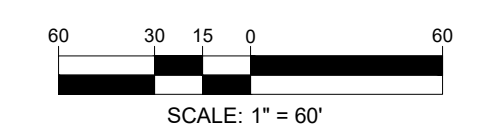


WETLAND RESOURCE AREA  
PER ORDER OF RESOURCE  
AREA DELINEATION  
(MASSDEP FILE #090-1430)  
APPROVED ON 03/11/2024

PROP. MIXED USE BUILDING  
95,200 SF FOOTPRINT  
432 UNITS  
490 GARAGE SPACES  
2,950 SF RETAIL

WETLAND RESOURCE AREA  
PER ORDER OF RESOURCE  
AREA DELINEATION  
(MASSDEP FILE #090-1430)  
APPROVED ON 03/11/2024

**THIS PLAN TO BE UTILIZED  
FOR SITE LAYOUT PURPOSES  
ONLY**



**BOHLER**  
SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY	CHECKED BY
1	03/03/2026	RESPONSE TO CMTS	WNG ZLR	

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PROJECT No.: MAB250074-00-1A  
DRAWN BY: WG/AT  
CHECKED BY: ZLR  
DATE: 01/09/2025  
CAD ID: P-CIVIL-SITE-MAB250074-00

**JOHN M. CORCORAN & CO.** **SV + P**

PROPOSED  
THE COMMONS AT RIVER ROAD  
100 OLD RIVER ROAD  
ESSEX COUNTY  
TOWN OF ANDOVER, MA 01810  
MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**  
45 FRANKLIN STREET, 5th FLOOR  
BOSTON, MA 02110  
Phone: (617) 849-8040  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

**Z.L. RICHARDS**  
ZACHARY L. RICHARDS  
PROFESSIONAL ENGINEER  
MASSACHUSETTS LICENSE # 81848

SHEET TITLE:  
**OVERALL  
GRADING,  
DRAINAGE, AND  
UTILITY PLAN**  
SHEET NUMBER:  
**C-401**

REVISION 1 - 03/03/2026

MAB250074-00-1A-CIVIL-SITE-MAB250074-00-1A-JAYOUT-C-401 GRAD OVAL



**REVISIONS**

REV	DATE	COMMENT	DRAWN BY	CHECKED BY
1	03/03/2026	RESPONSE TO CMTS	WNG ZLR	

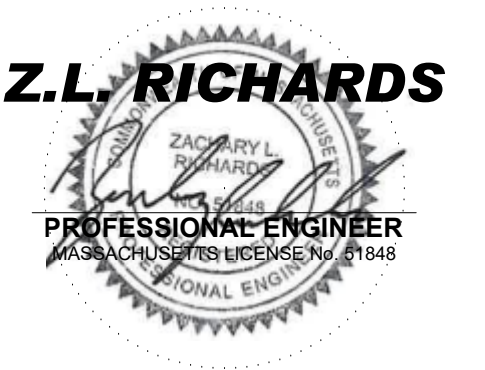
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 DRAWN BY: WNG/AT  
 CHECKED BY: ZLR  
 DATE: 01/09/2025  
 CAD ID: P-CIVIL-SITE-MAB250074-00

**SITE PLAN REVIEW/SPECIAL PERMIT SET**  
 FOR  
**JOHN M. CORCORAN & CO.** **SV + P**  
 PROPOSED THE COMMONS AT RIVER ROAD  
 100 OLD RIVER ROAD  
 ESSEX COUNTY  
 TOWN OF ANDOVER, MA 01810  
 MAP, BLOCK & LOT: 143 - 0 - 8

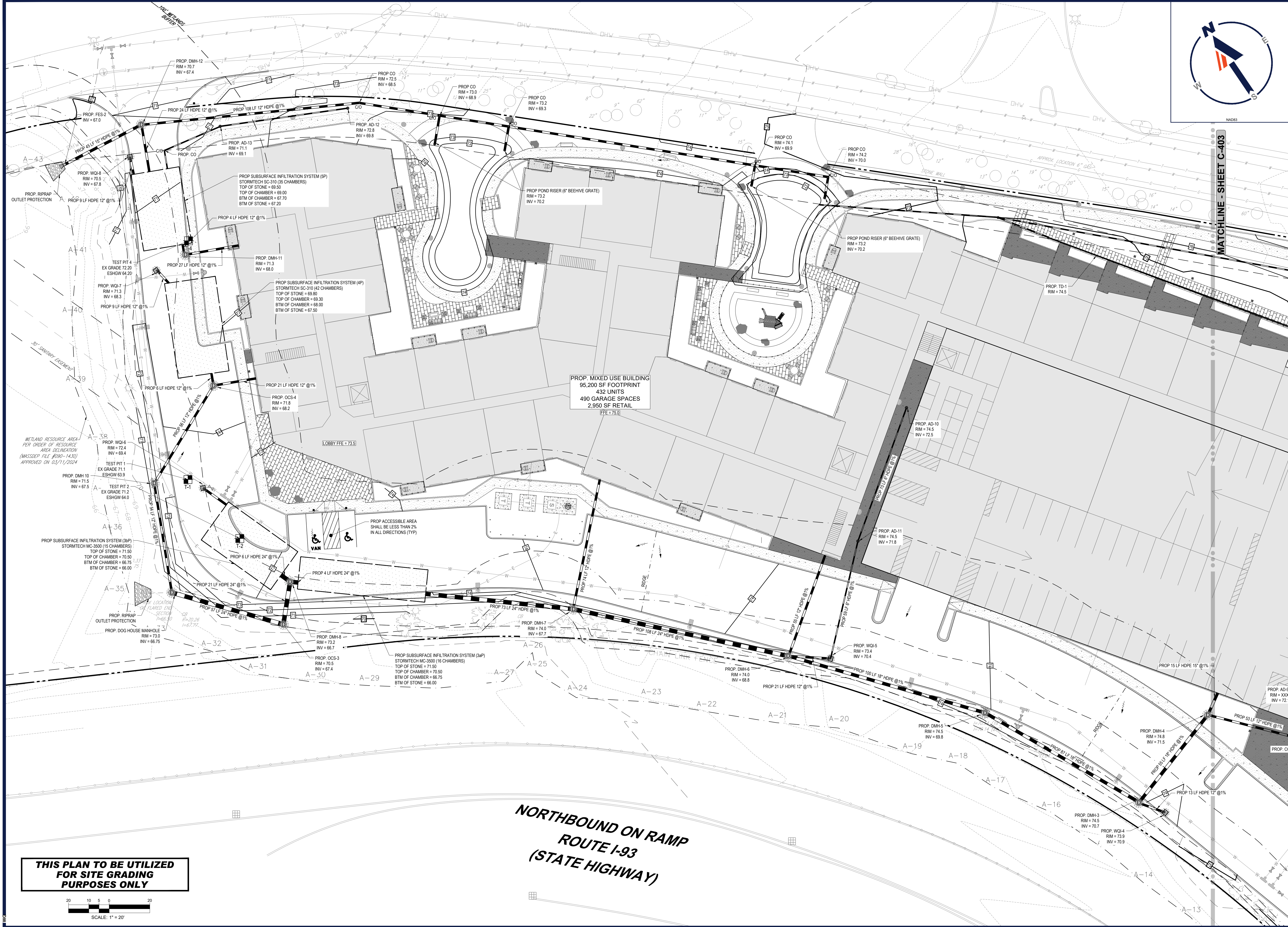
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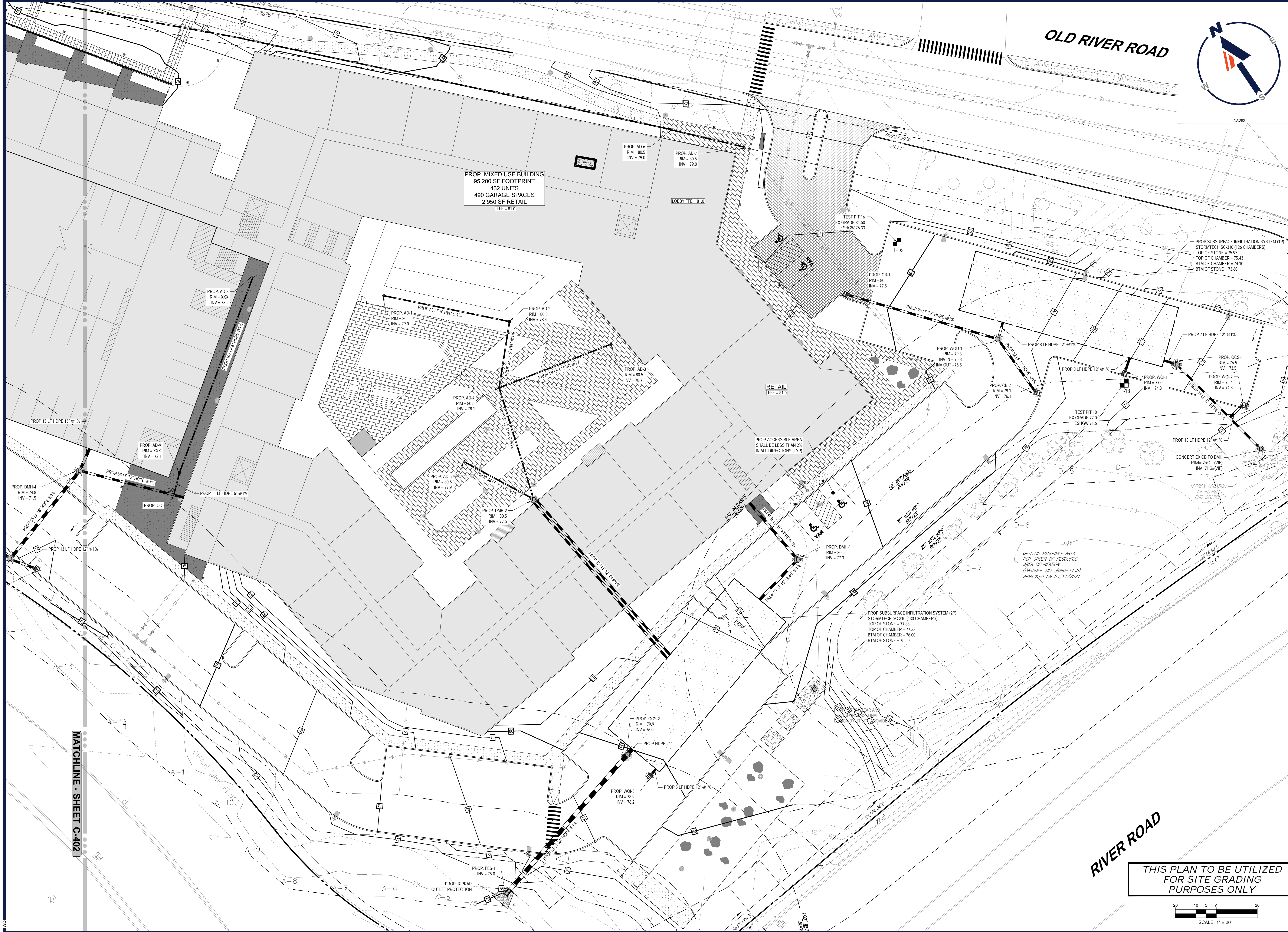


SHEET TITLE:  
**GRADING PLAN A**

SHEET NUMBER:  
**C-402**

REVISION 1 - 03/03/2026





OLD RIVER ROAD



**BOHLER**  
 SITE CIVIL AND CONSULTING ENGINEERING  
 PROGRAM MANAGEMENT  
 LANDSCAPE ARCHITECTURE  
 SUSTAINABLE DESIGN  
 PERMITTING SERVICES  
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	CHECKED BY	DRAWN BY
1	03/03/2026	RESPONSE TO CMTS	WNG	ZLR

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PROJECT No.: MAB250074-00-1A  
 DRAWN BY: WG/AT  
 CHECKED BY: ZLR  
 DATE: 01/09/2025  
 CAD ID: P-CIVIL-SITE-MAB250074-00

PROJECT:

**SITE PLAN REVIEW/SPECIAL PERMIT SET**

FOR

**JOHN M. CORCORAN & CO.** **SV + P**

PROPOSED THE COMMONS AT RIVER ROAD  
 100 OLD RIVER ROAD  
 ESSEX COUNTY  
 TOWN OF ANDOVER, MA 01810  
 MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**

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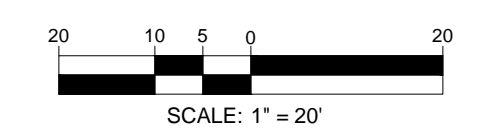
**Z.L. RICHARDS**  
 ZACHARY L. RICHARDS  
 PROFESSIONAL ENGINEER  
 MASSACHUSETTS LICENSE NO. 18148

SHEET TITLE:  
**GRADING PLAN B**

SHEET NUMBER:  
**C-403**

REVISION 1 - 03/03/2026

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY



M:\MAB250074-00\CADD\DRAWINGS\PLAN SET\CIVIL SITE PLAN\SP-CIVIL-SITE-MAB250074-00-1A-1A.dwg - LAYOUT: C-403 GRAD B  
 03/03/2026 10:00 AM

MATCHLINE - SHEET C-402







### MASSACHUSETTS EROSION AND SEDIMENT CONTROL NOTES

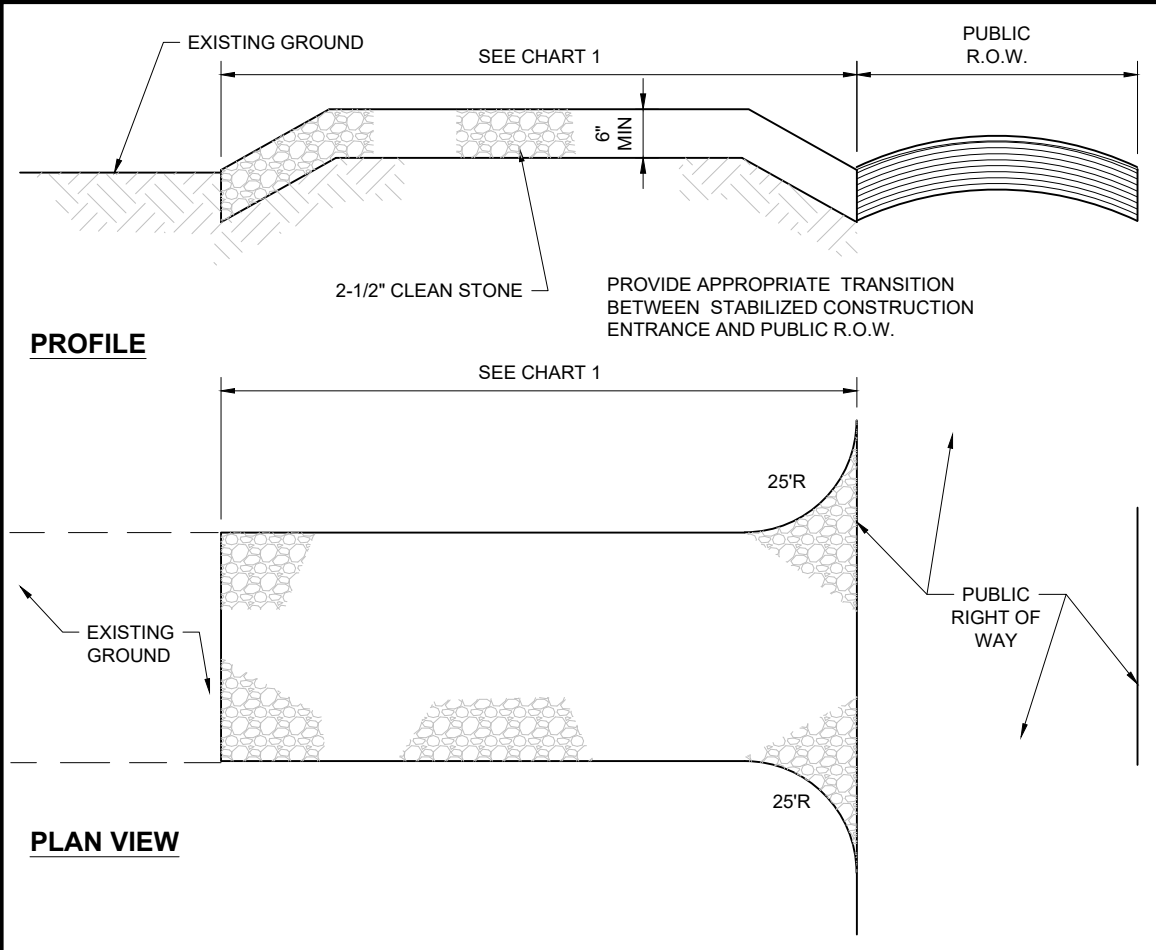
1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. AT A MINIMUM, AREAS SHALL BE PERMANENTLY STABILIZED ACCORDING TO THE CURRENT EDITION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), OR IN THE ABSENCE OF A SWPPP, THEY SHALL BE PERMANENTLY STABILIZED WITHIN 14 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
3. SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 8%.
4. INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED. FOR SEDIMENT CONTROL DEVICES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE DEVICES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1) UNLESS OTHERWISE INDICATED ON THE PLANS. SLOPE PROTECTION FOR SLOPES GREATER THAN 2:1 SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.
7. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
8. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING EROSION.
9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL STANDARDS.
10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
  - a) SIX INCHES, OR DEPTH SPECIFIED ON THE PLAN, OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
  - b) APPLY LIMESTON AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SF).
  - c) FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS. SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN. QUALITY SOO MAY BE SUBSTITUTED FOR SEED WHERE SLOPES DO NOT EXCEED 2:1, SOO ON SLOPES STEEPER THAN 3:1 SHOULD BE PEGGED.
  - d) STRAW MULCH AT THE RATE OF 70-90 TONS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS 70% STABILIZED. FOR EROSION CONTROL MEASURES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE MEASURES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
12. WETLANDS WILL BE PROTECTED WITH BARRIERS CONSISTING OF STRAW BALES, COMPOST TUBES, SILT FENCE OR A COMBINATION THEREOF.
13. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
14. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

LOCATION PROTECTED AREA	MULCH STRAW	MULCH RATE (1000 SF) 100 POUNDS
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS STRAW (ANCHORED)*	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELSIOR MAT	AS REQUIRED
GREATER THAN 3:1	(REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)	

- \* A HYDRO-APPLICATION OF WOOD OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER SHALL BE USED TO ADDITIONAL WIND CONTROL.
  - \* MULCH ANCHORING: ANCHOR MULCH WITH PEG AND TWINE (1 SO, YD/BLOCK); MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LBS/ACRE); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); USE OF A SERRATED STRAIGHT DISK WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.
15. PROPOSED LOCATIONS OF SURFACE STORMWATER MANAGEMENT BASINS CAN BE UTILIZED AS A TEMPORARY SEDIMENT TRAP DURING CONSTRUCTION. TRAPS SHALL BE SIZED AND CONSTRUCTED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS.
  16. TEMPORARY SEDIMENT TRAPS SHALL BE SIZED PER THE CURRENT EDITION OF THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL MANUAL AND SURROUNDING AREAS AND PROVIDE A MINIMUM OF 1,000 CU YD OF TRIBUTARY AREA WITH A MAXIMUM TRIBUTARY AREA OF 5 ACRES, MAINTAIN A 2:1 LENGTH TO WIDTH RATIO, AND NOT EXCEED 5 FT IN HEIGHT. UPON SITE STABILIZATION, ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE TEMPORARY SEDIMENT TRAP EXCAVATED TO 1 FOOT BELOW THE TRAP. THE AREA SHALL THEN BE SCARIFIED TO PREVENT COMPACTION AND PROMOTE INFILTRATION, AND GRADED AND STABILIZED IN ACCORDANCE WITH THE GRADING AND LANDSCAPE PLANS.
  17. STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
  18. EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.
  19. THE CONTRACTOR MUST PERFORM DEWATERING (IF REQUIRED), IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND PAY FOR THE COSTS ASSOCIATED WITH ANY AND ALL NECESSARY DISCHARGE PERMITS ASSOCIATED WITH SAME.
  20. THE CONTRACTOR MUST LOCATE CONSTRUCTION WASTE MATERIAL STORAGE AREAS TO MINIMIZE EXPOSURE TO STORMWATER. THE CONTRACTOR MUST IMMEDIATELY PLACE CONSTRUCTION WASTE IN ON-SITE STORAGE CONTAINERS UNTIL THAT CONSTRUCTION WASTE IS READY FOR OFF-SITE DISPOSAL. THE CONTRACTOR MUST MAINTAIN SPILL PREVENTION AND RESPONSE EQUIPMENT AND MAKE SAME CONTINUOUSLY AVAILABLE ON-SITE FOR USE BY THE CONTRACTOR'S EMPLOYEES WHO MUST BE PROPERLY TRAINED IN THE APPLICATION OF SPILL PREVENTION AND RESPONSE PROCEDURES.
  21. EROSION CONTROL NOTES DURING WINTER CONSTRUCTION
  22. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15
  23. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT THE AMOUNT OF AREA OPEN AT ONE TIME IS MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE AND IN CONFORMANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN SUCH THAT ADEQUATE PROVISIONS ARE EMPLOYED TO CONTROL STORMWATER RUNOFF.
  24. CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
  25. AN AREA SHALL BE CONSIDERED TO HAVE BEEN TEMPORARILY STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR STRAW AT A RATE OF 100 LB PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
  26. FOR AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR A PERIOD EXCEEDING 14 DAYS BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEED. IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEED AT A RATE OF 200-300% HIGHER THAN SPECIFIED FOR MANUFACTURER SEED AND THEN MULCHED AS APPLICABLE. SLOPES SHALL NOT BE LEFT UNSTABILIZED OVER THE WINTER OR IN AREAS WHERE WORK HAS CEASED FOR MORE THAN 14 DAYS UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF SEDIMENT BARRIERS OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
  27. MULCHING REQUIREMENTS:
    - a) BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
    - b) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
    - c) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
  28. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE STORMWATER PREVENTION PLAN.
  29. DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

