITE 220
BOSTON, MA 02110

CIVIL ENGINEER:

LEVEL DESIGN GROUP
Civil Engineers & Land Surveyors
CIVIL ENGINEERING / LAND SURVEYING
249 SOUTH STREET
UNIT 1
PLAINVILLE, MA 02762
TEL. (508) 695-2221 FAX. (508) 695-2219

PROPERTY ADDRESS:

15 LIBERTY WAY
FRANKLIN, MASSACHUSETTS

ASSESSORS MAP/PARCEL:

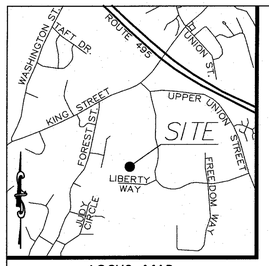
MAP 320 , PARCEL 004

ZONING DISTRICT:

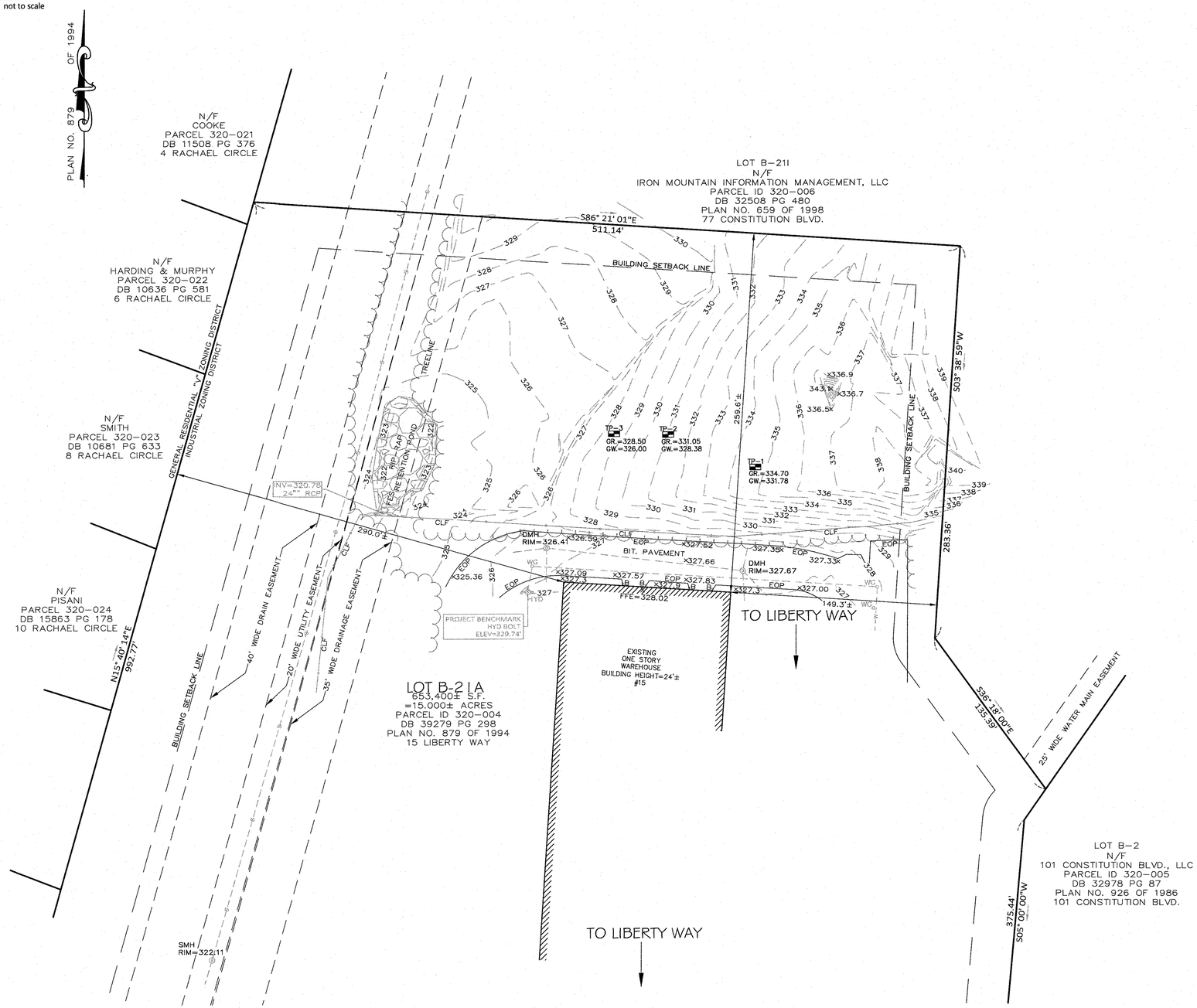
INDUSTRIAL

DRAWING LIST:

C-0.0 COVER
C-1.0 EXISTING CONDITIONS
C-2.0 LAYOUT & MATERIALS
C-3.0 GRADING & DRAINAGE
C-4.0 EROSION CONROL PLAN
C-5.0 TYPICAL DETAILS
C-5.1 TYPICAL DETAILS
C-5.2 TYPICAL DETAILS



LOCUS MAP
not to scale



LEGEND

B	BOLLARD
BIT.	BITUMINOUS
CLF	CHAIN LINK FENCE
-D-	UNDERGROUND DRAIN LINE
DB	DEED BOOK
DMH	DRAIN MANHOLE
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
HYD	FIRE HYDRANT
INV	INVERT
N/F	NOW OR FORMERLY
RBF	REBAR FOUND
-S-	UNDERGROUND SEWER LINE
SMH	SEWER MANHOLE
PG	PAGE
RCP	REINFORCED CONCRETE PIPE
-W-	UNDERGROUND WATER LINE
WG	WATER GATE

ZONING DISTRICT

INDUSTRIAL

MINIMUM BUILDING SETBACKS

FRONT=40 FEET
SIDE=30 FEET*
REAR=30 FEET*

* INCREASE BY THE COMMON BUILDING HEIGHT OF THE STRUCTURE WHEN ABUTTING A RESIDENTIAL USE.

DEED REFERENCES

ATLANTIC OLIVER 15 LIBERTY WAY, LLC
DEED BOOK 39279 PAGE 278

PLAN REFERENCES

PLAN NO. 879 OF 1994
PLAN NO. 878 OF 1994
PLAN NO. 47 OF 1995

NOTES

1. THIS SURVEY AND PLAN ARE BASED UPON AN ACTUAL ON THE GROUND INSTRUMENT SURVEY PERFORMED BETWEEN NOVEMBER 2, 2022 AND NOVEMBER 16, 2022.
2. LEGAL STATUS OF THE STREETS AND/OR WAYS SHOWN HEREON, WHETHER THEY ARE PUBLIC OR PRIVATE, WERE NOT MADE PART OF THIS SURVEY.
3. ALL FLOWERING PLANTS, SHRUBS, OR TREES MAY NOT BE SHOWN WITHIN LANDSCAPING AREAS. IT IS MEANT FOR ILLUSTRATIVE PURPOSES ONLY AND NOT MEANT AS A COMPLETE INVENTORY OF ALL VEGETATION THAT MAY EXIST. SIZES REFLECT APPROXIMATE TRUNK DIAMETER AT BREAST HEIGHT OR APPROXIMATE DIAMETER OF SHRUB WIDTH.
4. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY, AND ARE NOT WARRANTED TO BE CORRECT. UNDERGROUND UTILITIES ARE SHOWN BASED ON EITHER RECORD DATA PROVIDED BY THE OPERATING AUTHORITIES, VISUAL INSPECTION OF AVAILABLE ABOVEGROUND STRUCTURES, PHYSICAL SURFACE MARKINGS FOUND, OR DATA PROVIDED BY OTHERS. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED FOR SERVICE, SIZE, INVERT ELEVATION, LOCATIONS, ETC. PRIOR TO NEW CONNECTIONS TO OR RELOCATION OF SAME. CONTRACTOR MUST NOTIFY DIG-SAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION. NOTIFY THIS FIRM IN WRITING OF ANY AND ALL DISCREPANCIES PRIOR TO COMMENCING ANY WORK.
5. THE SUBJECT PROPERTY DOES NOT FALL IN A SPECIAL FLOOD HAZARD ZONE AS THE SUBJECT PROPERTY IS PLOTTED BY SCALE ONTO THE FLOOD INSURANCE RATE MAP FOUND AS,

COUNTY	NORFOLK
COMMUNITY	TOWN OF FRANKLIN
PANEL	250240 0317E
EFFECTIVE DATE	JULY 17, 2012
ZONE	"X"

6. THE SUBJECT PROPERTY DOES NOT FALL IN THE TOWN OF FRANKLIN'S WATER RESOURCE PROTECTION DISTRICT.

DATUM NOTES

HORIZONTAL DATUM:
MASSACHUSETTS STATE PLANE – MAINLAND ZONE NAD83 (2011) EPOCH 2010.00 – US FEET

VERTICAL DATUM:
NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12B) – US FEET

ON-THE-GROUND OBSERVATIONS WERE PERFORMED USING A LEICA TS13 (3") ROBOTIC TOTAL STATION AND WITH A SOKKIA GCX3 GPS RECEIVER USING THE MASSACHUSETTS CONTINUOUSLY OPERATING REFERENCE STATION (MaCORS) RTK NETWORK.

