

LEGEND	
EXISTING	PROPOSED
100	100
CONTOUR	
STORM DRAIN	
WATER	
ELECTRIC MANHOLE	
ELECTRICAL	
GAS	
SANITARY SEWER	
HYDRANT	
SEWER MANHOLE	
DRAIN MANHOLE	
VALVE	
CATCH BASIN	
CURB	
SPOT GRADE	429.5
HP RAMP	
SEDIMENTATION CONTROL BARRIER	
LIGHT POLE	
TREE	
UTILITY POLE	
POST INDICATOR VALVE	
TRAFFIC DIRECTION	

ZONING BY-LAW REQUIREMENTS			
ZONING DISTRICT: DOWNTOWN COMMERCIAL			
USE: COMMERCIAL/OFFICE / MULTI-FAMILY HOUSING			
	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	5,000	57,000	
MIN. LOT FRONTAGE	50'	332.88'	
FRONT YARD SETBACK	5'	19.0' / 5.5'	
SIDE YARD SETBACK	0'	14.4' / 34.9'	
REAR YARD SETBACK***	15'	1' / 43.0'	
BUILDING HEIGHT	40'	16' / 38'	
% OF LOT UPLAND COVERAGE			
STRUCTURES	80%	21.1% / 31.8%	
STRUCTURES & PAVEMENT	90%	92.8% / 78.5%	
PARKING REQUIREMENTS	REQUIRED	PROVIDED	
USE: MULTI-FAMILY (28 UNITS)	42		
1.5 SPACES / UNIT			
USE: COMMERCIAL (6,061± S.F.)	12.12		
1 SPACE / 500 S.F.			
USE: COMMERCIAL (1,500± S.F.)	3		
1 SPACE / 500 S.F.			
REGULAR SPACES		65	
HANDICAP SPACES	3	4	
TOTAL SPACES	57	69	

* MINIMUM FIVE-FT SETBACK ON FIRST FLOOR/STREET LEVEL; UPPER FLOORS CAN OVERHANG REQUIRED FIRST FLOOR SETBACK
 ** INCREASE TO 30' WHEN ADJUTING A RESIDENTIAL DISTRICT
 *** REAR LINE IS WAIVED IN ACCORDANCE WITH 185-25 DUE TO THE ADJACENT RAILROAD

- NOTES:**
- EXISTING CONDITIONS WERE OBTAINED FROM PLANS PREPARED BY GUERRIERE & HALNON, INC. FRANKLIN, MA, ENTITLED "SITE PLAN AND SPECIAL PERMIT, AS-BUILT BREWING, 40 ALPINE ROW, FRANKLIN, MASSACHUSETTS" DATED MAY 6, 2019, AS AMENDED JULY 12, 2019. LDG UTILIZED TOWN GIS AND PERFORMED LIMITED INSTRUMENT SURVEY ON THE DRAIN SYSTEM IN ALPINE PRIOR TO CROSSING THE PROPERTY. THE EXISTING CB'S WE UTILIZED AS A "KNOWN" FOR PURPOSES OF THIS INVESTIGATION.
 - THIS SITE IS NOT WITHIN THE WATER RESOURCE DISTRICT.
 - A PRE-CONSTRUCTION MEETING WITH THE DPW IS REQUIRED.
 - ALL STRIPING AND SIGNAGE SHALL CONFORM TO THE MUTCD.
 - THE ARCHITECT OR THEIR ASSIGNS WILL PROVIDE PLANS AND CALCULATIONS FOR THE PROPOSED FIRE PROTECTION.

- FENCE AND GUARDRAIL NOTES:**
- GUARDRAIL SHALL BE INSTALLED AT ALL PARKING STALLS ADJACENT TO THE RAILROAD RIGHT-OF-WAY.
 - GUARDRAIL SHALL BE INSTALLED AT ALL PARKING STALLS ADJACENT TO THE RETAINING WALLS
 - FENCING SHALL BE INSTALLED FOR FALL PROTECTION ALONG ANY WALL IN EXCESS OF 30" IN HEIGHT. THE FENCE SHALL BE A MINIMUM OF 48" IN HEIGHT.
 - FENCING SHALL BE INSTALLED ALONG THE RAILROAD RIGHT-OF-WAY IN ALL LOCATIONS WHERE THERE WOULD OTHERWISE BE A GAP IN FENCE ALONG THE RIGHT-OF-WAY.

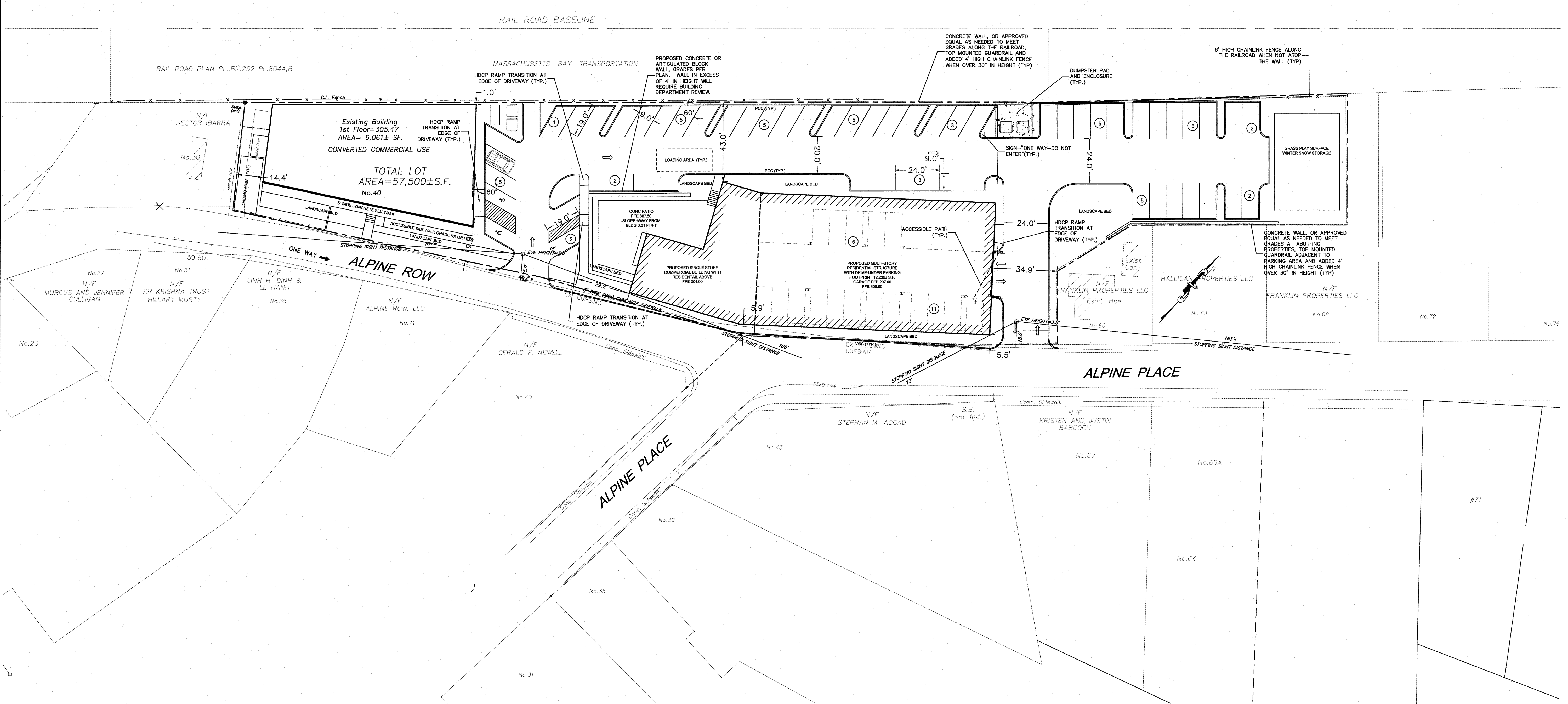
APPROVED DATE: _____
 FRANKLIN PLANNING BOARD

DATE: _____
 BEING A MAJORITY

NO	DATE	REVISIONS
1	08/21/2021	PERMIT SUBMISSION
2	09/13/2021	RESPONSE TO COMMENTS
3	10/04/2021	RESPONSE TO COMMENTS
4	10/19/2021	RESPONSE TO COMMENTS
5	11/30/2021	APPROVAL CONDITIONS

SEAL

DATE: JUNE 21, 2021
 DRAWN: DRC
 SCALE: 1" = 20'



THE ENGINE YARD
 COMMERCIAL/RESIDENTIAL REUSE
 PARCEL ID 279-181-000-000
 40 ALPINE ROW
 FRANKLIN, MASSACHUSETTS

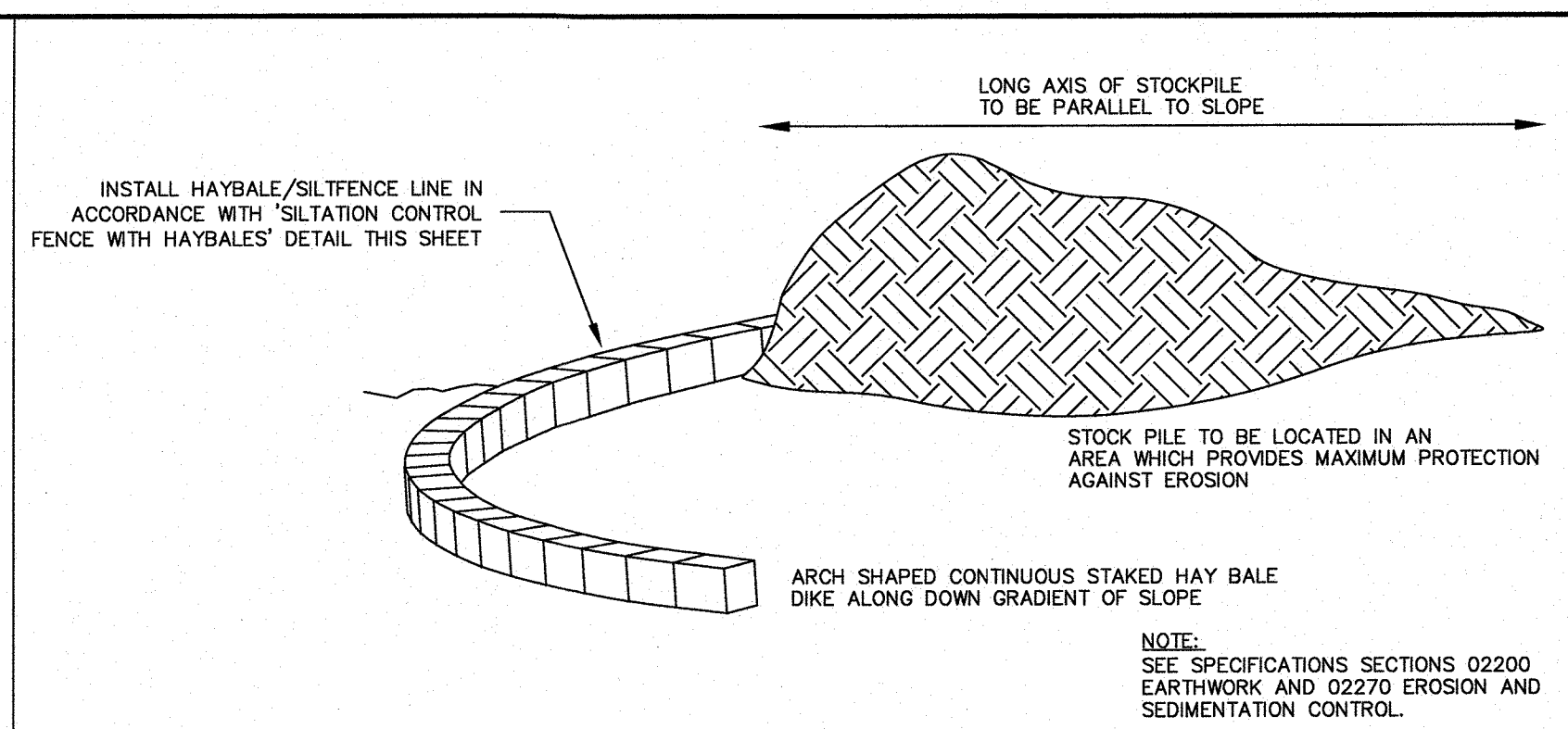
LEVEL
 DESIGN GROUP
 CIVIL ENGINEERING / LAND SURVEYING
 249 SOUTH STREET
 UNIT 1
 PLAINVILLE, MA 02762
 TEL. (508) 895-2221 FAX. (508) 895-2219

LAYOUT & MATERIALS

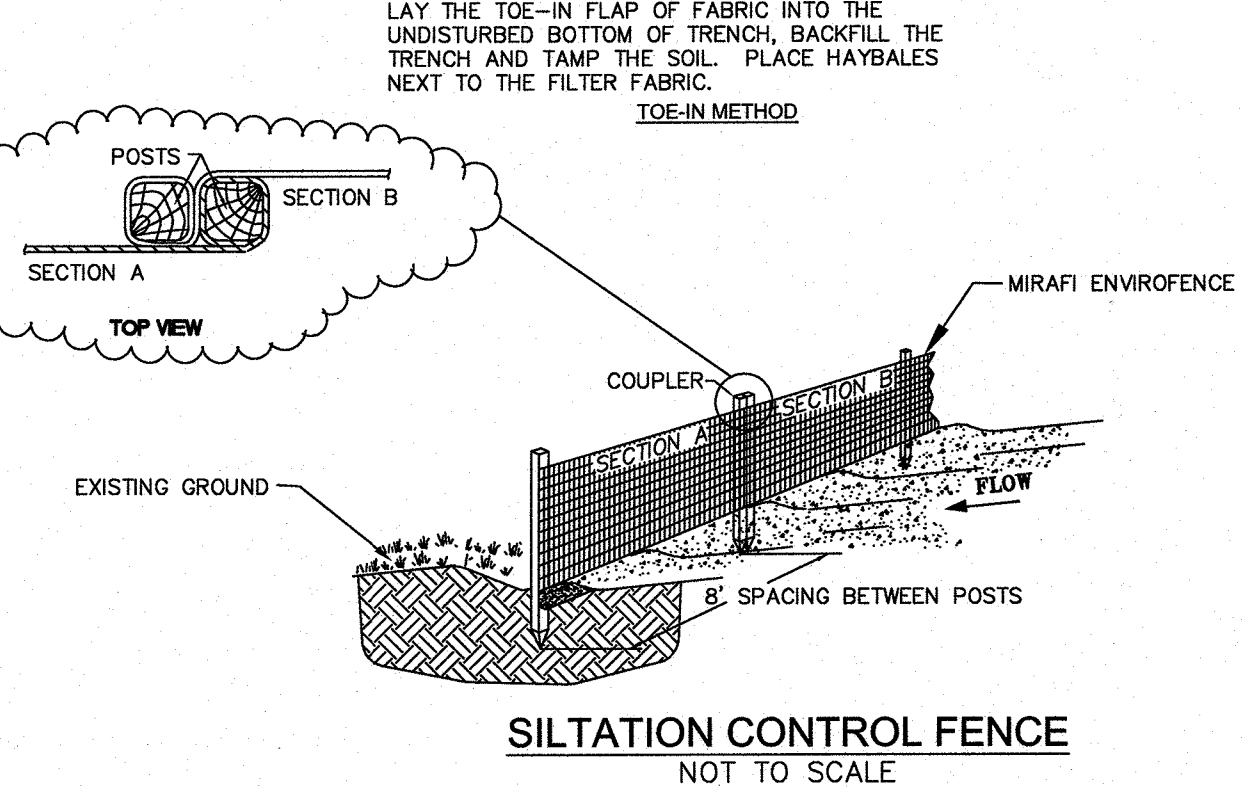
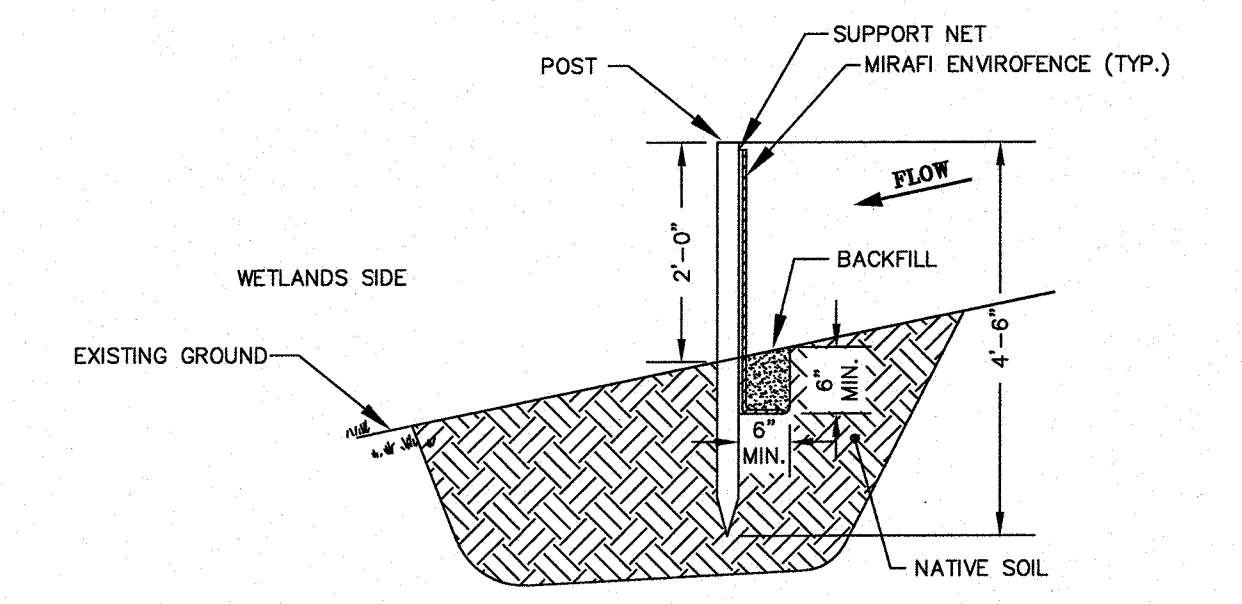
C-2.0
 SHEET 3 OF 8

1880.00

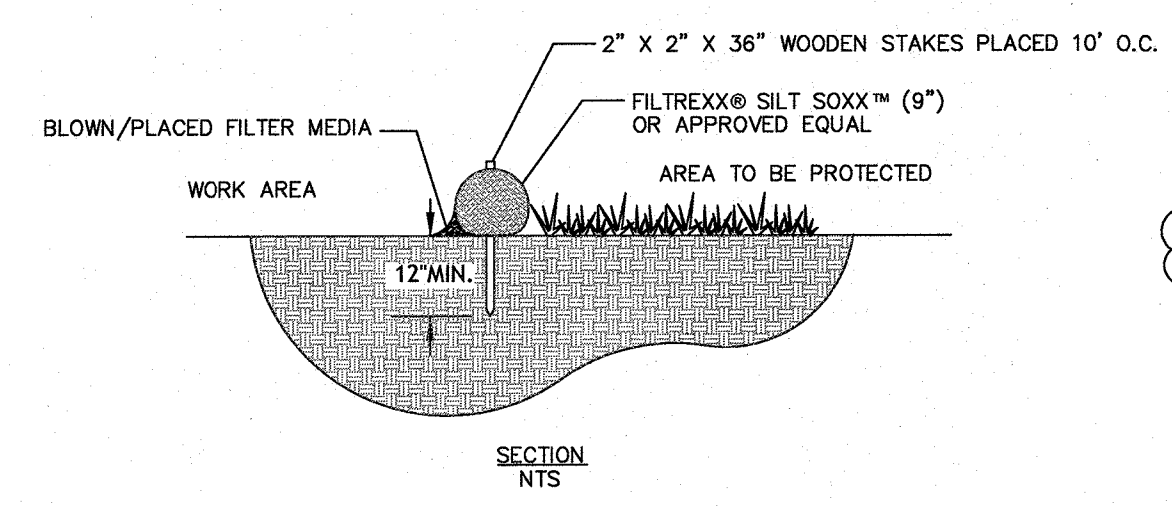
LEGEND	
EXISTING	PROPOSED
100	100
D	D
W	W
E	E
G	G
S	S
H	H
SM	SM
DM	DM
V	V
C	C
429.5	429.5
HP	HP
SCB	SCB
L	L
T	T
UP	UP
PIV	PIV
TD	TD



TEMPORARY MATERIAL STOCKPILE
NOT TO SCALE



SILTATION CONTROL FENCE
NOT TO SCALE



- NOTES:
1. ALL MATERIAL TO MEET FILTERSOX SPECIFICATIONS.
2. SILT SOX TO BE FILLED TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPersed ON SITE.

FILTERSOX SILT SOX
NOT TO SCALE

GENERAL NOTES:

- REFER TO SHEET C-1.0 FOR EXISTING CONDITIONS AND PROPERTY BOUNDARY NOTES.
- REFER TO SHEET C-2.0 FOR CONSTRUCTION SEQUENCE AND NOTES.

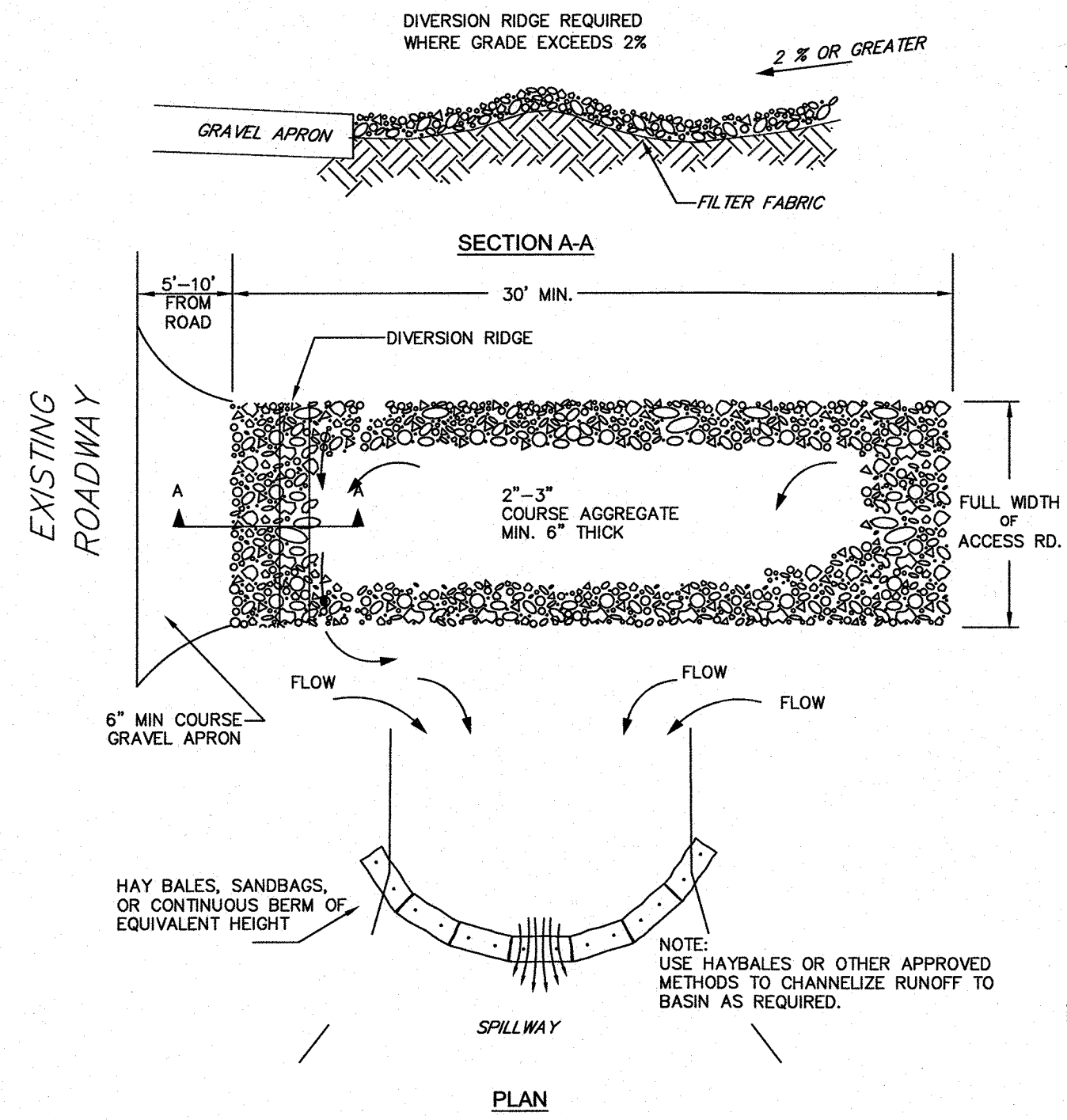
APPROVED DATE: _____
FRANKLIN PLANNING BOARD
DATE: _____
BEING A MAJORITY

EROSION CONTROL NOTES

SILTATION CONTROL USING EROSION CONTROL FENCE WITH STRAW WATTLE OR APPROVED EQUIVALENT
EROSION CONTROL LINE 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 1/2 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. SLOPES IN EXCESS OF 3:1 SHALL HAVE 22 MONTH EROSION CONTROL FABRIC INSTALLED OVER A SLOPE MIX SEED MIX WITH TACKIFIER UNLESS OTHERWISE SPECIFIED.