### GENERAL EROSION AND SEDIMENT CONTROL NOTES

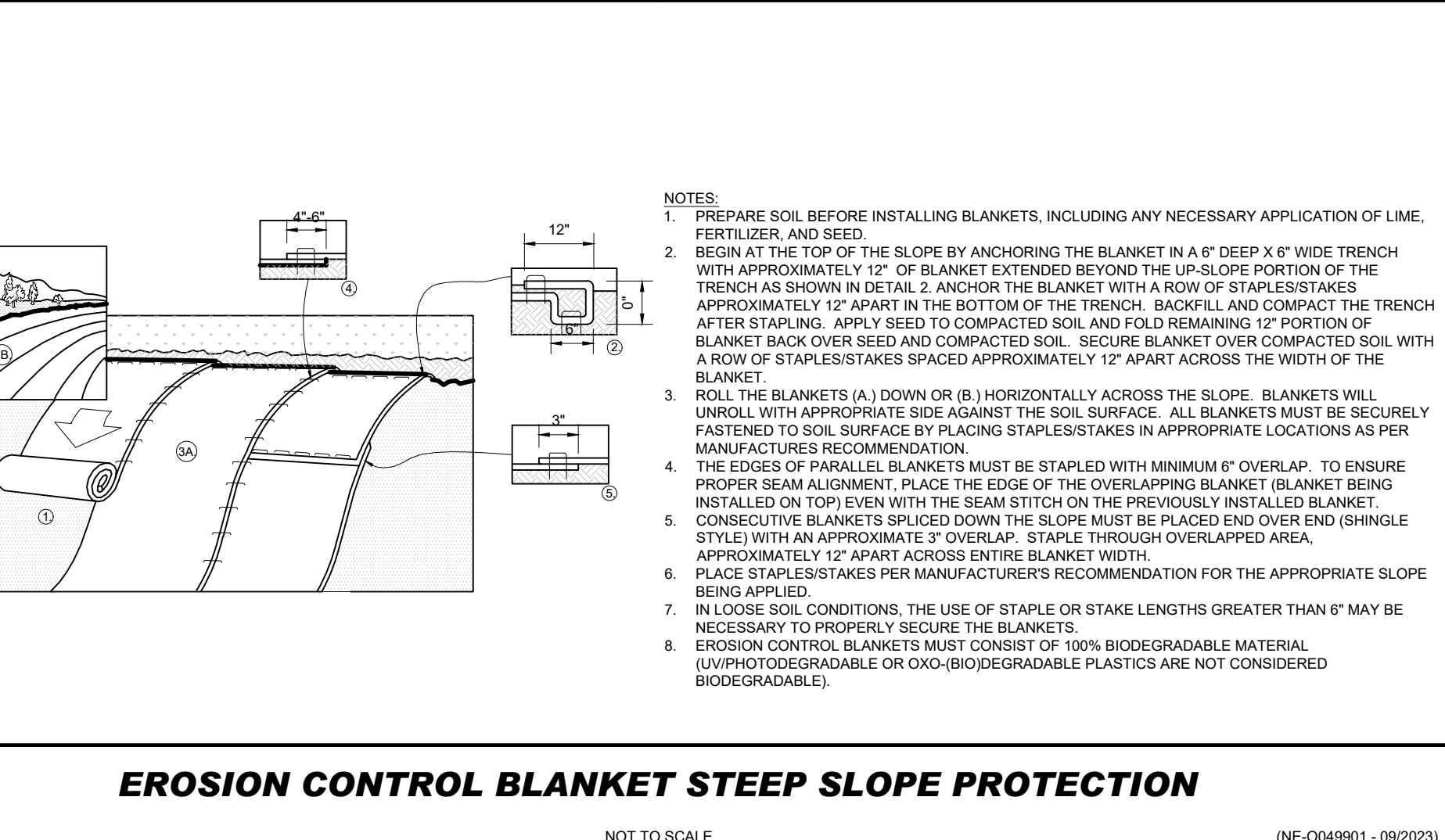
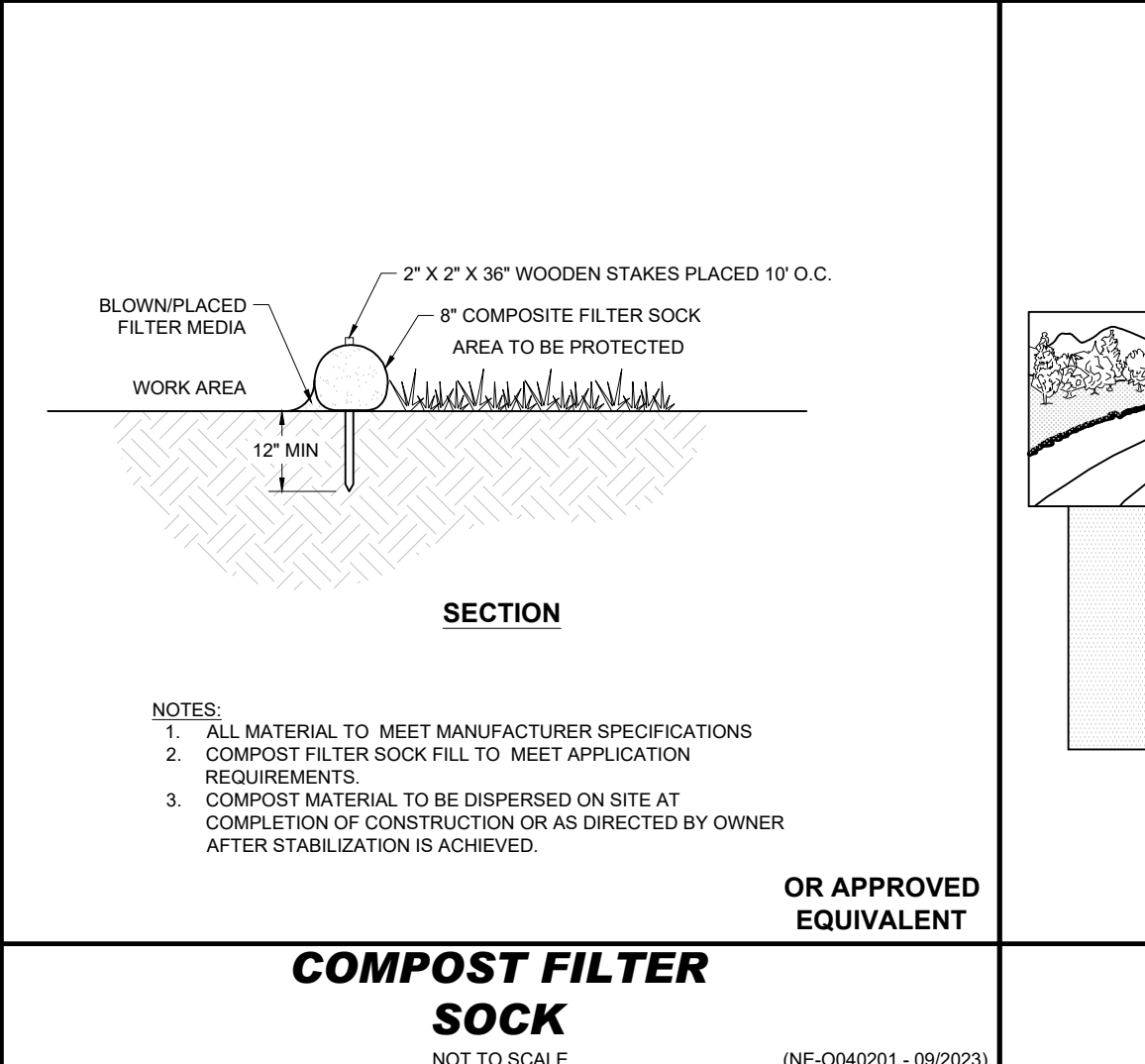
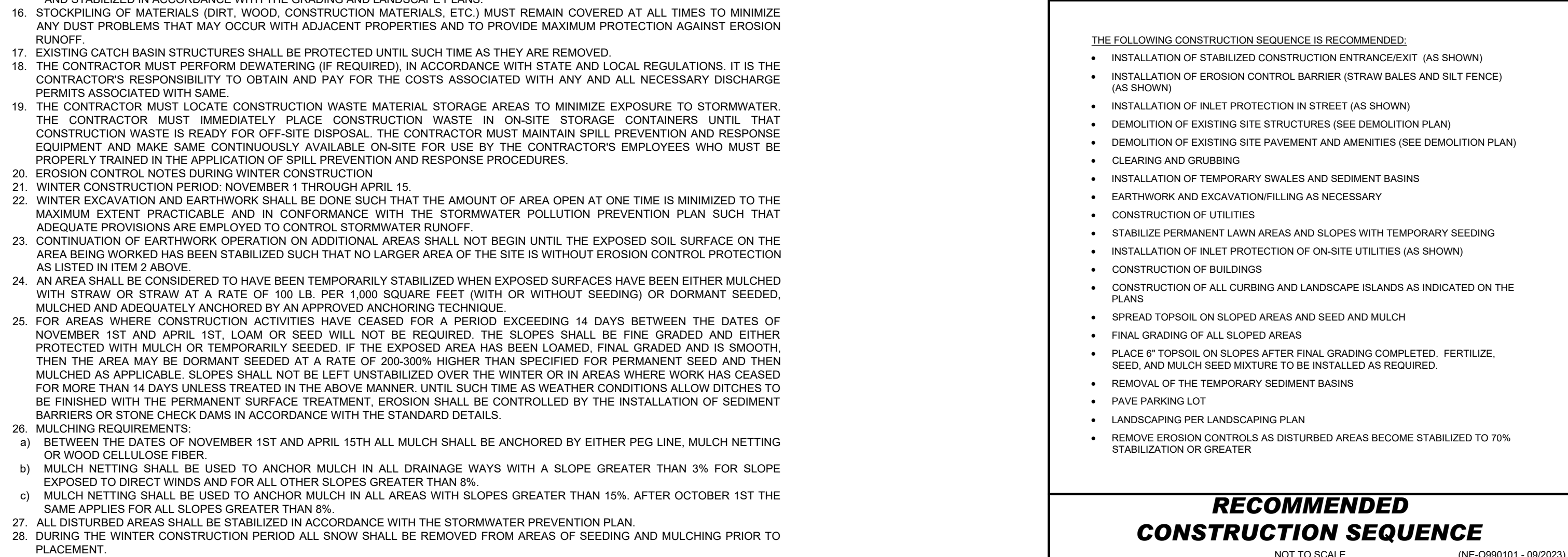
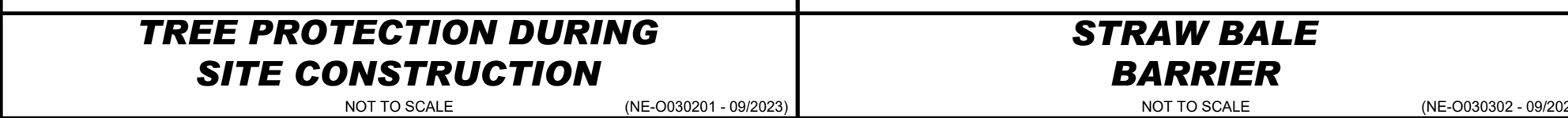
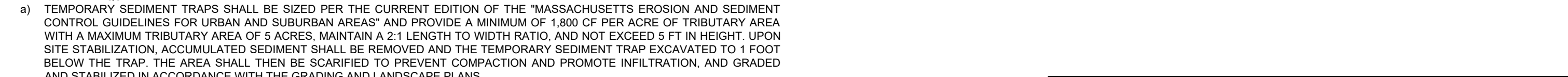
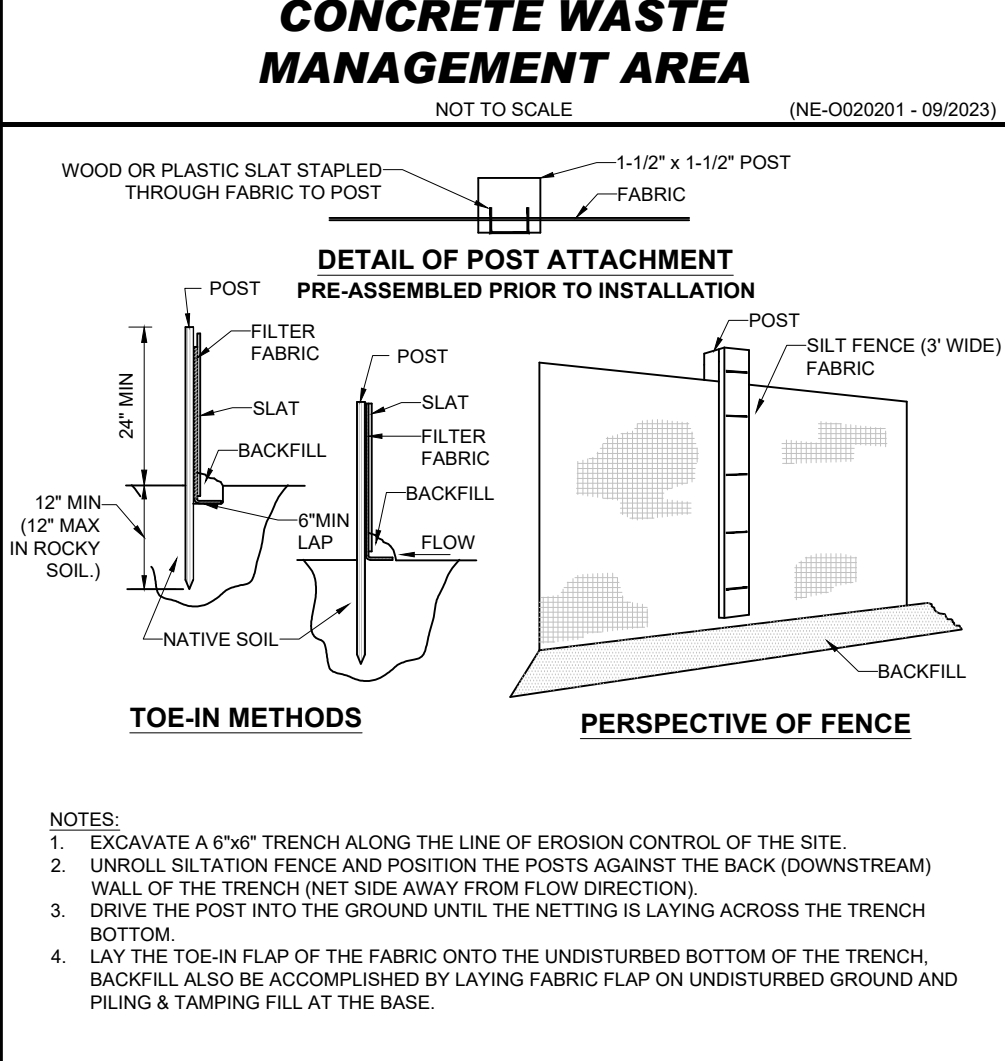
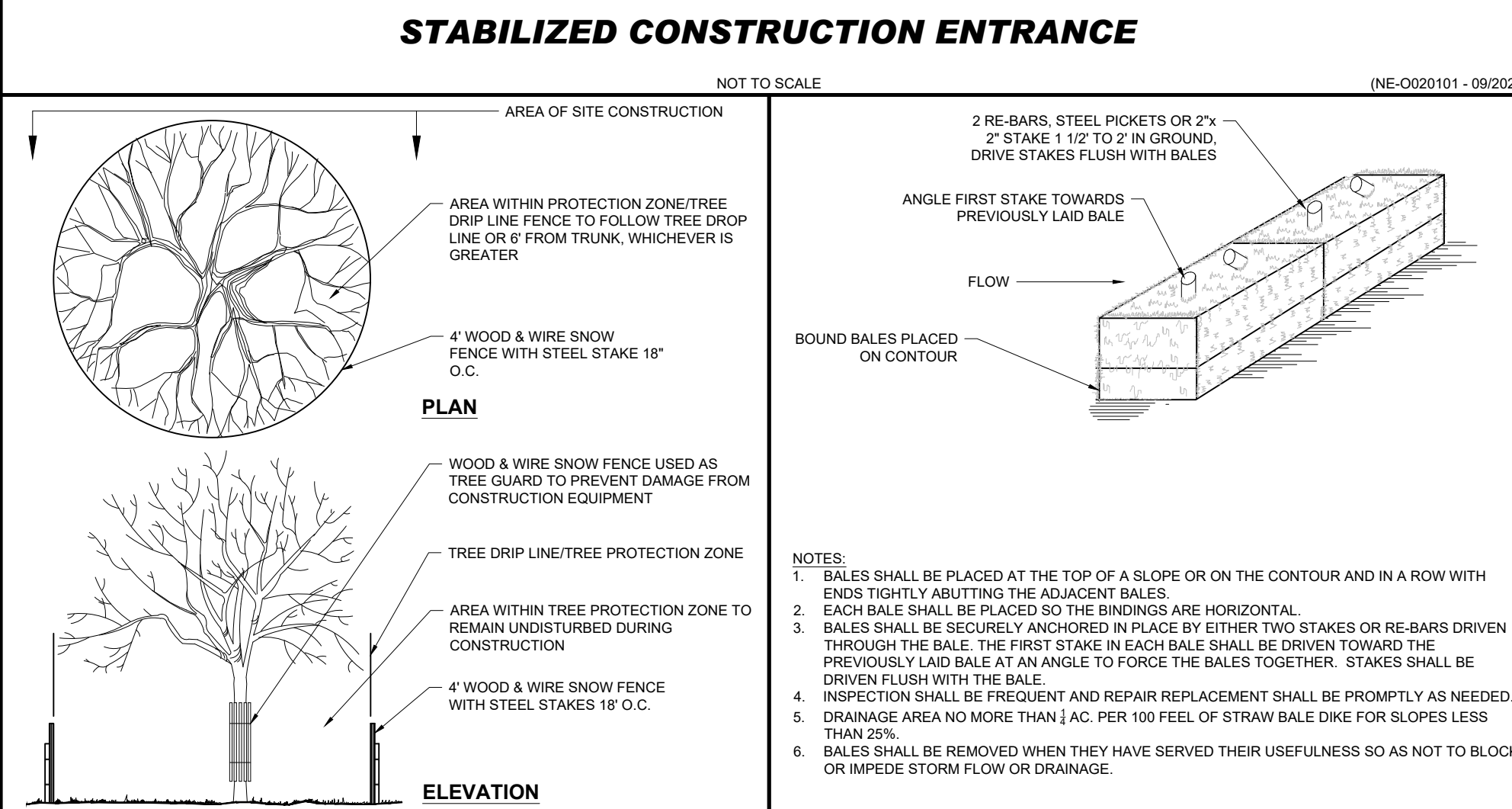
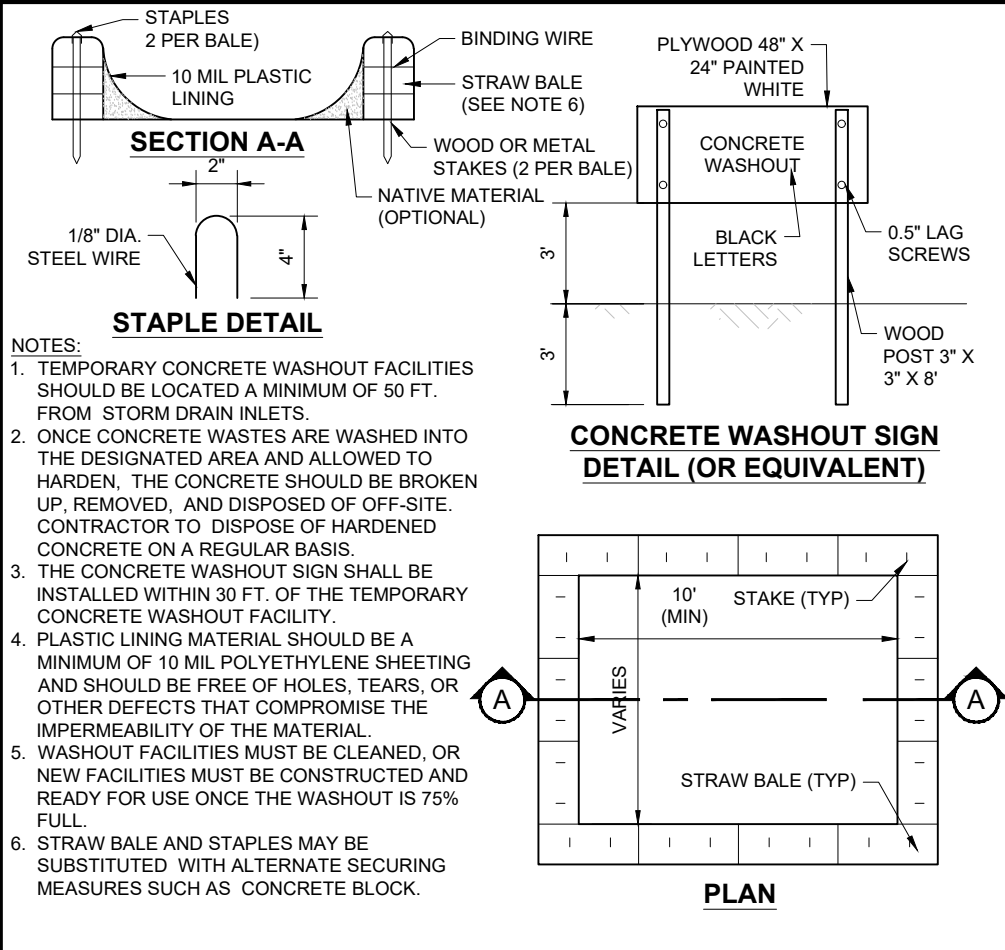
1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. EROSION CONTROL MEASURES MUST CONFORM TO THE STATE, LOCAL, AND FEDERAL GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL, UNLESS OTHERWISE NOTED, OR UNLESS THE PROFESSIONAL OF RECORD CLEARLY AND SPECIFICALLY, IN WRITING, DIRECTS OTHERWISE. INSTALLATION OF EROSION CONTROL, CLEARING, AND SITE WORK MUST BE PERFORMED EXACTLY AS INDICATED IN THE EROSION CONTROL CONSTRUCTION NOTES.
3. THE DISTURBED LAND AREA OF THIS SITE IS APPROXIMATELY XXX.XX ACRES.
4. THE FOLLOWING EROSION CONTROL MEASURES ARE PROPOSED FOR THIS SITE:
  - a) STABILIZED CONSTRUCTION ENTRANCE/EXIT - A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT IS TO BE INSTALLED AT THE DESIGNATED LOCATION SHOWN ON THE PLAN. THIS AREA MUST BE GRADED SO THAT RUNOFF WATER WILL BE RETAINED ON-SITE.
  - b) SEDIMENT FENCE - INSTALL SILT FENCE(S) AND/OR SILT SOCK AROUND ALL OF THE DOWNSLOPE PERIMETERS OF THE SITE, TEMPORARY FILL AND SOIL STOCKPILES.
  - c) INSTALL FILTER FABRIC DROP INLET PROTECTION AROUND EACH DRAINAGE INLET AS DRAINAGE STRUCTURES ARE INSTALLED TO REDUCE THE QUANTITY OF SEDIMENT. INSTALL TEMPORARY INLET PROTECTION ON INLETS DOWNSLOPE FROM DISTURBANCE, WHICH MAY BE BEYOND THE LIMITS OF DISTURBED AREA.
  - d) INSTALLATION OF EROSION CONTROL DEVICES MUST BE IN ACCORDANCE WITH ALL OF THE MANUFACTURER'S RECOMMENDATIONS.
  - e) THE CONTRACTOR MUST INSPECT EROSION CONTROL MEASURES WEEKLY. THE CONTRACTOR MUST REMOVE ANY SILT DEPOSITS GREATER THAN 6 INCHES OR HALF THE EROSION CONTROL BARRIER'S HEIGHT COLLECTED ON THE FILTER FABRIC AND/OR SILT SOCK BARRIERS AND EXCAVATE AND REMOVE ANY SILT FROM DROP INLET PROTECTION.
  - f) FINISHED GRADE AND VEGETATED WITHIN 7 DAYS, WHEN AREAS ARE DISTURBED AFTER THE GROWING SEASON, THE CONTRACTOR MUST STABILIZE SAME WITH GEOTEXTILE FABRIC AND MAINTAIN SAME IN STRICT ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
  - g) THE CONTRACTOR MUST INSTALL ADDITIONAL EROSION CONTROL MEASURES IF THE PROFESSIONAL OF RECORD SO REQUIRES, TO PREVENT ANY, INCLUDING THE INCIDENTAL, DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
  - h) THE CONTRACTOR MUST BE RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION CONTROL MEASURES ON THE SITE UNTIL PERMANENT PAVING AND TURF/LANDSCAPING IS ESTABLISHED. THE COSTS OF INSTALLING AND MAINTAINING THE EROSION CONTROL MEASURES MUST BE INCLUDED IN THE BID PRICE FOR THE SITE WORK AND THE CONTRACTOR IS RESPONSIBLE FOR ALL SUCH COSTS.
  - i) THE CONTRACTOR MUST CONTINUE TO MAINTAIN ALL EROSION CONTROL MEASURES UNTIL THE COMPLETION OF CONSTRUCTION AND THE ESTABLISHMENT OF VEGETATION.
  - j) THE CONTRACTOR MUST REMOVE EROSION CONTROL MEASURES, SILT AND DEBRIS AFTER ESTABLISHING PERMANENT VEGETATION COVER OR OTHER INSTALLING A DIFFERENT, SPECIFIED METHOD OF STABILIZATION.
  - k) THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL FACILITIES, MEASURES AND STRUCTURES. ADDITIONAL FACILITIES, MEASURES AND STRUCTURES MUST BE INSTALLED WHERE NECESSARY TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS AND/OR TO PREVENT ANY, INCLUDING THE INCIDENTAL DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
  - l) THE CONTRACTOR MUST PROTECT ALL EXISTING TREES AND SHRUBS. THE CONTRACTOR MUST REFER TO THE LANDSCAPE AND/OR DEMOLITION PLAN(S) FOR TREE PROTECTION, FENCE LOCATIONS AND DETAILS.
  - m) THE CONTRACTOR MUST REFER TO GRADING PLANS FOR ADDITIONAL INFORMATION.
  - n) THE CONTRACTOR MUST CLEAN EXISTING AND PROPOSED DRAINAGE STRUCTURES AND INTERCONNECTING PIPES ON OR OFF-SITE AS THE JURISDICTION AGENCY REQUIRES, BOTH AT THE TIME OF SITE STABILIZATION AND AT END OF PROJECT.
  - o) SOIL EROSION CONTROL MEASURES MUST BE ADJUSTED OR RELOCATED BY THE CONTRACTOR AS IDENTIFIED DURING SITE OBSERVATION IN ORDER TO MAINTAIN THE COMPLETE EFFECTIVENESS OF ALL CONTROL MEASURES.
  - p) THE CONTRACTOR MUST IDENTIFY THE LOCATION OF WASTE CONTAINERS, FUEL STORAGE TANKS, CONCRETE WASHOUT AREAS AND ANY OTHER LOCATIONS WHERE HAZARDOUS MATERIALS ARE STORED.