NO	DATE	REVISIONS

SEAL

COMMONWEALTH OF MASSACHUSETTS
DANIEL R. CAMPBELL
CIVIL
No. 48245
REGISTERED PROFESSIONAL ENGINEER
1/13/23

DATE :	JANUARY 13, 2023
DRAWN :	AH / DRC
SCALE :	1" = 40'

LIBERTY PARKING EXPANSION

MAP SHEET 320, PARCEL 004
15 LIBERTY WAY
FRANKLIN, MASSACHUSETTS

LEVEL DESIGN GROUP
Civil Engineers & Land Surveyors
249 SOUTH STREET, UNIT 1
PLAINVILLE, MA 02762
TEL. (508) 695-2221 FAX. (508) 695-2219

EXISTING CONDITIONS

C-1.0

SHEET 2 OF 8

0' 20' 40' 80'

2081.00

ZONING DISTRICT

ZONED: INDUSTRIAL

MINIMUM BUILDING SETBACKS

FRONT=40 FEET
SIDE=30 FEET
REAR=30 FEET

DEED REFERENCES

ATLANTIC OLIVER 15 LIBERTY WAY, LLC
DEED BOOK 39279 PAGE 278

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PLAN NO. 879 OF 1994
PLAN NO. 878 OF 1994
PLAN NO. 47 OF 1995

ZONING REQUIREMENTS		
ZONING DISTRICT: INDUSTRIAL		
	REQUIRED	PROVIDED
MIN. LOT AREA	40,000 S.F.	653,400± S.F.
FRONTAGE	175'	946.73'
FRONT YARD SETBACK	40'	95.9'***
SIDE YARD SETBACK	30'	149.3'
REAR YARD SETBACK	30'	259.6'
BUILDING COVERAGE	70% MAX.	14.6%**
IMPERVIOUS COVERAGE	80% MAX.	57.8%***
MAX. BUILDING HEIGHT	3 STORIES*	1 STORY/24'
PARKING REQUIREMENTS		
USE: WAREHOUSE: ONE SPACE PER 1,000 SF OF GROSS FLOOR AREA.	95,475 SF /1,000 SF =96 SPACES	EXISTING

* BUILDINGS UP TO 60' IN HEIGHT MAY BE PERMITTED BY A SPECIAL PERMIT FROM THE PLANNING BOARD.
** BUILDING AREA IS BASED ON FRANKLIN ASSESSORS RECORDS
*** TAKEN FROM THE RECORD SURVEY IN ADDITION TO AERIAL IMAGERY.

PLAN NOTES:

1. EXISTING CONDITIONS WERE OBTAINED FROM FIELD SURVEY PREPARED BY LEVEL DESIGN GROUP, LLC BETWEEN NOVEMBER 2, 2022 AND NOVEMBER 16, 2022. SOIL TESTING COMPLETED BY ADAM P. HUNT ON NOVEMBER 16, 2022.
2. THE LOCATION OF EXISTING UTILITIES IS APPROXIMATE, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. NOTIFY "DIG-SAFE" AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY SITE DEMOLITION OR EXCAVATION.
3. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES IN THE DESIGN PLANS PRIOR TO THE START OF CONSTRUCTION.
4. ALL DISTURBED AREAS NOT RECEIVING IMPROVEMENTS SHALL BE LOAMED AND SEEDED.
5. THE SITE IS NOT LOCATED WITHIN A ZONE II WATER RESOURCE DISTRICT.
6. THE SITE IS NOT LOCATED WITHIN A FLOOD PLAIN DISTRICT.

CONSTRUCTION NOTES:

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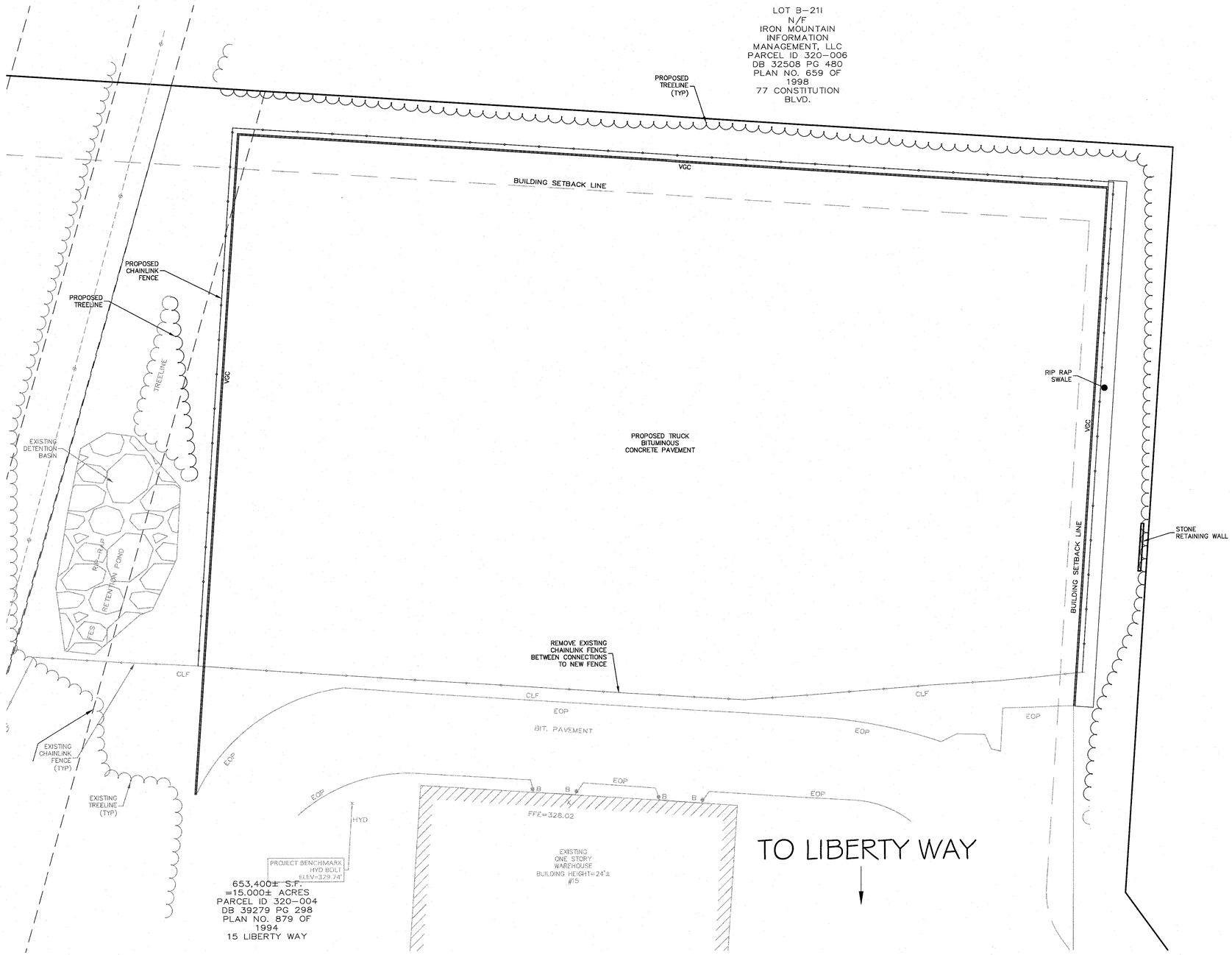
3. ALL EXISTING PAVEMENT SHALL BE SAWCUT PRIOR TO REMOVAL.
4. ALL EXISTING PAVEMENT, CURB, WALKS, UTILITIES, LIGHT POLES, TREES, SHRUBS, ETC., SHALL BE REMOVED FROM THE AREAS TO BE DEVELOPED. ALL SUCH ITEMS NOT WITHIN THE WORK AREA SHALL BE PROTECTED AND UNDISTURBED.
5. ALL DISTURBED AREAS NOT RECEIVING IMPROVEMENTS SHALL BE LOAMED AND SEEDED.
6. ALL CONSTRUCTION AND CONSTRUCTION ACTIVITIES SHALL CONFORM TO STATE AND LOCAL REQUIREMENTS. INCLUDING BUT NOT LIMITED TO THE TOWN OF FRANKLIN, THE COMMONWEALTH OF MASSACHUSETTS AND ANY OTHER AGENCIES HAVING JURISDICTION.
7. MATERIAL TO BE EXPORTED FROM THE SITE WILL BE LIMITED TO TOPSOIL IN AREAS TO BE PAVED AND ANY DELETERIOUS MATERIAL ENCOUNTERED DURING EXCAVATION. MATERIAL TO BE EXPORTED WILL BE LIMITED TO GRAVEL BASE AND SEPTIC AGGREGATE.