TEMPORARY CONSTRUCTION ENTRANCE/EXIT DETAIL
NOT TO SCALE

ANY DISTURBED AREAS THAT WILL NOT HAVE ACTIVE CONSTRUCTION ACTIVITY OCCURRING WITHIN 14 DAYS MUST BE STABILIZED USING THE CONTROL MEASURES DEPICTED IN SITE PLANS, IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN, AND PER MANUFACTURER PRODUCT SPECIFICATIONS.

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 CLEAR AND GRUB 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.

STORMWATER INLET PROTECTION

INLET PROTECTION - WILL BE UTILIZED TO PREVENT SOIL AND DEBRIS FROM ENTERING STORM DRAIN INLETS AND SHALL BE INSTALLED WITHIN BASINS DOWNSTREAM OF DISTURBANCE WITHIN 200' OF THE PROPOSED DISTURBANCE. THESE MEASURES ARE USUALLY TEMPORARY AND ARE IMPLEMENTED BEFORE A SITE IS DISTURBED.

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.

STORMWATER BASINS - ALL AREAS CONTAINING STORMWATER BASINS (ABOVE OR BELOW GROUND) SHALL BE PROTECTED THROUGHOUT CONSTRUCTION. THESE AREAS ARE NOT TO 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 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 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 OFF-SITE 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

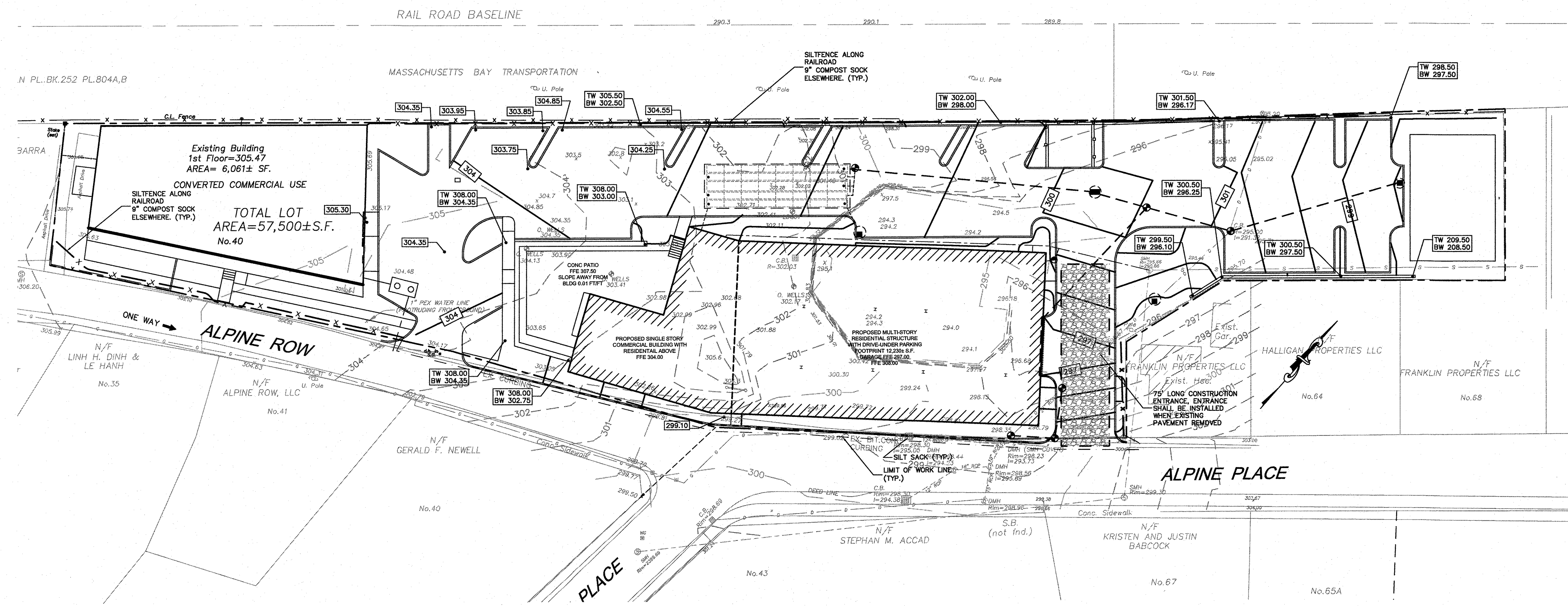
SHALL BE USED ON-SITE TO MINIMIZE OR ELIMINATE THE DISCHARGE OF SOIL, TOPSOIL, BASE MATERIAL OR RUBBLE, FROM ENTERING DRAINAGE SYSTEMS OR SURFACE WATERS. ALL STOCKPILES MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE, PROTECTED FROM RUN-ON WITH THE USE OF TEMPORARY SEDIMENT BARRIERS AND PROVIDED WITH 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 50-FOOT BUFFER ZONE TO THE BORDERING VEGETATED WETLANDS AND SHALL NOT BE LOCATED IN AN AREA WHERE AN INFILTRATION BASIN IS PROPOSED. TEMPORARY SEDIMENT BASIN GRADING LOCATION SHALL BE DICTATED BY THE DESIGN ENGINEER. AT A MINIMUM THE VOLUME OF THE TEMPORARY SEDIMENT BASIN, AS MEASURED FROM THE BOTTOM OF THE BASE TO THE ELEVATION OF THE CREST OF THE PRINCIPAL SPILLWAY SHALL BE AT LEAST 3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA. THIS 3,600 CUBIC FEET IS EQUIVALENT TO 1.0 INCH OF SEDIMENT PER ACRE OF DRAINAGE AREA. ADDITIONAL STORAGE IN THE FORM OF A PERMANENT WET POOL SHALL BE PROVIDED WHENEVER PRACTICABLE, BUT MAY NOT BE USED TO FULFILL THE TEMPORARY STORAGE VOLUME REQUIREMENT.

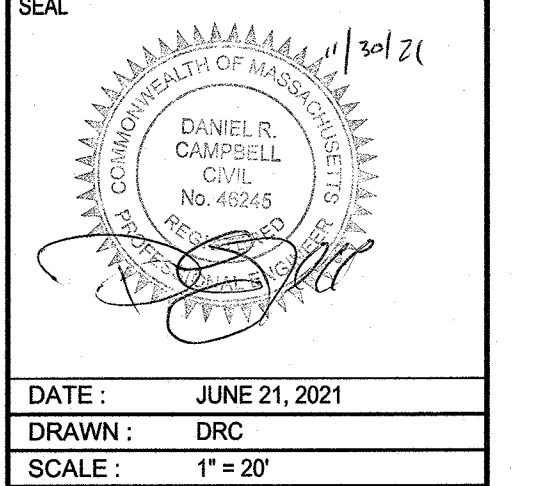
TEMPORARY SEDIMENT BASINS

IF REQUIRED, ADDITIONAL TEMPORARY SEDIMENT BASINS SHALL BE CONSTRUCTED TO MITIGATE THE POTENTIAL SEDIMENT LOADING TO THE ADJACENT RESOURCE AREAS. TEMPORARY SEDIMENT BASINS ARE TO BE LOCATED OUTSIDE OF THE 50-FOOT BUFFER ZONE TO THE BORDERING VEGETATED WETLANDS AND SHALL NOT BE LOCATED IN AN AREA WHERE AN INFILTRATION BASIN IS PROPOSED. TEMPORARY SEDIMENT BASIN GRADING LOCATION SHALL BE DICTATED BY THE DESIGN ENGINEER. AT A MINIMUM THE VOLUME OF THE TEMPORARY SEDIMENT BASIN, AS MEASURED FROM THE BOTTOM OF THE BASE TO THE ELEVATION OF THE CREST OF THE PRINCIPAL SPILLWAY SHALL BE AT LEAST 3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA. THIS 3,600 CUBIC FEET IS EQUIVALENT TO 1.0 INCH OF SEDIMENT PER ACRE OF DRAINAGE AREA. ADDITIONAL STORAGE IN THE FORM OF A PERMANENT WET POOL SHALL BE PROVIDED WHENEVER PRACTICABLE, BUT MAY NOT BE USED TO FULFILL THE TEMPORARY STORAGE VOLUME REQUIREMENT.

SEDIMENT BASINS SHALL BE CLEANED OUT WHEN THE VOLUME REMAINING AS DESCRIBED ABOVE IS REDUCED BY SEDIMENTATION TO 1,800 CUBIC FEET PER ACRE OF DRAINAGE AREA (50 PERCENT FULL). IN NO CASE SHALL THE SEDIMENT LEVEL BE PERMITTED TO BUILD UP HIGHER THAN ONE FOOT BELOW THE PRINCIPAL SPILLWAY CREST. AT THIS ELEVATION, CLEANOUT SHALL BE PERFORMED TO RESTORE THE ORIGINAL DESIGN VOLUME TO THE SEDIMENT BASIN. THE ELEVATION OF THE MAXIMUM ALLOWABLE SEDIMENT LEVEL SHALL BE DETERMINED AND SHALL BE STATED IN THE DESIGN DATA AS A DISTANCE BELOW THE TOP OF THE RISER AND BE CLEARLY MARKED ON THE RISER. NO AREA OF DETENTION SHALL BE UTILIZED FOR TEMPORARY EROSION CONTROL OR DEWATERING ACTIVITIES.



NO.	DATE	REVISIONS
1	08/21/2021	PERMIT SUBMISSION
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4	10/19/2021	RESPONSE TO COMMENTS
5	11/30/2021	APPROVAL CONDITIONS



DATE: JUNE 21, 2021

DRAWN: DRC

SCALE: 1" = 20'

THE ENGINE YARD
COMMERCIAL/RESIDENTIAL REUSE
PARCEL ID 279-181-000-000
40 ALPINE ROW
FRANKLIN, MASSACHUSETTS

LEVEL
DESIGN GROUP
CIVIL ENGINEERING / LAND SURVEYING
249 SOUTH STREET
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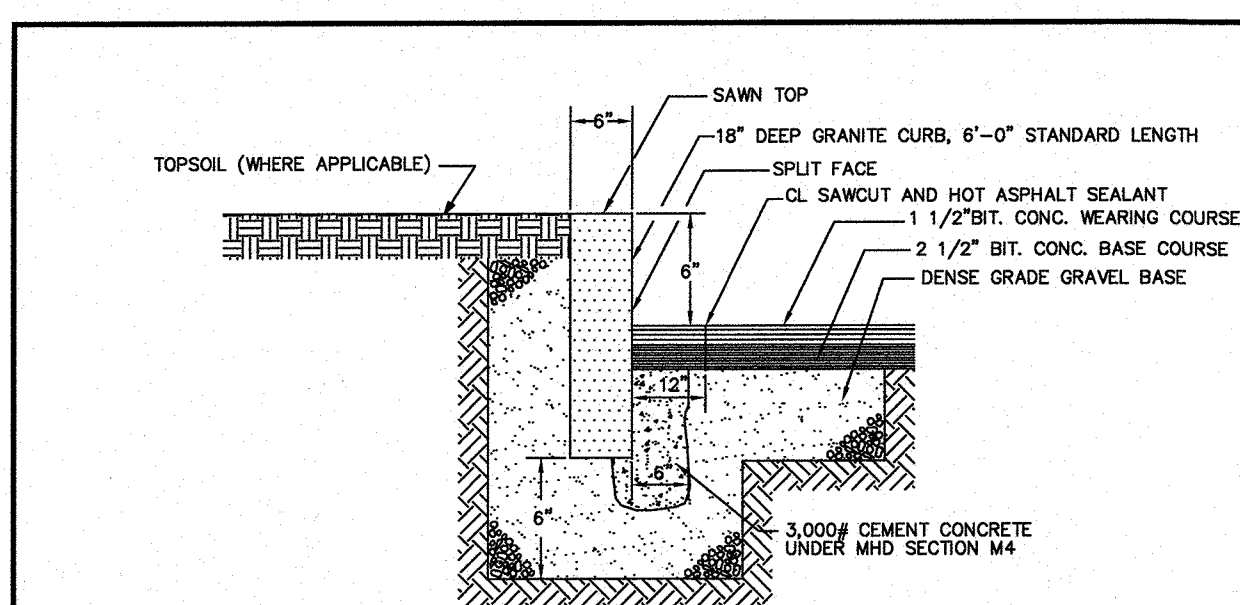
EROSION CONTROL

C-3.1

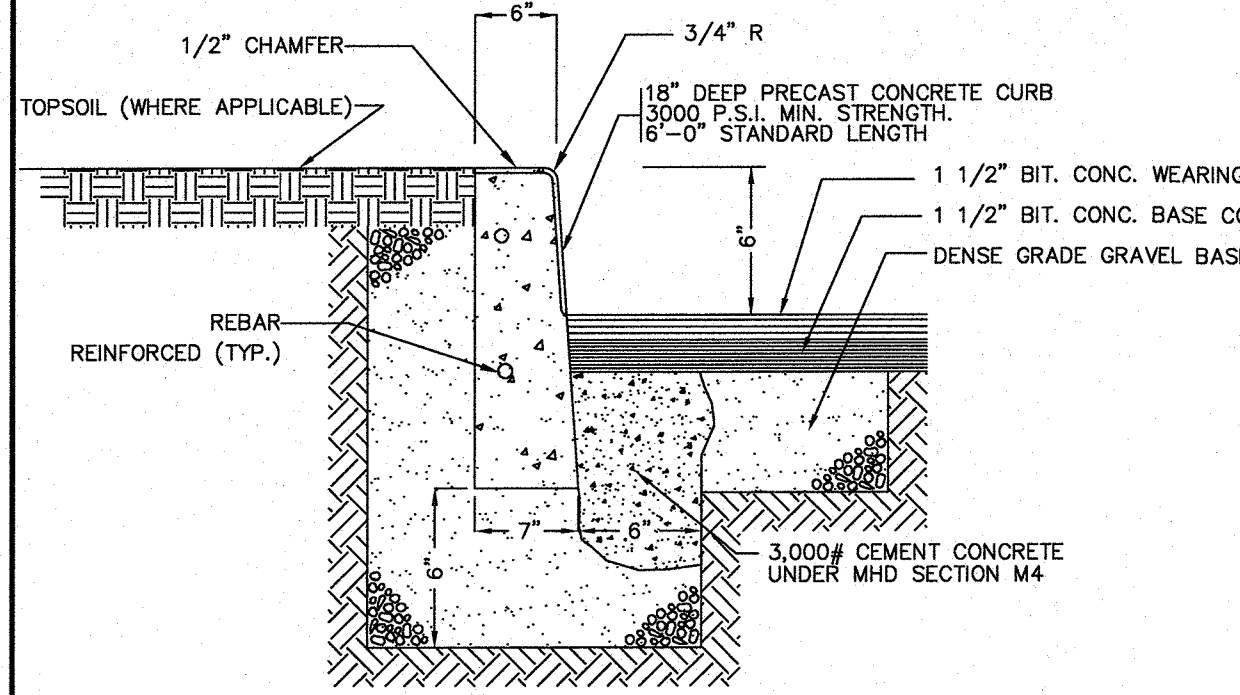
SHEET 5 OF 8

0' 15' 30' 60'

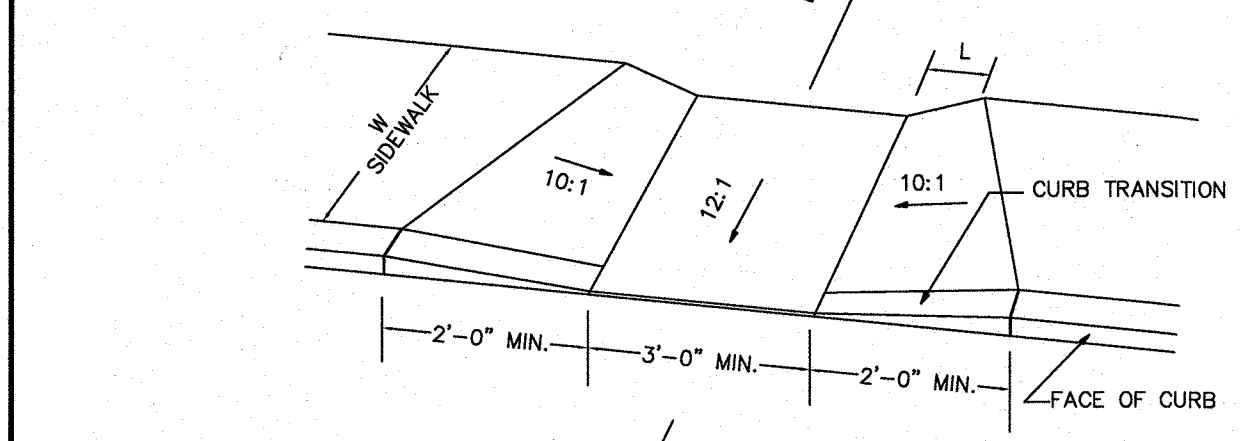
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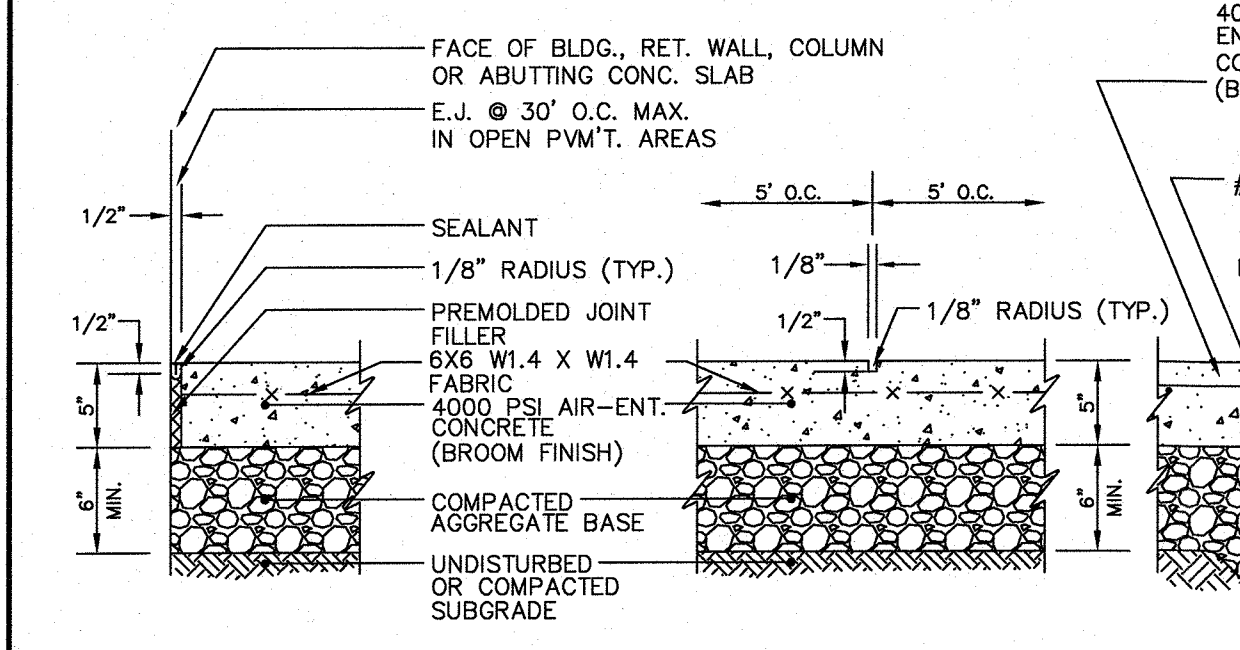
VERTICAL GRANITE CURB
NOT TO SCALE



PRECAST CONCRETE CURB
NOT TO SCALE



WHEEL CHAIR RAMP
NOT TO SCALE

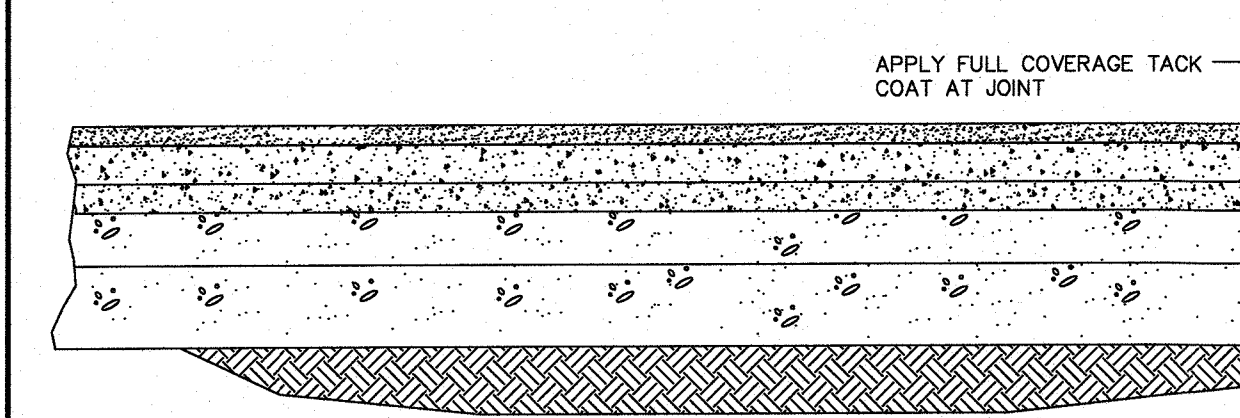


EXPANSION JOINT

SCORE JOINT

1. MAXIMUM CROSS SLOPE = 2%
2. MAXIMUM GRADIENT = 5%
3. PROVIDE EXPANSION JOINT AT FACE OF ABUTTING SLABS AND STRUCTURES.
4. PROVIDE VERTICAL GRANITE OR PRECAST CONCRETE CURBING PER SHEET C3.