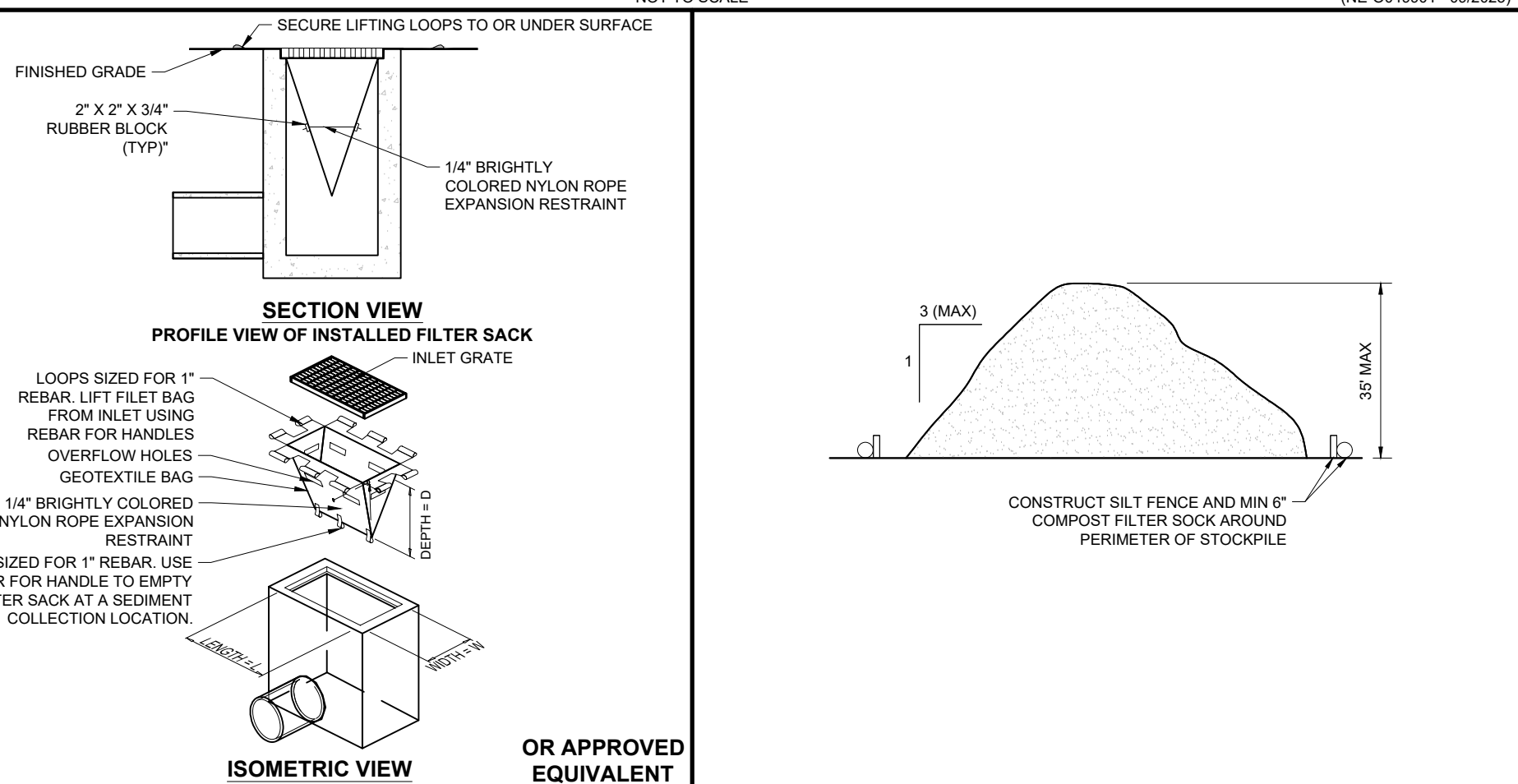
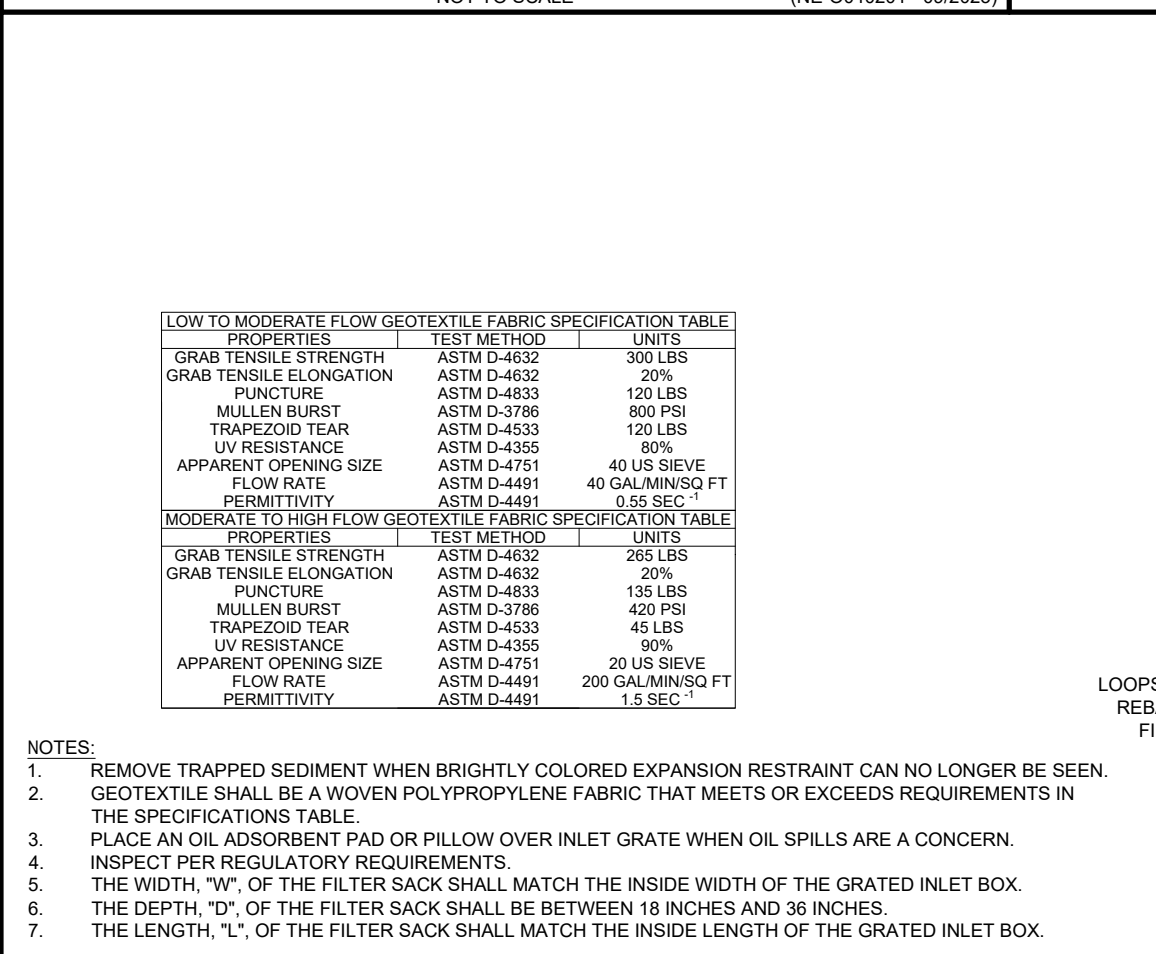
PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED
0 TO 2%	COARSE GRAINED SOILS 50 FT FINE GRAINED SOILS 100 FT
2% TO 5%	100 FT 200 FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABRIC BASE COURSE (1)

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

**CHART 1**



PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4832	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4832	20%
PUNCTURE	ASTM D-3786	120 PSI
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-3553	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4491	40 US SIEVE
FLOW RATE PERMITTIVITY	ASTM D-4491	40 GAL/MIN/50 FT
PERMITTIVITY	ASTM D-4491	1.5 SEC
MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
GRAB TENSILE STRENGTH	ASTM D-4832	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4832	20%
PUNCTURE	ASTM D-3786	135 LBS
MULLEN BURST	ASTM D-3786	400 PSI
TRAPEZOID TEAR	ASTM D-3553	45 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE PERMITTIVITY	ASTM D-4491	200 GAL/MIN/50 FT
PERMITTIVITY	ASTM D-4491	1.5 SEC



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REV	DATE	COMMENT	DRAWN BY	CHECKED BY
1	03/03/2026	RESPONSE TO CMTS	WNG	ZLR

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DATE: 01/09/2025  
CAD ID.: P-CIVL-SITE-MAB250074.00