SITE PLAN NOTES:

1. THIS PLAN SET HAS BEEN ISSUED FOR PERMITTING ONLY. A FULL CONSTRUCTION PLAN SET SHALL BE ISSUED ONCE ALL LOCAL, STATE, AND FEDERAL PERMIT APPROVALS HAVE BEEN GRANTED.



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DANIEL R. CAMPBELL
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DATE : JANUARY 13, 2023
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LAYOUT & MATERIALS

C-2.0

SHEET 3 OF 8

0' 10' 20' 40'

2081.00

ZONING DISTRICT

ZONED: INDUSTRIAL

MINIMUM BUILDING SETBACKS

FRONT=40 FEET
SIDE=30 FEET
REAR=30 FEET

DEED REFERENCES

ATLANTIC OLIVER 15 LIBERTY WAY, LLC
DEED BOOK 39279 PAGE 278

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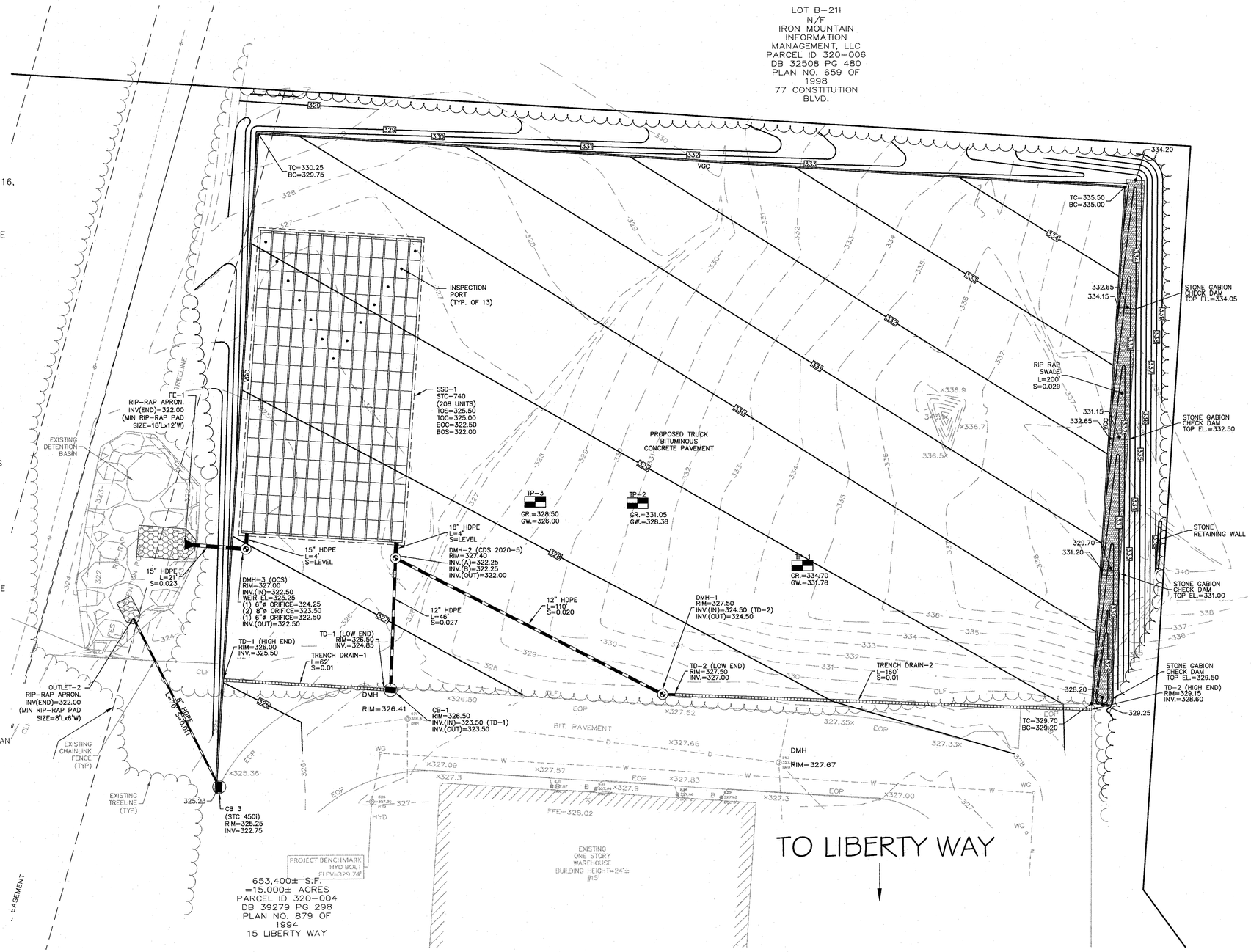

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COMMONWEALTH OF MASSACHUSETTS
DANIEL R. CAMPBELL
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GRADING & DRAINAGE

C-3.0

SHEET 4 OF 8

0' 10' 20' 40'

2081.00

ZONING DISTRICT

ZONED: INDUSTRIAL

MINIMUM BUILDING SETBACKS

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EROSION CONTROL PLAN NOTES:

SILTATION CONTROL USING EROSION CONTROL FENCE WITH STRAW WATTLE, OR APPROVED EQUAL

SILTSOXX IS TO BE VISUALLY INSPECTED AFTER EVERY RAIN FALL AND REPAIRS MADE AS REQUIRED TO THE SILTATION CONTROL FENCE AND STRAW WATTLE AFTER EACH RAIN FALL. CLEANOUT OF ACCUMULATED SEDIMENT BEHIND THE WATTLE IS NECESSARY IF ½ OF THE ORIGINAL HEIGHT OF THE WATTLE APPEARS TO HAVE BEEN INUNDATED WITH SEDIMENT.

PRESERVE TOPSOIL

SITE OWNERS AND OPERATORS MUST PRESERVE EXISTING TOPSOIL ON THE CONSTRUCTION SITE TO THE MAXIMUM EXTENT FEASIBLE AND AS NECESSARY TO SUPPORT HEALTHY VEGETATION, PROMOTE SOIL STABILIZATION, AND INCREASE STORMWATER INFILTRATION RATES IN THE POST-CONSTRUCTION PHASE OF THE PROJECT.

STABILIZATION OF SOILS

UPON COMPLETION AND ACCEPTANCE OF SITE PREPARATION AND INITIAL INSTALLATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES, THE OPERATOR SHALL INITIATE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION PRACTICES DURING ALL PHASES OF CONSTRUCTION ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.

ONLY AREAS THAT CAN BE REASONABLY EXPECTED TO HAVE ACTIVE CONSTRUCTION WORK BEING PERFORMED WITHIN 14 DAYS OF DISTURBANCE WILL BE CLEARED/GRUBBED AT ANY ONE TIME. IT IS NOT ACCEPTABLE TO GRUB AND STRIP TOP SOIL THE ENTIRE CONSTRUCTION SITE IF PORTIONS WILL NOT BE ACTIVE WITHIN THE 14-DAY TIME FRAME. PROPER PHASING OF CLEARING AND GRUBBING ACTIVITIES SHALL INCLUDE TEMPORARY STABILIZATION TECHNIQUES FOR AREAS CLEARED AND GRUBBED THAT WILL NOT BE ACTIVE WITHIN THE 14-DAY TIME FRAME.