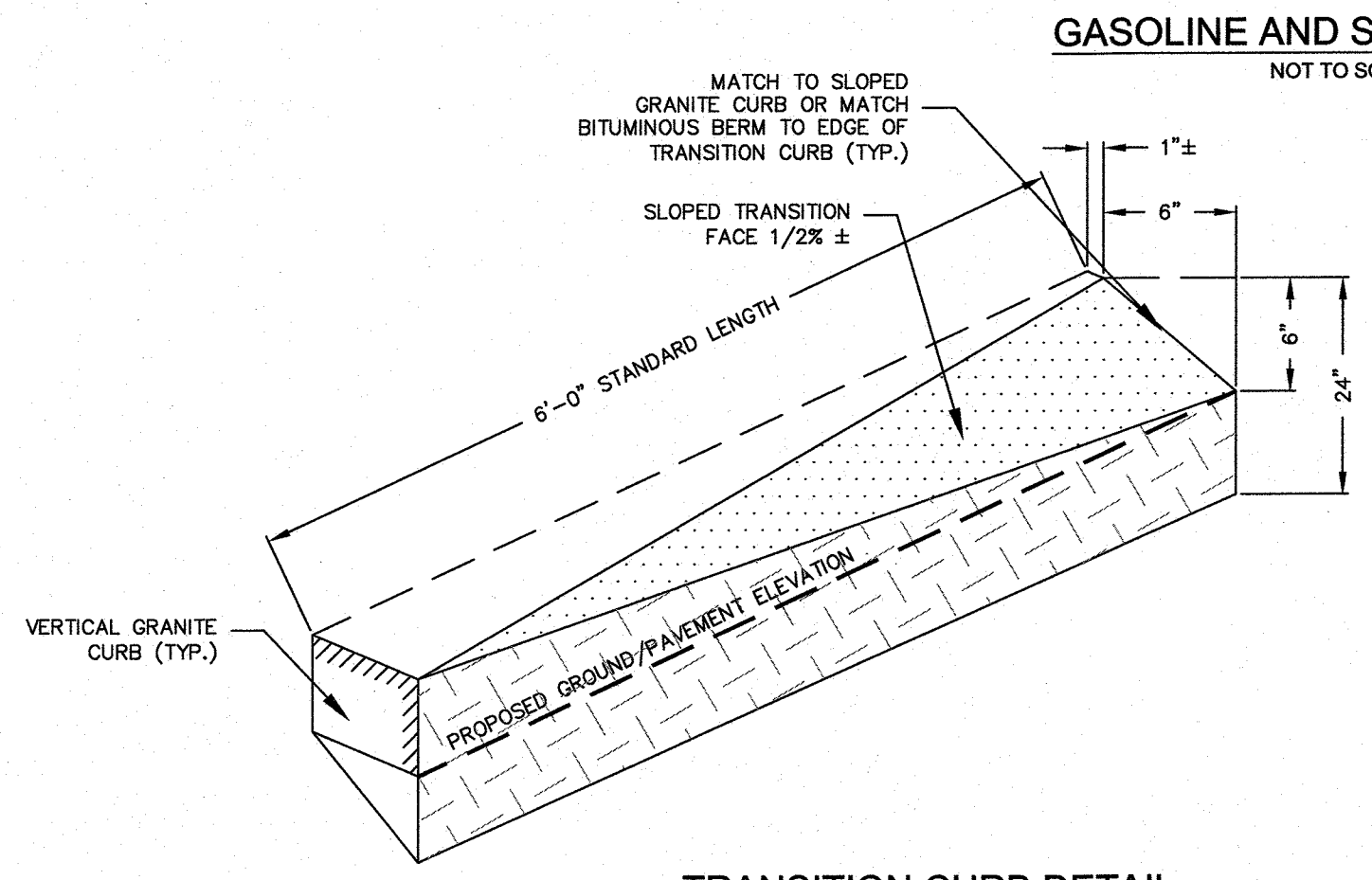
CONCRETE SIDEWALK
NOT TO SCALE



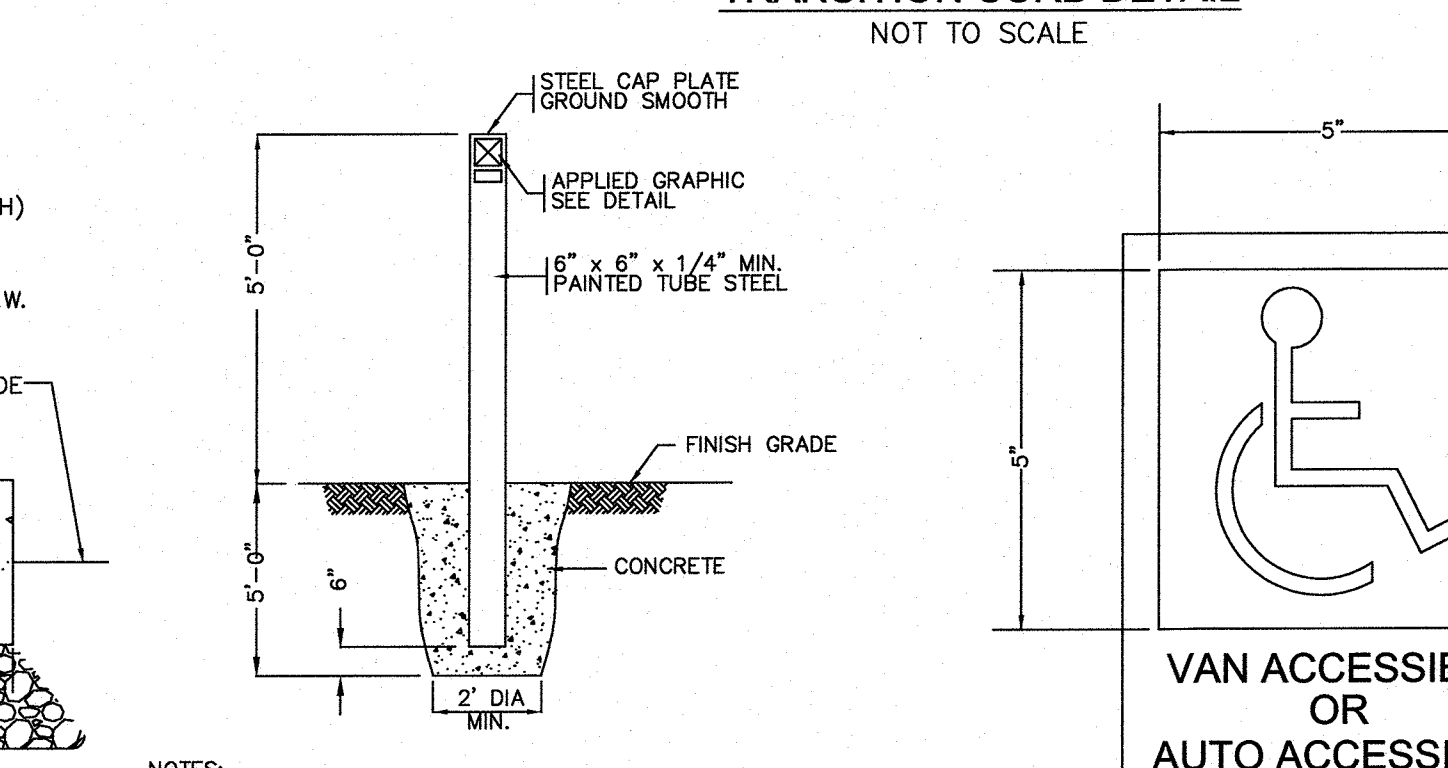
TRUCK AREAS - BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE

INLET	D	A	B
4"	3'-6"	3'-0"	2'-6"
5"	3'-6"	5'-0"	4'-0"
	3'-6"	3'-6"	3'-0"
	4'-0"	4'-0"	2'-6"
	4'-0"	3'-0"	2'-6"
6"	4'-0"	5'-0"	4'-6"
	4'-0"	4'-0"	3'-6"
	4'-6"	4'-0"	3'-6"
	4'-6"	3'-0"	2'-6"
	5'-0"	3'-0"	2'-6"
8"	5'-0"	6'-0"	5'-0"
	5'-6"	4'-6"	4'-0"
	6'-0"	4'-0"	3'-6"
	6'-0"	3'-0"	2'-6"
	6'-6"	3'-6"	3'-0"
	6'-6"	2'-6"	2'-6"

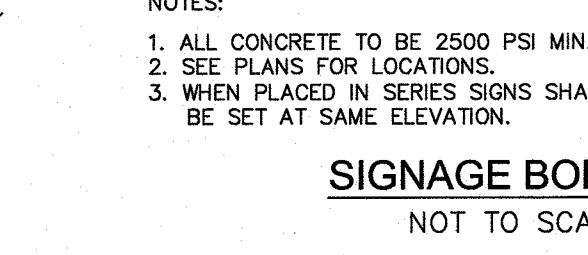
NOTE:
FOR INLETS LARGER THAN 10" THE DESIGN AND DIMENSIONS WILL BE DETERMINED FOR EACH PARTICULAR CASE



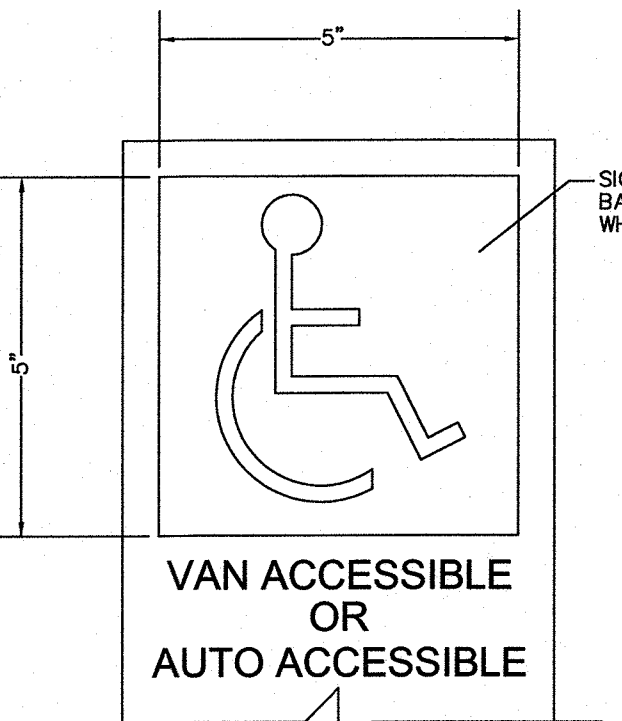
GASOLINE AND SAND TRAP
NOT TO SCALE



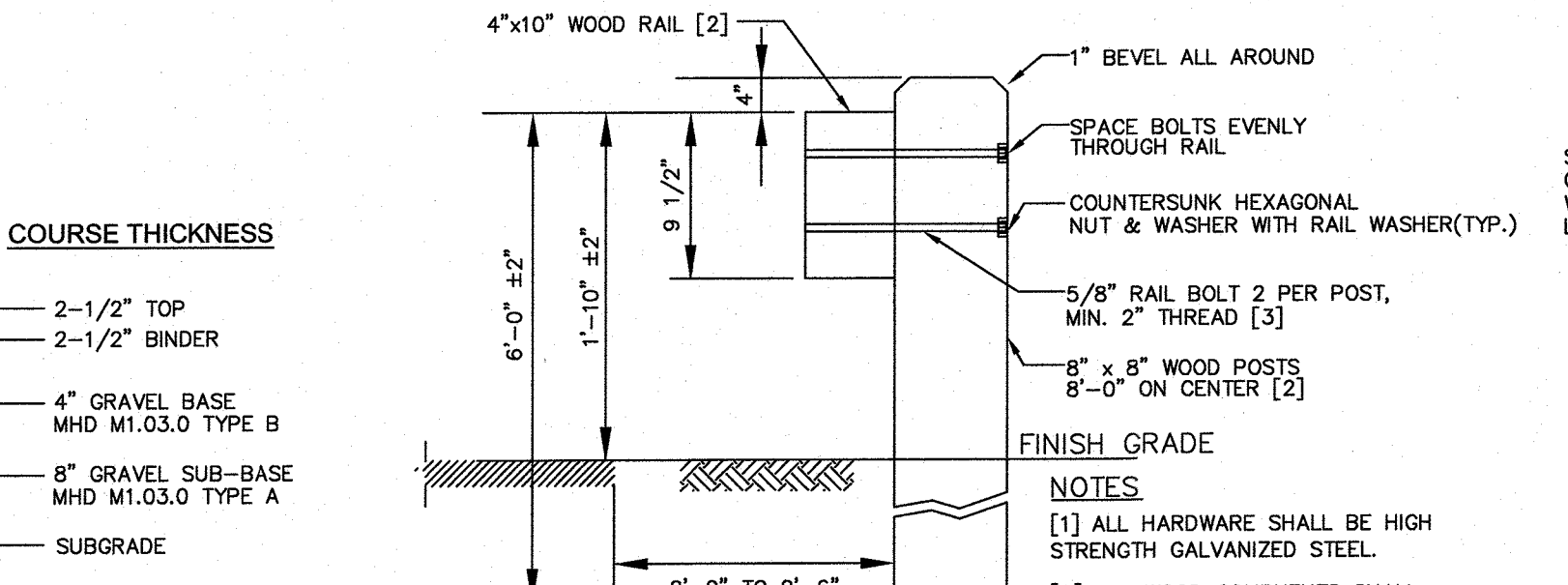
TRANSITION CURB DETAIL
NOT TO SCALE



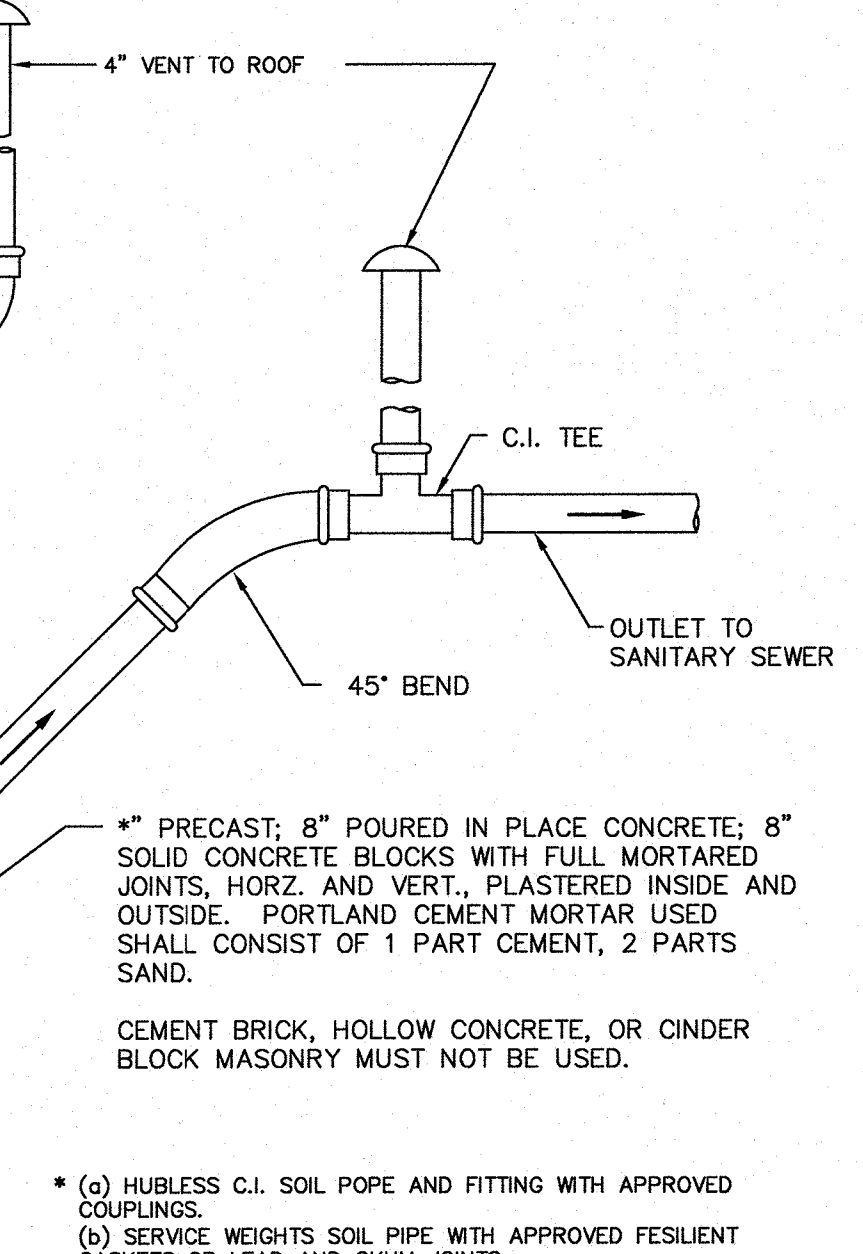
SIGNAGE BOLLARD
NOT TO SCALE



SIGNAGE GRAPHIC
NOT TO SCALE

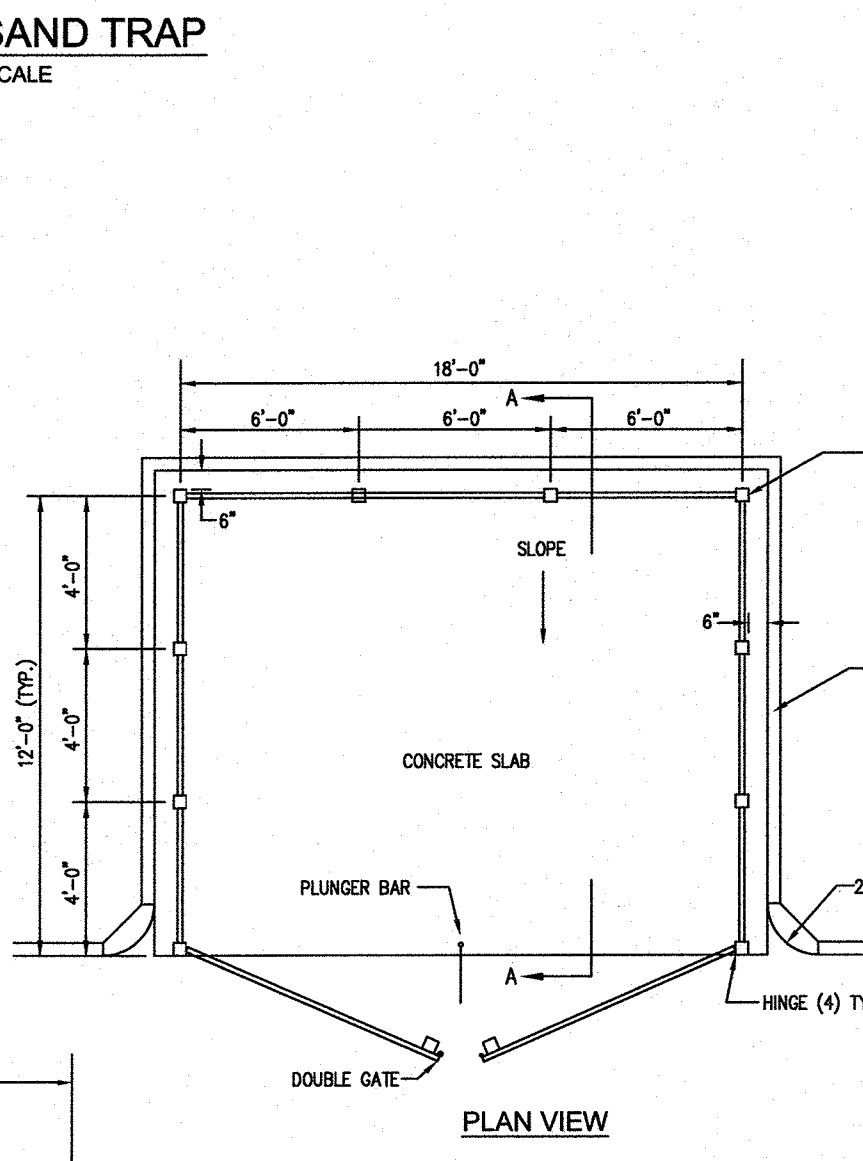


WOOD GUARDRAIL
NOT TO SCALE

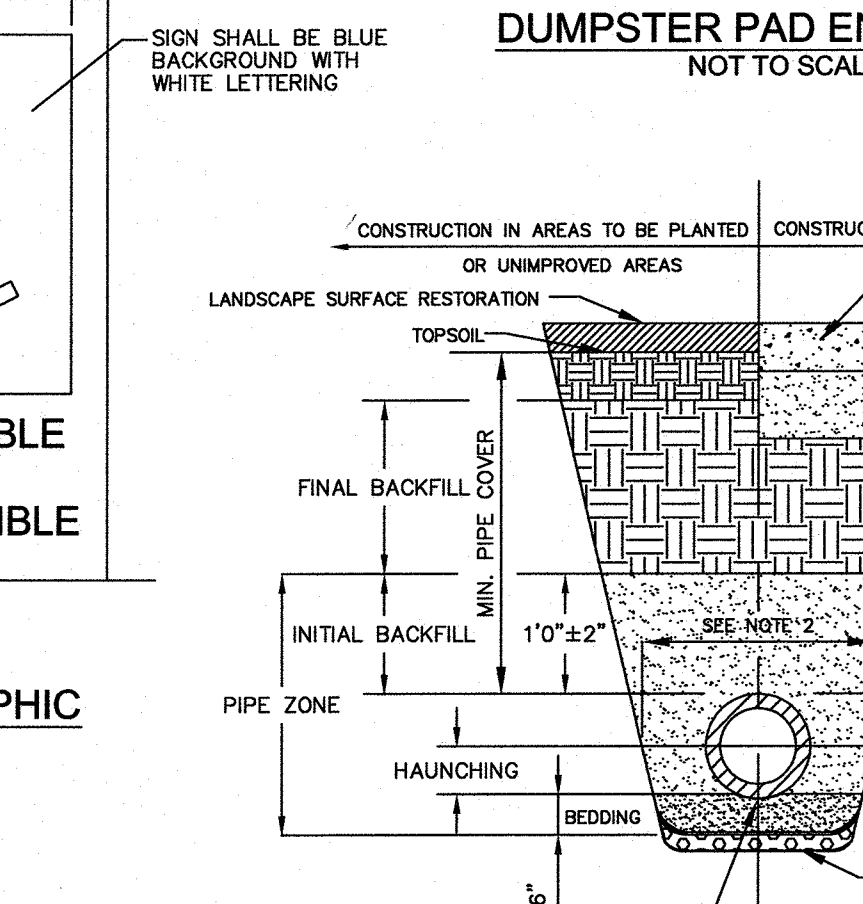


GENERAL CONSTRUCTION NOTES:

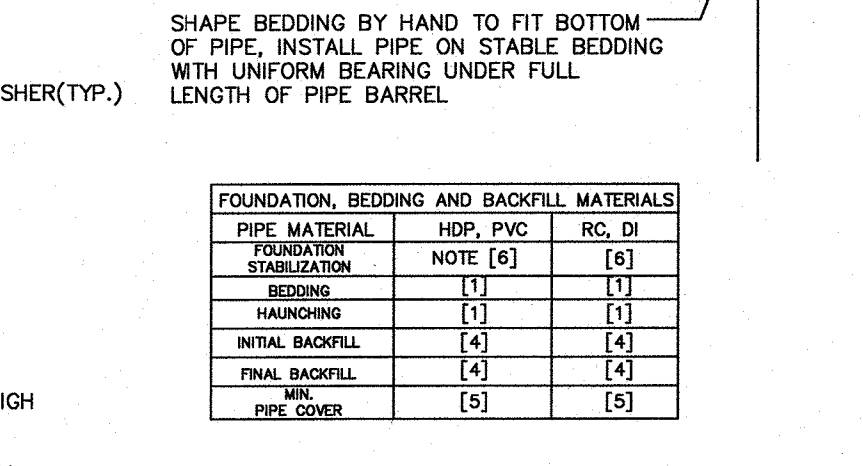
1. BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE. COVER TO HAVE A CENTER HOLE.
2. A TIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.
3. OPENING SHALL BE NO LESS THAN 24-INCHES.
4. THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXCLUDED.
5. INLET PIPE SHALL BE AT LEAST 4-INCHES ABOVE NORMAL WATER LINE.
6. WHERE SUBJECT TO FROST OR CRUSHING CONDITIONS, OUTLET SHALL BE AT LEAST 3- FEET BELOW THE SURFACE.
7. ALL OIL AND GASOLINE MUST BE REMOVED BEFORE CLEANING OUT THE BASIN AND MUST NOT BE DISCHARGED INTO THE SEWER.
8. SPECIFICATION FOR COVERING SPECIAL CASES OR CONDITIONS, SHALL BE APPROVED BY THE LOCAL AUTHORITIES AND THE AUTHORITIES OF THE STATE OF MASSACHUSETTS.
9. IRON STEPS SHALL BE SPACED AT LEAST 10-INCHES APART.
10. BOTH VENTS SHALL BE EXTENDED INDEPENDENTLY 10-INCHES ABOVE THE ROOF, OR AS APPROVED BY THE LOCAL AUTHORITIES AND THE AUTHORITIES OF THE STATE OF MASSACHUSETTS.
11. CONSTRUCTION OF GASOLINE AND SAND TRAP IS TO BE IN ACCORDANCE WITH THE TOWN OF FRANKLIN AND THE STATE OF MASSACHUSETTS PLUMBING REGULATIONS.