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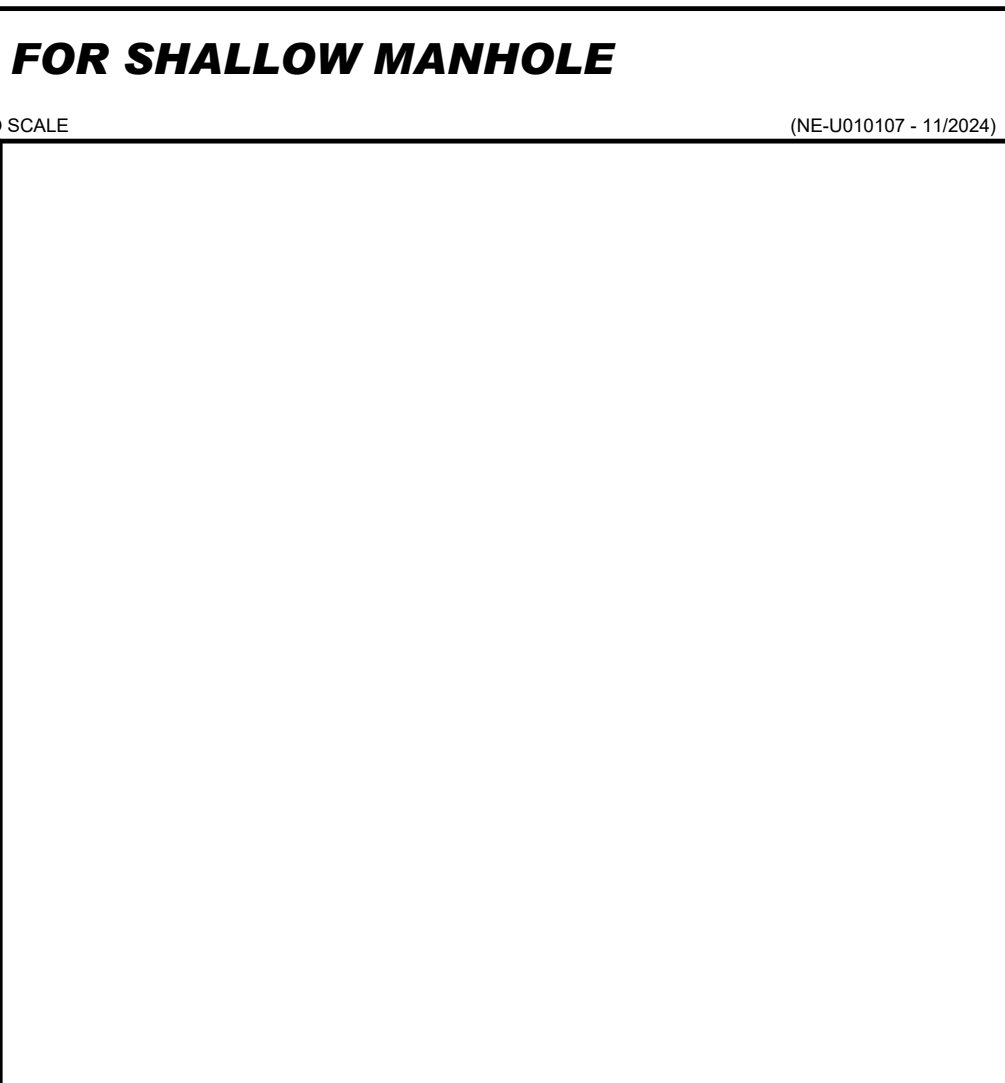
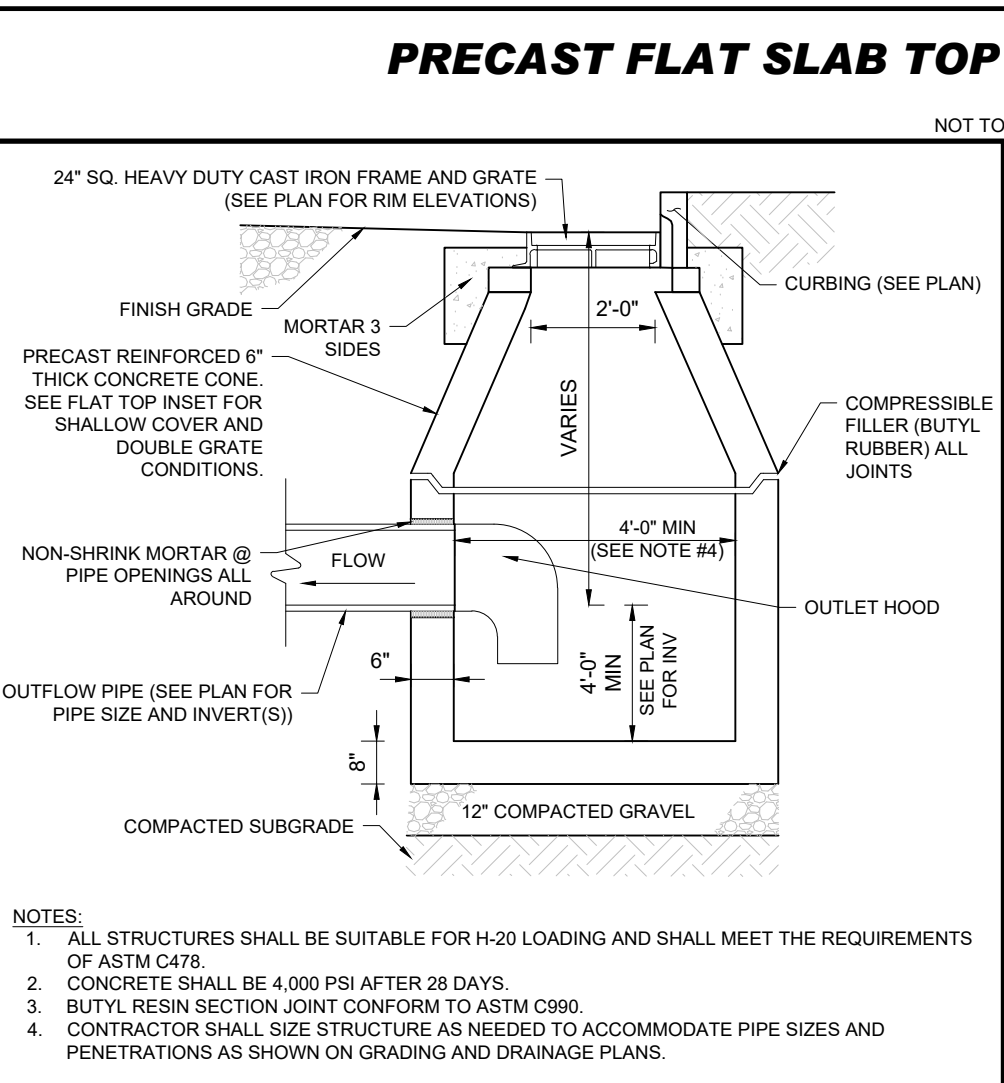
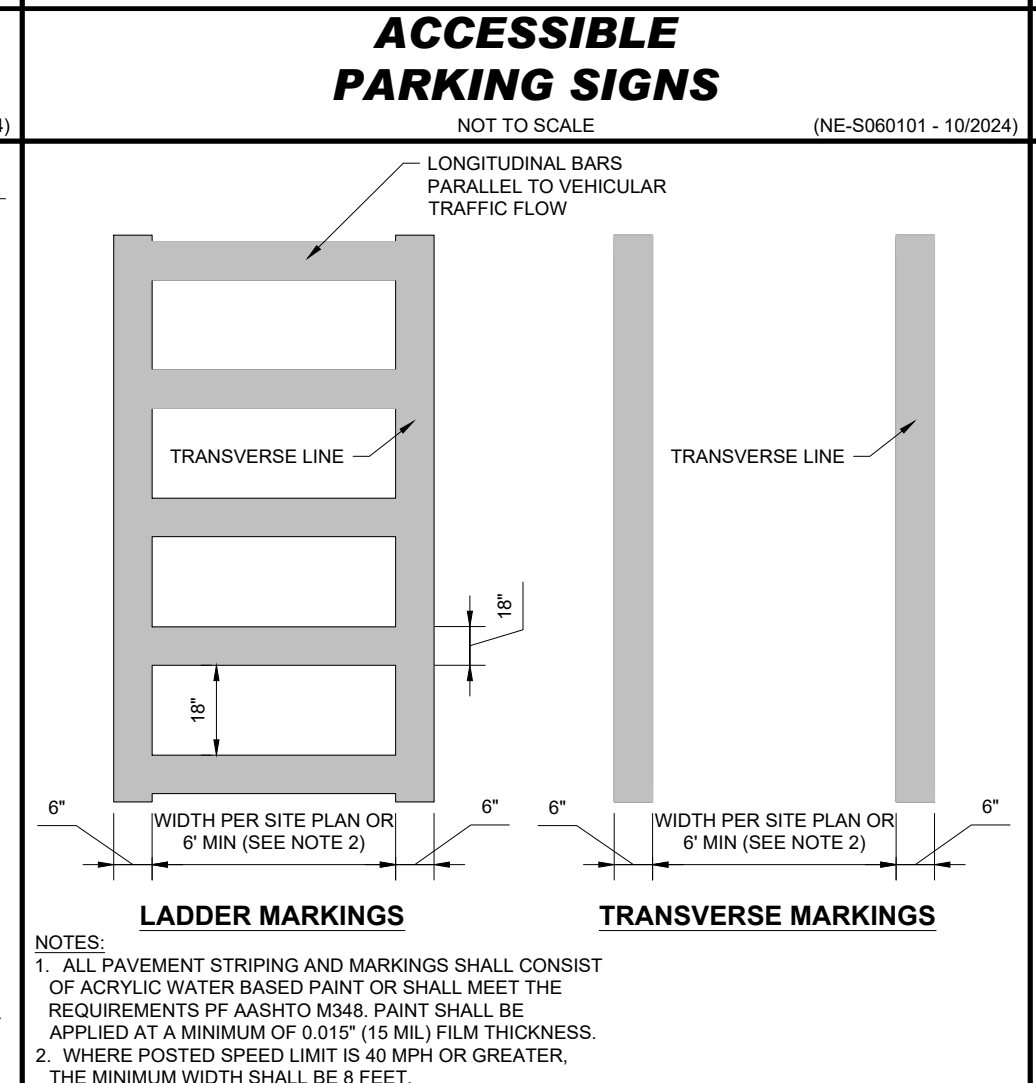
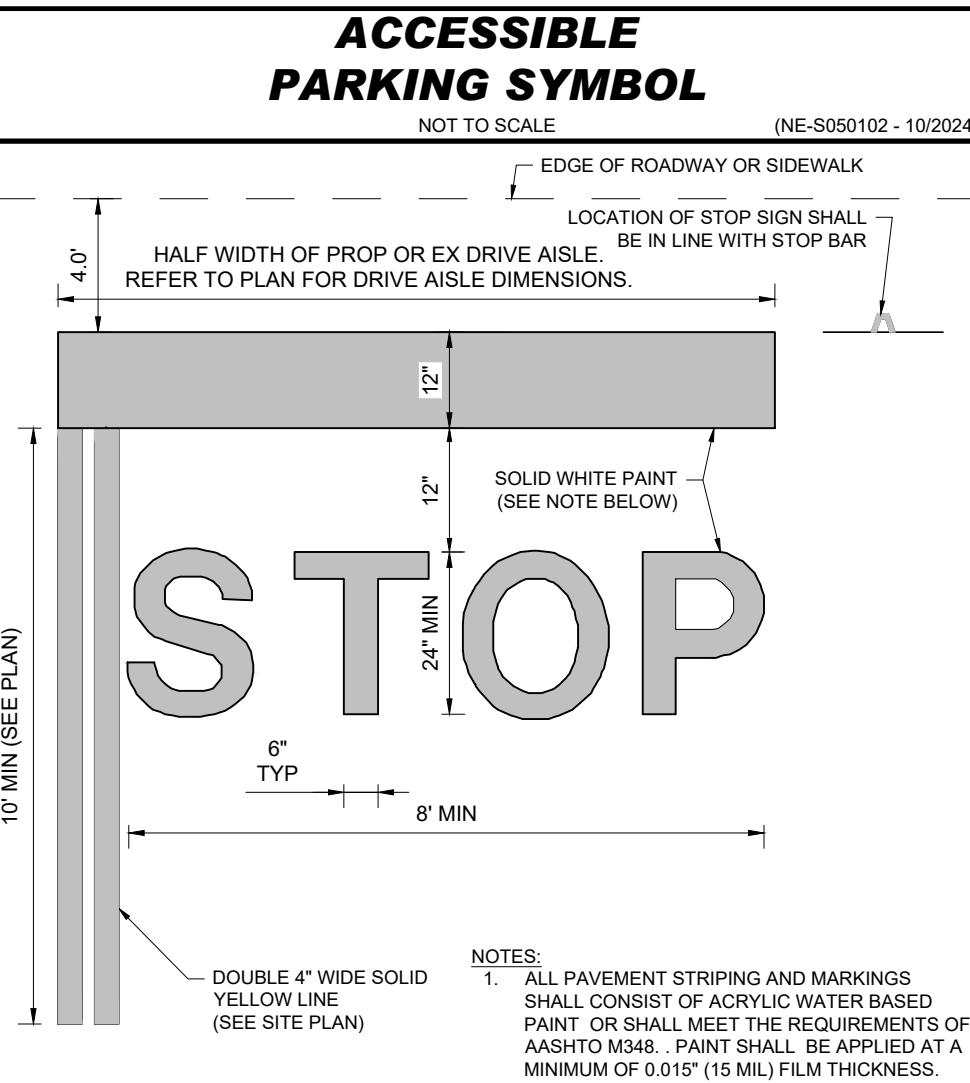
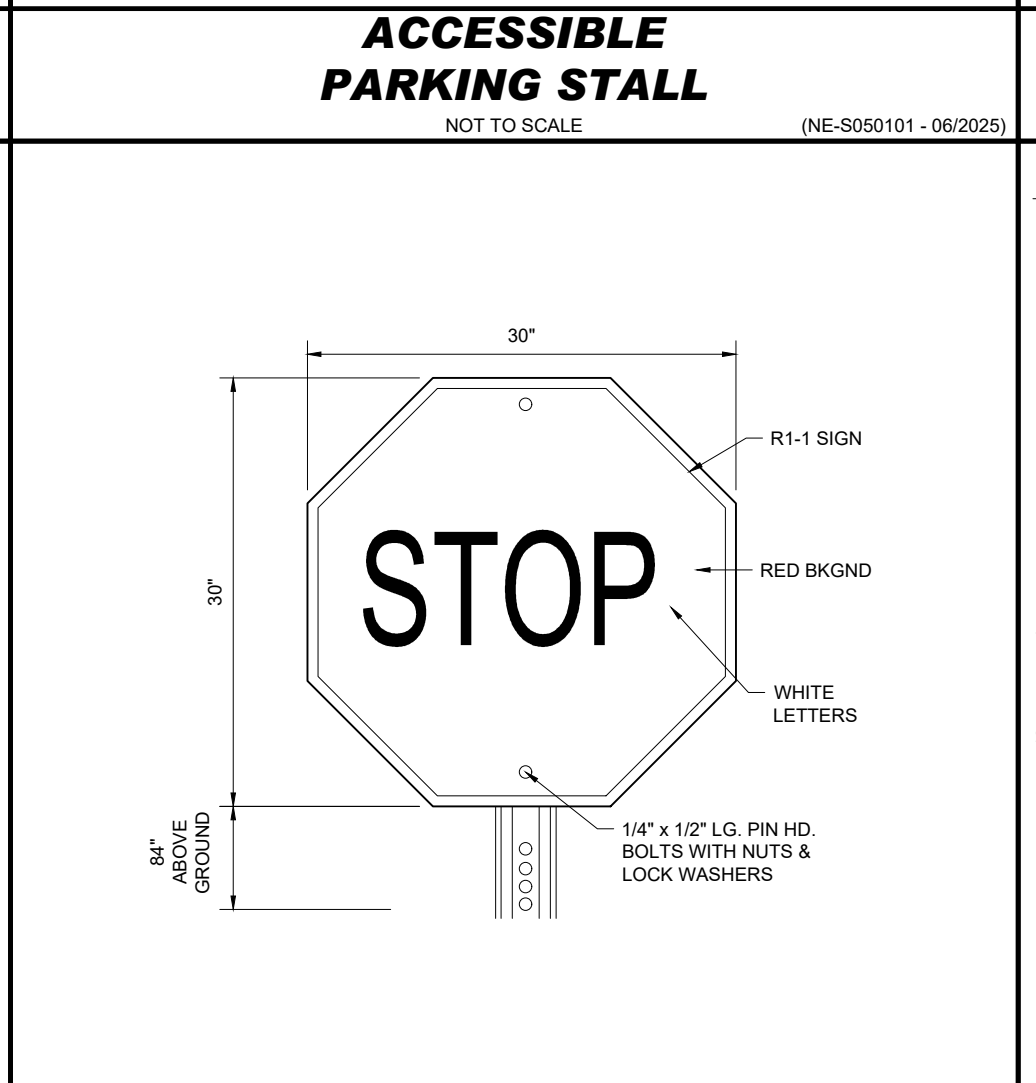
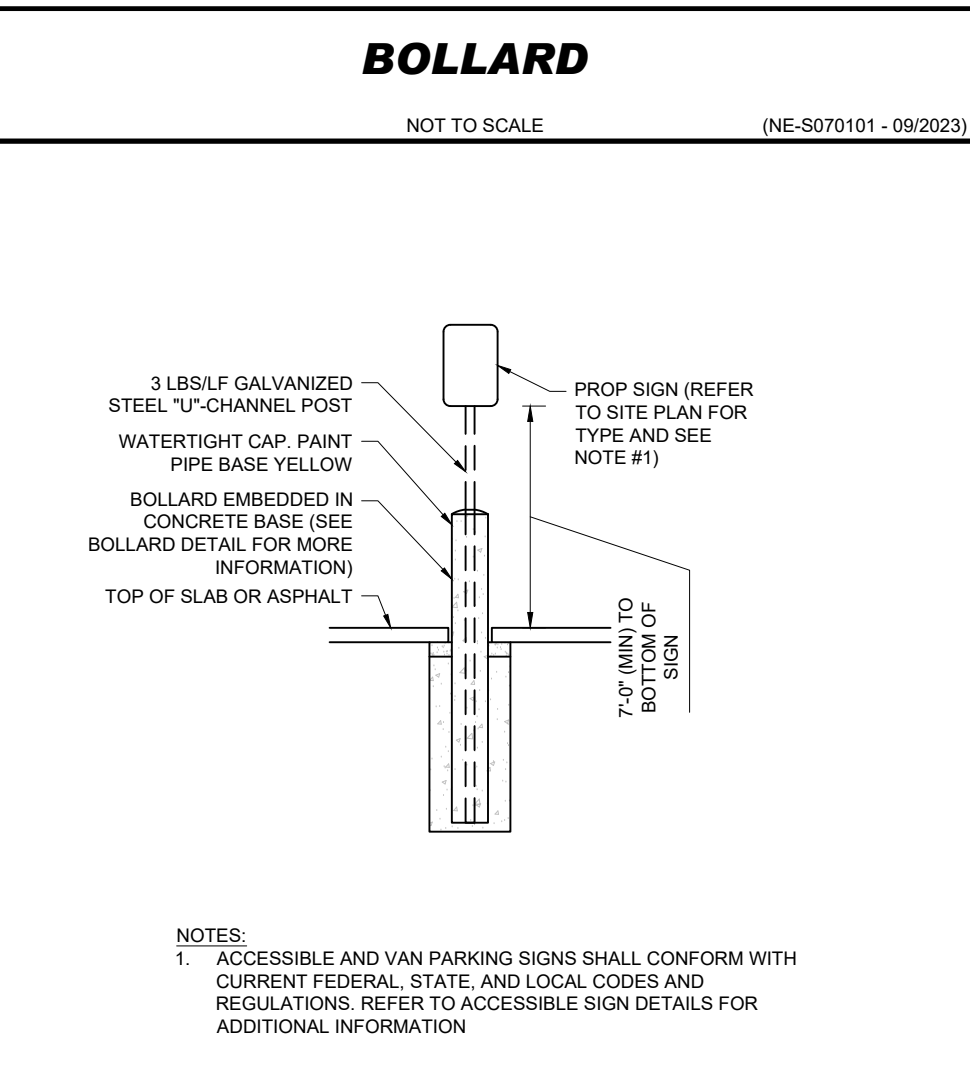
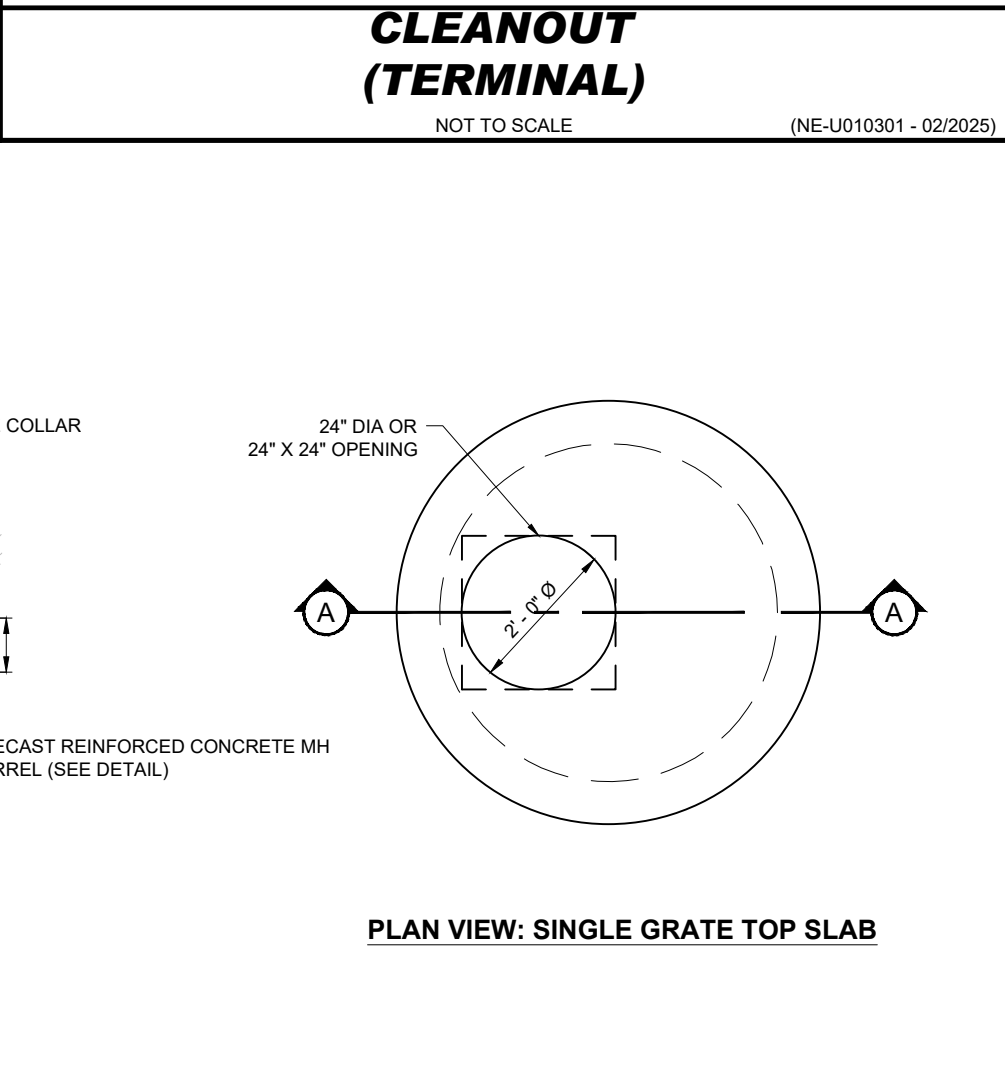
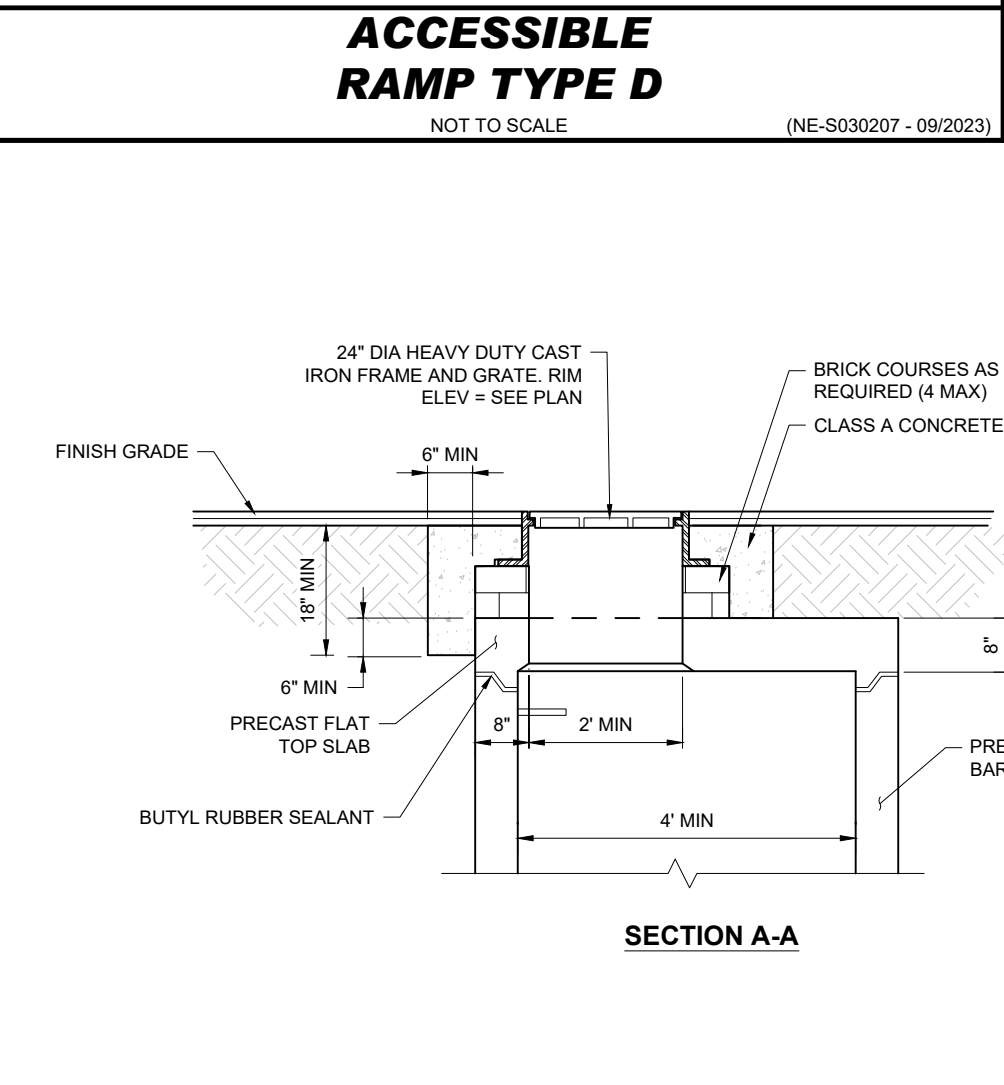