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STEEP SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. THE CONTRACTOR SHALL INITIATE APPROPRIATE VEGETATIVE PRACTICES ON ALL DISTURBED AREAS IN AREAS OF STEEP SLOPES AS SOON AS POSSIBLE BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS. ONCE AN STEEP SLOPE AREA HAS BEEN TEMPORARY AND/OR FINAL SEEDED IT SHALL BE PROTECTED WITH 4' HIGH ORANGE CONSTRUCTION TO PREVENT FURTHER DISTURBANCE OF THE AREA.

THE TEMPORARY SEEDING DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING:

TYPE	% BY WEIGHT
ANNUAL RYE GRASS	40
PERENNIAL RYE GRASS	60

STORMWATER INLET PROTECTION

INLET PROTECTION – WILL BE UTILIZED TO PREVENT SOIL AND DEBRIS FROM ENTERING STORM DRAIN INLETS. THESE MEASURES ARE USUALLY TEMPORARY AND ARE IMPLEMENTED BEFORE A SITE IS DISTURBED. ALL STORMWATER INLETS &/OR CATCH BASINS THAT ARE OPERATIONAL DURING CONSTRUCTION AND HAVE THE POTENTIAL TO RECEIVE SEDIMENT-LADEN STORMWATER FLOW FROM THE CONSTRUCTION SITE MUST BE PROTECTED USING CONTROL MEASURES OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN. EROSION CONTROL FENCE WITH STRAW WATTLES ARE TO BE PLACED AT TO OPENING OF ALL ROUGH GRADED SEDIMENT FOREBAYS UNTIL THE FOREBAY AND BASIN HAS BEEN STABILIZED AND BROUGHT ON-LINE.

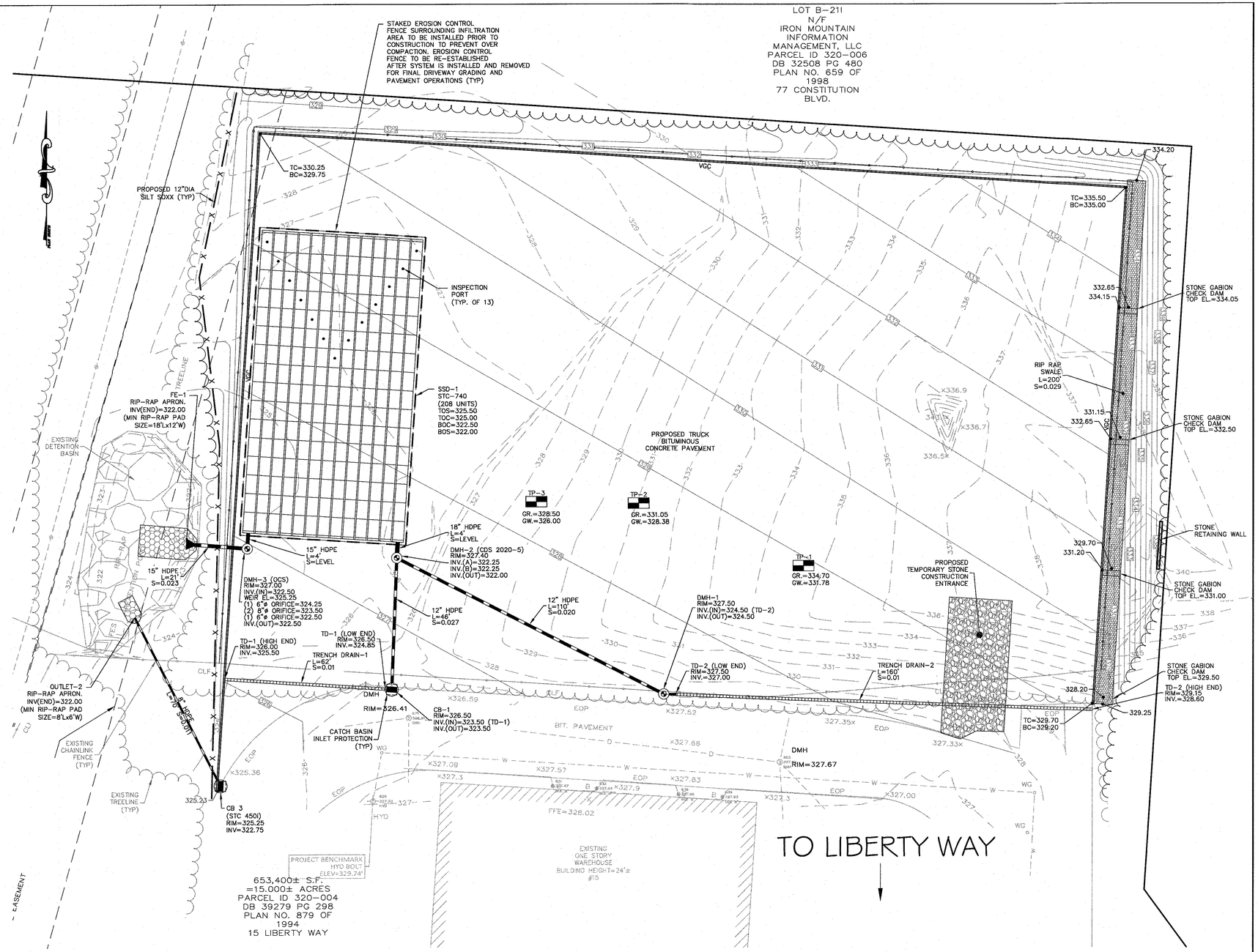
MAINTENANCE – THE OPERATOR MUST CLEAN, OR REMOVE AND REPLACE THE INLET PROTECTION MEASURES AS SEDIMENT ACCUMULATES, THE FILTER BECOMES CLOGGED, AND/OR AS PERFORMANCE IS COMPROMISED. ACCUMULATED SEDIMENT ADJACENT TO THE INLET PROTECTION MEASURES SHOULD BE REMOVED BY THE END OF THE SAME WORK DAY IN WHICH IT IS FOUND OR BY THE END OF THE FOLLOWING WORK DAY IF REMOVAL BY THE SAME WORK DAY IS NOT FEASIBLE.

INFILTRATION BASINS – ALL AREAS CONTAINING INFILTRATION BASINS (ABOVE OR BELOW GROUND) SHALL BE PROTECTED THROUGHOUT CONSTRUCTION. THESE AREAS ARE NOT BE USED FOR MATERIAL STOCKPILES OR FOR PARKING EQUIPMENT. SURFACE BASINS ARE TO BE ROUGH GRADED AND PROTECTED UNTIL STABILIZED AND BROUGHT ON-LINE FOR STORMWATER MANAGEMENT OF THE STABILIZED SITE.

CONSTRUCTION ENTRANCES

CONSTRUCTION ENTRANCES SHALL BE ESTABLISHED PRIOR TO REMOVAL OF EXISTING DRIVEWAY PAVEMENT TO BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF SEDIMENT TRACKING OFF THE PROJECT. ANY CONSTRUCTION SITE ACCESS POINT MUST EMPLOY THE CONTROL MEASURES ON THE APPROVED SITE PLANS AND IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN. CONSTRUCTION ENTRANCES SHALL BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY CONSTRUCTION VEHICLES. ALL CONSTRUCTION ACCESS ROADS SHALL BE CONSTRUCTED PRIOR TO ANY ROADWAY ACCEPTING CONSTRUCTION TRAFFIC.

THE SITE OWNER AND OPERATOR MUST WILL RESTRICT VEHICLE USE TO PROPERLY DESIGNATED EXIT POINTS, USE PROPERLY DESIGNED AND CONSTRUCTED CONSTRUCTION ENTRANCES AT ALL POINTS THAT EXIT ONTO PAVED ROADS SO THAT SEDIMENT REMOVAL OCCURS PRIOR TO VEHICLE EXIT. WHEN AND WHERE NECESSARY, USE ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXIT (I.E. WHEEL WASHING RACKS, RUMBLE STRIPS, AND RATTLE PLATES). WHERE SEDIMENT HAS BEEN TRACKED OUT FROM THE CONSTRUCTION SITE ONTO THE SURFACE OF OFFSET STREETS, OTHER PAVED AREAS, AND SIDEWALKS, THE DEPOSITED SEDIMENT MUST BE REMOVED BY THE END OF THE SAME WORK DAY IN WHICH THE TRACK OUT OCCURS. TRACK-OUT MUST BE REMOVED BY SWEEPING, SHOVELING, OR VACUUMING THESE SURFACES, OR BY USING OTHER SIMILARLY EFFECTIVE MEANS OF SEDIMENT REMOVAL.