DUMPSTER PAD ENCLOSURE
NOT TO SCALE



SCREEN FENCE - END VIEW

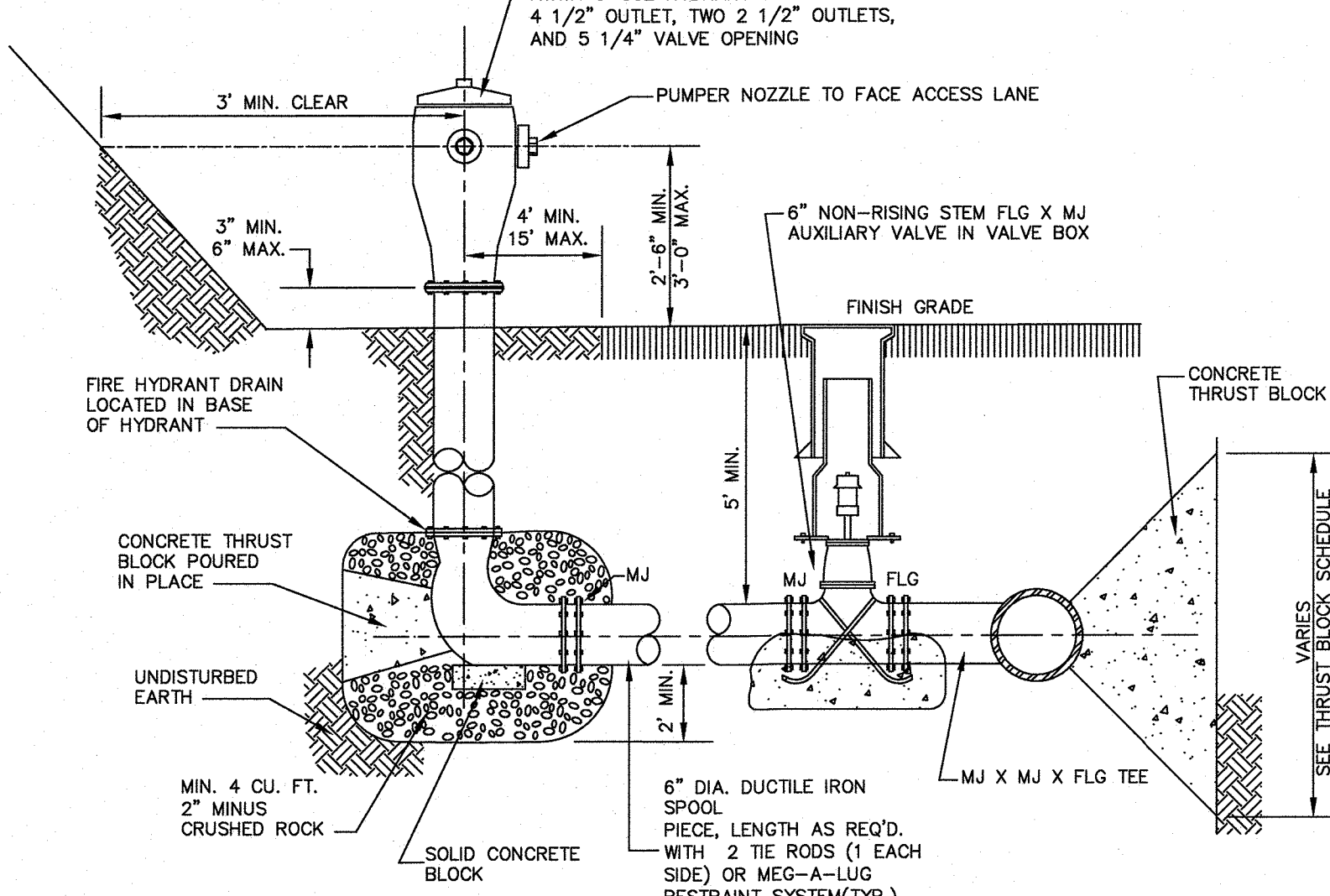


UTILITY TRENCH
NOT TO SCALE

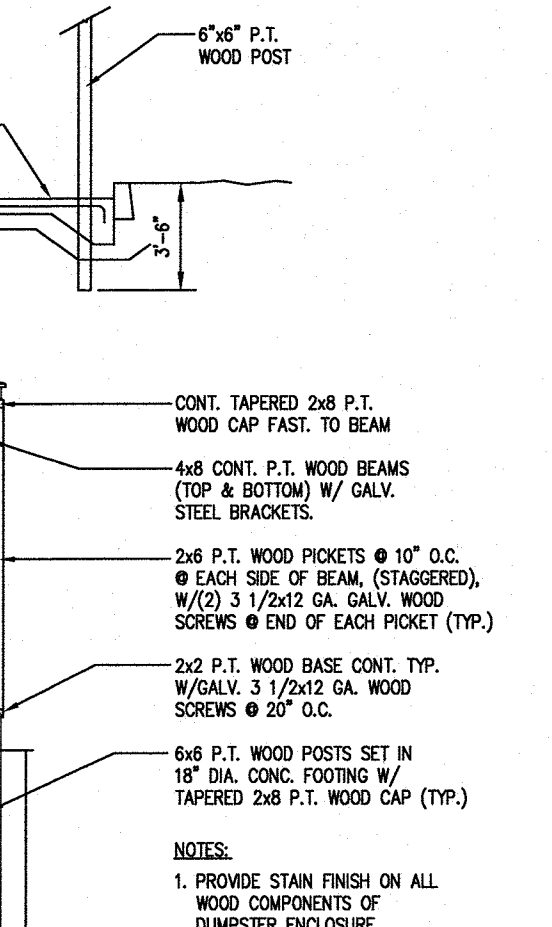
FOUNDATION, BEDDING AND BACKFILL MATERIALS	PIPE I.D.	WIDTH
PIPE MATERIAL	HDP, PVC	RC, DI
FOUNDATION STABILIZATION	NOTE [6]	[6]
BEDDING	[1]	[1]
HAUNCHING	[1]	[1]
INITIAL BACKFILL	[4]	[4]
FINAL BACKFILL	[4]	[4]
PIPE COVER	[5]	[5]

PIPE MATERIAL	HDP, PVC	RC, DI
WATER	5'-0"	5'-0"
SEWER	4'-0"	4'-0"
DRAIN	2'-0"	1'-6"

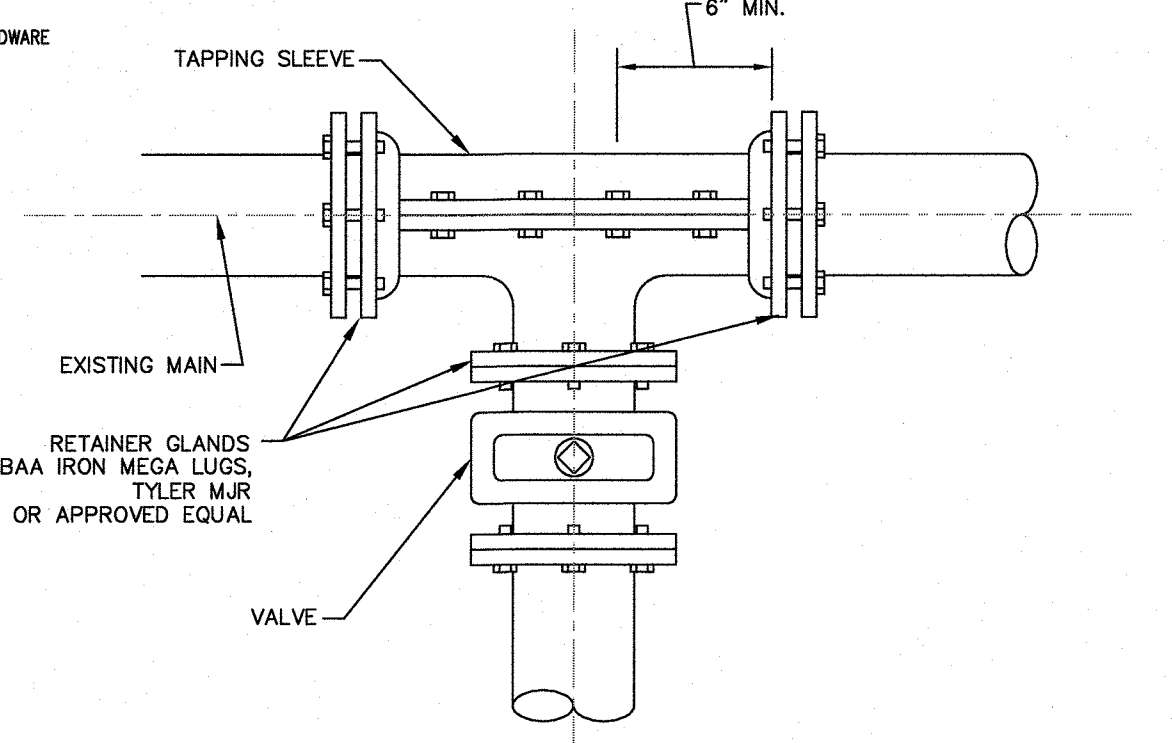
[6] FOR FOUNDATION STABILIZATION, USE 2" MINUS CRUSHED STONE



FIRE HYDRANT ASSEMBLY
NOT TO SCALE



CLEANOUT AT GRADE
NOT TO SCALE



TAPPING SLEEVE AND VALVE CONNECTION
NOT TO SCALE

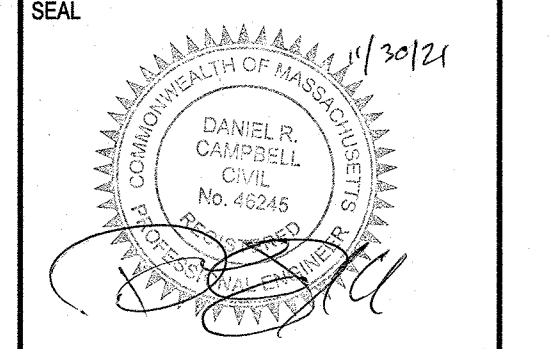
- NOTES:
1. RESTRAINED LENGTH FOR TEES, CROSSES, VALVES AND PLUGS SHALL EQUAL RESTRAINED LENGTH FOR 90° BENDS.
 2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING RESTRAINED JOINTS. THE SCHEDULE SHOWN IS FOR THE FOLLOWING SERVICE CONDITIONS 150 PSI INTERNAL PRESSURE; SOIL TYPE: SAND-SILT; 36 INCHES OF COVER AND TYPE 2 LAYING CONDITIONS.
 3. RESTRAINED LENGTHS SHOWN IN TABLE ARE MINIMUM LENGTHS (IN FEET) AND ARE REQUIRED IN EACH DIRECTION FROM FITTINGS OR VALVES.
 4. THRUST BLOCKS TO BE INSTALLED AS REQUIRED.

RESTRAINED JOINT SCHEDULE				
PIPE SIZE	90°	45°	22 1/2°	11 1/4°
	D. I.	D. I.	D. I.	D. I.
12"	92'	38'	18'	9'
10"	78'	32'	16'	8'
8"	66'	27'	13'	7'
6"	51'	21'	10'	5'
4"	38'	16'	8'	4'

APPROVED DATE:
FRANKLIN PLANNING BOARD

DATE:
BEING A MAJORITY

NO	DATE	REVISIONS
1	06/21/2021	PERMIT SUBMISSION
2	09/13/2021	RESPONSE TO COMMENTS
3	10/04/2021	RESPONSE TO COMMENTS
4	10/19/2021	RESPONSE TO COMMENTS
5	11/30/2021	APPROVAL CONDITIONS



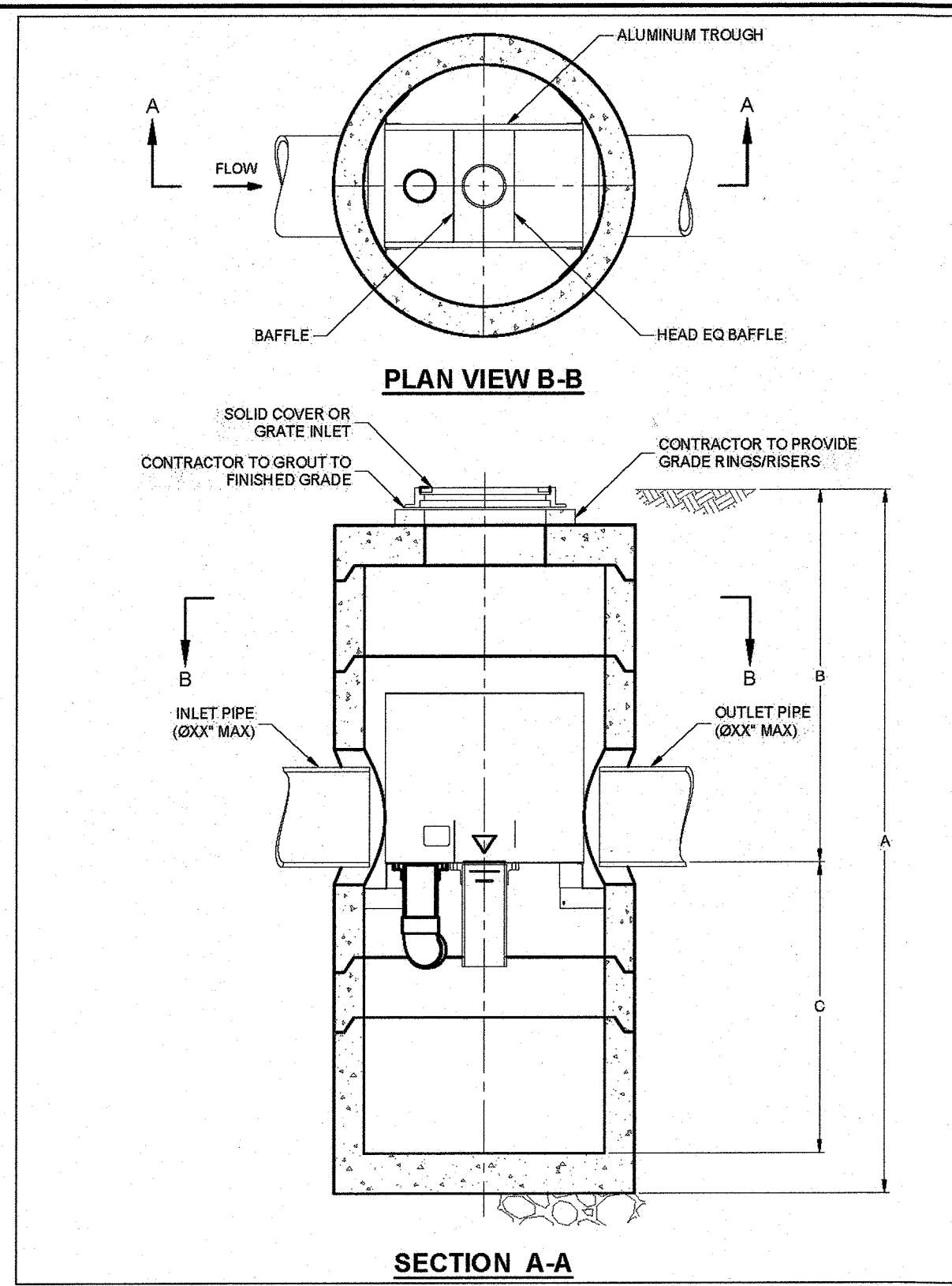
DATE: JUNE 21, 2021
DRAWN: DRC
SCALE: 1" = 20'

THE ENGINE YARD
COMMERCIAL/RESIDENTIAL REUSE
PARCEL ID 279-181-000-000
40 ALPINE ROW
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-4.0
SHEET 6 OF 8

1880.00



VORTSENTRY HS DESIGN NOTES

THE STANDARD SOLID COVER CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW.

CONFIGURATION OPTION DESCRIPTION	
GRATE INLET (NO INLET PIPE)	
GRATE INLET WITH INLET PIPE	

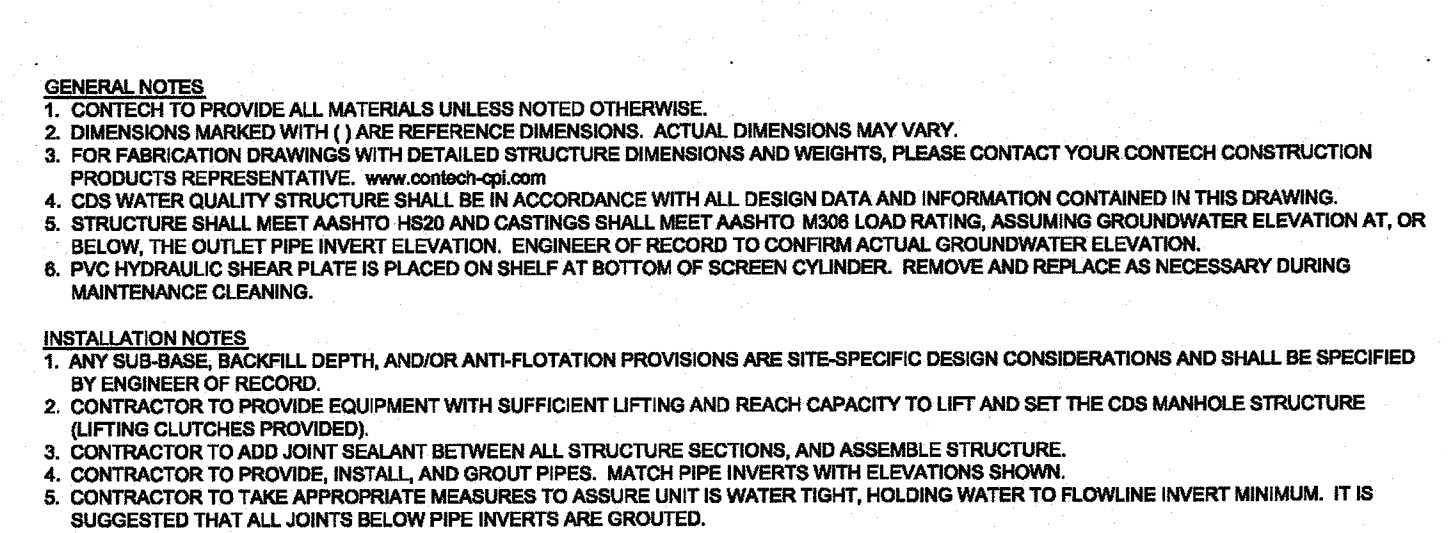
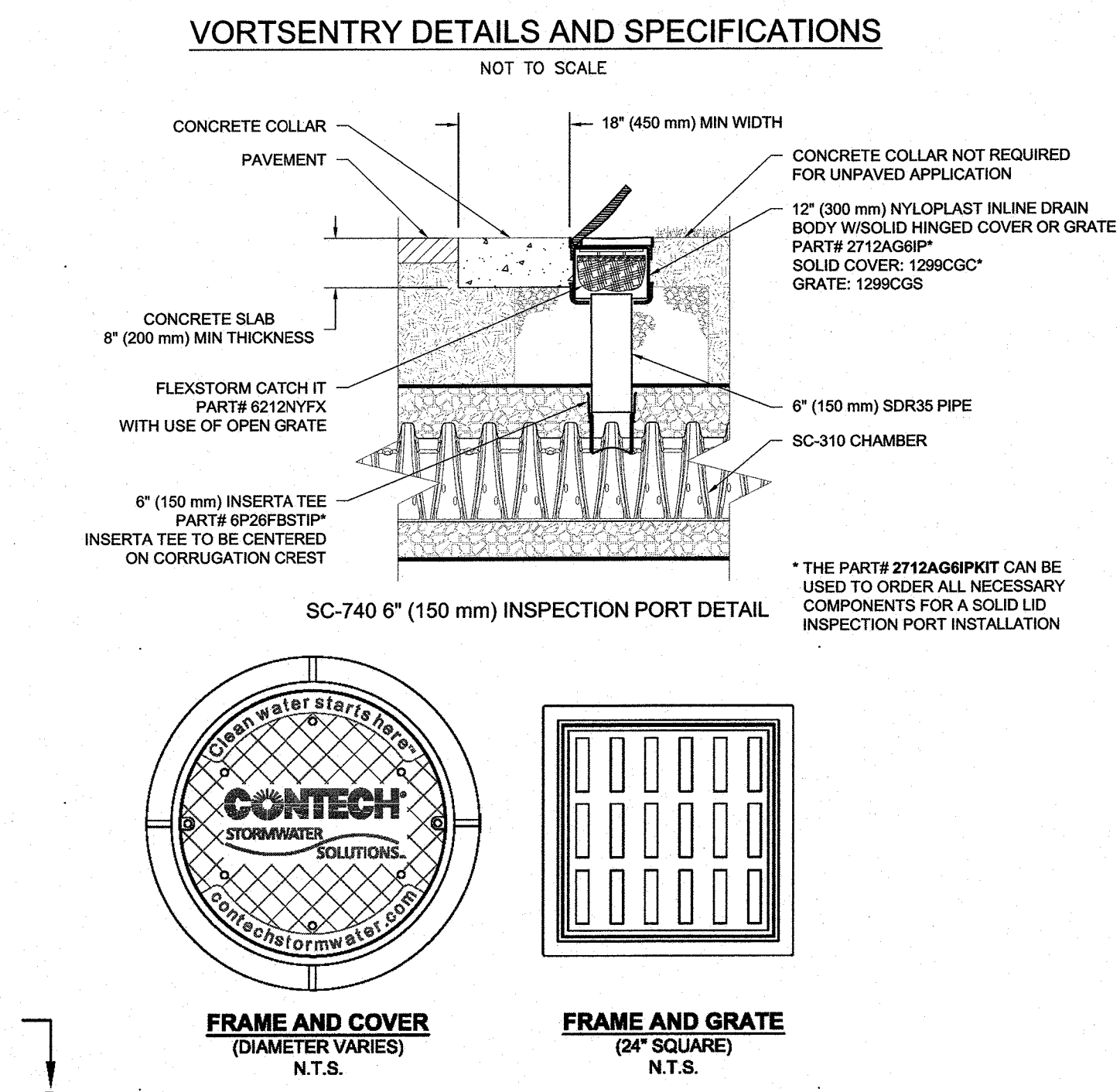
VORTSENTRY HS GENERAL INFORMATION												
Model	Manhole Diameter (ID)		Typical Total Distance Rim to Outside Bottom		Typical Distance Rim to Invert		Typical Depth Below Invert (inside)		Approximate Minimum Distance Rim to Invert		Maximum Pipe Diameter (ID)	
	FT	MM	FT	M	FT	M	FT	M	FT	M		
HS36	3	900	10.16	3.10	4.08	1.24	5.58	1702	3.00	0.91	18	450
HS48	4	1200	13.25	4.04	6.00	1.83	6.75	2057	4.00	1.22	24	600
HS60	5	1500	15.13	4.61	6.50	1.98	7.96	2428	4.82	1.47	30	750
HS72	6	1800	16.56	5.05	6.75	2.06	9.15	2788	5.56	1.70	36	900
HS84	7	2100	18.85	5.75	7.75	2.36	10.35	3156	5.00	1.52	42	1050
HS96	8	2400	20.87	6.36	8.50	2.59	11.54	3518	6.91	2.11	48	1200

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERING SOLUTIONS LLC REPRESENTATIVE. www.contech.com
- VORTSENTRY HS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO M366 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTSENTRY HS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- 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.