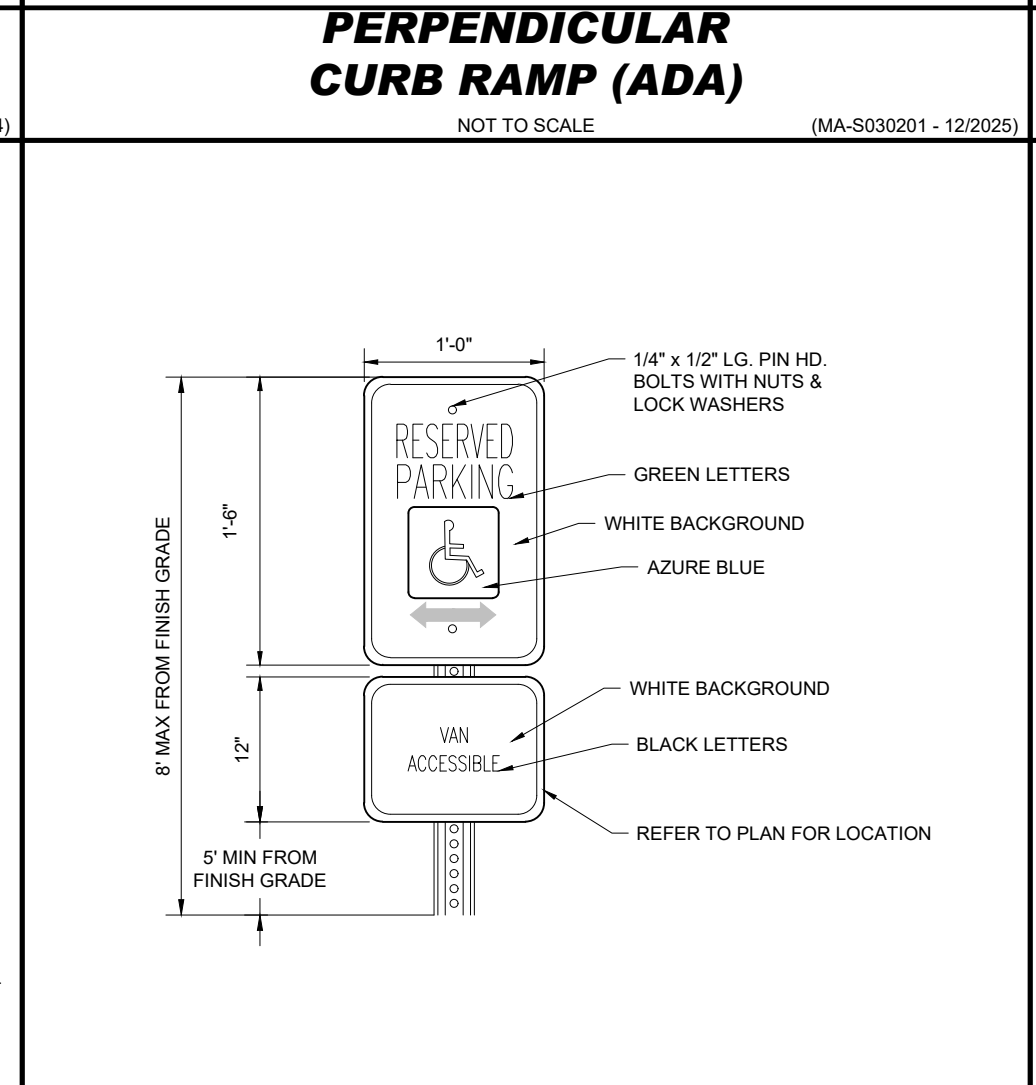
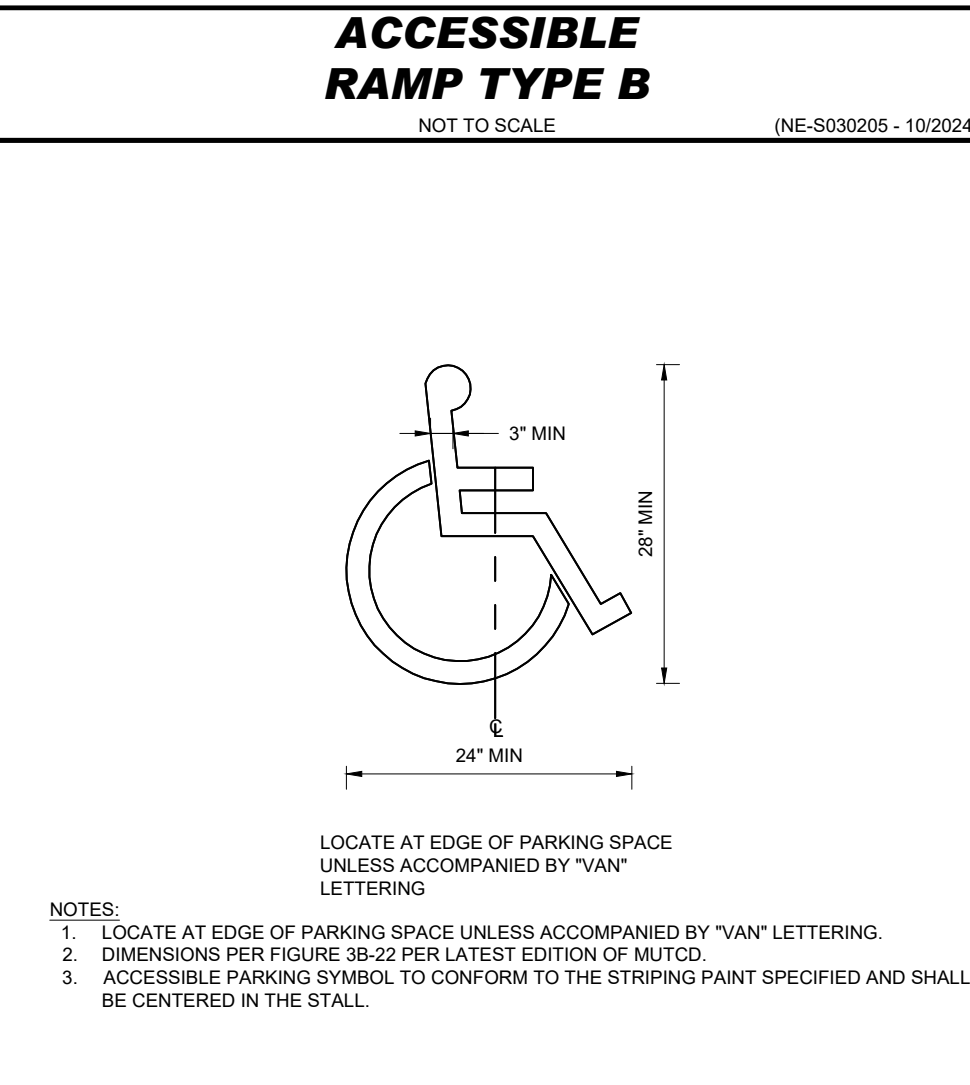
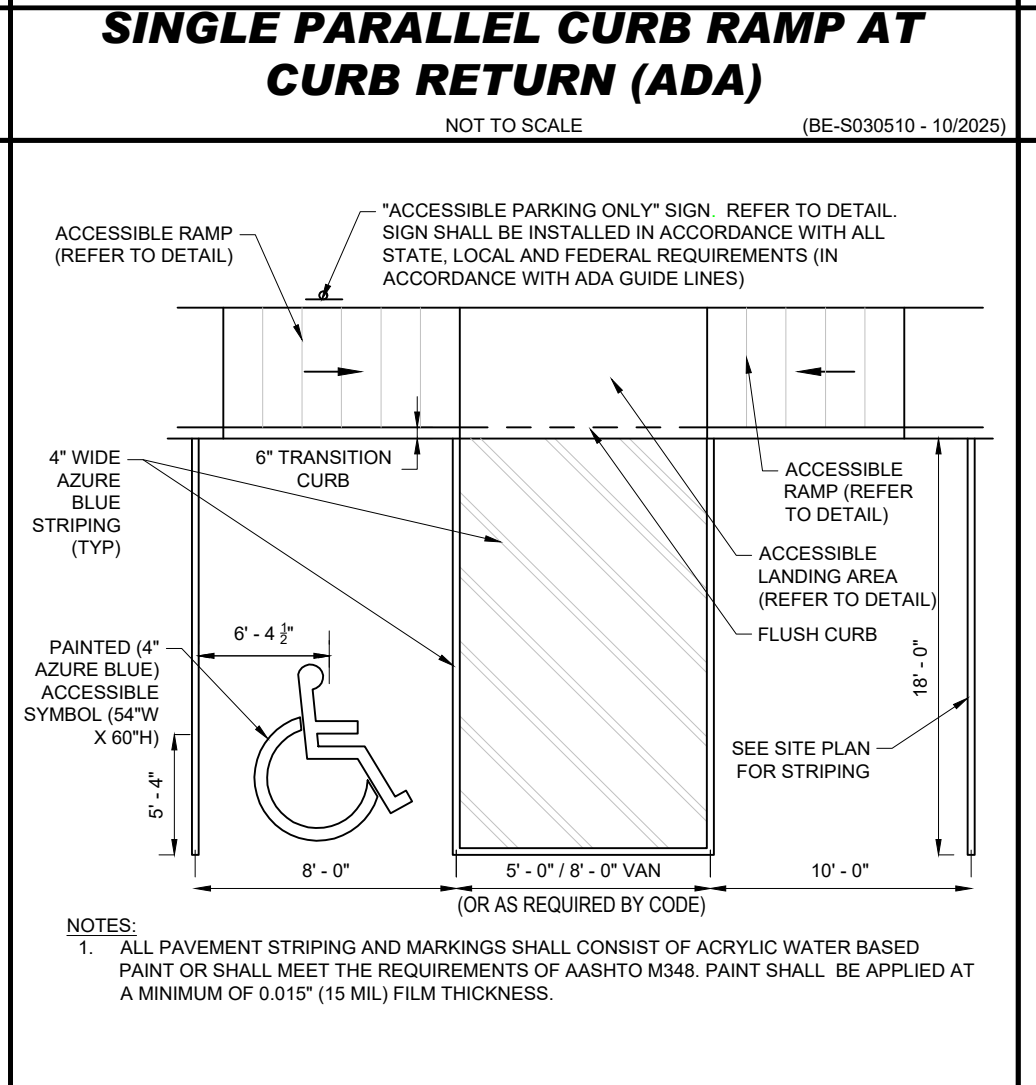
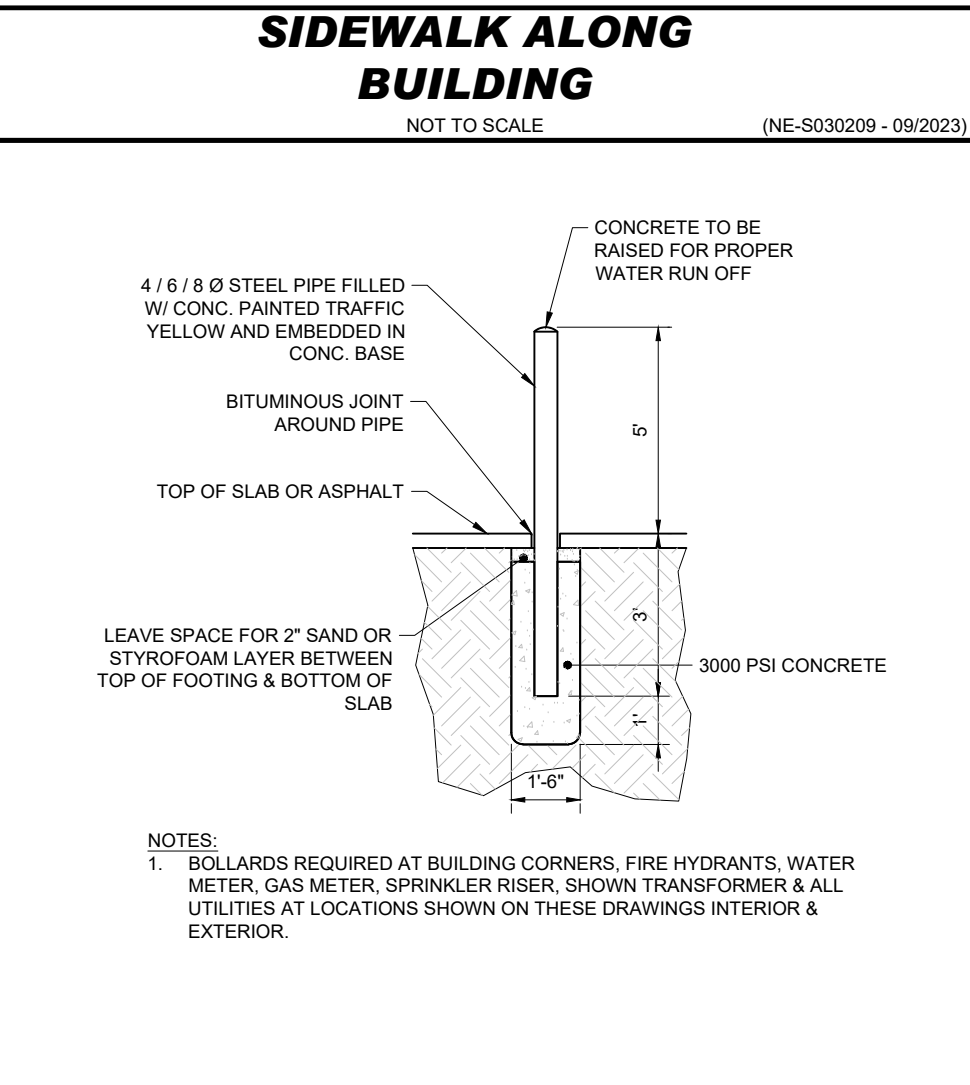
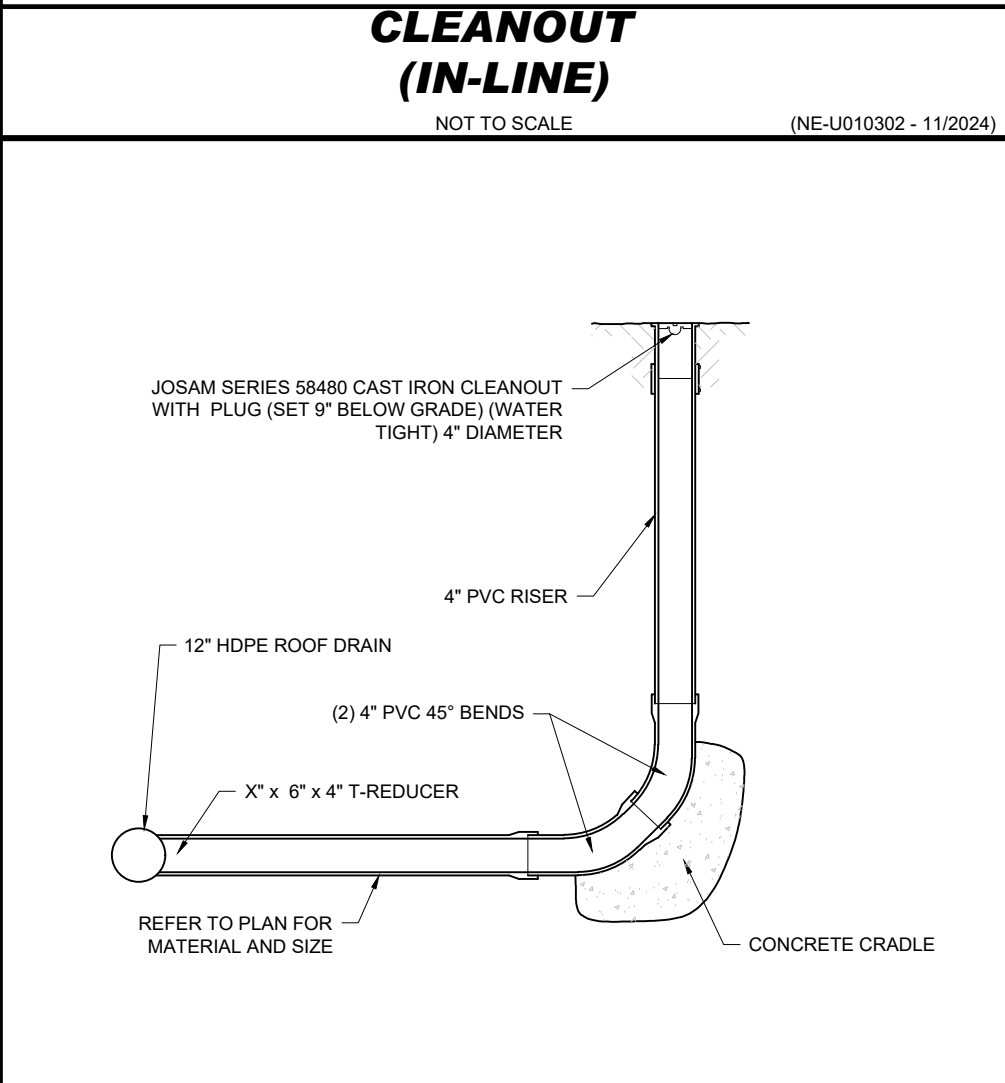
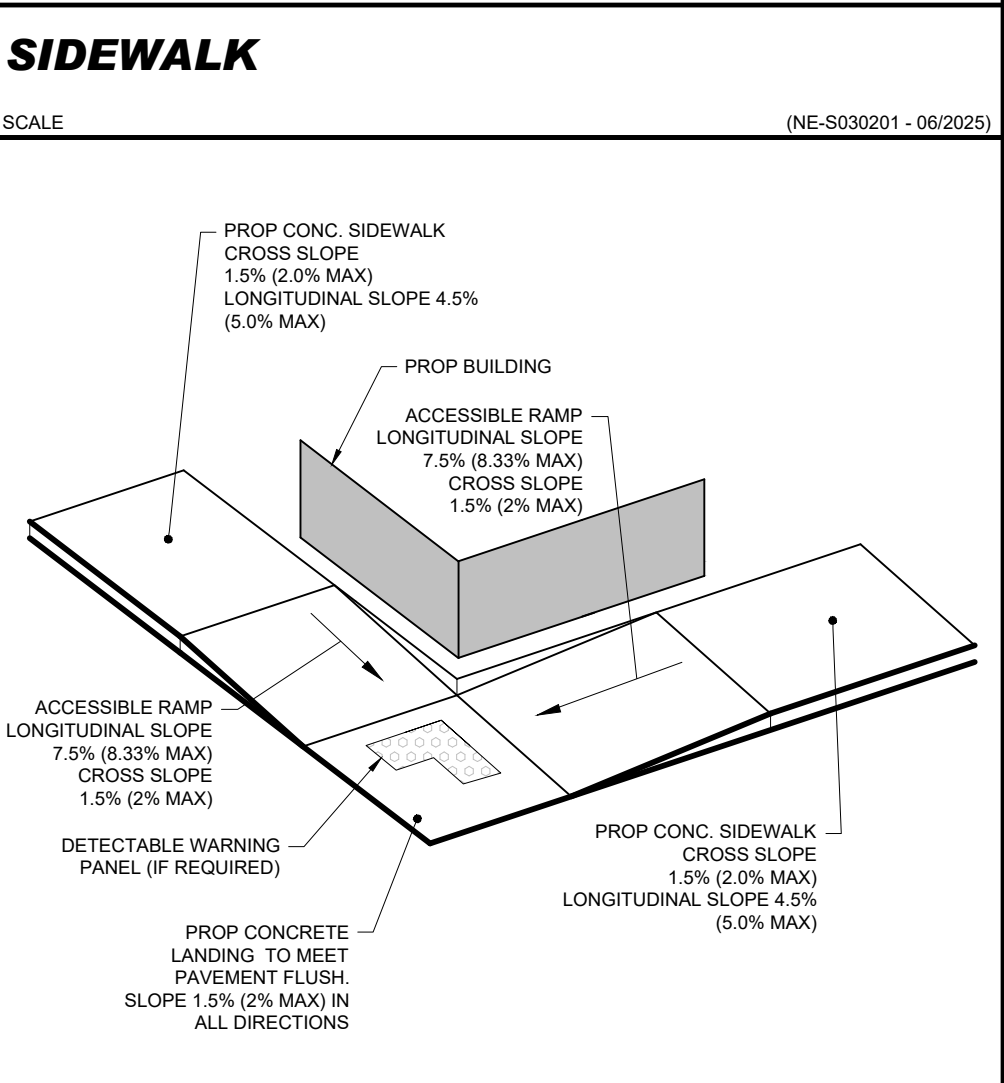
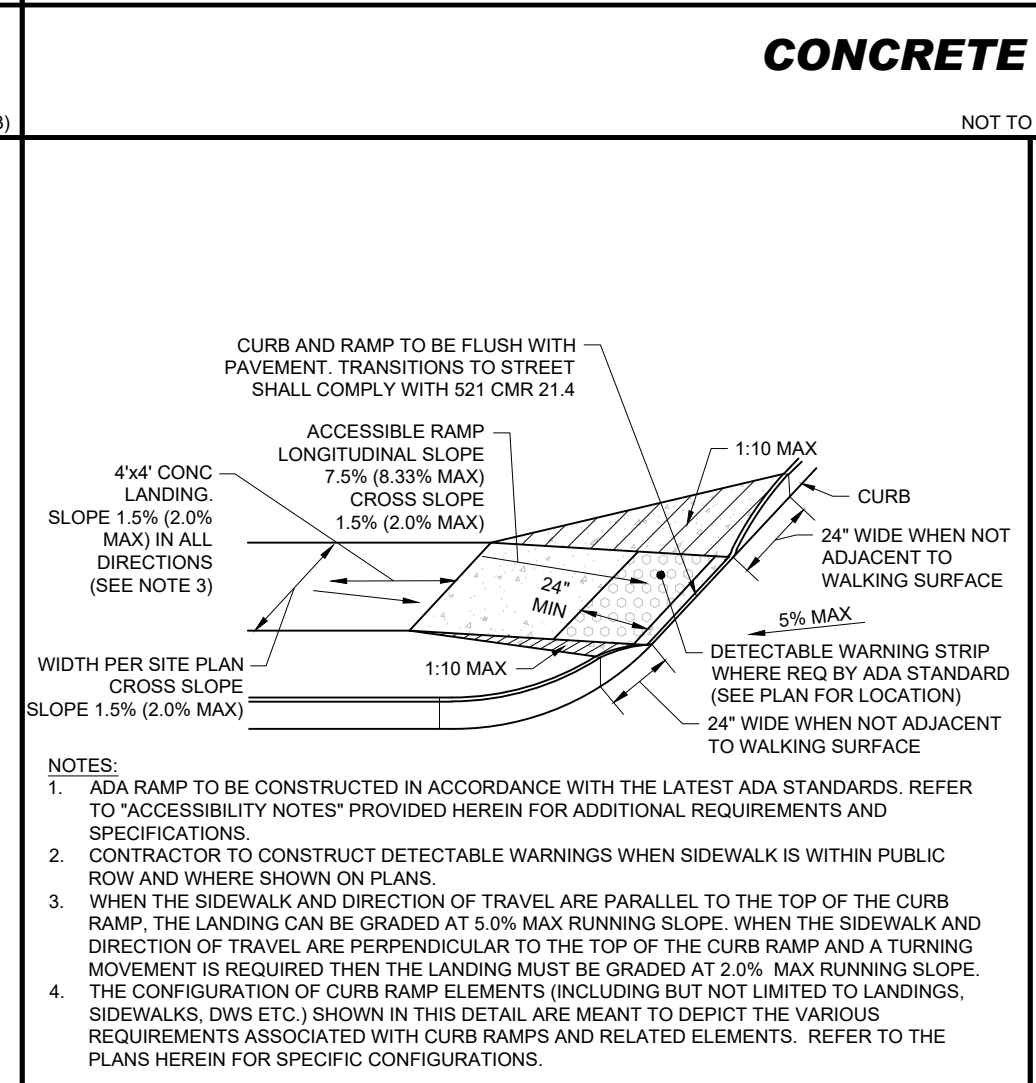
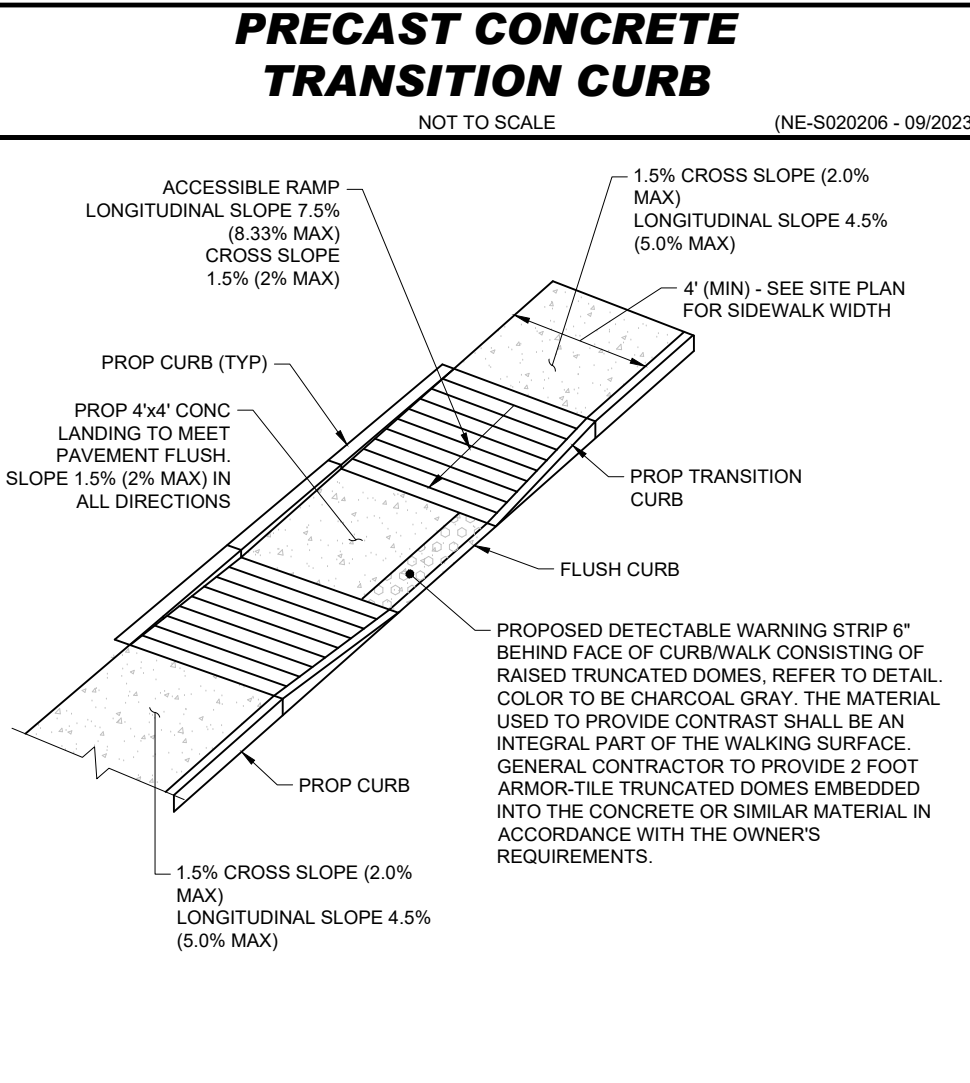
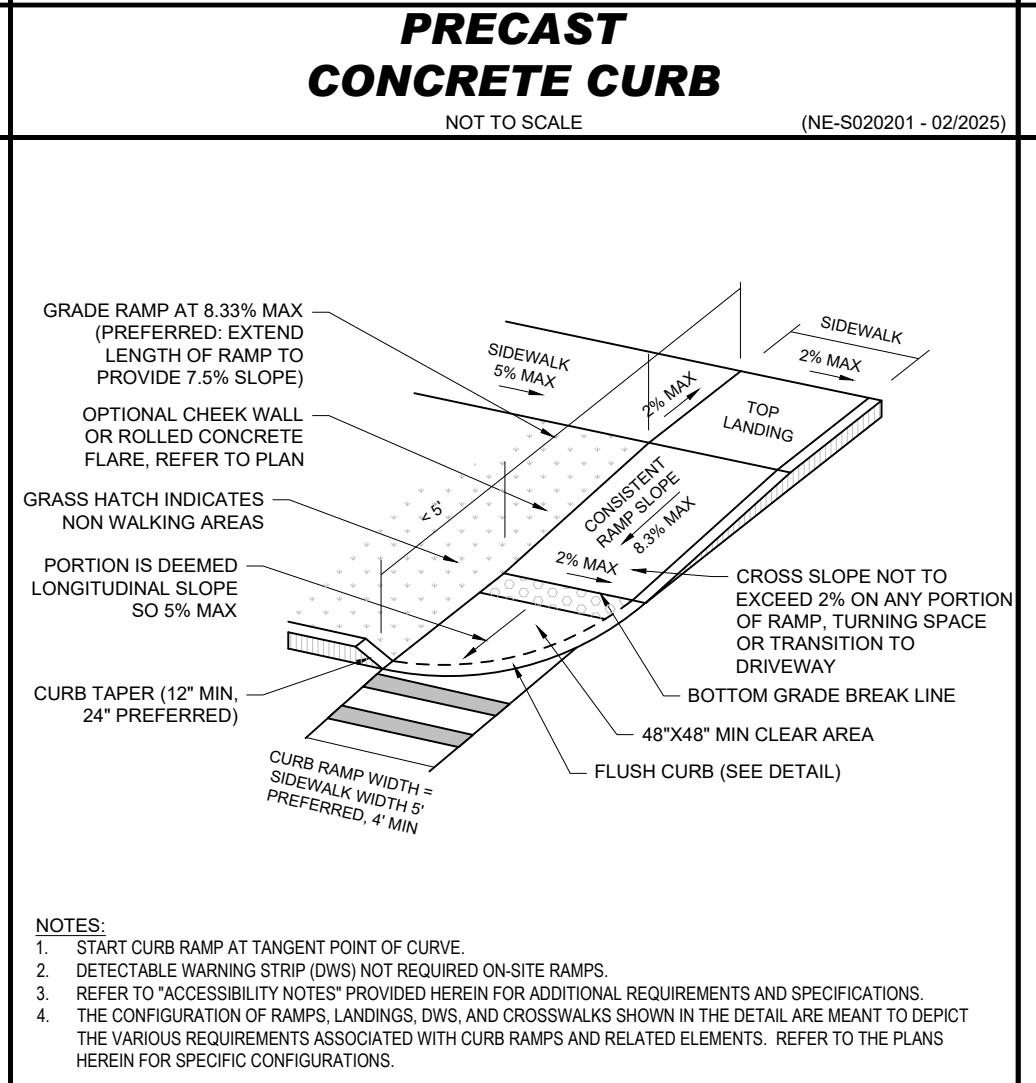