STOCKPILE CONTAINMENT

SHALL BE USED ON-SITE TO MINIMIZE OR ELIMINATE THE DISCHARGE OF SOIL, TOPSOIL, BASE MATERIAL OR RUBBLE, FROM ENTERING DRAINAGE SYSTEMS OR SURFACE WATERS. ALL STOCKPILES MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE, PROTECTED FROM RUN-ON WITH THE USE OF TEMPORARY SEDIMENT BARRIERS AND PROVIDED WITH COVER OR STABILIZATION TO AVOID CONTACT WITH PRECIPITATION AND WIND WHERE AND WHEN PRACTICAL. STOCK PILE MANAGEMENT CONSISTS OF PROCEDURES AND PRACTICES DESIGNED TO MINIMIZE OR ELIMINATE THE DISCHARGE OF STOCKPILED MATERIAL (SOIL, TOPSOIL, BASE MATERIAL, RUBBLE) FROM ENTERING DRAINAGE SYSTEMS OR SURFACE WATERS.
FOR ANY STOCKPILES OR LAND CLEARING DEBRIS COMPOSED, IN WHOLE OR IN PART, OF SEDIMENT OR SOIL, YOU MUST COMPLY WITH THE FOLLOWING REQUIREMENTS – LOCATE PILES WITHIN THE DESIGNATED LIMITS OF DISTURBANCE OUTSIDE OF THE 100-FOOT BUFFER ZONE, PROTECT FROM CONTACT WITH STORMWATER (INCLUDING RUN-ON) USING A TEMPORARY PERIMETER SEDIMENT BARRIER; WHERE PRACTICABLE, PROVIDE COVER OR APPROPRIATE TEMPORARY VEGETATIVE OR STRUCTURAL STABILIZATION TO AVOID DIRECT CONTACT WITH PRECIPITATION OR TO MINIMIZE SEDIMENT DISCHARGE; NEVER HOSE DOWN OR SWEEP SOIL OR SEDIMENT ACCUMULATED ON PAVEMENT OR OTHER IMPERVIOUS SURFACES INTO ANY STORMWATER CONVEYANCE, STORM DRAIN INLET, OR SURFACE WATER; TO THE MAXIMUM EXTENT PRACTICABLE, CONTAIN AND SECURELY PROTECT FROM WIND.

GENERAL CONSTRUCTION SEQUENCING

1. INSTALL EROSION AND SEDIMENT CONTROLS;
2. CLEAR, GRUB AND ROUGH GRADE AREAS SHOWN TO BE REGRADED;
3. DEMO EXISTING FEATURES IN WORK AREA NOT SHOWN TO BE SAVED AND CUT AND CAP UTILITIES AS NEEDED;
4. INSTALL STORMWATER MANAGEMENT SYSTEM AND SITE UTILITIES;
5. INSTALL BINDER COAT PAVING;
6. INSTALL LANDSCAPING;
7. FINE GRADE SITE AND LOAM AND SEED ALL DISTURBED AREAS;
8. INSTALL TOP COAT PAVEMENT;
9. PROJECT CLOSE OUT.

PLAN NOTES:

1. EXISTING CONDITIONS WERE OBTAINED FROM FIELD SURVEY PREPARED BY LEVEL DESIGN GROUP, LLC BETWEEN NOVEMBER 2, 2022 AND NOVEMBER 16, 2022. THERE ARE NO RESOURCE AREAS, IN ACCORDANCE WITH 310 CMR 10.00 WITHIN 100' OF PROPOSED SYSTEM.
2. THE LOCATION OF EXISTING UTILITIES IS APPROXIMATE, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. NOTIFY "DIG-SAFE" AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY SITE DEMOLITION OR EXCAVATION.
3. SEE STORMWATER POLLUTION PREVENTION PLAN PREPARED FOR CONSTRUCTION ACTIVITIES AT 15 LIBERTY WAY FRANKLIN, MA 02038, FOR ADDITIONAL EROSION AND SEDIMENT CONTROL PRACTICES AND PROCEDURES.

NO	DATE	REVISIONS

SEAL

COMMONWEALTH OF MASSACHUSETTS
DANIEL R. CAMPBELL
CIVIL
No. 46245
REGISTERED PROFESSIONAL ENGINEER
1/18/23

DATE : JANUARY 13, 2023
DRAWN : AH / DRC
SCALE : 1" = 20'

LIBERTY PARKING EXPANSION

MAP SHEET 320, PARCEL 004
15 LIBERTY WAY
FRANKLIN, MASSACHUSETTS

LEVEL DESIGN GROUP
Civil Engineers & Land Surveyors
249 SOUTH STREET, UNIT 1
PLAINVILLE, MA 02762
TEL. (508) 695-2221 FAX. (508) 695-2219

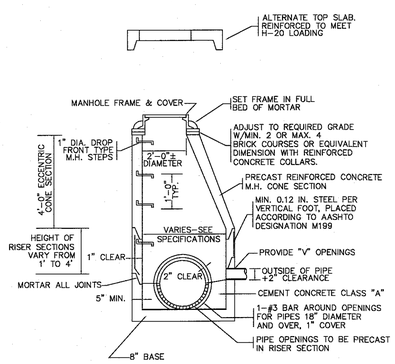
EROSION CONTROL

C-4.0

SHEET 5 OF 8

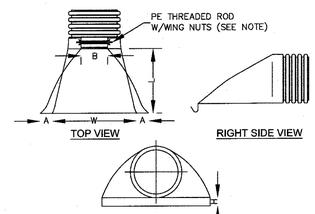
0' 10' 20' 40'

2081.00



PRECAST CONCRETE DRAIN MANHOLE

NOT TO SCALE

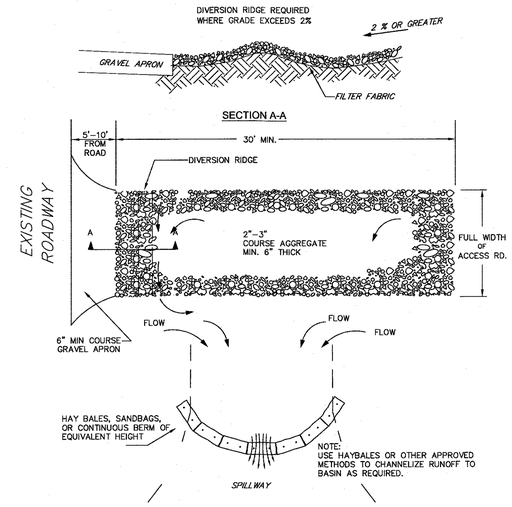


PIPE SIZE	A	B (MAX)	H	L	W
12"	6.5"	10"	6.5"	25"	29"
15"	6.5"	10"	6.5"	25"	29"
18"	7.5"	15"	6.5"	32"	35"
24"	7.5"	18"	6.5"	36"	45"
30"	10.5"	N/A	7.0"	53"	68"
36"	10.5"	N/A	7.0"	53"	68"

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24". 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURER'S RECOMMENDATIONS.

HDPE FLARED END SECTION

NOT TO SCALE



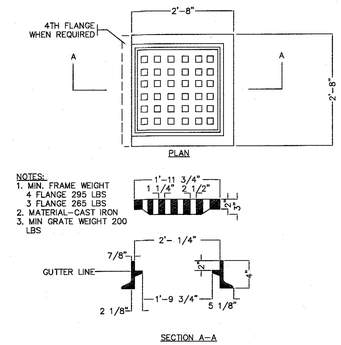
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITIONS THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS TO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT DETAIL