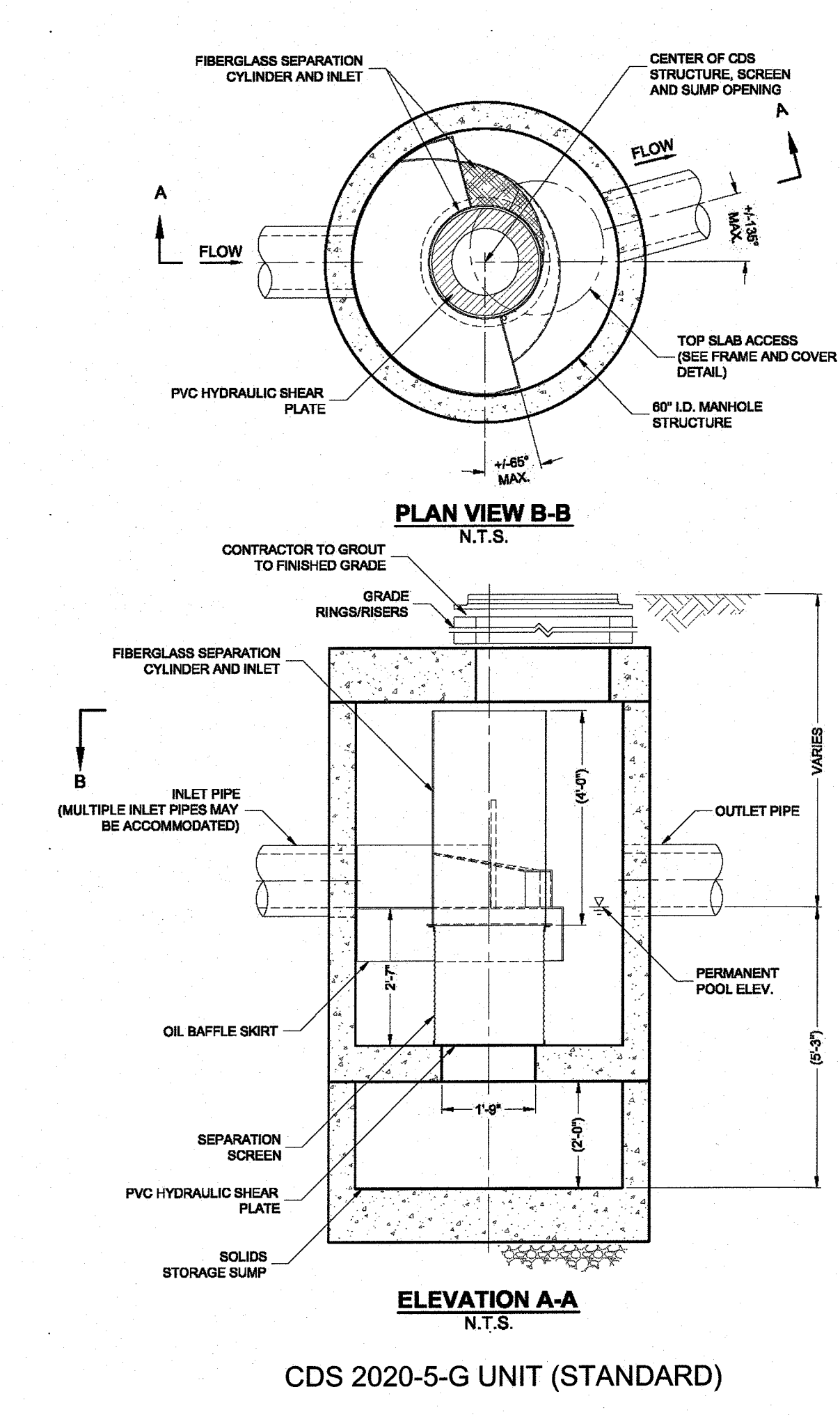


GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS REPRESENTATIVE. www.contech.com
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO M366 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- 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.



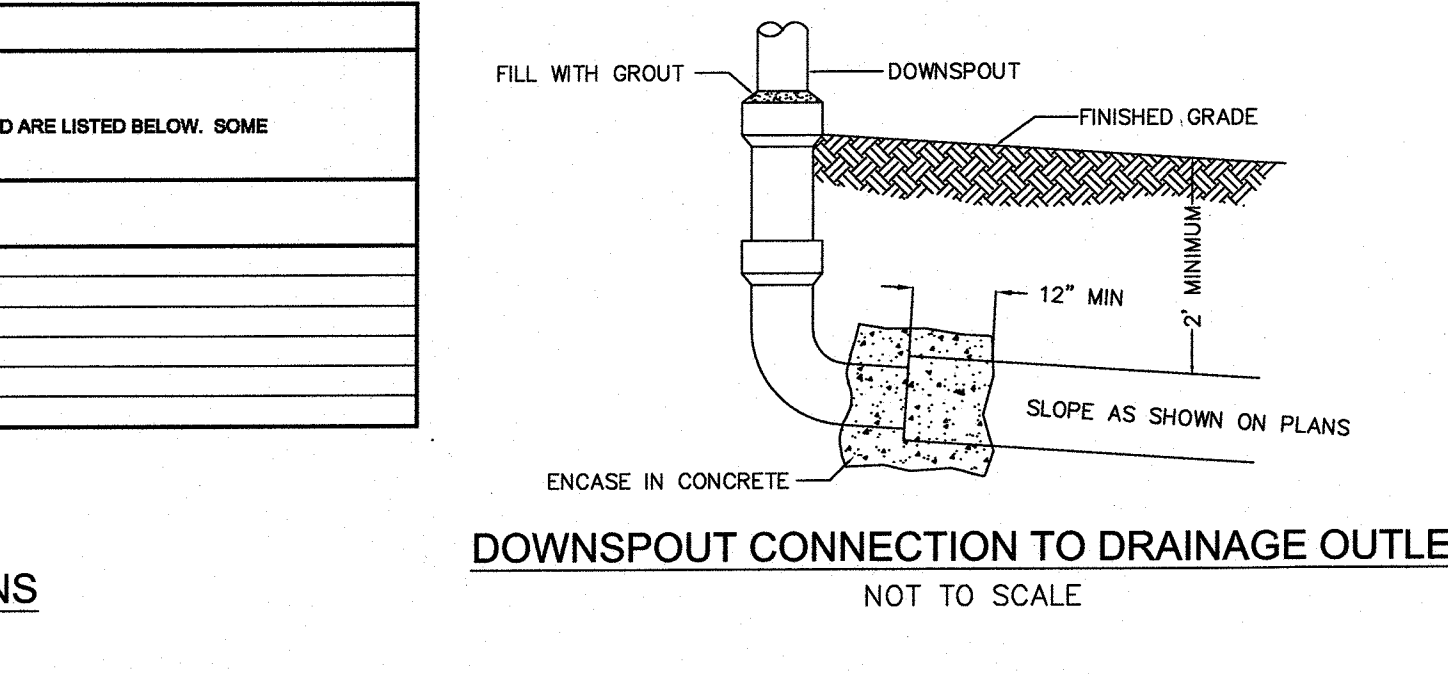
CDS2020-5-C DESIGN NOTES

CDS2020-5-C RATED TREATMENT CAPACITY IS 2.2 CFS, OR PER LOCAL REGULATIONS.

THE STANDARD CDS2020-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION
SEDIMENT WEIR FOR NUDEP/NUCAT CONFORMING UNITS

CDS UNIT DETAILS AND SPECIFICATIONS



STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740 OR SC-310.
- CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418-16 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO THERMOPLASTIC PIPE.
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
 - STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

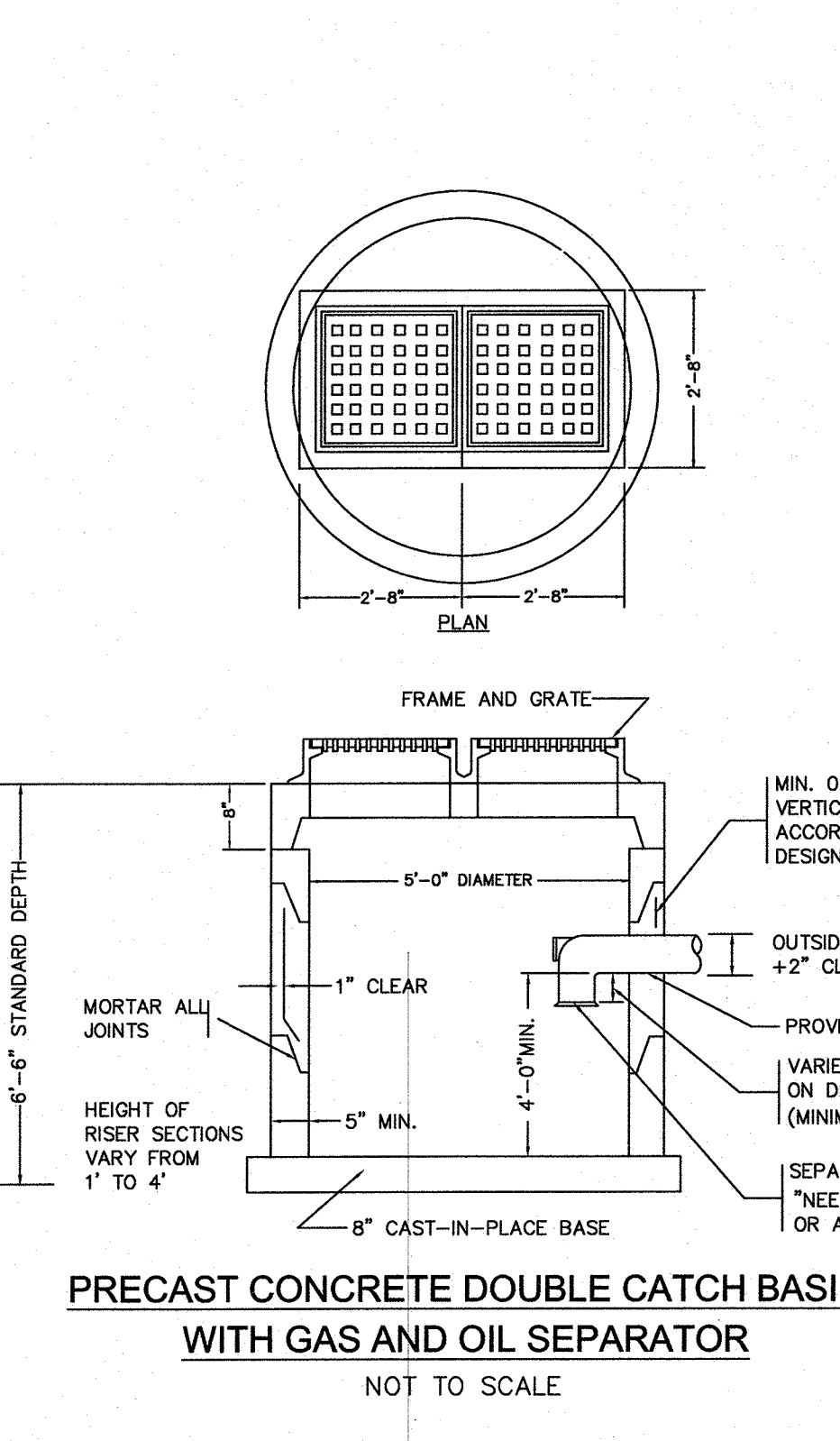
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE #4-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2884 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

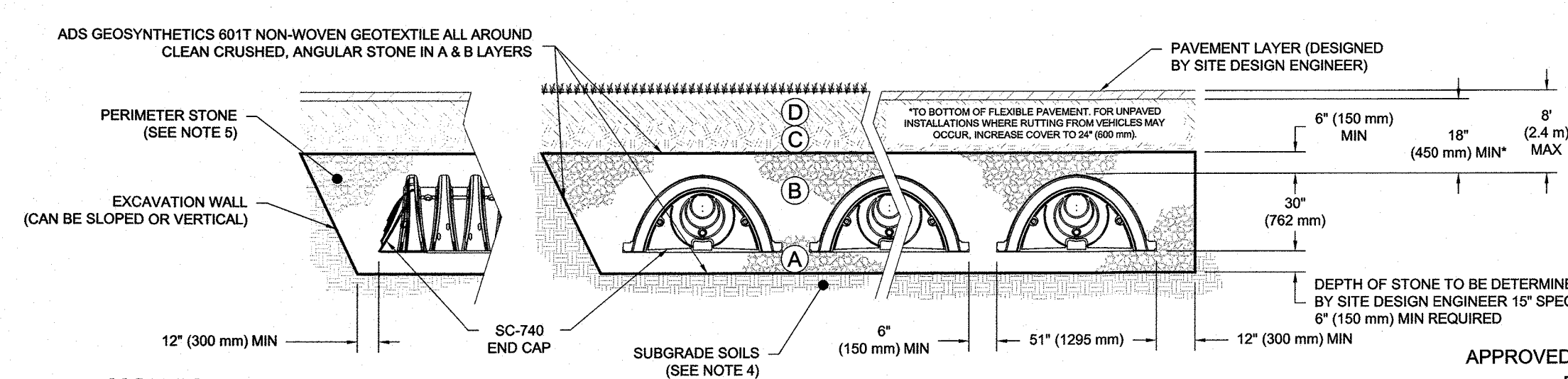


ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 96% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

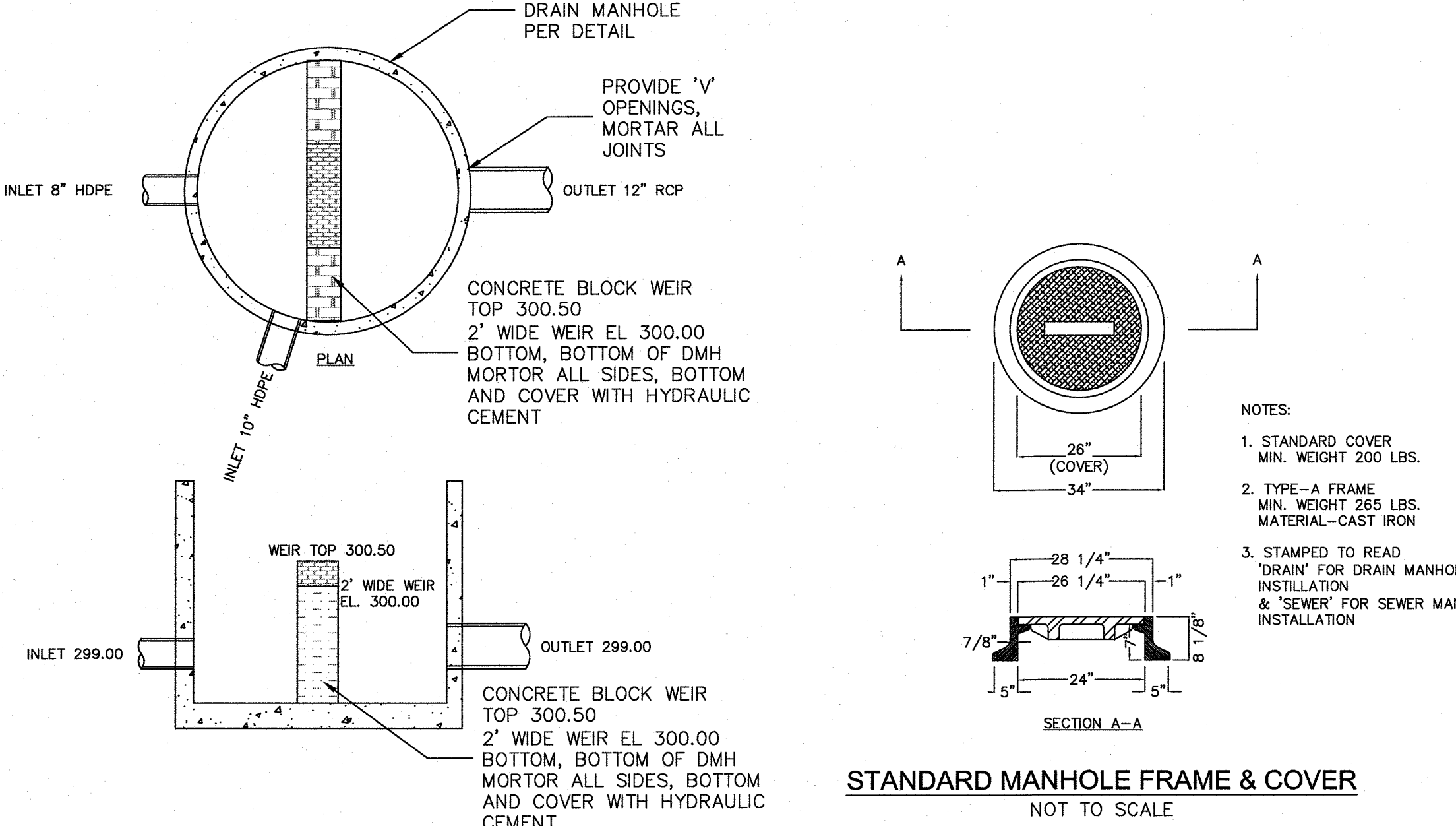
PLEASE NOTE:

- 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".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

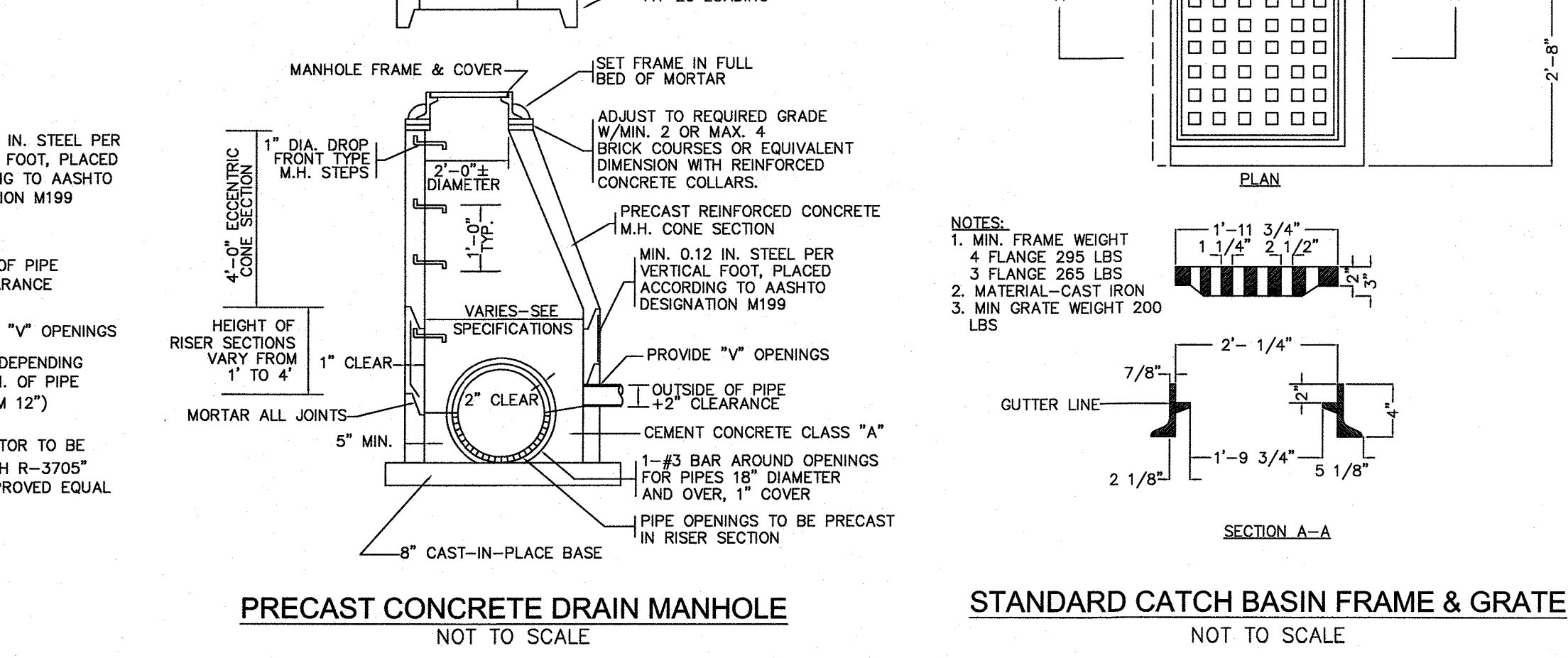


- NOTES:**
- SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - SC-740 CHAMBERS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

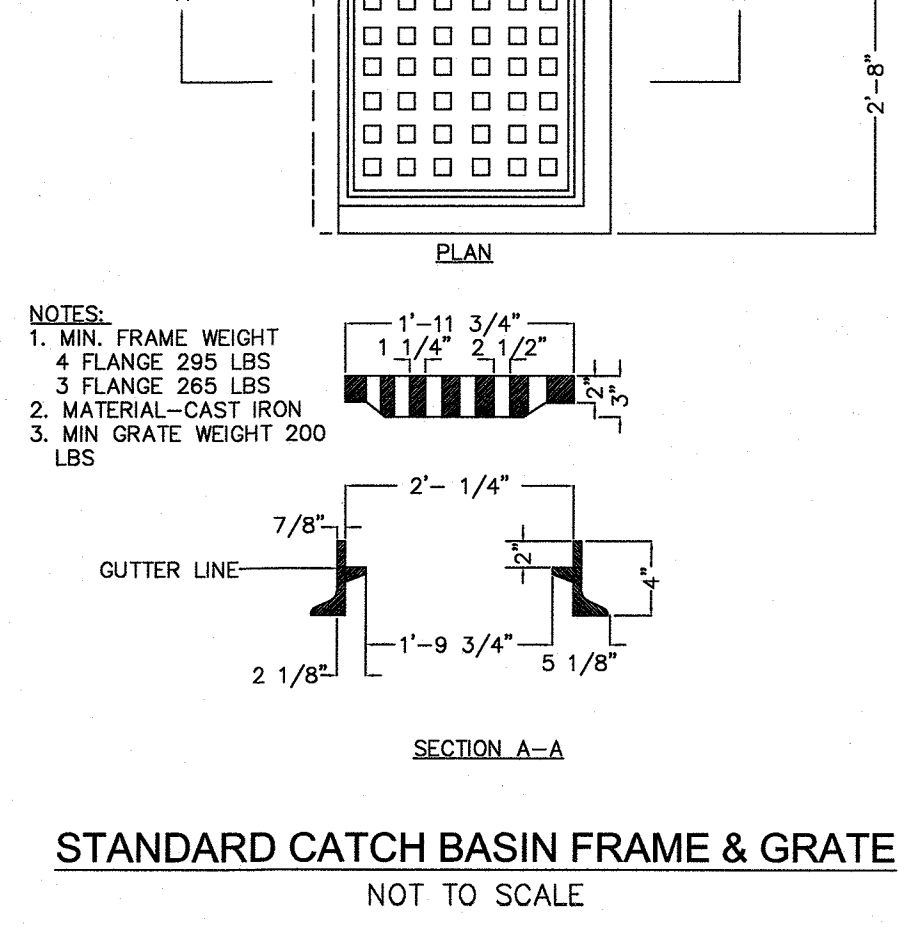
SC-740 CROSS SECTION DETAIL STORMTECH SC-310 DETAILS AND SPECIFICATIONS
NOT TO SCALE



CONCRETE WEIR DRAIN MANHOLE
NOT TO SCALE



STANDARD CATCH BASIN FRAME & GRATE
NOT TO SCALE



NO	DATE	REVISIONS
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3	10/04/2021	RESPONSE TO COMMENTS
4	10/19/2021	RESPONSE TO COMMENTS
5	11/30/2021	APPROVAL CONDITIONS

SEAL

DATE: JUNE 21, 2021
DRAWN: DRC
SCALE: 1" = 20"

APPROVED DATE: _____
FRANKLIN PLANNING BOARD

DATE: _____
BEING A MAJORITY

THE ENGINE YARD
COMMERCIAL/RESIDENTIAL REUSE
PARCEL ID 279-181-000-000
40 ALPINE ROW
FRANKLIN, MASSACHUSETTS

LEVEL
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CIVIL ENGINEERING / LAND SURVEYING
249 SOUTH STREET
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TYPICAL DETAILS