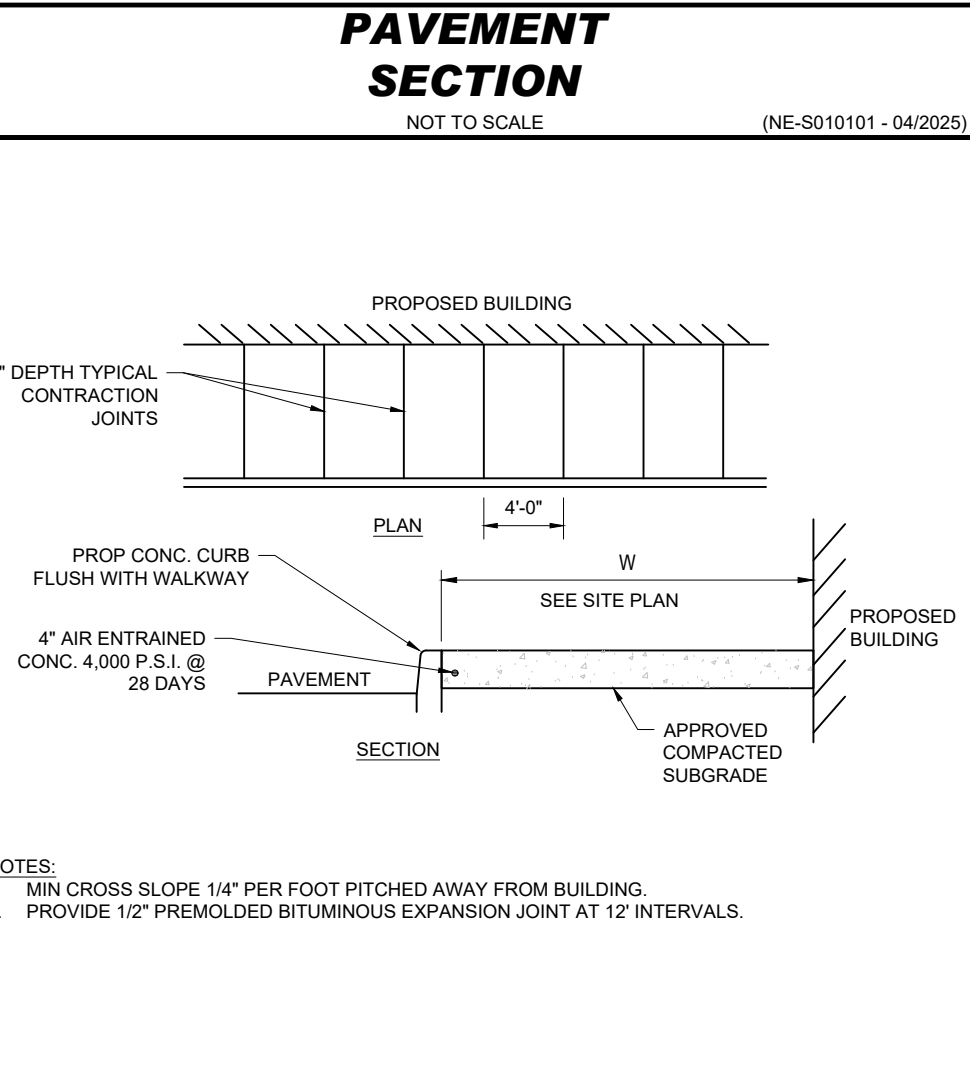
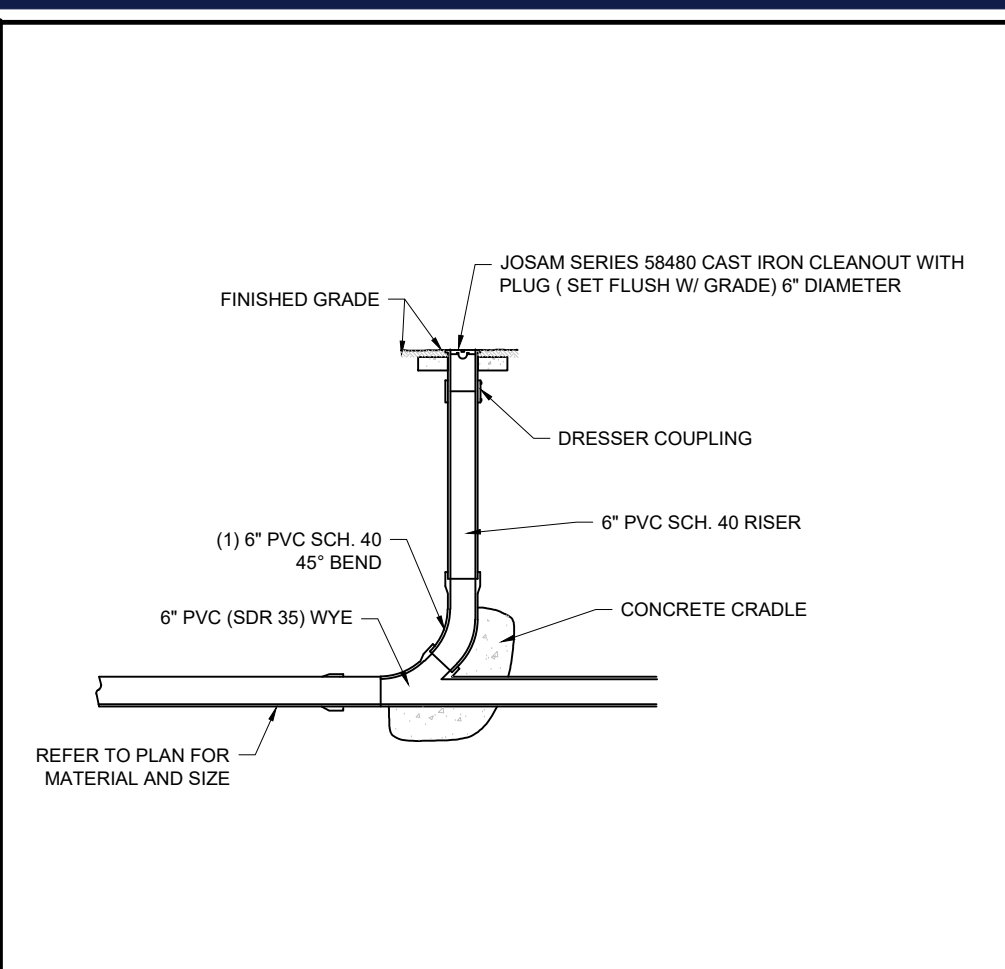
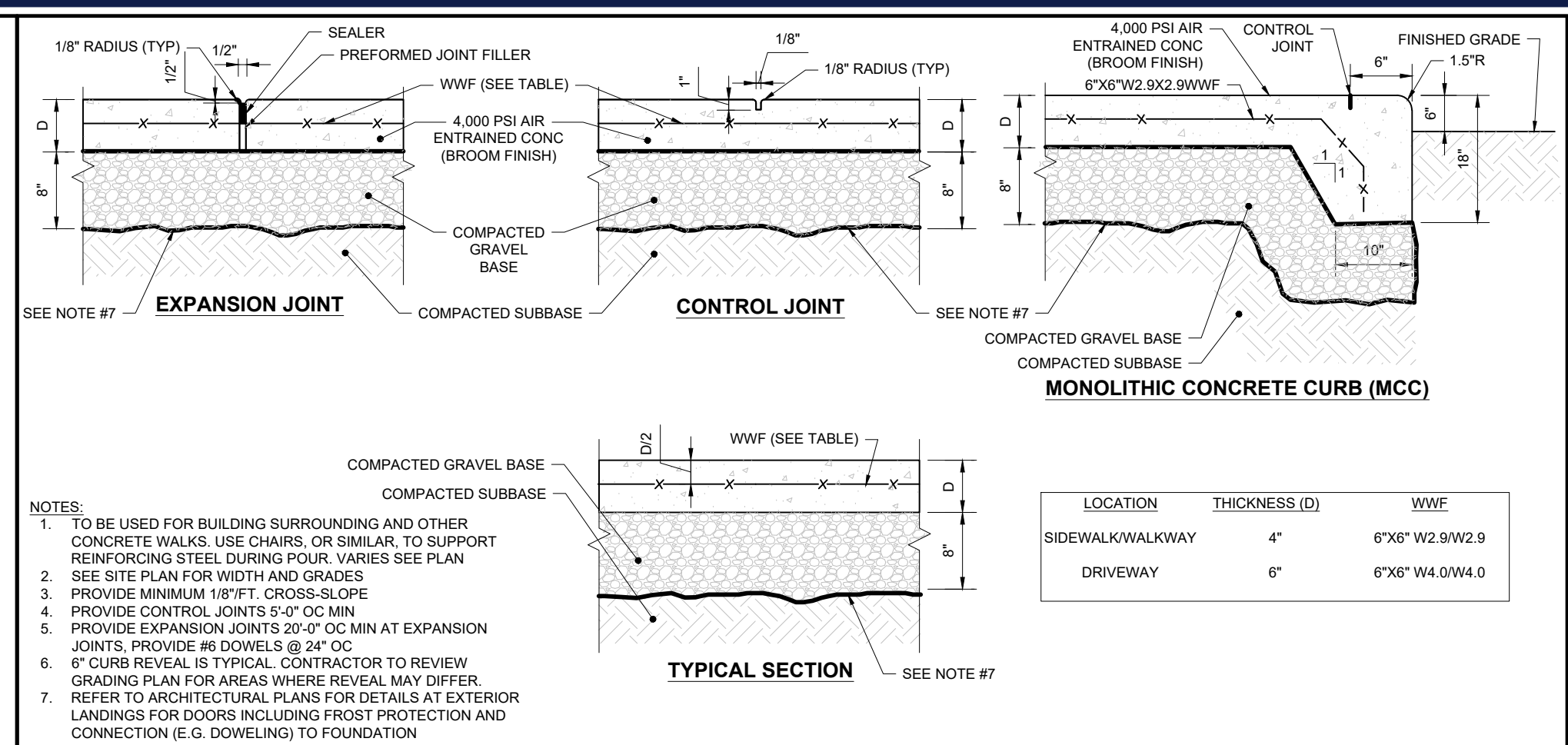
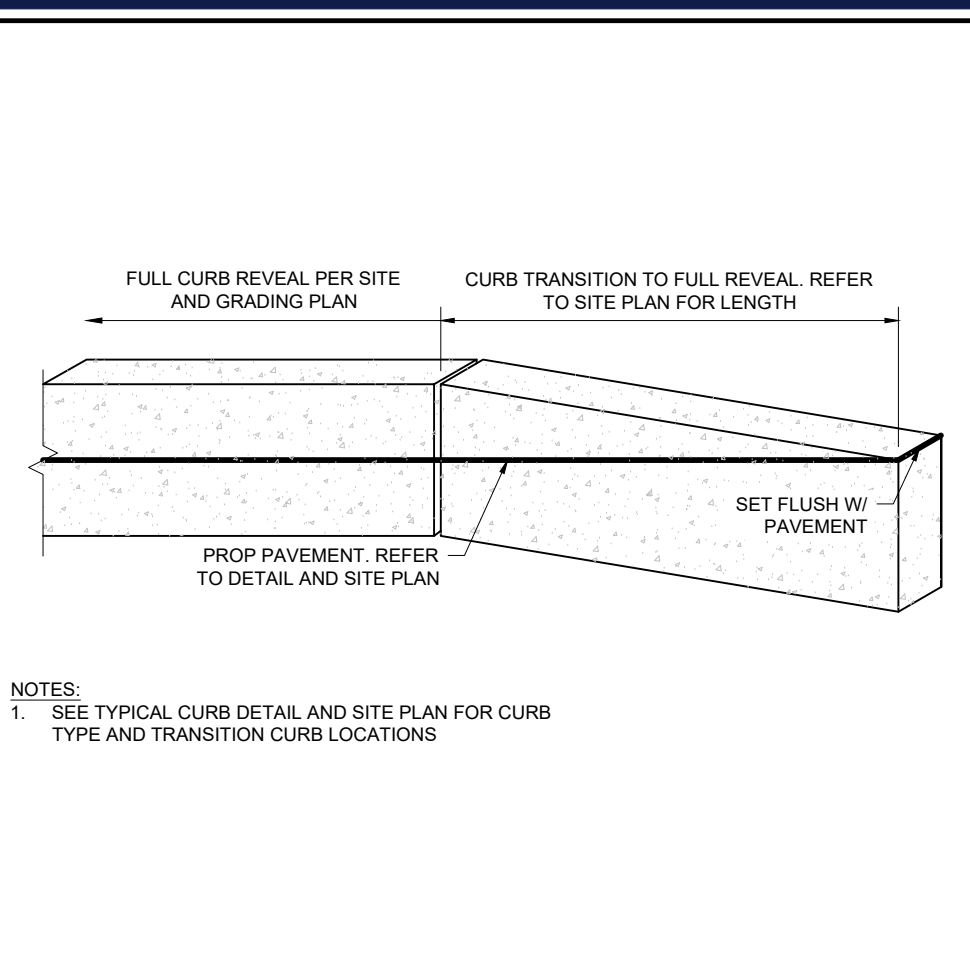
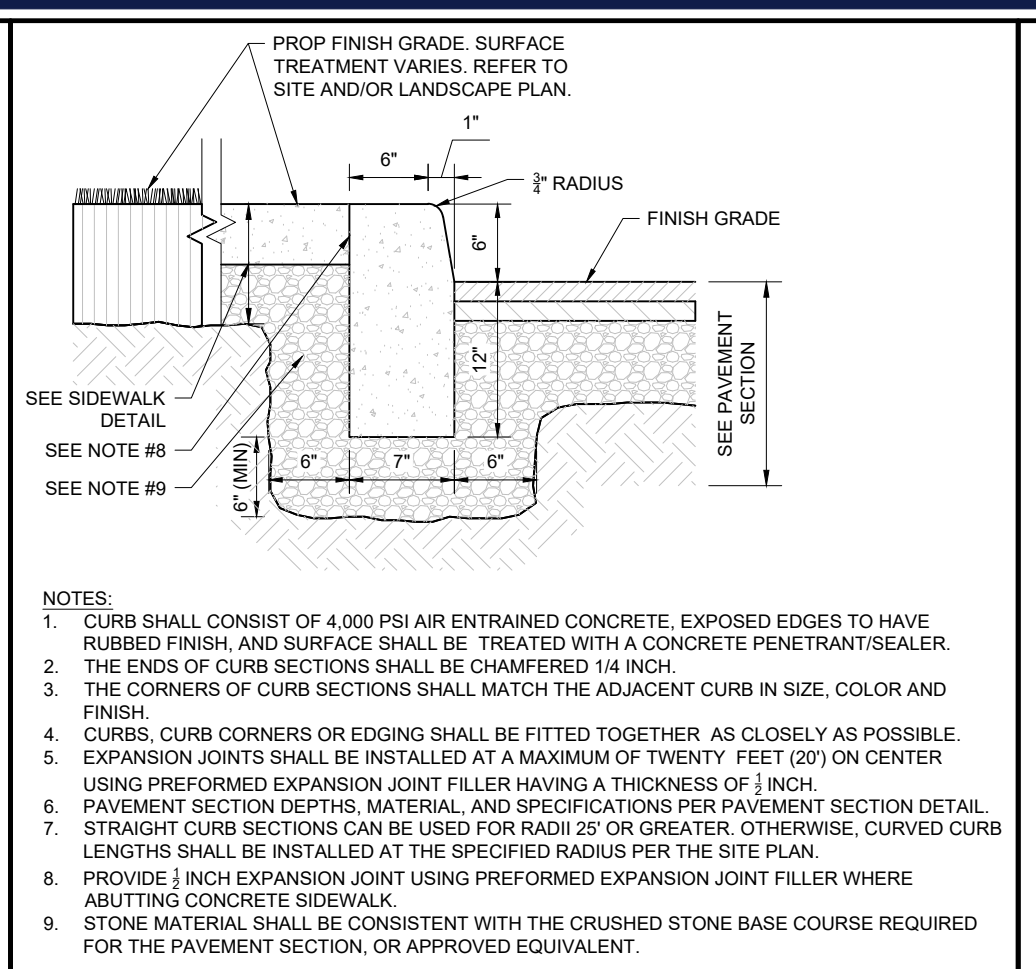
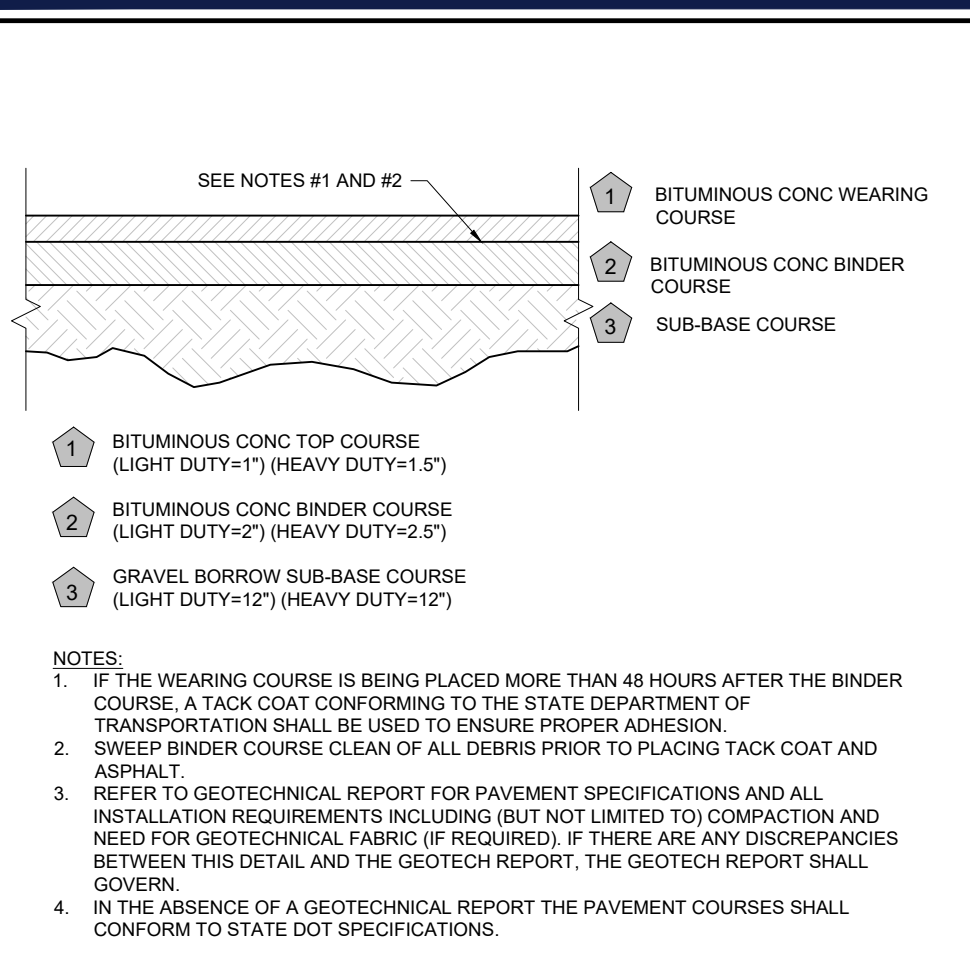
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### EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