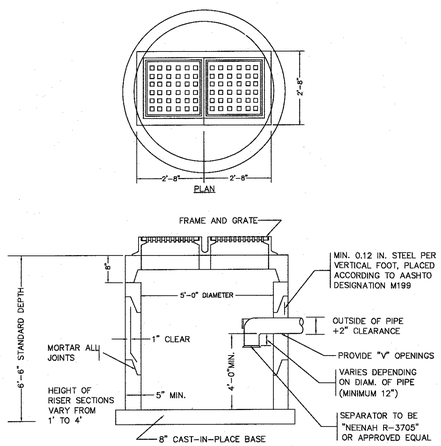
NOT TO SCALE



NOTES:
1. MIN. FRAME WEIGHT
   4 FLANGE 295 LBS
   3 FLANGE 265 LBS
2. MATERIAL-CAST IRON
3. MIN GRATE WEIGHT 200 LBS

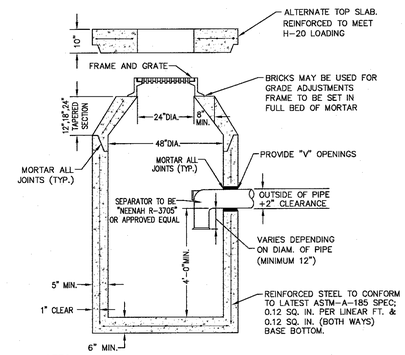
STANDARD CATCH BASIN FRAME & GRATE

NOT TO SCALE



PRECAST CONCRETE DOUBLE CATCH BASIN WITH GAS AND OIL SEPARATOR

NOT TO SCALE

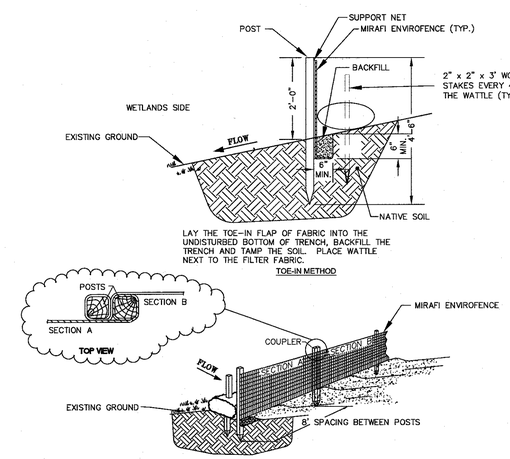


NOTES:

1. CONCRETE TO BE 4,000 PSI MIN. PER ASTM C-478(6.1).
2. REINFORCING TO MEET OR EXCEED H-20 LOADING REQUIREMENTS.

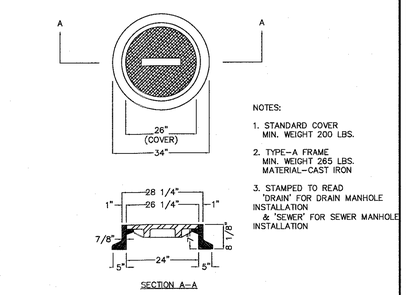
PRECAST CONCRETE CATCH BASIN WITH GAS AND OIL SEPARATOR

NOT TO SCALE



EROSION CONTROL FENCE WITH STRAW WATTLE

NOT TO SCALE

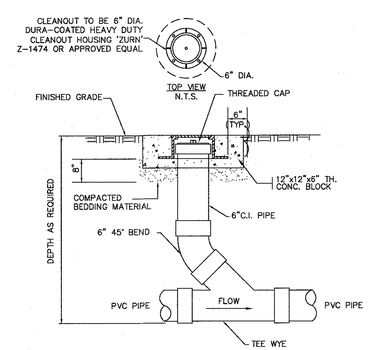


NOTES:

1. STANDARD COVER MIN. WEIGHT 200 LBS.
2. TYPE-A FRAME MIN. WEIGHT 285 LBS. MATERIAL-CAST IRON
3. STAMPED TO READ 'DRAIN' FOR DRAIN MANHOLE INSTALLATION & 'SEWER' FOR SEWER MANHOLE INSTALLATION

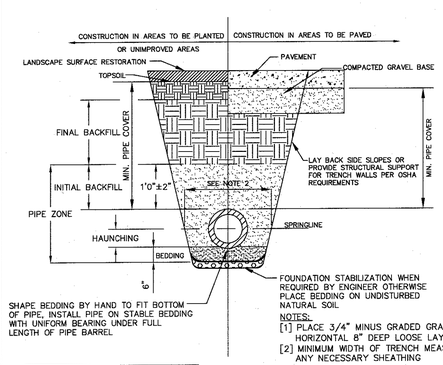
STANDARD MANHOLE FRAME & COVER

NOT TO SCALE



CLEANOUT AT GRADE

NOT TO SCALE



FOUNDATION, BEDDING AND BACKFILL MATERIALS		
PIPE MATERIAL	HDP, PVC	RC, DI
FOUNDATION STABILIZATION	NOTE [6]	[6]
BEDDING	[1]	[1]
HAUNCHING	[1]	[1]
INITIAL BACKFILL	[4]	[4]
FINAL BACKFILL	[4]	[4]
MIN. PIPE COVER	[5]	[5]

NOTES:
[1] PLACE 3/4" MINUS GRADED GRANULAR BACKFILL AT OPTIMUM MOISTURE IN HORIZONTAL 8" DEEP LOOSE LAYERS, COMPACT TO 95% PER ASTM D-1557
[2] MINIMUM WIDTH OF TRENCH MEASURED AT SPRINGLINE OF PIPE, INCLUDING ANY NECESSARY SHEATHING

PIPE I.D.	WIDTH
LESS THAN 21"	O.D. + 12"
21" TO 42"	O.D. + 24"
GREATER THAN 42"	O.D. + 30"

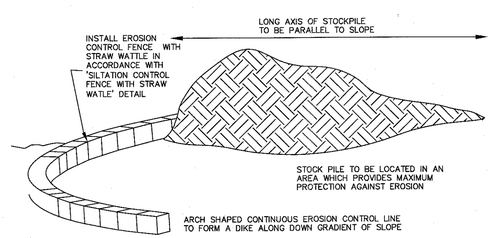
[3] INSTALL PIPE IN CENTER OF TRENCH.
[4] IN PLANTED OR UNIMPROVED AREAS, USE ON-SITE EXCAVATED MATERIAL FOR FINAL BACKFILL. COMPACT TO 95% PER ASTM D-1557. IN PAVED AREAS, OBTAIN ENGINEER APPROVAL OF ON-SITE EXCAVATED MATERIALS FOR USE AS FINAL BACKFILL.
[5] MINIMUM COVER OVER TOP OF PIPE

PIPE MATERIAL	HDP, PVC	RC, DI
WATER	5' - 0"	5' - 0"
SEWER	4' - 0"	4' - 0"
DRAIN	2' - 0"	1' - 8"

[6] FOR FOUNDATION STABILIZATION, USE 2" MINUS CRUSHED STONE

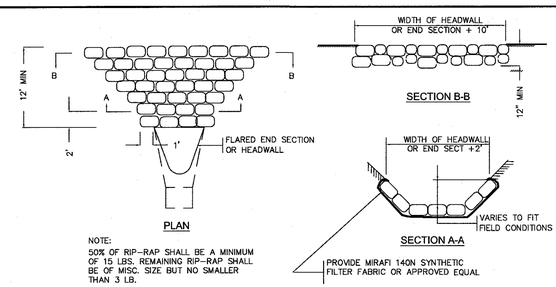
UTILITY TRENCH

NOT TO SCALE



TEMPORARY MATERIAL STOCKPILE

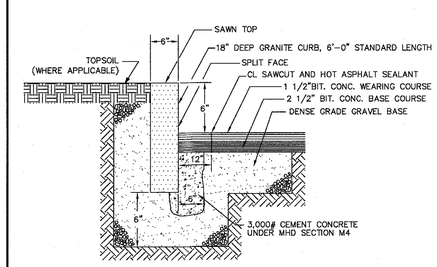
NOT TO SCALE



NOTE:
50% OF RIP-RAP SHALL BE A MINIMUM OF 15 LBS. REMAINING RIP-RAP SHALL BE OF MISC. SIZE BUT NO SMALLER THAN 3 LB.

RIP RAP APRON AT PIPE ENDS

NOT TO SCALE



VERTICAL GRANITE CURB

NOT TO SCALE

NO	DATE	REVISIONS

SEAL

COMMONWEALTH OF MASSACHUSETTS
DANIEL R. CAMPBELL
Civil
No. 48245
REGISTERED PROFESSIONAL ENGINEER
1/13/23

DATE : JANUARY 13, 2023
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LIBERTY PARKING EXPANSION

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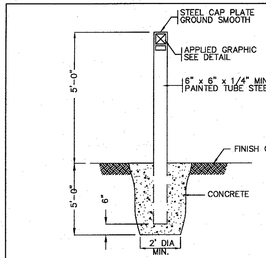
TYPICAL DETAILS

C-5.0

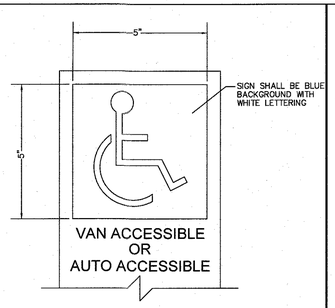
SHEET 6 OF 8

2081.00

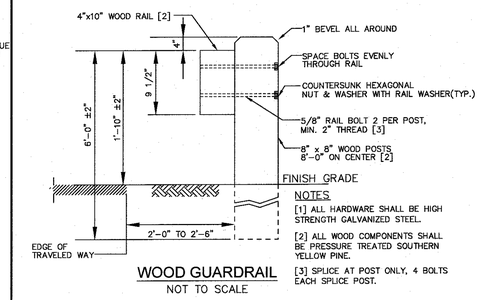


NOTES:
1. ALL CONCRETE TO BE 2500 PSI MIN.
2. SEE PLANS FOR LOCATIONS.
3. WHEN PLACED IN SERIES SIGNS SHALL BE SET AT SAME ELEVATION.