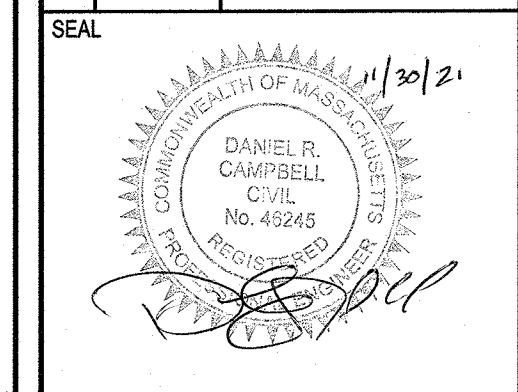
C-4.1
SHEET 7 OF 8

1880.00

APPROVED DATE: _____
 FRANKLIN PLANNING BOARD

 DATE: _____
 BEING A MAJORITY

NO	DATE	REVISIONS
1	06/21/2021	PERMIT SUBMISSION
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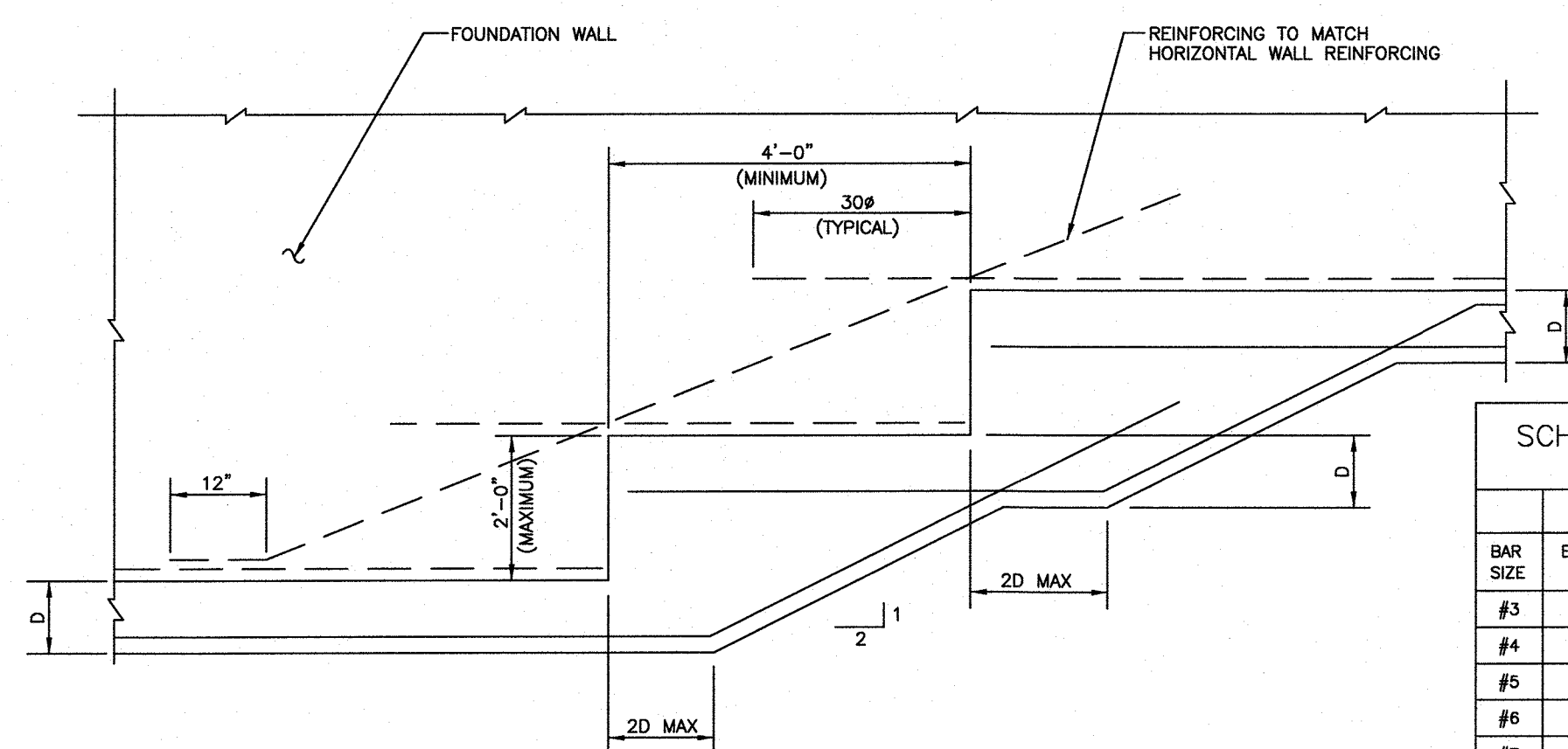
DATE: JUNE 21, 2021
 DRAWN: DRC
 SCALE: 1" = 20'

REINFORCED CONCRETE NOTES

- R1. ALL CONCRETE SHALL BE PROPORTIONED, MIXED AND PLACED IN ACCORDANCE WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". MAXIMUM SLUMP SHALL BE 4 INCHES.
- R2. ALL CONCRETE SHALL BE CONTROLLED, MIXED, AND PLACED UNDER THE SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY.
- R3. UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MINIMUM COMPRESSIVE STRENGTH AT THE END OF 28 DAYS AS FOLLOWS:

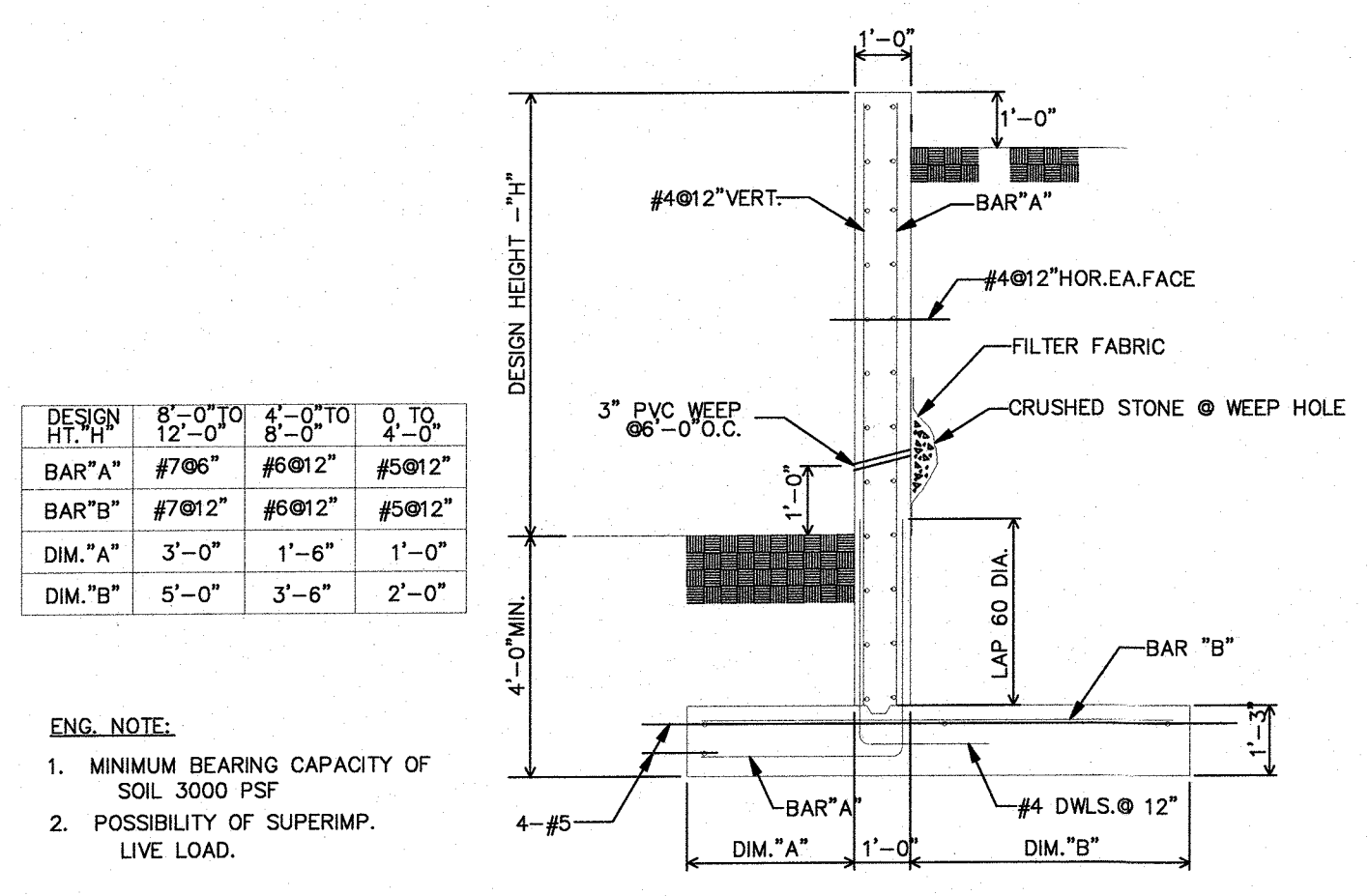
STRENGTH (PSI)	MAXIMUM AGGREGATE SIZE (in.)	ENTRAINED AIR (%)	APPLICATION
3000	3/4	5	EXTERIOR CONCRETE
- R4. THE USE OF "FLY ASH" IN CONCRETE MIX DESIGN IS NOT ALLOWED.
- R5. NO ADMIXTURES OTHER THAN LOW RANGE WATER REDUCER WILL BE ALLOWED.
- R6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER REMOVAL OF FORMWORK. FORMS SHALL BE REMOVED ONLY AFTER CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUPPORT ITS OWN WEIGHT. CONSTRUCTION LOADS AND LATERAL LOADS SHOULD BE PLACED WITHOUT DAMAGE TO THE STRUCTURE OR CAUSE ANY EXCESSIVE DEFLECTION.
- R7. CONSTRUCTION JOINT LOCATIONS, OTHER THAN THOSE SHOWN ON THE DRAWINGS, ARE PERMITTED SUBJECT TO PRIOR APPROVAL OF THE ENGINEER. CONTROL JOINTS AND EXPANSION JOINTS ARE MANDATORY AS SHOWN.
- R8. PROVIDE 3/4 INCH CHAMFER AT ALL CONTINUOUSLY EXPOSED CONCRETE EDGES, SUCH AS CURBS, EQUIPMENT PADS, AND EDGE OF WALLS.
- R9. PROVIDE FLANGED STEEL SLEEVES WHERE PIPES PASS THROUGH CONCRETE.
- R10. ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCING".
- R11. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE CLEAR CONCRETE COVER OVER BARS SHALL BE AS FOLLOWS:

A. SURFACES PLACED IN CONTACT WITH THE GROUND.....	3"
B. FORMED SURFACE EXPOSED TO GROUND.....	2"
C. INSIDE FACE OF FORMED WALL.....	1 1/2"
D. WALL PIER TIES.....	1 1/2"
E. SLAB REINFORCING.....	3/4"
- R12. PROVIDE CLASS B SPLICES FOR ALL CONTINUOUS REINFORCEMENT UNLESS NOTED OTHERWISE.
- R13. SET AND TIE ALL REINFORCEMENT BEFORE PLACING CONCRETE. SETTING OF ANCHOR BOLTS, DOWELS AND REINFORCEMENT INTO WET CONCRETE IS PROHIBITED.
- R14. ALL KEYS SHALL BE 2"x4" (NOMINAL) UNLESS NOTED OTHERWISE.
- R15. USE NON-SHRINK, NON-METALLIC GROUT WHERE INDICATED.
- R16. PROVIDE SEALANT FOR ALL EXPOSED TO VIEW CONSTRUCTION AND/OR CONTROL JOINTS.

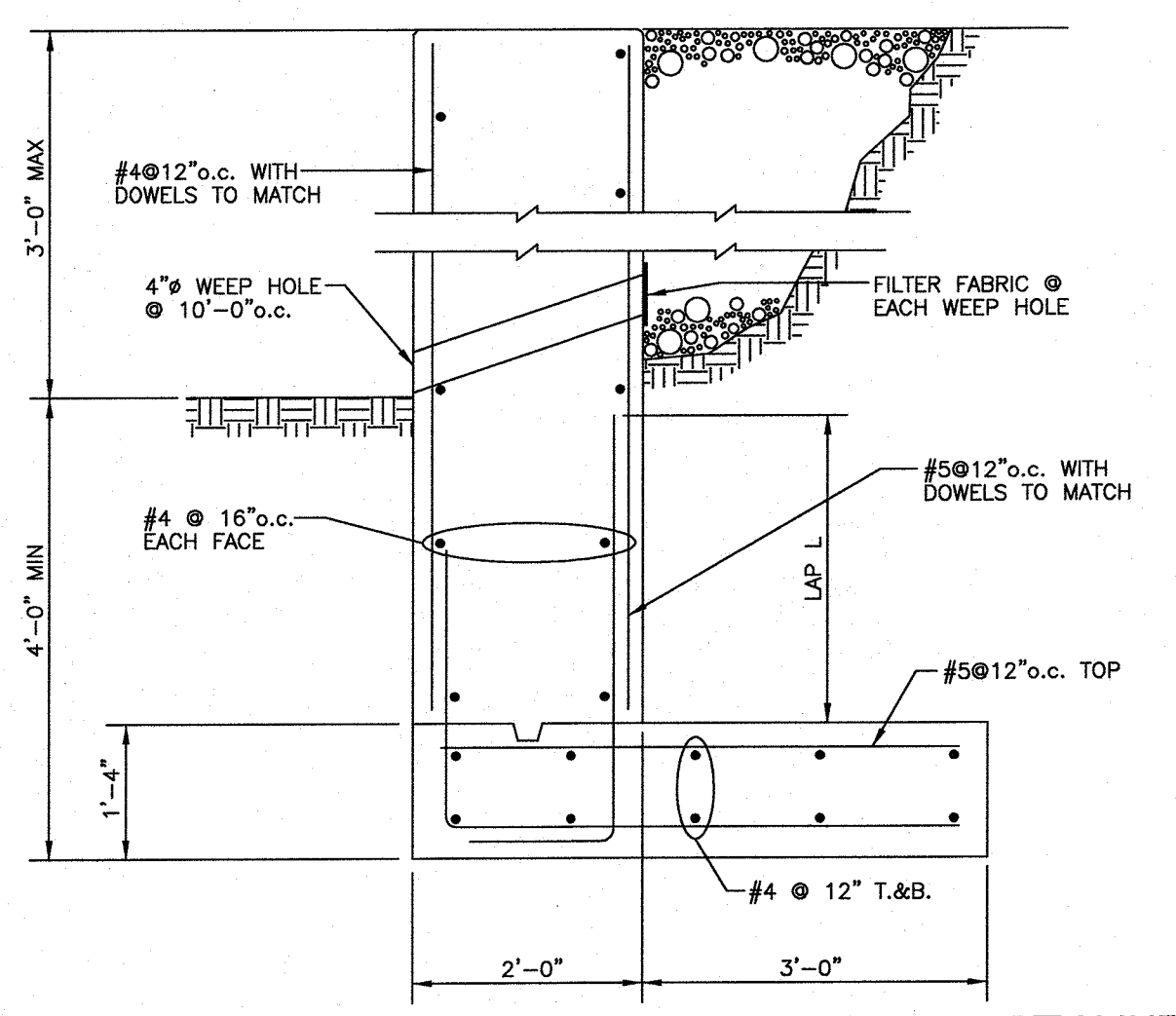


SCHEDULE OF EMBEDMENT AND SPLICE LENGTHS
 (UNLESS SHOWN OTHERWISE ON DRAWINGS)

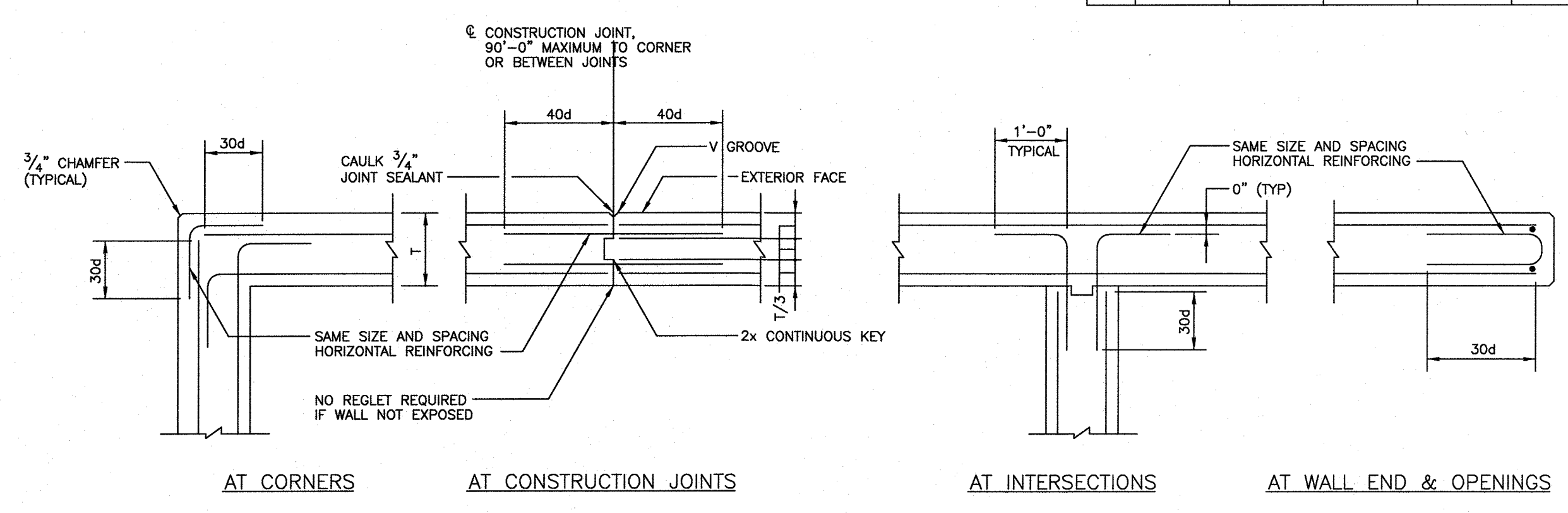
BAR SIZE	COMPRESSION		TENSION			
	EMBEDMENT LENGTH	LAP SPLICE LENGTH	EMBEDMENT LENGTH	LAP SPLICE LENGTH	TOP BARS	OTHER BARS
#3	8"	12"	13"	12"	16"	16"
#4	11"	15"	17"	12"	22"	16"
#5	14"	19"	21"	15"	27"	20"
#6	17"	23"	25"	18"	33"	24"
#7	19"	26"	32"	23"	41"	30"
#8	22"	30"	42"	30"	55"	39"
#9	25"	34"	53"	38"	69"	49"
#10	28"	38"	67"	48"	88"	63"
#11	31"	42"	83"	59"	108"	77"



REINFORCED CONCRETE RETAINING WALL
 NOT TO SCALE



CONCRETE RETAINING WALL AT PROPERTY LINE
 NOT TO SCALE



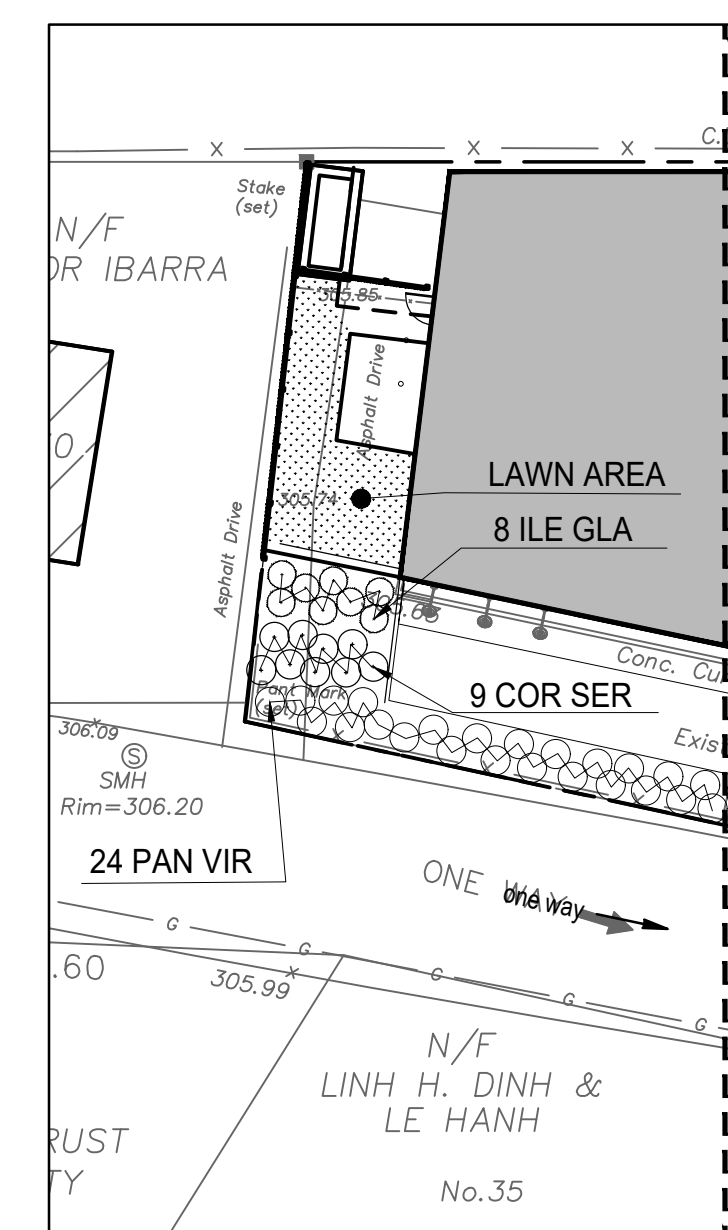
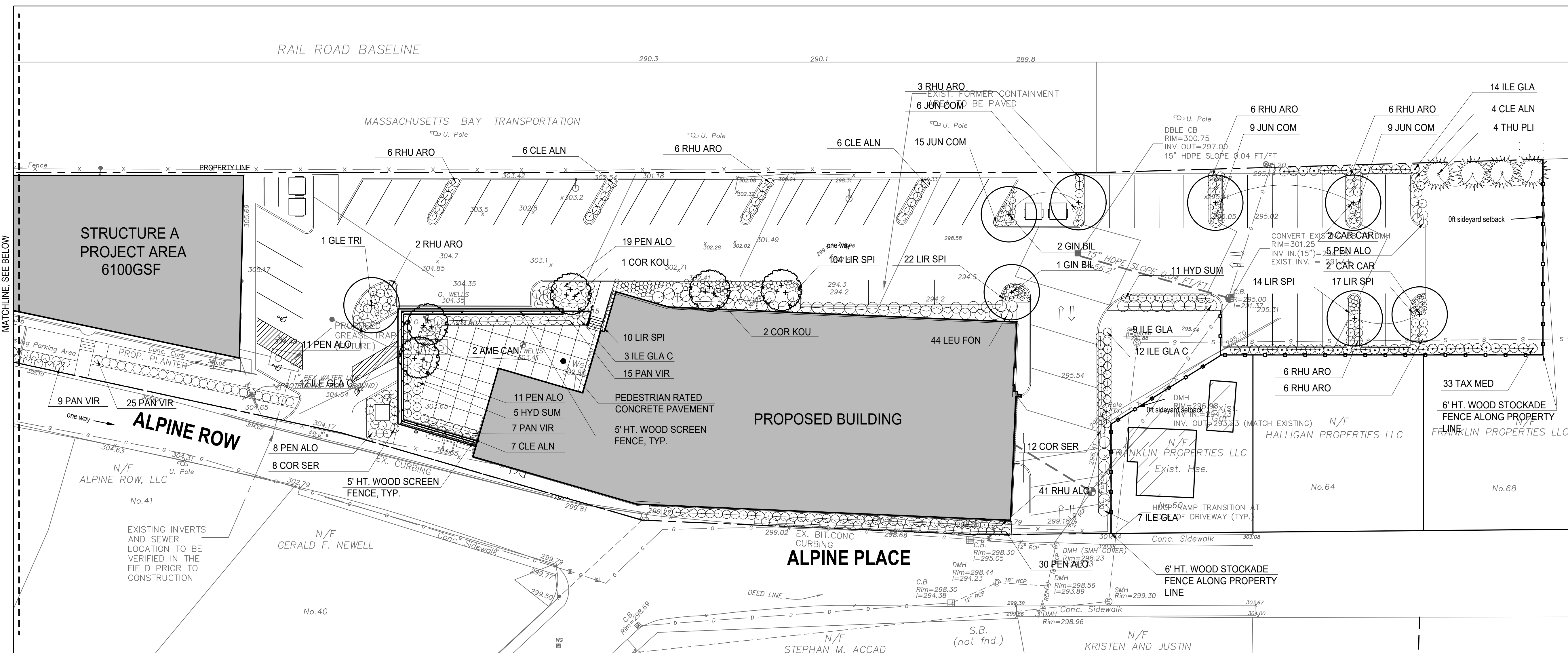
TYPICAL FOUNDATION WALL DETAILS
 NOT TO SCALE

THE ENGINE YARD
 COMMERCIAL/RESIDENTIAL REUSE
 PARCEL ID 279-181-000-000
 40 ALPINE ROW
 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-4.2
 SHEET 8 OF 8

1880.00



PLANTING NOTES

1. BASE FILE SURVEY INFORMATION PROVIDED BY JOE THE ARCHITECT, MAY 05, 2021.
2. IF DISCREPANCIES EXIST BETWEEN THE NUMBER OF PLANTS DRAWN ON THE PLANTING PLAN AND THE NUMBER OF PLANTS IN THE PLANT LIST, THE PLANTING PLAN SHALL GOVERN.
3. ALL NEW PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. IN ADDITION, ALL NEW PLANT MATERIAL FOR THE PROJECT SHALL BE OF SPECIMEN QUALITY.
4. ALL NEW PLANTS TO BE BALLED AND BURLAPPED OR CONTAINER-GROWN, UNLESS OTHERWISE NOTED ON THE PLANT LIST.
5. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
6. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE, AND ONLY AFTER WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
7. CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND SHALL REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT.
8. STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY OWNER'S REP PRIOR TO THE COMMENCEMENT OF PLANTING.
9. NEW SHRUBS AND GROUND COVER SHALL BEAR THE SAME RELATIONSHIP TO GRADE AS IT BORE TO PREVIOUS GRADE. TREES SHALL BE SET 3" HIGHER THAN PREVIOUS GRADE. NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.
10. ALL PLANT BEDS TO RECEIVE THREE INCHES (3") OF BARK MULCH AS PER THE SPECIFICATIONS.
11. ALL EXISTING TREES TO REMAIN SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. PROTECTION TECHNIQUES SHALL BE REVIEWED AND APPROVED BY THE OWNER'S REP.
12. PRUNE EXISTING AND NEW TREES IN ACCORDANCE WITH THE SPECIFICATIONS.
13. CONTRACTOR SHALL PROVIDE FULL DEPTHS OF LOAM AS NOTED ON DETAILS AND AS SPECIFIED, FOR ALL PLANTING.
14. ALL TREES TO BE REMOVED FROM SCOPE OF WORK SHALL INCLUDE GRINDING OF STUMP AND REMOVAL OFF-SITE.
15. ANY EXISTING TREES AFFECTED BY CONSTRUCTION SHALL HAVE ROOTS PRUNED PER THE SPECIFICATIONS.
16. ALL PLANTS ON THE PLANTING SCHEDULE. COMPLY WITH THE TOWN OF FRANKLIN'S BEST DEVELOPMENT PRACTICES GUIDEBOOK. PLANTS INDICATED AS NATIVE CAN BE FOUND ON THE TOWN'S RECOMMENDED LIST OF PLANTS. ALL OTHER PLANTS INDICATED ARE NON-INVASIVE AND PER THE GUIDEBOOK ARE APPROVED TO BE INSTALLED IN THIS LOCATION. THEY HAVE BEEN SELECTED FOR HARDINESS, TOLERANCE TO SALT, POLLUTION AND SOLAR ORIENTATION PREFERENCES.