SHEET NUMBER:  
**C-802**  
REVISION 1 - 03/03/2026



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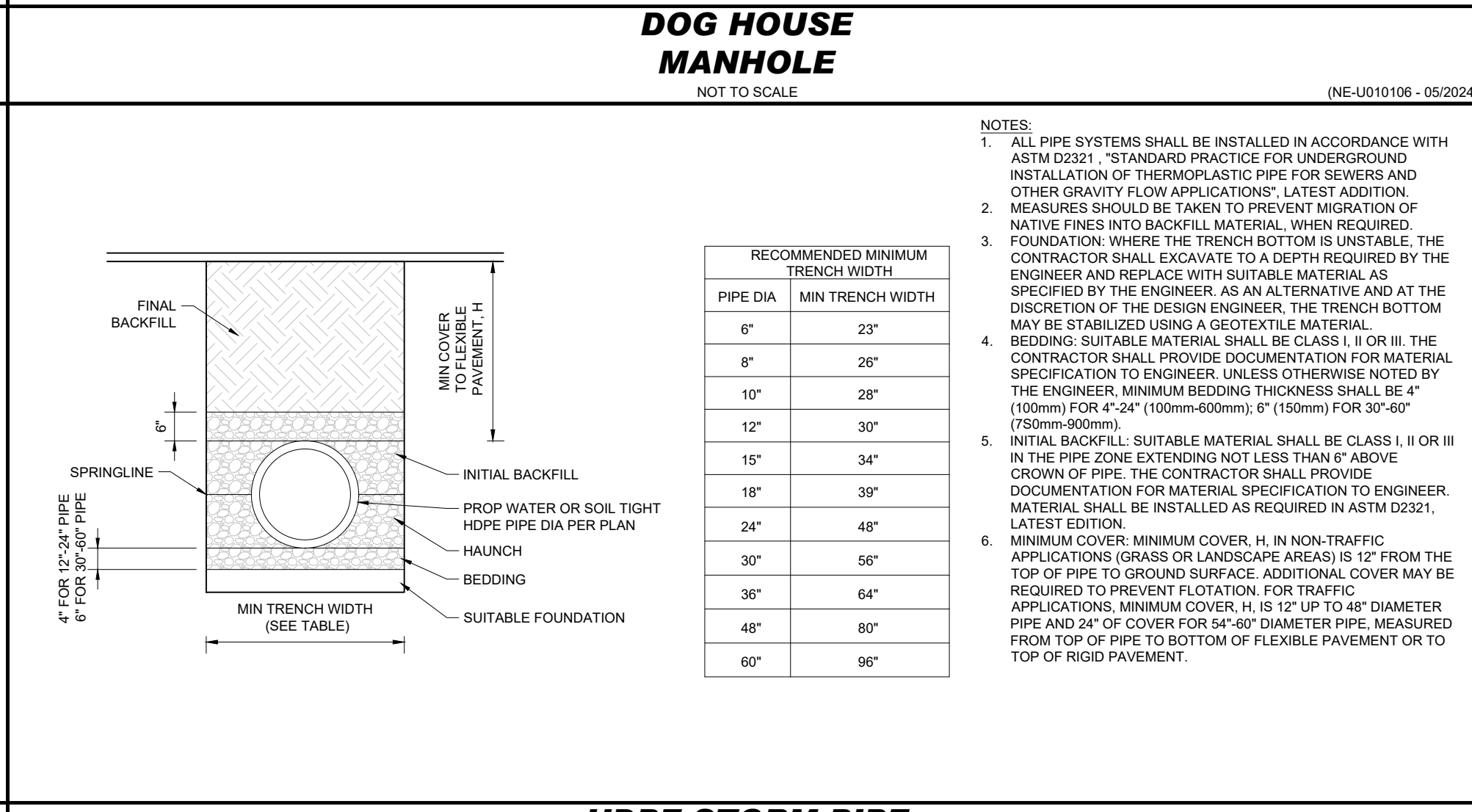
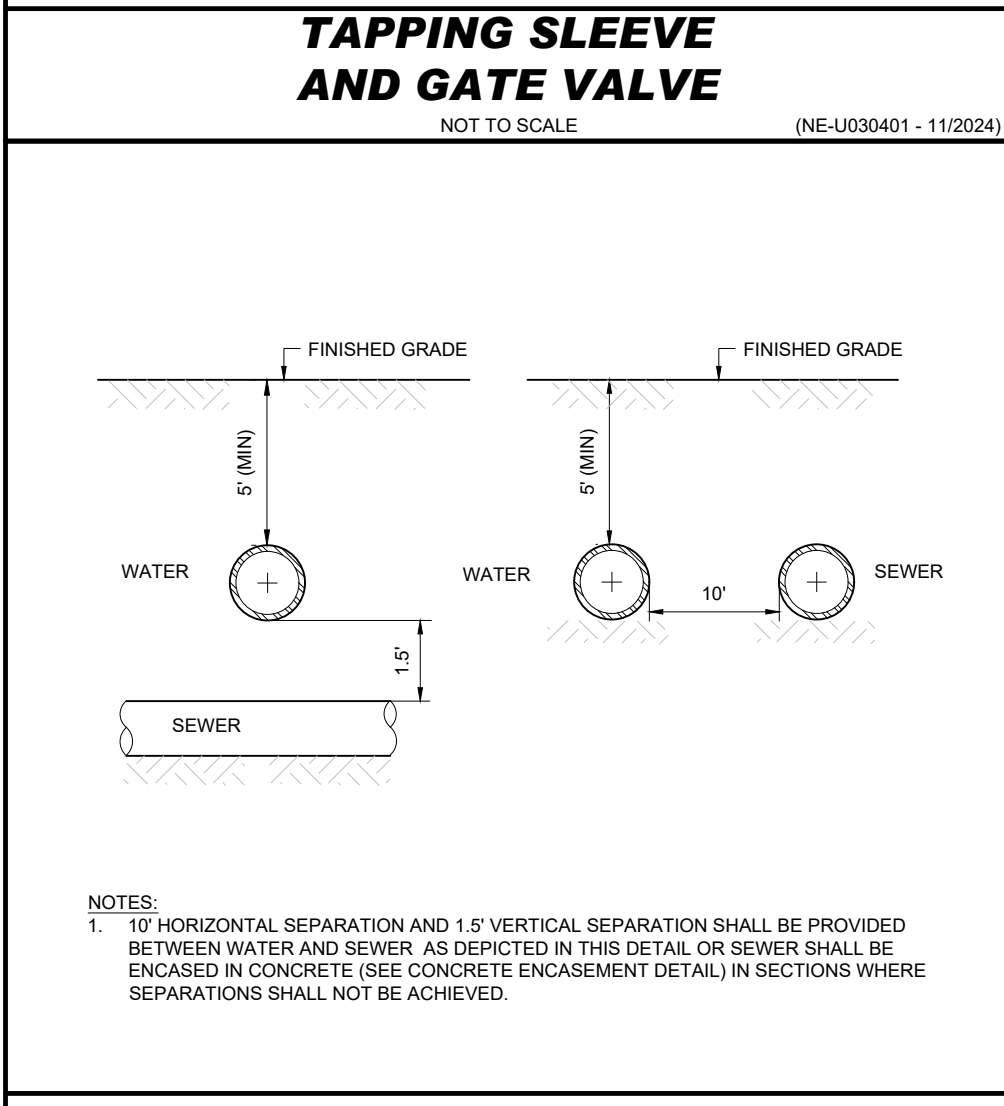
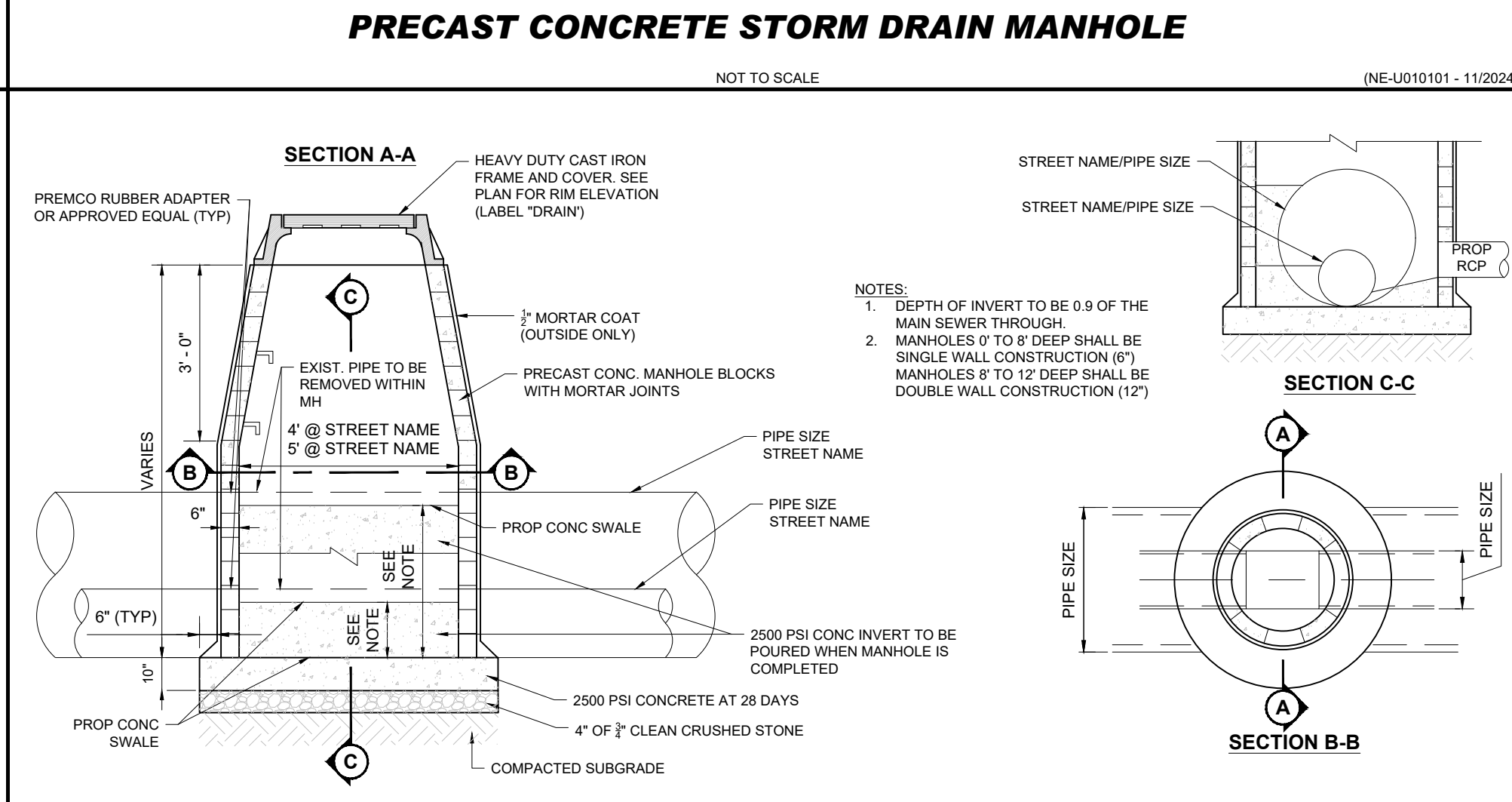
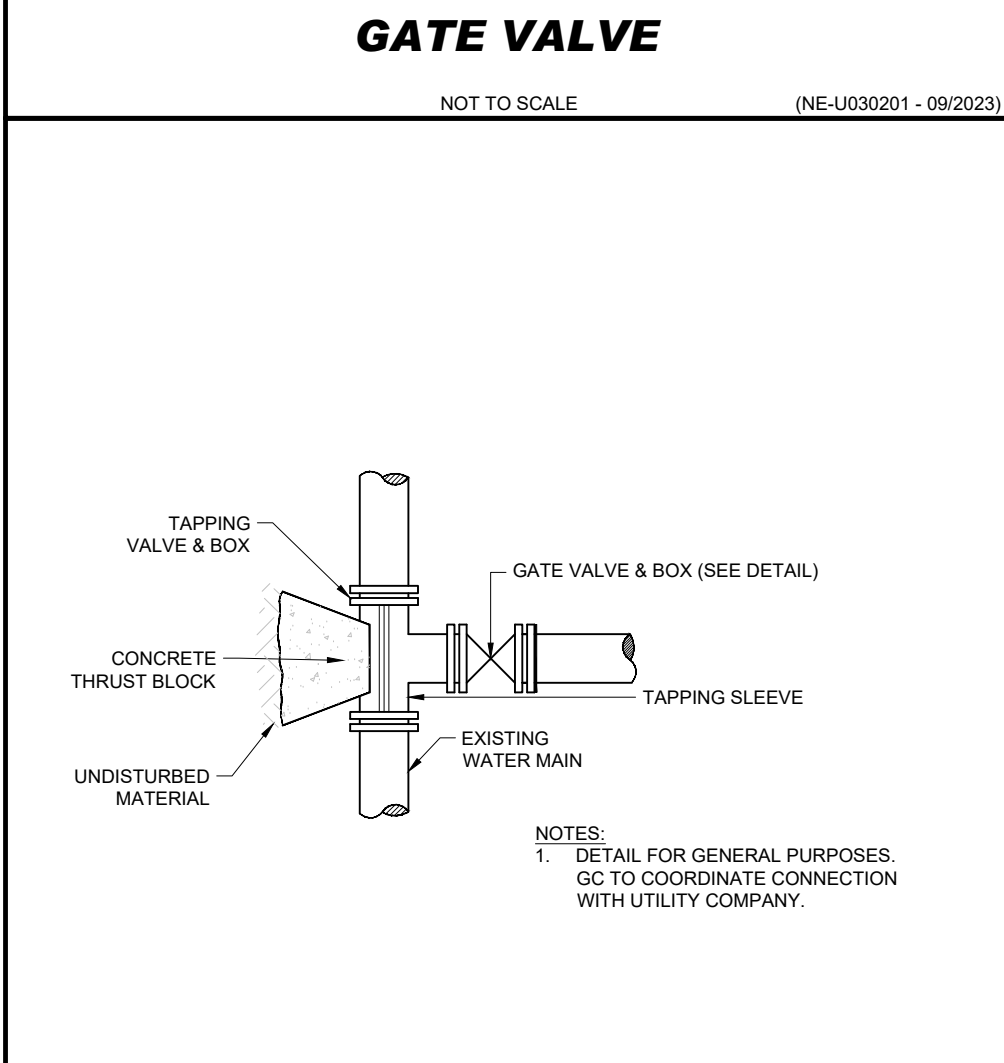
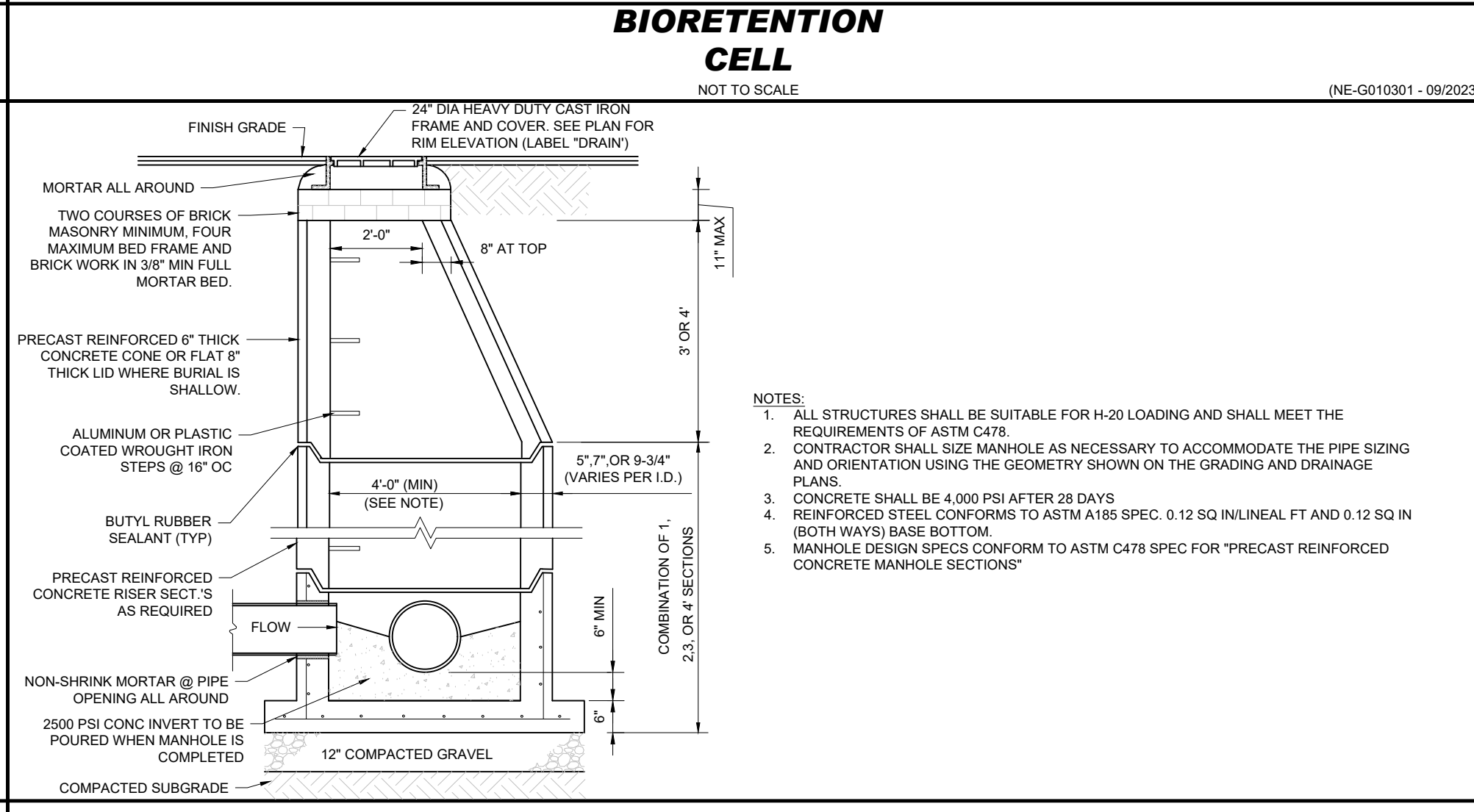
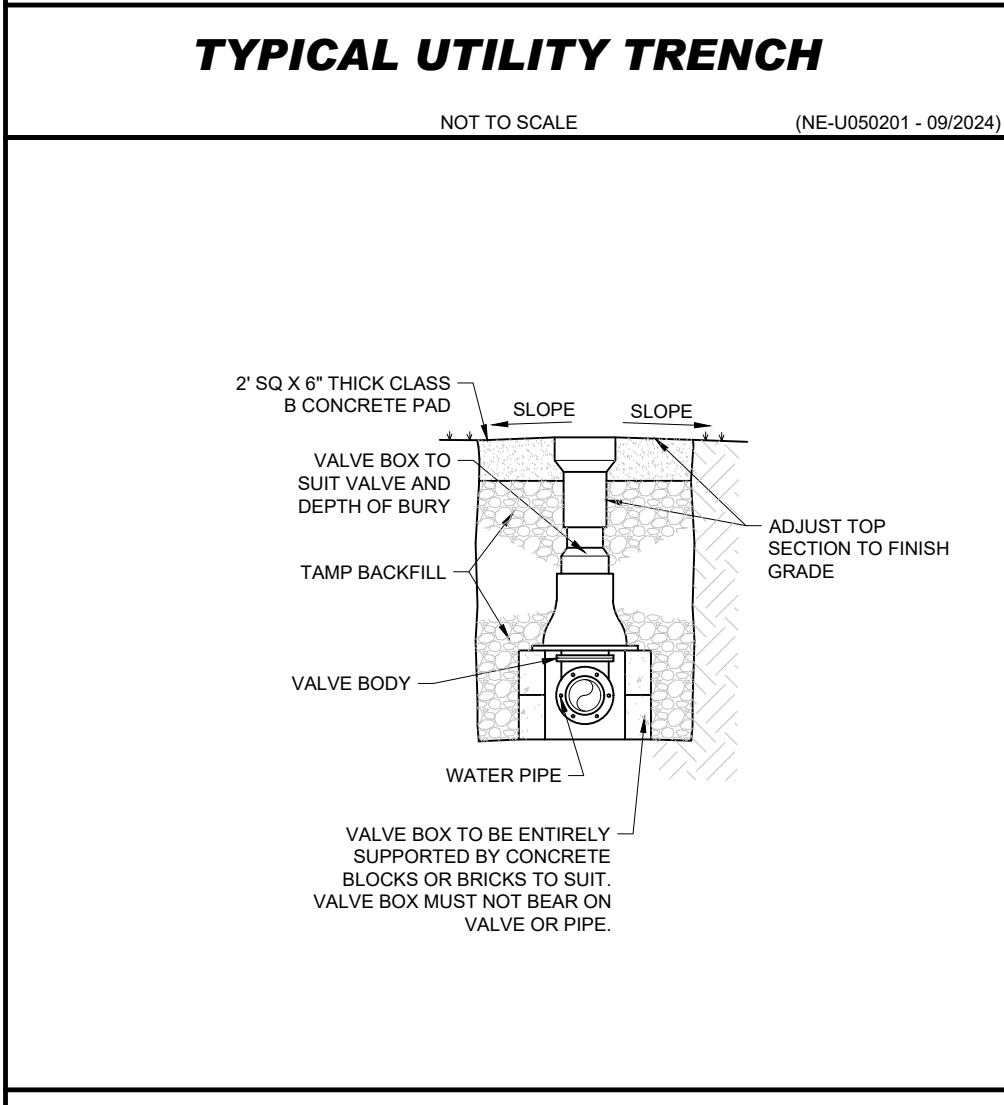
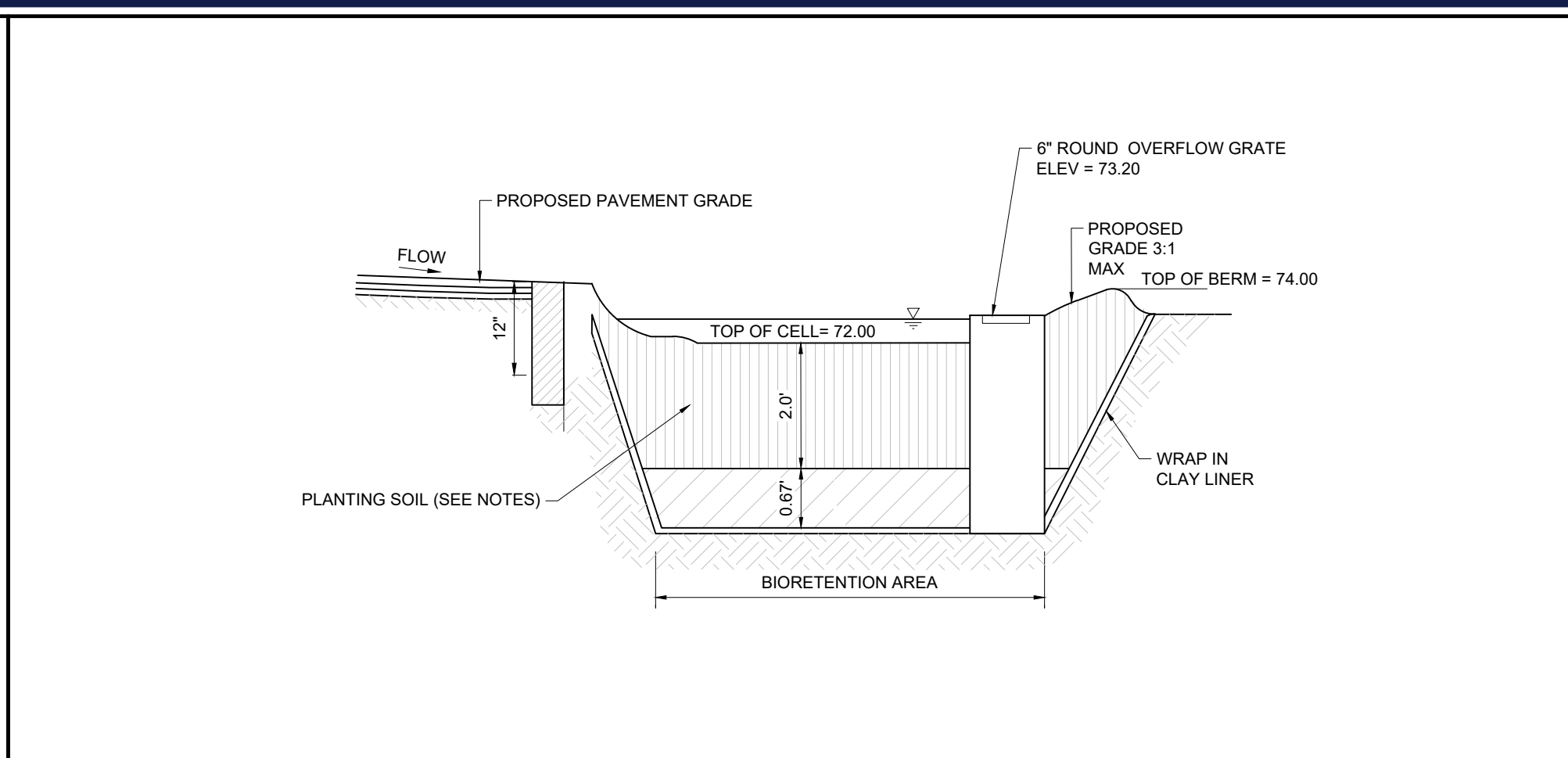
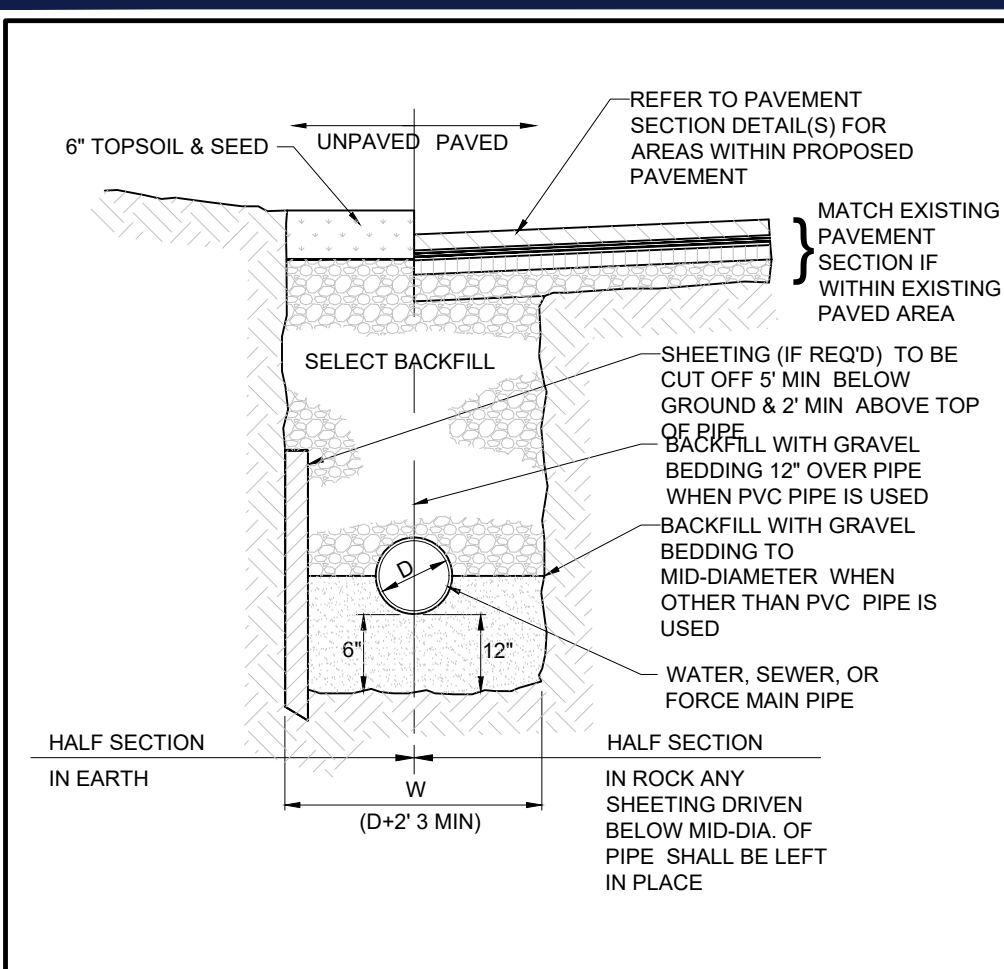
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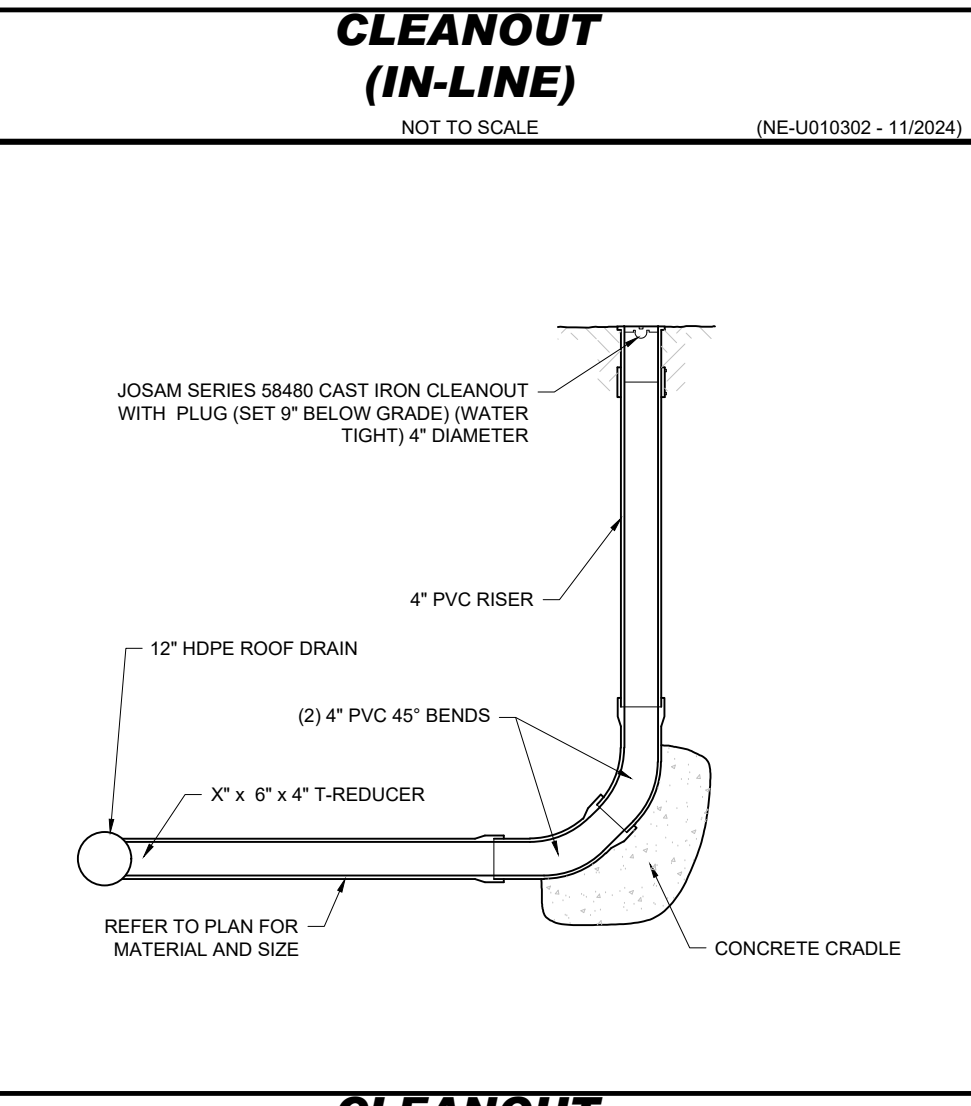
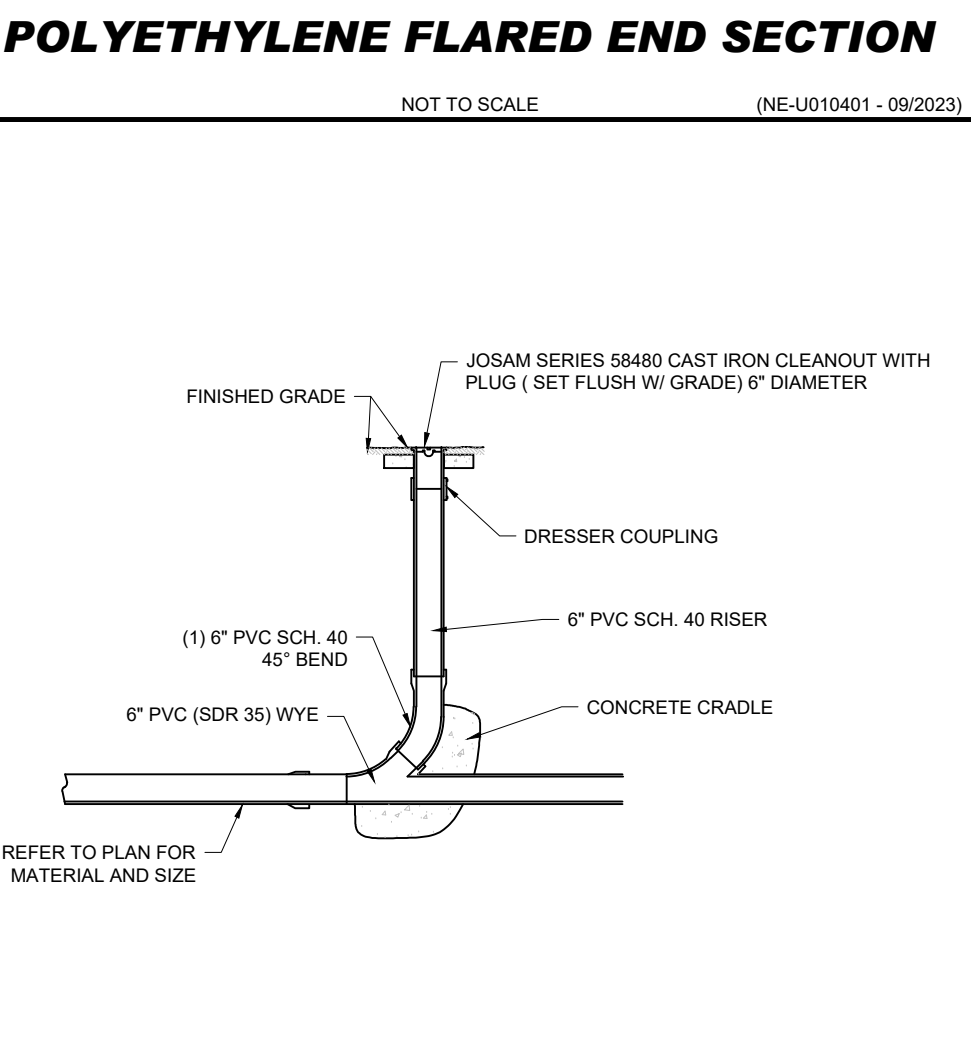
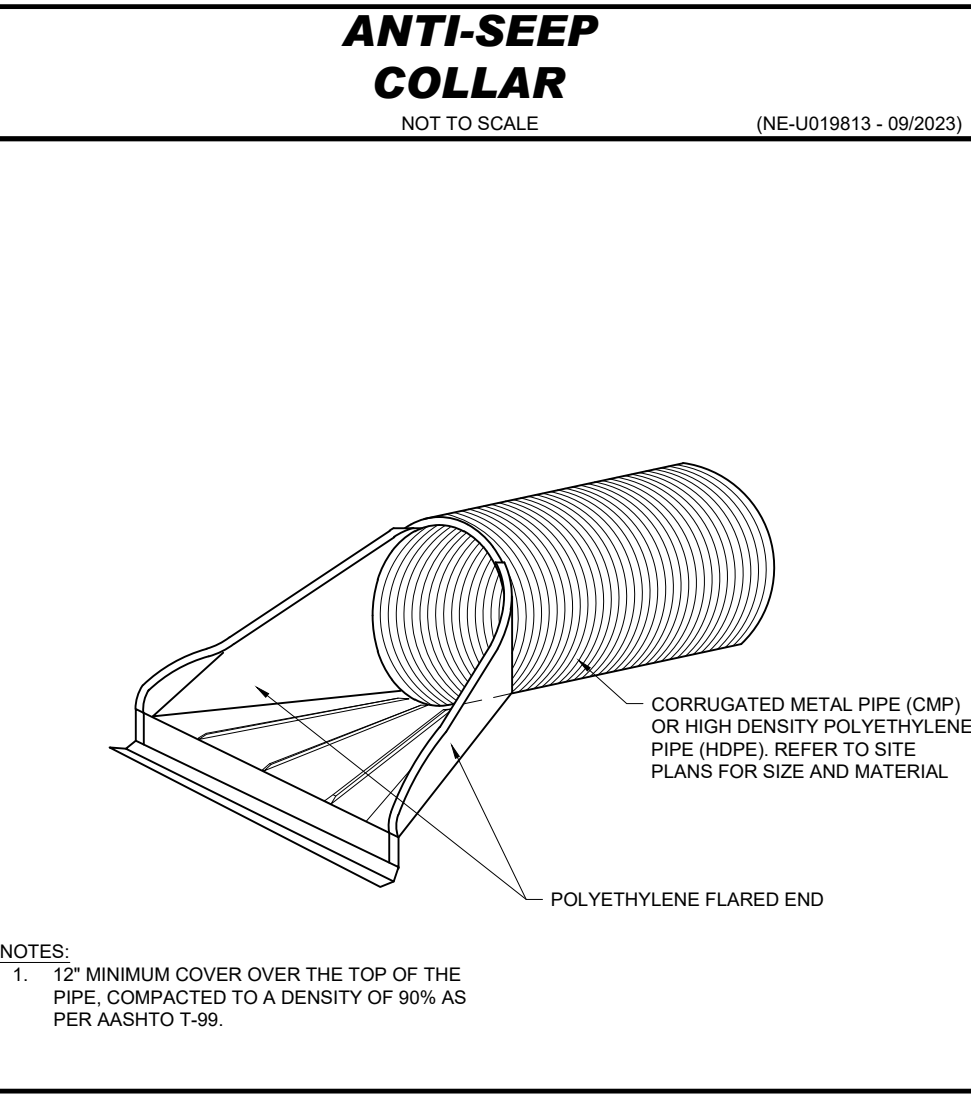
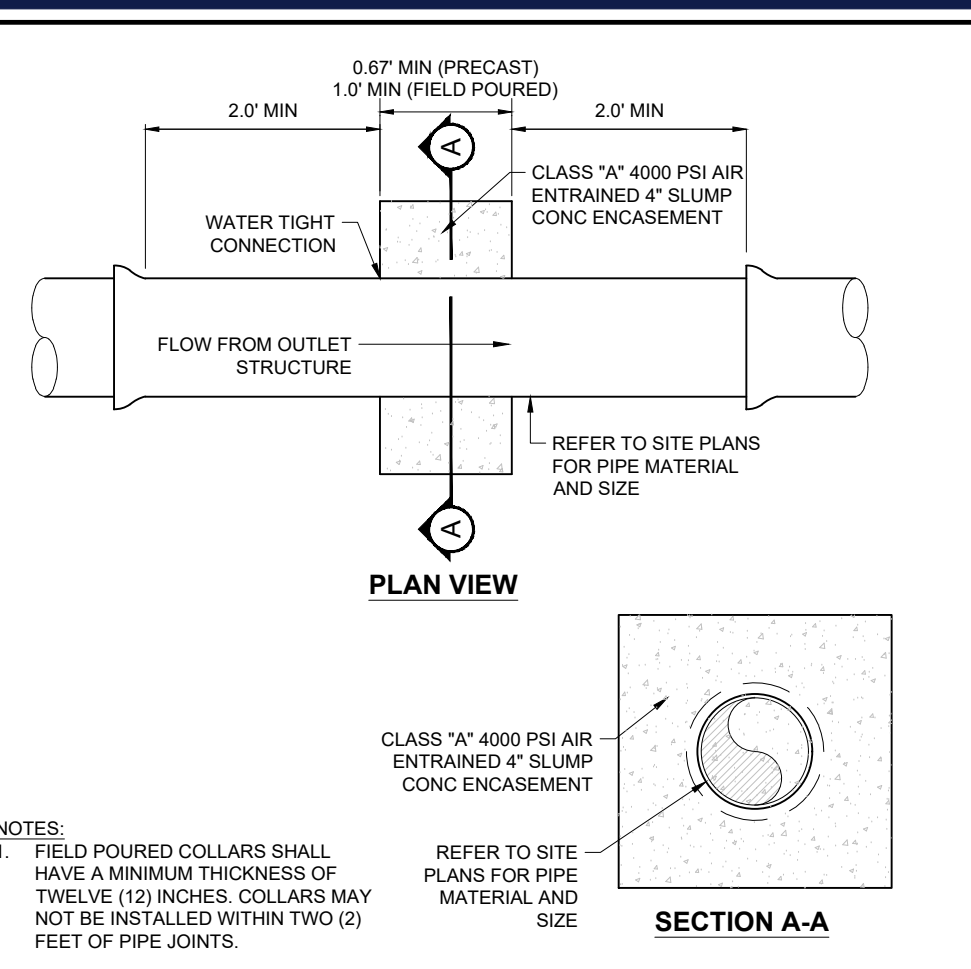
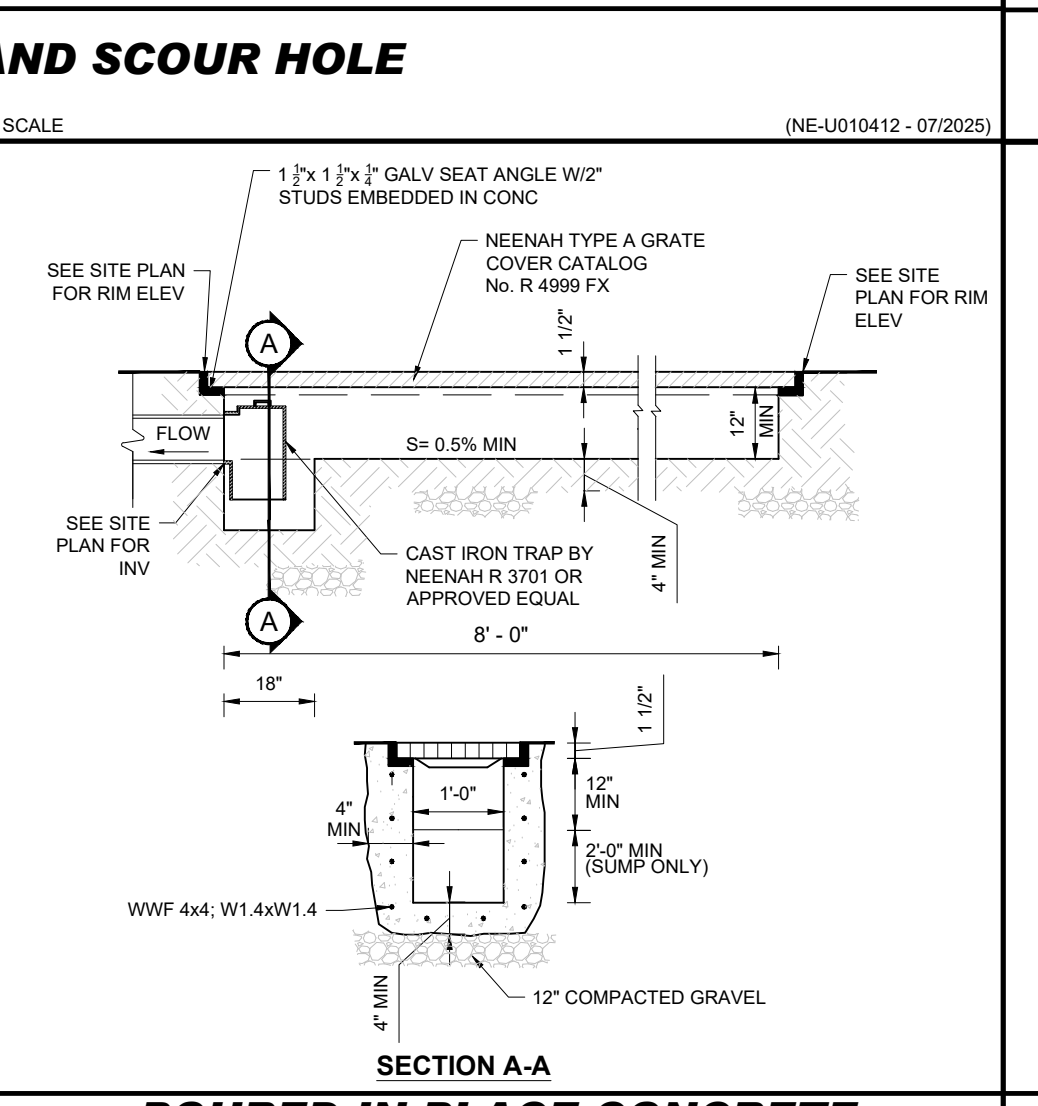