SIGNAGE BOLLARD
NOT TO SCALE

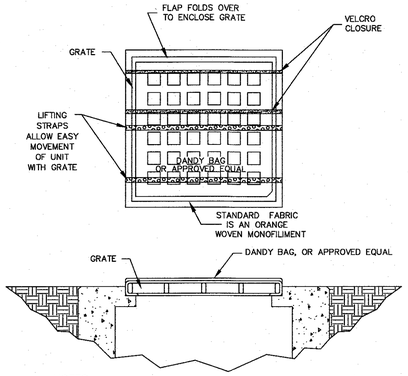


SIGNAGE GRAPHIC
NOT TO SCALE



NOTES:
[1] ALL HARDWARE SHALL BE HIGH STRENGTH GALVANIZED STEEL.
[2] ALL WOOD COMPONENTS SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE.
[3] SPLICE AT POST ONLY, 4 BOLTS EACH SPLICE POST.

WOOD GUARDRAIL
NOT TO SCALE

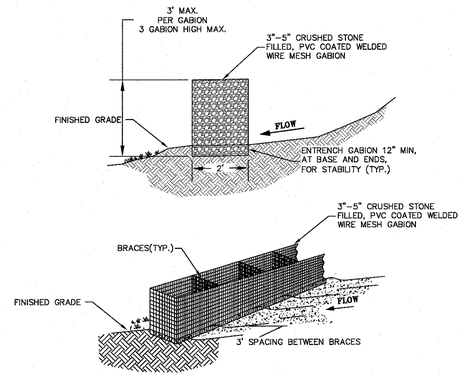


NOTES:

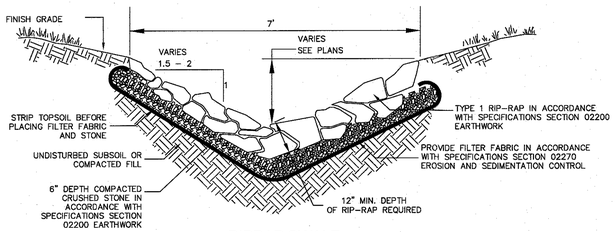
INSTALLATION: THE EMPTY DANDY BAG, OR APPROVED EQUAL, SHOULD BE PLACED OVER THE GRATE AS THE GRATE STANDS ON END. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN POUCH, ON THE BOTTOM (BELOW-GRADE SIDE) OF THE UNIT. ATTACH ABSORBENT PILLOW TO TETHER LOOP. TUCK THE ENCLOSURE FLAP INSIDE TO COMPLETELY ENCLOSE THE GRATE. HOLDING THE LIFTING DEVICES (DO NOT RELY ON LIFTING DEVICES TO SUPPORT THE ENTIRE WEIGHT OF THE GRATE), PLACE THE GRATE INTO ITS FRAME.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT. REMOVE SEDIMENT THAT HAS ACCUMULATED WITHIN THE CONTAINMENT AREA OF THE DANDY BAG AS NEEDED. IF USING OPTIONAL OIL ABSORBENTS; REMOVE AND REPLACE ABSORBENT PILLOW WHEN NEAR SATURATION.

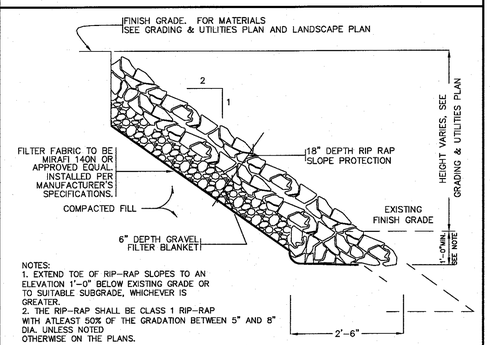
CATCH BASIN INLET PROTECTION
NOT TO SCALE



GABION SEDIMENT BAFFLE
NOT TO SCALE

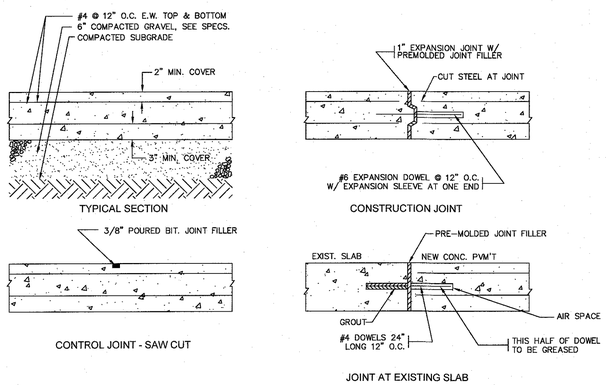


RIPRAP SWALE
NOT TO SCALE

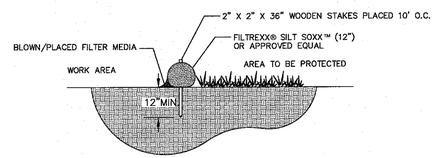


NOTES:
1. EXTEND TOE OF RIP-RAP SLOPES TO AN ELEVATION 1'-0" BELOW EXISTING GRADE OR TO SUITABLE SUBGRADE, WHICHEVER IS GREATER.
2. THE RIP-RAP SHALL BE CLASS 1 RIP-RAP WITH ATLEAST 50% OF THE GRADATION BETWEEN 5" AND 8" DIA. UNLESS NOTED OTHERWISE ON THE PLANS.

TYPICAL SECTION FOR RIP RAP SLOPE PROTECTION
NOT TO SCALE



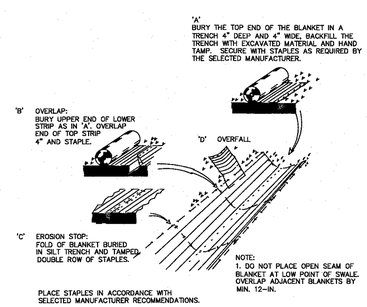
8" THICK CONCRETE LANDING STRIP
NOT TO SCALE



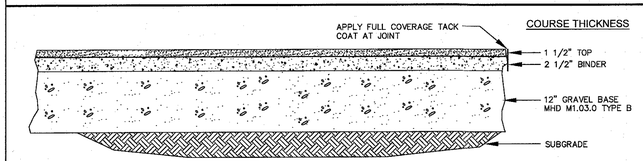
SECTION
NTS

NOTES:
1. ALL MATERIAL TO MEET FILTREXX®SPECIFICATIONS.
2. SILT SOXX™FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE.