PLANTING SCHEDULE

SYM	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING/NOTES
SHADE TREES					
GIN BIL	3	<i>Ginkgo biloba</i>	Ginkgo	2 - 2 1/2" CAL	B&B
GLE TRI	1	<i>Gleditsia triacanthos</i>	Honeylocust	2 - 2 1/2" CAL	B&B
CAR CAR	4	<i>Carpus carolinia</i>	American Hornbeam	2 - 2 1/2" CAL	B&B, NATIVE
ORNAMENTAL TREES					
AME CAN	2	<i>Amelanchier canadensis</i>	Serviceberry	8-10' HT.	B&B; Multi-stem, NATIVE
COR KOU	3	<i>Cornus kousa</i>	Kousa Dogwood	8-10' HT.	B&B; Multi-stem
EVERGREEN TREES					
THU PLI	4	<i>Thuja plicata 'Nana'</i>	Dwarf Western Arbovitae	8-10' HT.	B&B
EVERGREEN SHRUBS					
ILE GLA C	27	<i>Ilex glabra 'compacta'</i>	Compact Inkberry	24"-36" HT	36" O.C. NATIVE
ILE GLA	38	<i>Ilex glabra</i>	Inkberry	24"-36" HT	42" O.C. NATIVE
LEU FON	44	<i>Leucothoe fontanesiana 'Compacta'</i>	Compact Drooping Leucothoe	2 Gal.	48" O.C. NATIVE
TAX MED	33	<i>Taxus media 'Hill's Upright'</i>	Hill's Upright Yew	36"-48" HT	36" O.C.
DECIDUOUS SHRUBS					
CLE ALN	23	<i>Clethra alnifolia 'Compacta'</i>	Compact Summersweet	3 Gal.	48" O.C. NATIVE
COR SER	29	<i>Cornus Sericea 'kelsey'</i>	Kelsey Dogwood	3 Gal.	48" O.C. NATIVE
HYD SUM	16	<i>Hydrangea 'Endless Summer'</i>	Endless Summer Hydrangea	3 Gal.	36" O.C.
RHU ARO	83	<i>Rhus aromatica 'Gro Low'</i>	Gro-Low Fragrant Sumac	3 Gal.	36" O.C. NATIVE
ORNAMENTAL GRASSES AND PERENNIALS					
JUN COM	21	<i>Juniperus communis</i>	Common Juniper	1 Gal.	24" O.C. NATIVE
LIR SPI	177	<i>Liriope spicata</i>	Lily Turf	1 Gal.	18" O.C.
PAN VIR	80	<i>Panicum virgatum 'Shenandoah'</i>	Switch Grass	1 Gal.	36" O.C. NATIVE
PEN ALO	84	<i>Pennisetum alopecuroides 'hameln'</i>	Hameln Fountain Grass	1 Gal.	36" O.C.

NOT FOR CONSTRUCTION

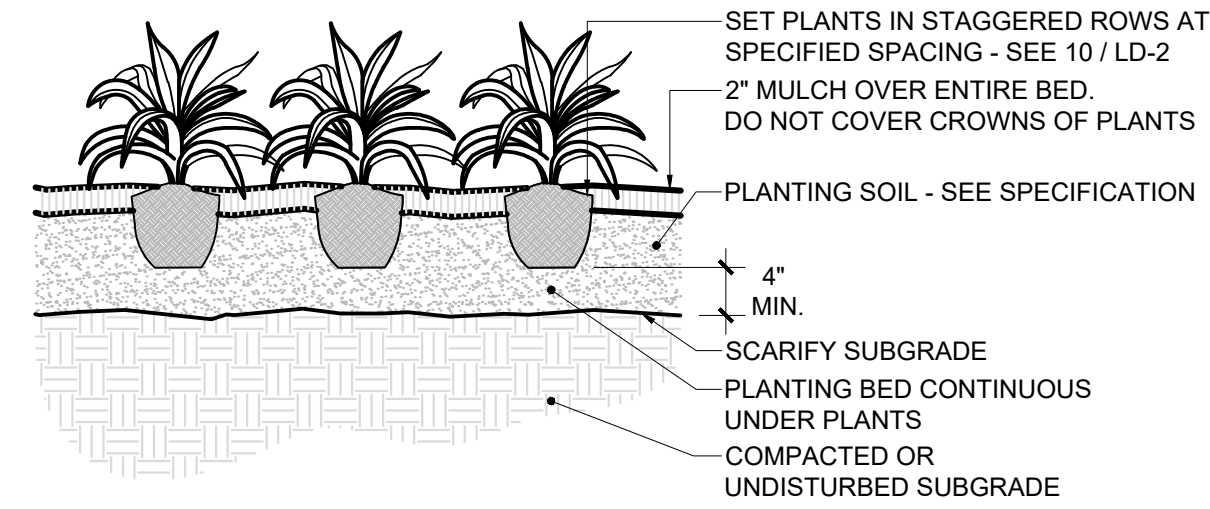
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ISSUE CHART

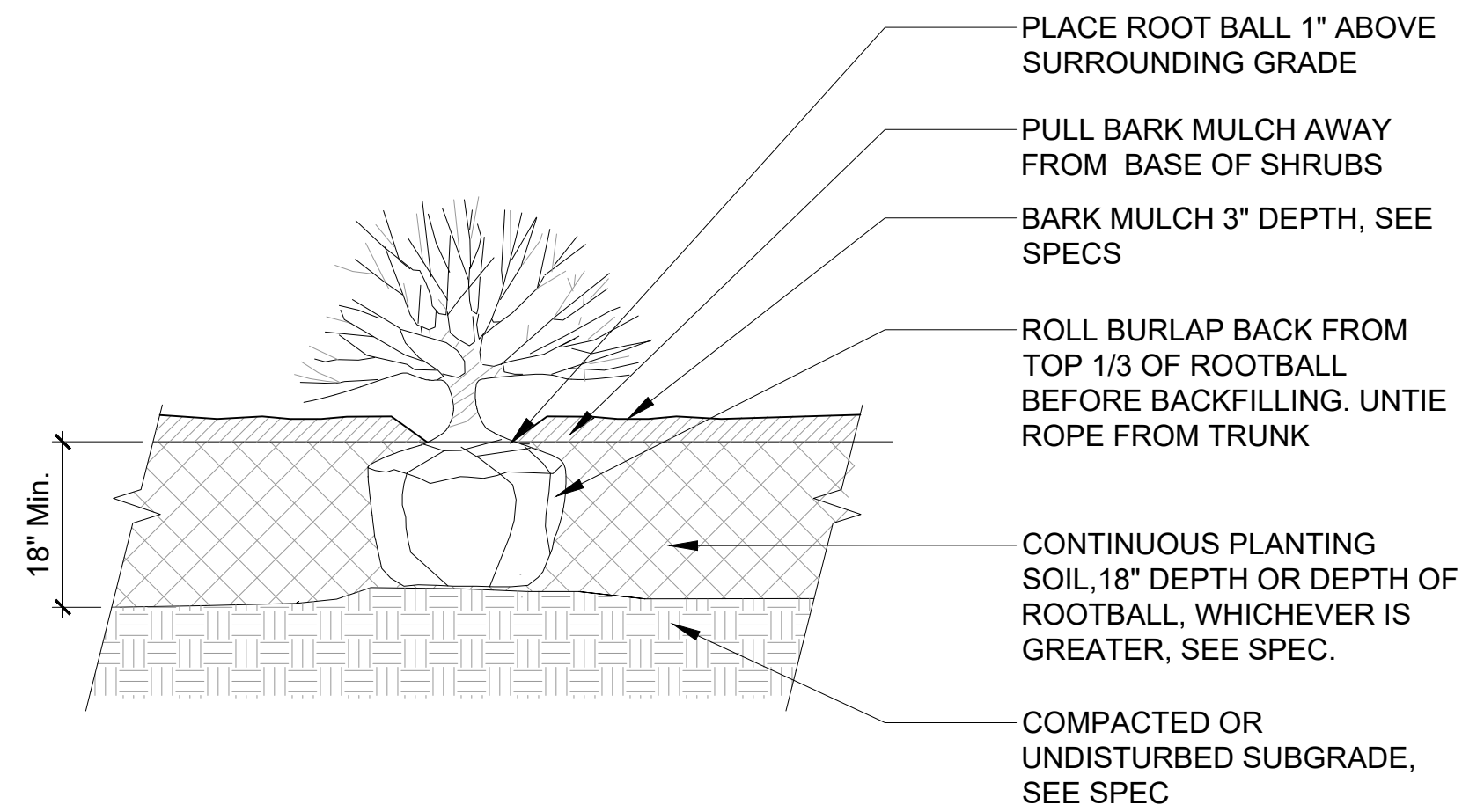
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OCTOBER 8, 2021	440	JL	JL	1"= 20'-0"	LA-01

SITE LANDSCAPE PLAN

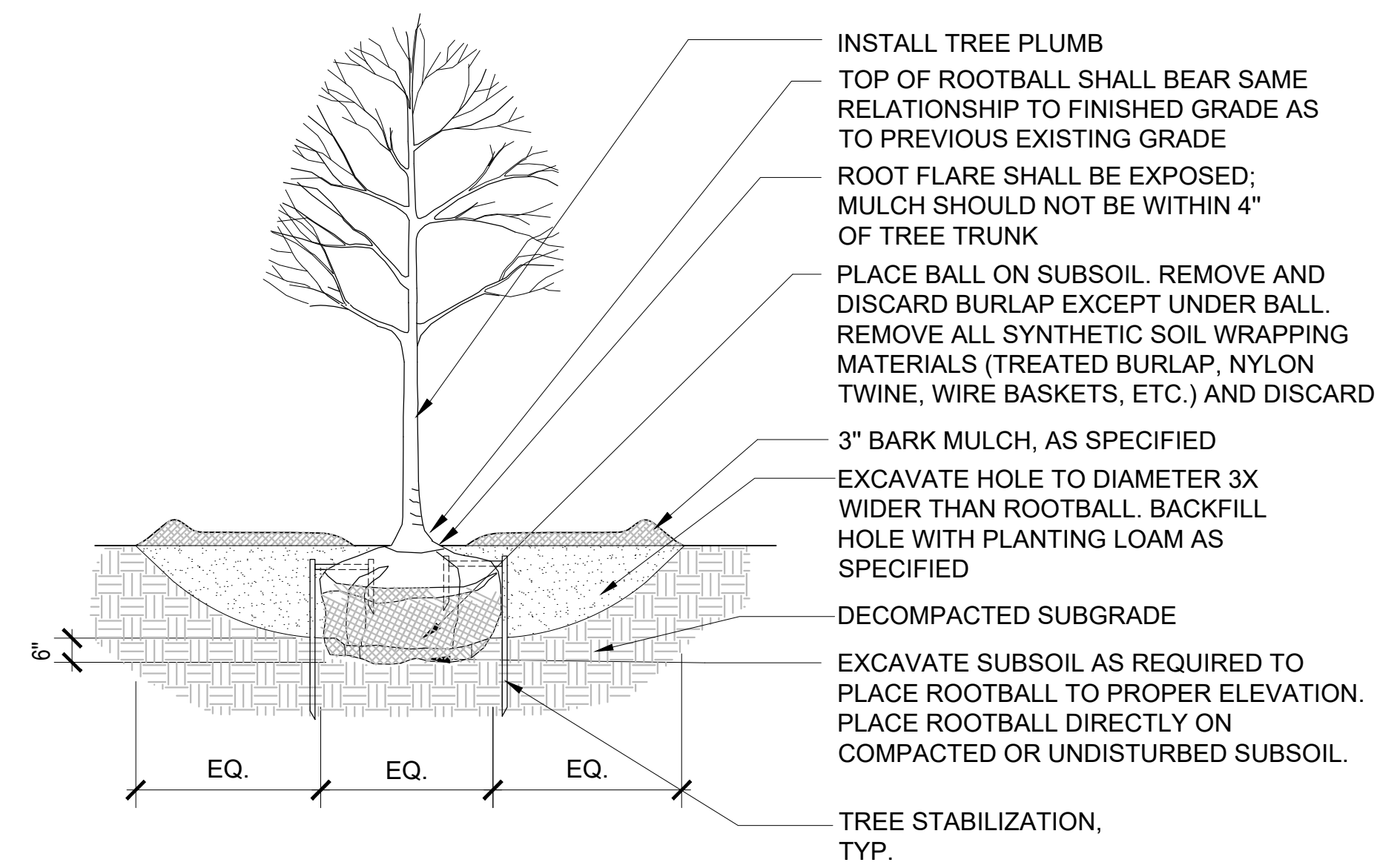
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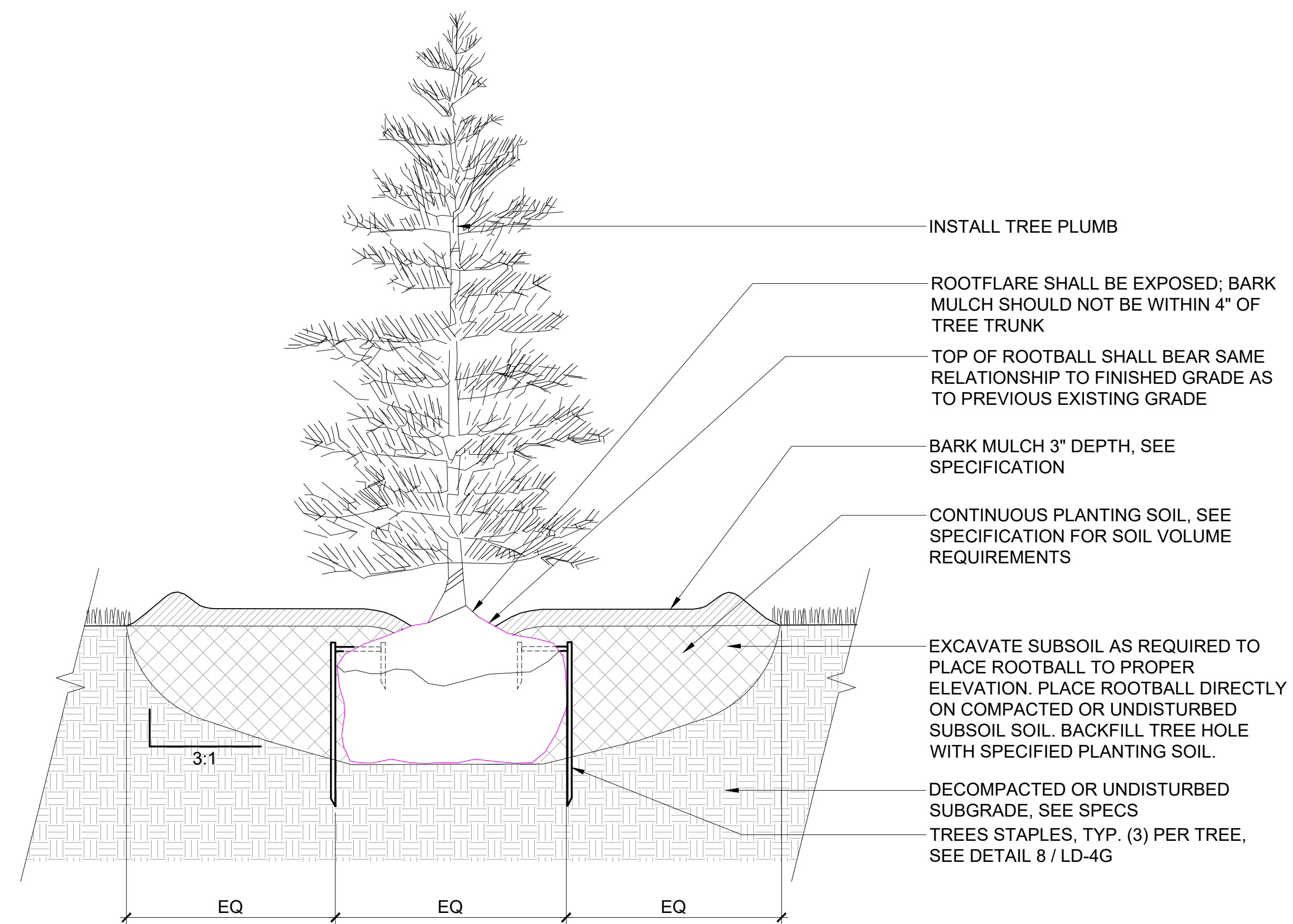
4 PERENNIAL/GROUNDCOVER PLANTING
SCALE: NTS



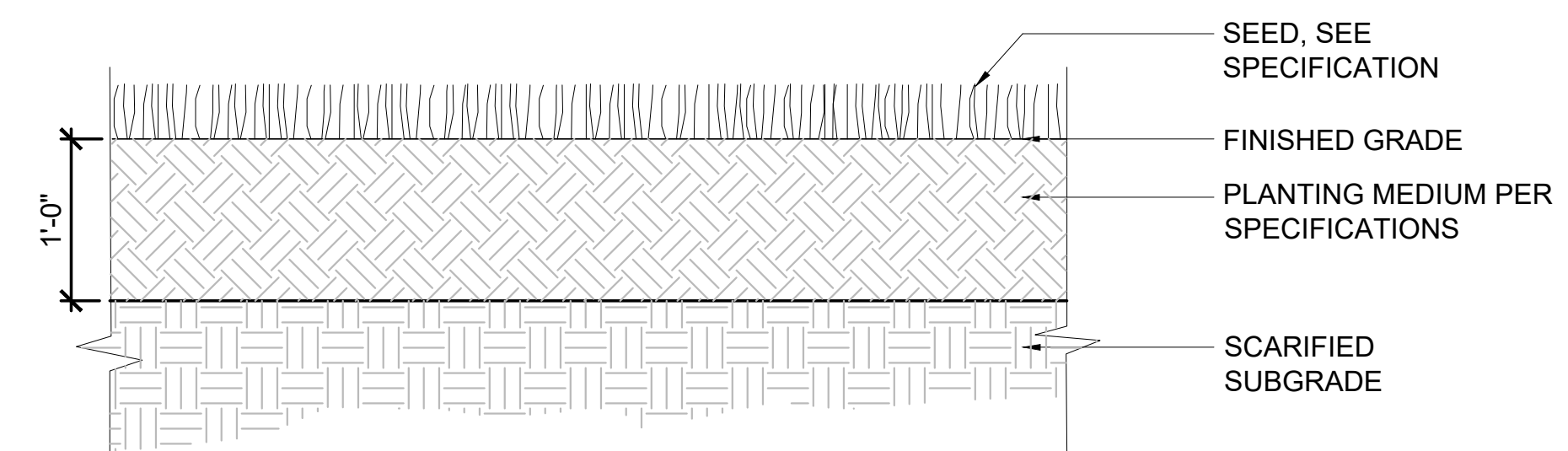
5 SHRUB PLANTING
SCALE: NTS



1 DECIDUOUS TREE PLANTING
SCALE: NTS



2 EVERGREEN TREE PLANTING
SCALE: NTS



3 SEEDED LAWN
SCALE: NTS



APPROVED DATE: _____
FRANKLIN PLANNING BOARD

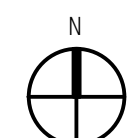
DATE: _____
BEING A MAJORITY

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OCTOBER 8, 2021	DATE
440	PROJECT NUMBER
JL	CHECKED
JL	APPROVED
1"= 20'-0"	SCALE
	SHEET NAME

**SITE LANDSCAPE
DETAILS**



NOT FOR CONSTRUCTION

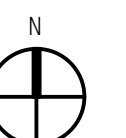
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ISSUE CHART

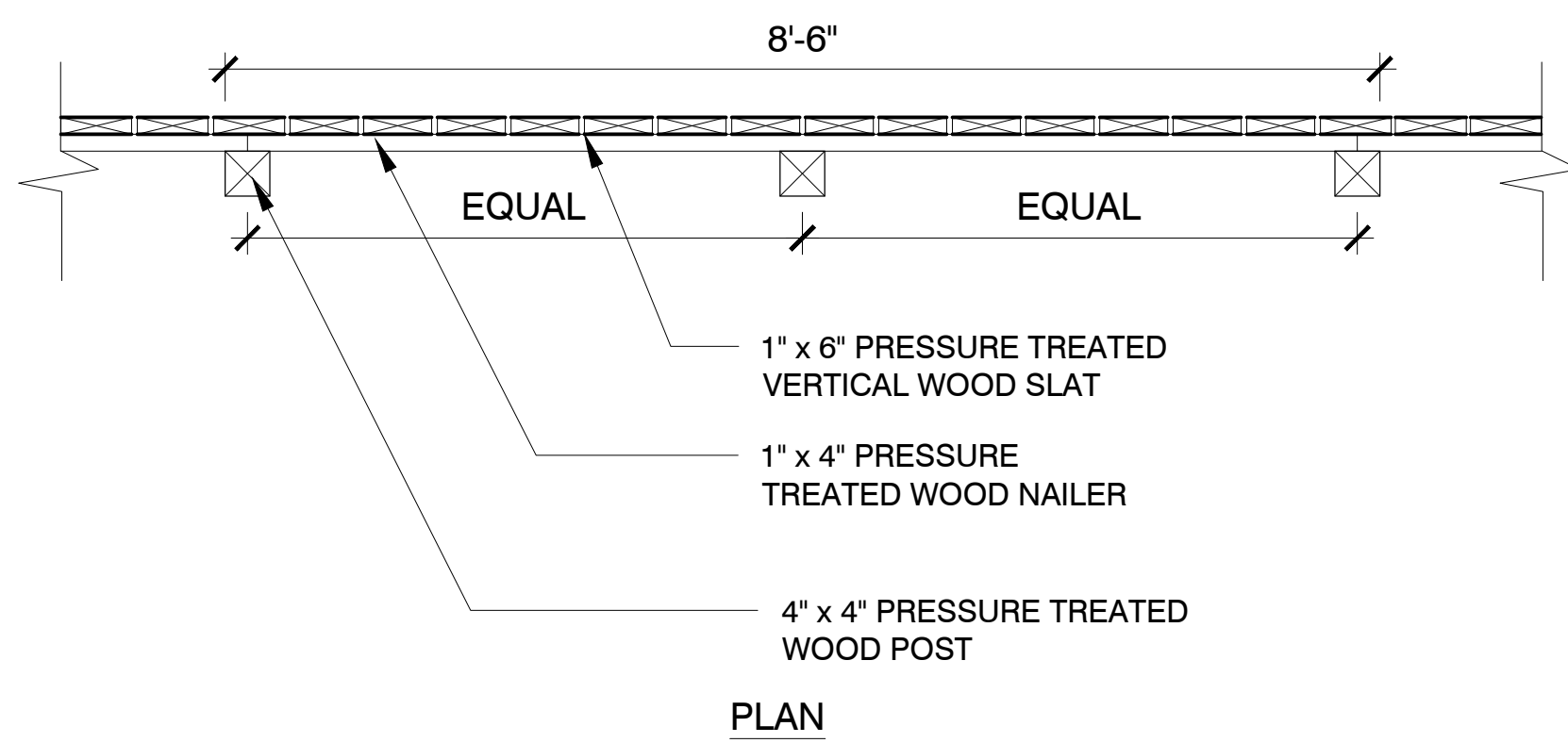
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OCTOBER 8, 2021	440	JL	JL	1"= 20'-0"	