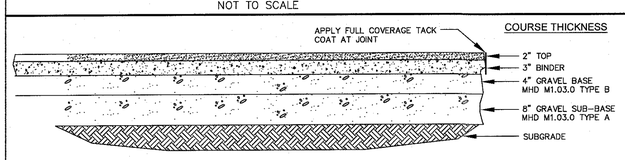
FILTREXX SILT SOXX
NOT TO SCALE



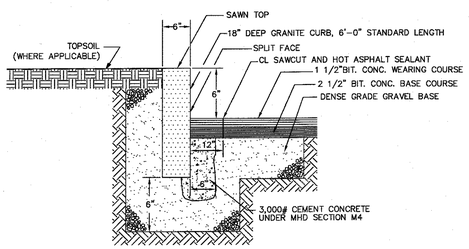
EROSION CONTROL BLANKET
NOT TO SCALE



AUTOMOTIVE AREAS - BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE



TRUCK AREAS - BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE



VERTICAL GRANITE CURB
NOT TO SCALE

NO	DATE	REVISIONS

SEAL

COMMONWEALTH OF MASSACHUSETTS
DANIEL R. CAMPBELL
CIVIL
No. 46245
REGISTERED PROFESSIONAL ENGINEER
1/13/23

DATE: JANUARY 13, 2023
DRAWN: AH / DRC
SCALE: AS NOTED

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TYPICAL DETAILS

C-5.1

SHEET 7 OF 8

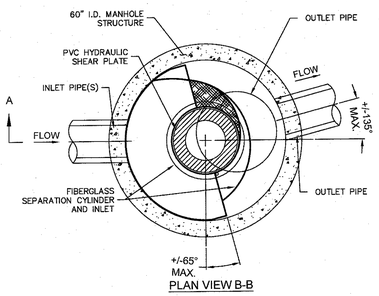
2081.00

GENERAL NOTES

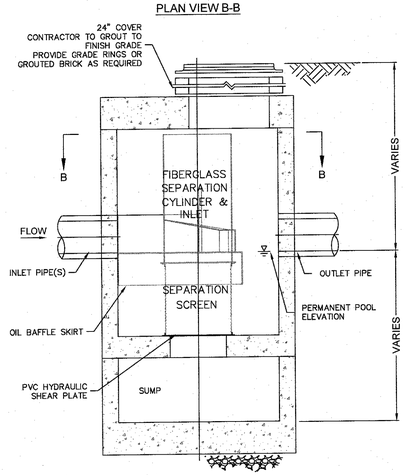
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL REQUEST SHOP DRAWINGS OF EACH INDIVIDUAL CDS STORMWATER TREATMENT UNIT AND SHALL SUBMIT THEM FOR REVIEW AND APPROVAL TO THE DESIGN ENGINEER PRIOR TO UNITS BEING ORDERED OR ENTERING PRODUCTION.
3. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS REPRESENTATIVE. www.contech-cpi.com
5. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
6. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
7. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED)
3. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



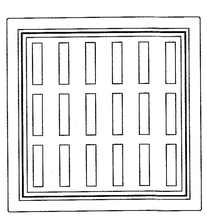
PLAN VIEW B-B



ELEVATION VIEW

STORM WATER TREATMENT UNIT

FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



FRAME AND GRATE
(24" SQUARE)
N.T.S.

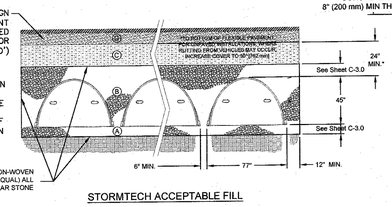
CDS STORMWATER TREATEMENT UNITS
NOT TO SCALE

NOTE:

1. STORMTECH SYSTEM DETAILS DEPICTED HEREIN ARE INTENDED FOR PERMITTING REVIEW ONLY. CONTRACTOR SHALL REQUEST FORMAL SHOP DRAWINGS FOR THE PROPOSED SYSTEM PRIOR TO CONSTRUCTION WHICH ARE TO BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER.

PAVEMENT AND SUBBASE DESIGN (BY ENGINEER) MOST PAVEMENT SUBGRADE MATERIALS CAN BE USED IN LIEU OF REQUIREMENTS FOR LAYERS 'C' & 'D')

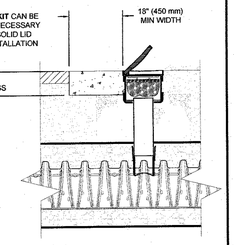
ONCE LAYER 'C' IS PLACED ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIALS REQUIREMENTS OF LAYERS 'C' OR 'D' AT THE DESIGN ENGINEER'S DISCRETION.



STORMTECH ACCEPTABLE FILL

N.T.S.

* THE PART# **2712AG6IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION



STORMTECH CLEANOUT

NOT TO SCALE

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION[1]	COMPACTION/DENSITY REQUIREMENT
(D) 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.
(C) FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" [610 mm] 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" [610 mm] OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADD- ITIONAL LAYERS IN 6" [152 mm] MAX LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY.
(B) 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 [19 – 51 mm]	3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
(A) 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 [19 – 51 mm]	3, 35, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY [2].

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 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9"[229 mm] (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.

SC-740 CHAMBER
CHAMBERS SHALL MEET ASTM F 2418-09 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".

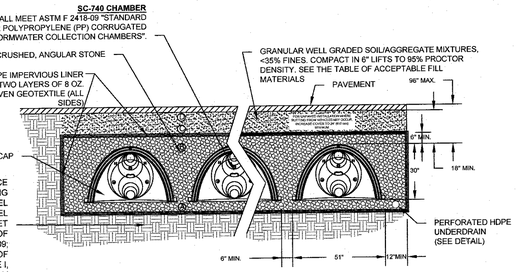
3/4" - 2" CLEAN, CRUSHED, ANGULAR STONE

40 MIL LLDPE IMPERVIOUS LINER BETWEEN TWO LAYERS OF 8 OZ. NON-WOVEN GEOTEXTILE (ALL SIDES)

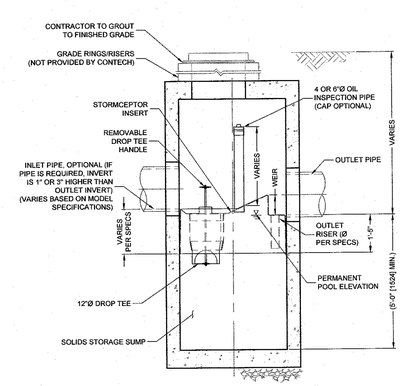
SC-740 ENDCAP

REMOVE AND REPLACE FILL SOILS TO EXISTING GRADE WITH GRAVEL BORROW. GRAVEL BORROW SHALL MEET THE REQUIREMENTS OF SUBSECTION M.01.09: GRADATION OF AGGREGATES, TABLE I, COLUMN I

GRANULAR WELL GRADED SOIL/AGGREGATE MIXTURES, <35% FINES. COMPACT IN 6" LIFTS TO 95% PROCTOR DENSITY. SEE THE TABLE OF ACCEPTABLE FILL MATERIALS



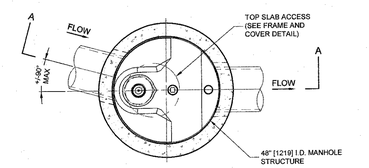
STORMTECH SC-740 SYSTEM LAYOUT
NOT TO SCALE



SECTION A-A

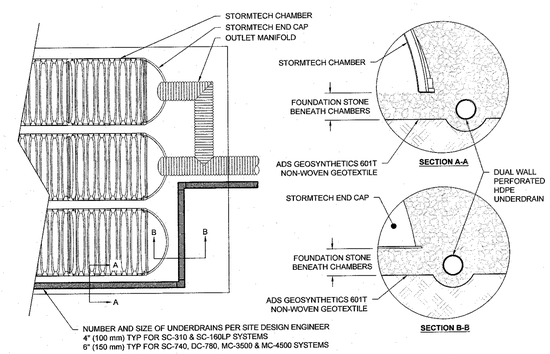
FRAME AND COVER
(MAY VARY)
NOT TO SCALE

FRAME AND GRATE
(MAY VARY)
NOT TO SCALE

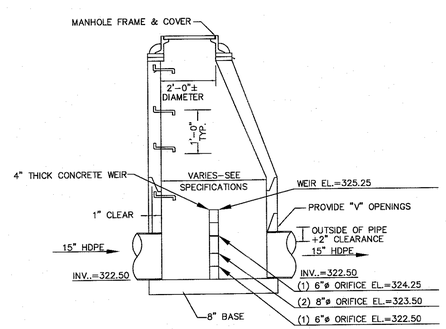


PLAN VIEW
TOP SLAB NOT SHOWN

STORMCEPTOR TREATMENT UNITS
NOT TO SCALE



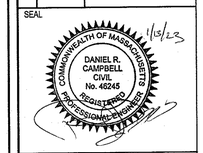
UNDERDRAIN
NOT TO SCALE



DRAIN MANHOLE-3 W/OUTLET STRUCTURE
NOT TO SCALE

NO	DATE	REVISIONS

SEAL



DATE :	JANUARY 13, 2023
DRAWN :	AH / DRC
SCALE :	AS NOTED

LIBERTY PARKING EXPANSION

MAP SHEET 320, PARCEL 004
15 LIBERTY WAY
FRANKLIN, MASSACHUSETTS

LEVEL DESIGN GROUP
Civil Engineering & Land Surveying
249 SOUTH STREET, UNIT 1
PLAINVILLE, MA 02762
TEL. (508) 695-2221 FAX. (508) 695-2219

TYPICAL DETAILS

C-5.2

SHEET 8 OF 8

2081.00