**SITE LANDSCAPE
DETAILS**

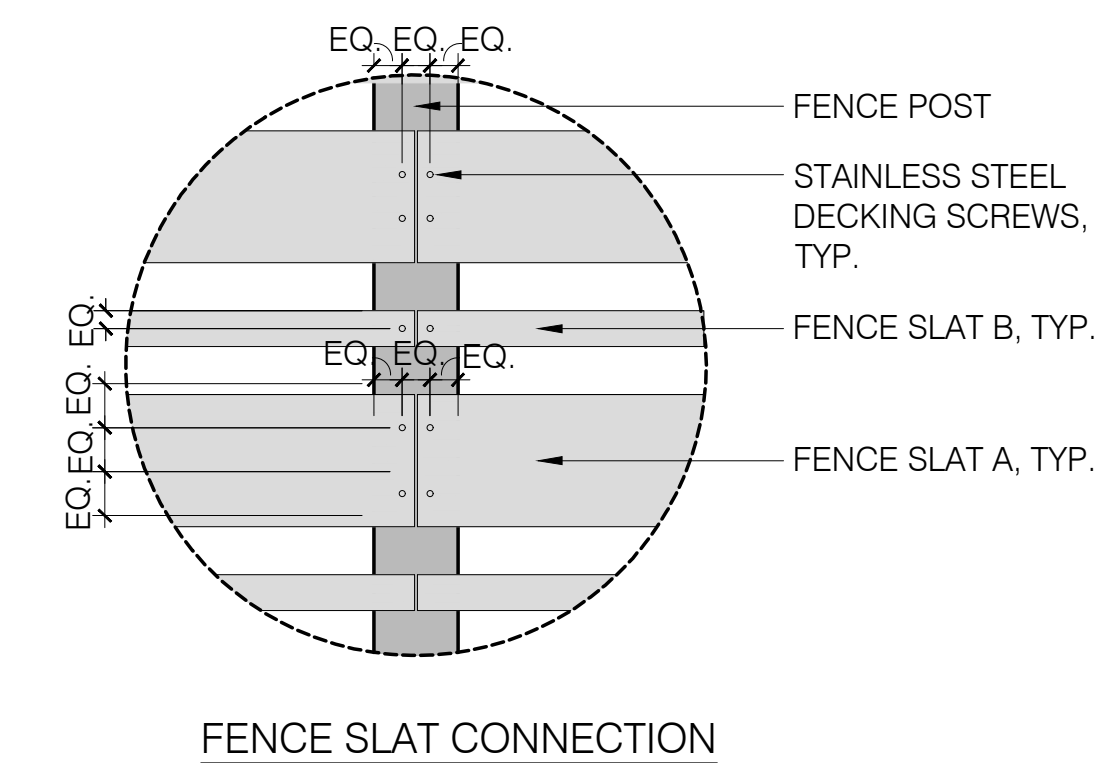
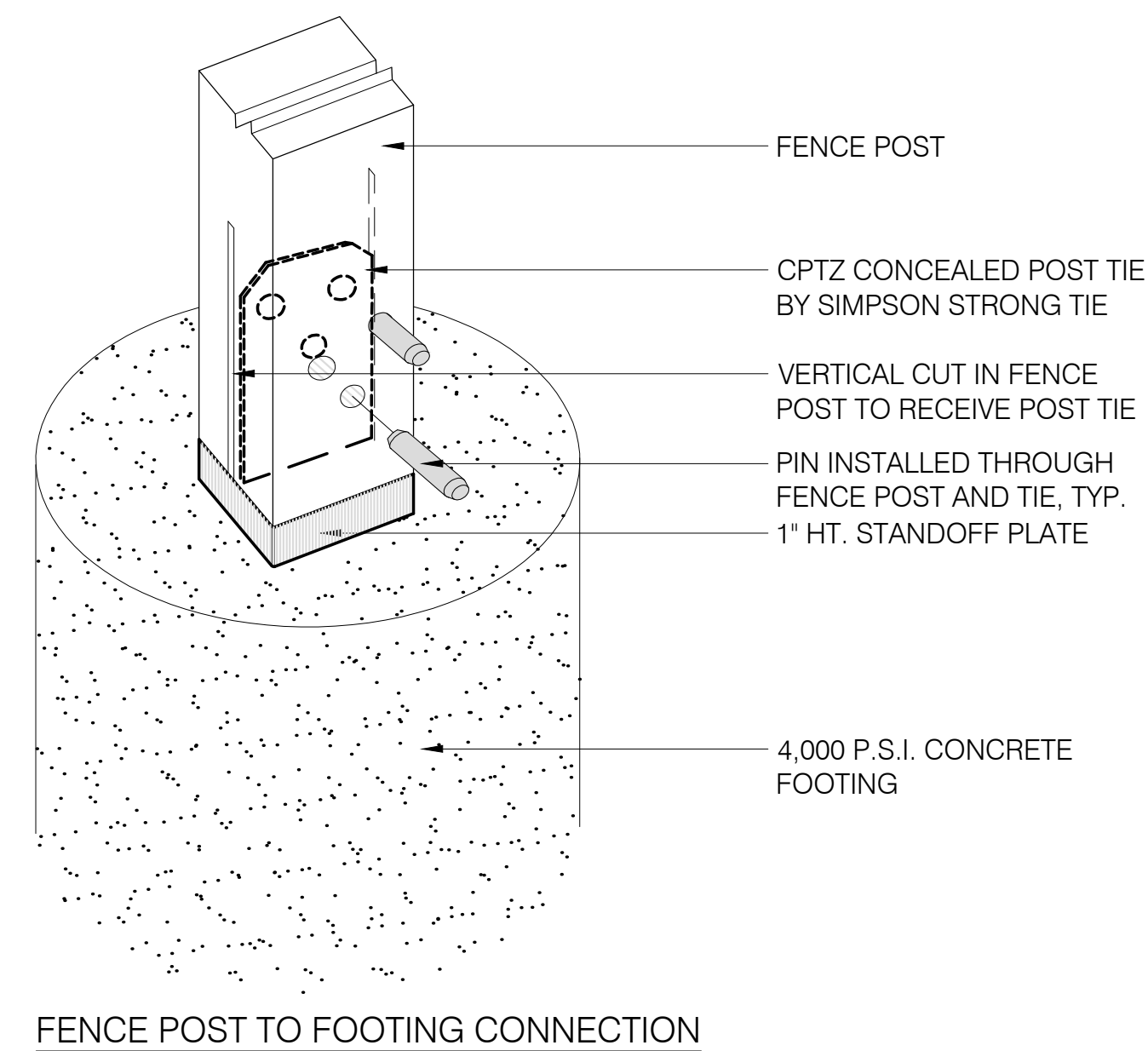
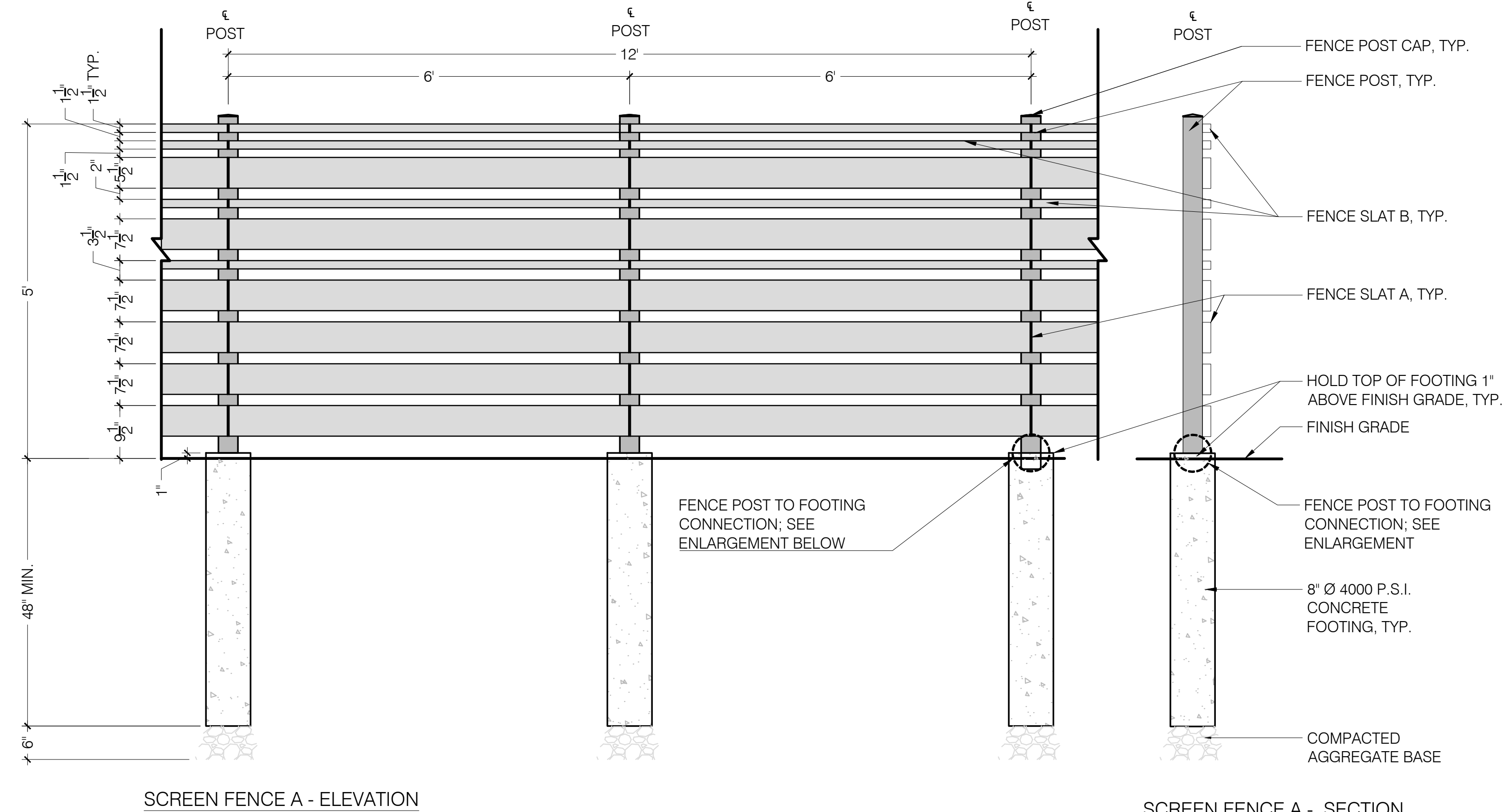
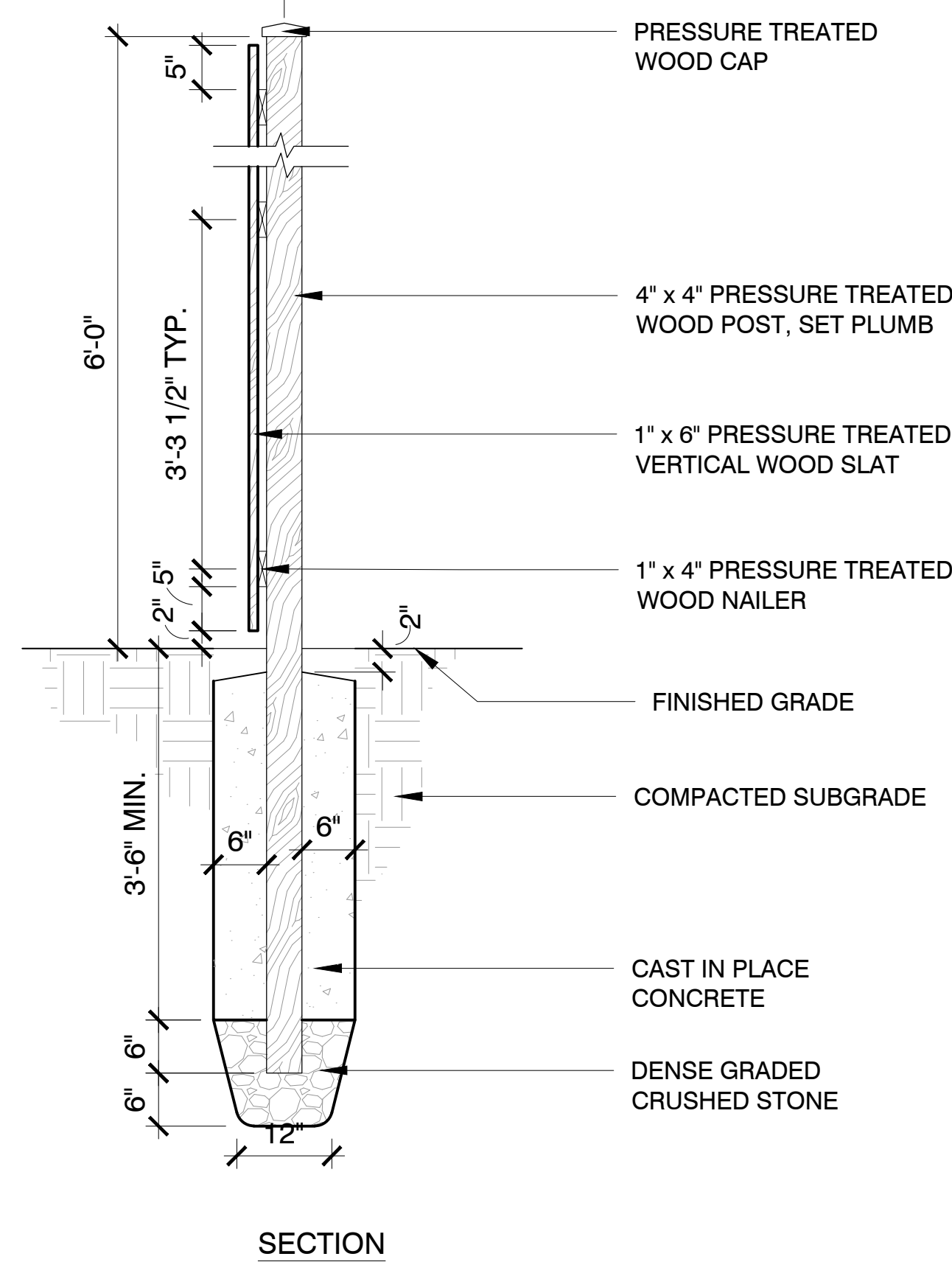
SHEET NUMBER



LA-03



← ADJACENT PROPERTY PARKING LOT →



NOTES:

1. FENCE POST SHALL BE 4X4 NOM. EASTERN RED CEDAR POST
2. FENCE SLAT 'A' SHALL BE 2X6 NOM. EASTERN RED CEDAR BOARD
3. FENCE SLAT 'B' SHALL BE 2X2 NOM. EASTERN RED CEDAR BOARD
4. GAPS BETWEEN FENCE SLATS SHALL BE 2" CLEAR, TYP. EXCEPT WHERE SHOWN ON THE DETAIL
5. ALL FENCE PANELS SHALL BE INSTALLED PARALLEL WITH VARYING HORIZONTAL AND LINEAR OFFSETS.
6. PROVIDE SHOP DRAWINGS PRIOR TO FABRICATION.

2 6' HT. WOOD STOCKADE FENCE
SCALE: NTS

1 WOOD SCREEN FENCE AT OUTDOOR TERRACE
SCALE: NTS



APPROVED DATE: _____
FRANKLIN PLANNING BOARD

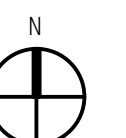
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OCTOBER 8, 2021	DATE
440	PROJECT NUMBER
JL	CHECKED
JL	APPROVED
1"= 20'-0"	SCALE
	SHEET NAME

**SITE LANDSCAPE
PLANT IMAGERY**



DECIDUOUS TREES -

- Carpinus caroliniana* American Hornbeam
- Ginkgo biloba* Maidenhair Tree
- Gleditsia tricanthos* Thornless Honeylocust

ORNAMENTAL TREES -

- Amelanchier canadensis* Serviceberry
- Cornus kousa* Kousa Dogwood

EVERGREEN TREES -

- Thuja plicata 'Nana'* Dwarf Western Arborvitae



TREE PLANTING OPTIONS
MAY 17, 2021

EVERGREEN SHRUBS -

- Taxus media 'Hill's Upright'* Hill's Upright Yew
- Ilex glabra 'Compacta'* Compact Inkberry
- Ilex glabra* Inkberry

DECIDUOUS SHRUBS -

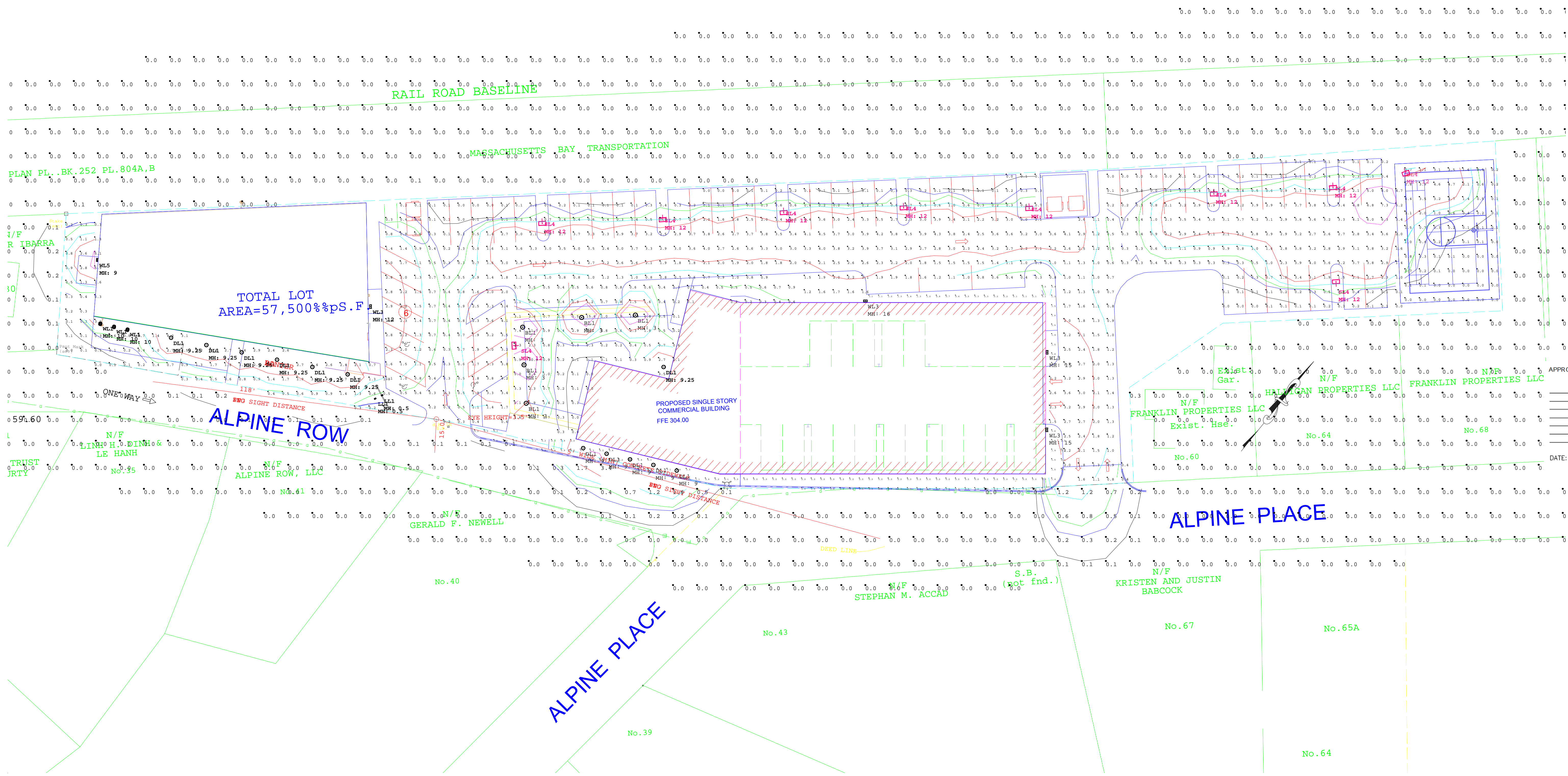
- Hydrangea macrophylla 'Endless Summer'* Endless Summer Hydrangea
- Rhus aromatica 'Gro-low'* Gro-low Fragrant Sumac
- Clethra alnifolia* Summersweet Clethra
- Cornus sericea* Redtwig Dogwood

PERENNIALS/GRASSES/GROUNDCOVER -

- Liriope muscari* Blue Lilyturf
- Pennisetum alopecuroides* Fountain Grass
- Panicum virgatum 'Shenandoah'* Shenandoah Switch Grass
- Juniperus communis* Common Juniper



SHRUB & PERENNIAL PLANTING OPTIONS
MAY 17, 2021



Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Lumens
○	2	LL1	SINGLE	0.900	FL1A-BLT(BLACK)-RND-C4-K1-118-0 / M	428
○	3	WL1	SINGLE	0.900	H18110-91(BLACK)-1-2-HL-A-91(BLACK)	1295
○	12	DL1	SINGLE	0.900	FM-W9100-FINISH	924
□	4	WL3	SINGLE	0.900	RWL1-48L-25-3K7-3-U	3587
□	10	SL4	SINGLE	0.900	RAR-1-80L-50-3K7-4W-BC	3663
□	1	WL5	SINGLE	0.900	SG1-10-3K	1346
○	5	BL1	SINGLE	0.900	S-KK0103US-16A-0870007A-730-16US	1255
□	1	WALL LIGHT	SINGLE	0.900	RWL1-48L-45-3K7-4W-U	5484

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
BASKETBALL COURT	Illuminance	Fc	0.86	4.7	0.0	N.A.	N.A.
GREEN SPACE	Illuminance	Fc	1.60	15.6	0.0	N.A.	N.A.
PARKING LOT	Illuminance	Fc	1.61	7.3	0.0	N.A.	N.A.
SIDEWALK	Illuminance	Fc	1.05	6.1	0.0	N.A.	N.A.
SPILL LIGHT	Illuminance	Fc	0.04	3.4	0.0	N.A.	N.A.
STRUCTURE A STORAGE AREA	Illuminance	Fc	1.34	5.9	0.2	6.70	29.50
STRUCTURE A STREET AREA	Illuminance	Fc	1.48	4.4	0.0	N.A.	N.A.
TRACKS	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.

** IF REFLECTANCE VALUES ARE NOT PROVIDED, STANDARD VALUES WILL BE USED