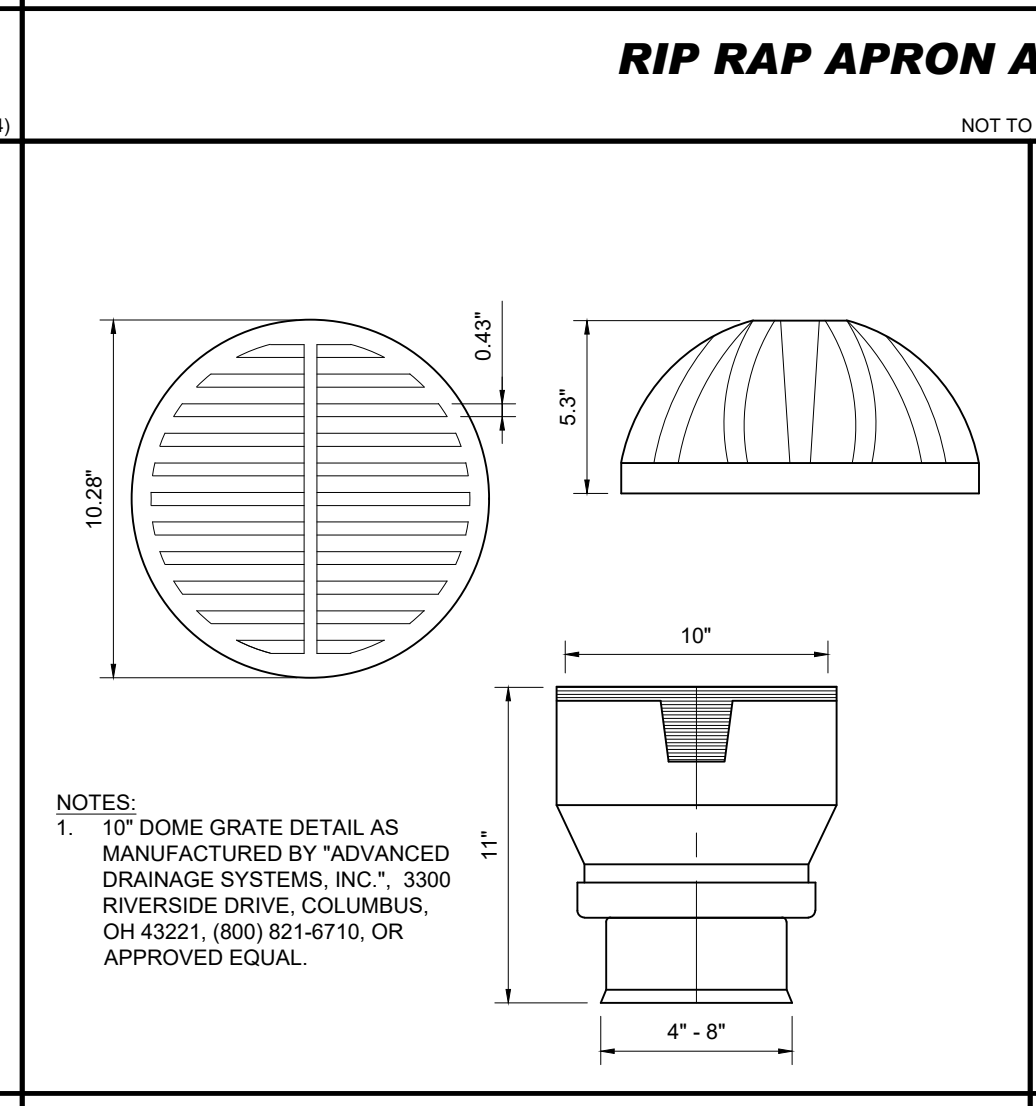
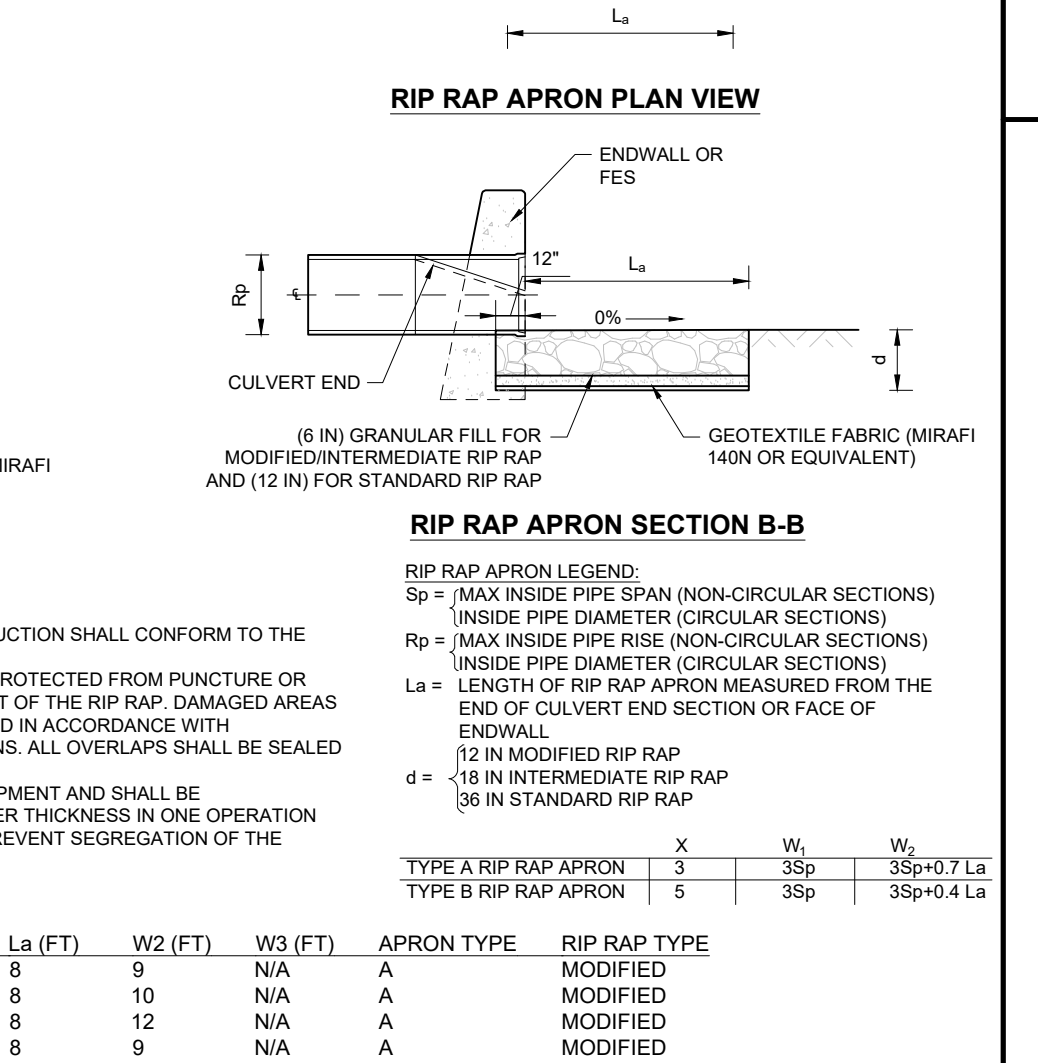
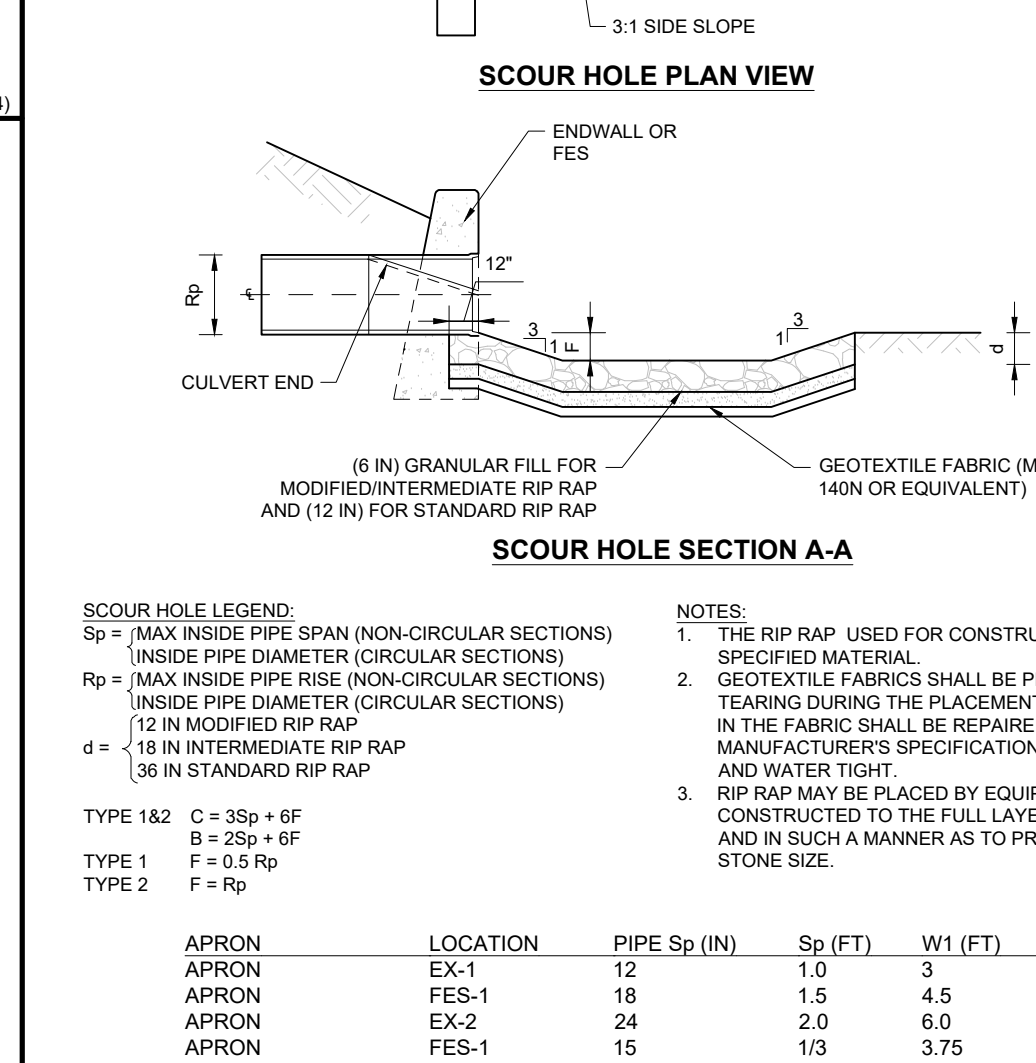
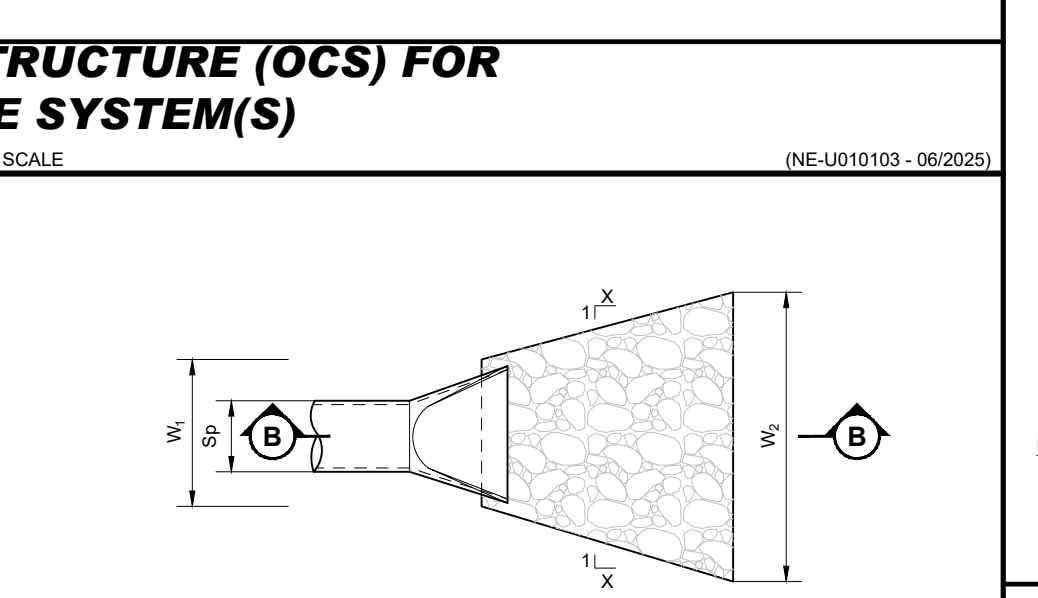
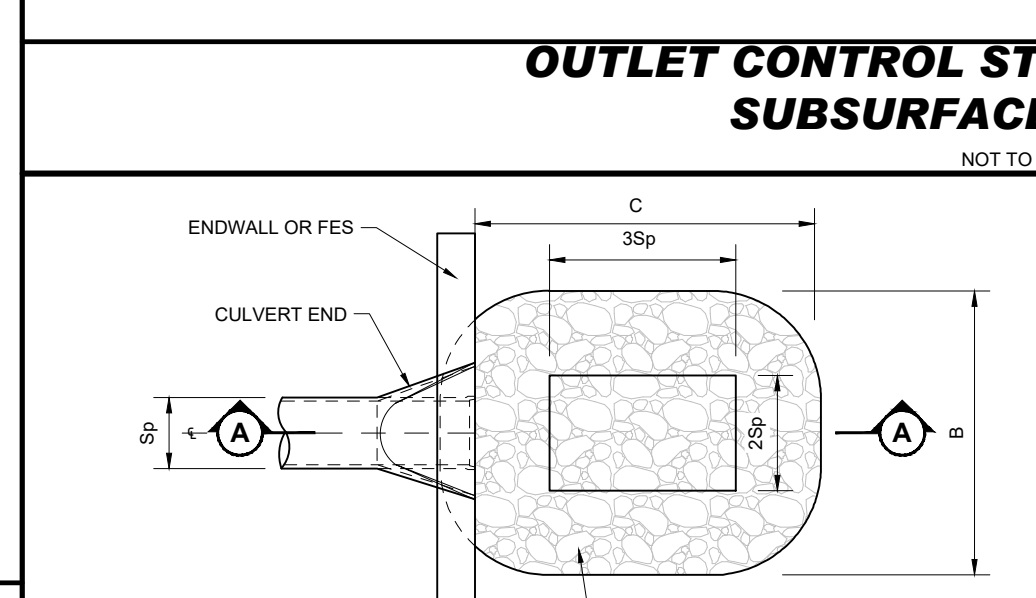
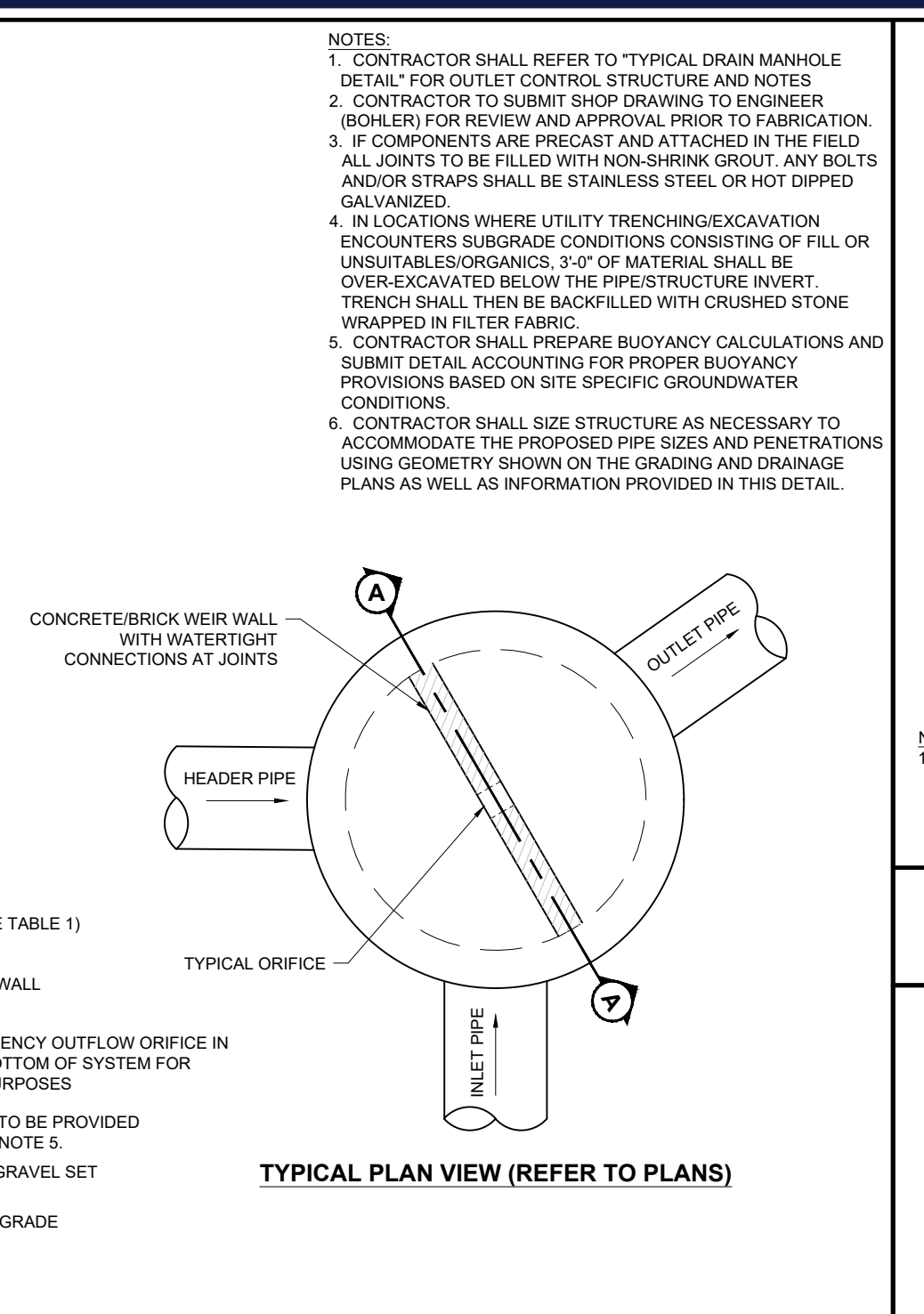
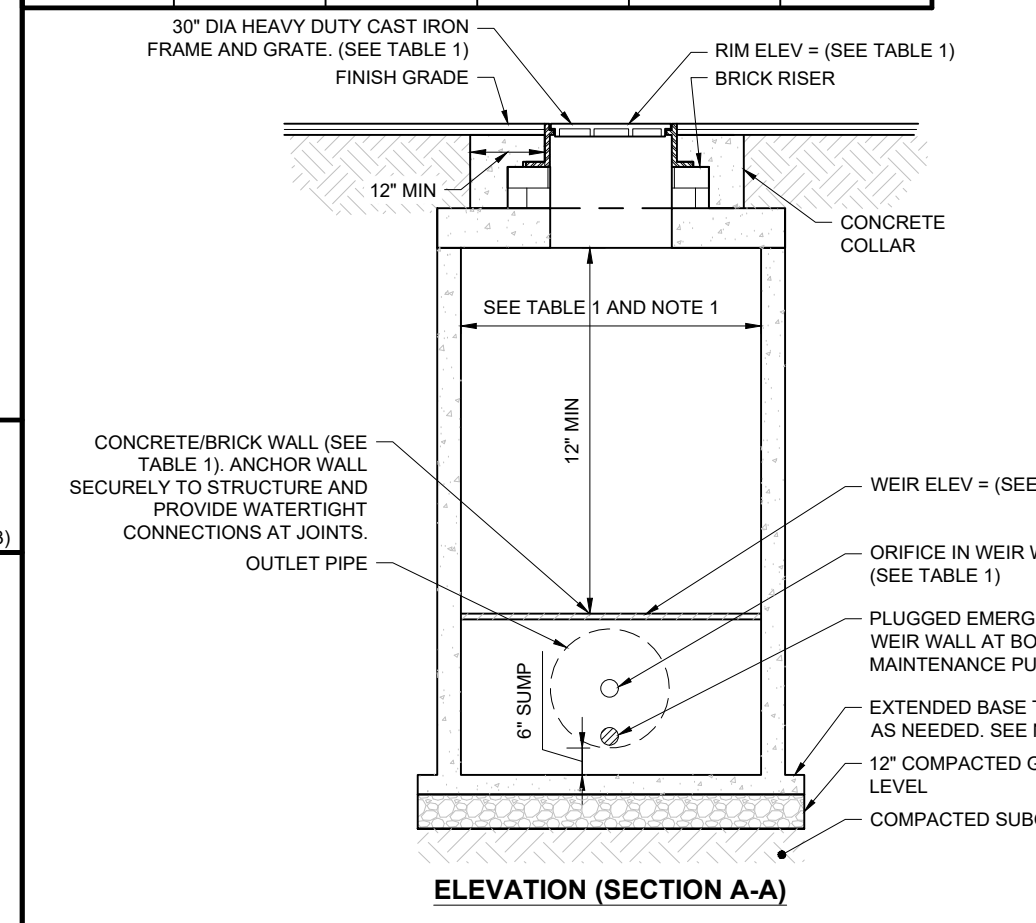
SHEET TITLE:  
**CONSTRUCTION DETAILS**  
SHEET NUMBER:  
**C-901**  
REVISION 1 - 03/03/2026

MAB250074-00-0A-CADD-DRAWINGS/PLAN SETS/SITE PLAN/SUB-CIVIL-CADD/MA250074-00-0A-LAYOUT-C-901 (BET)



**TABLE 1: OCS DETAILS**

BASIN #	OCS #	WEIR ELEV	WEIR LENGTH (FT)	ORIFICE SIZE (IN)	ORIFICE INV
1P	OCS-1	75.45	4	4"x24"	74.30
2P	OCS-2	76.85	4	N/A	N/A
3P	OCS-3	68.35	4	N/A	N/A
4P	OCS-4	69.30	4	N/A	N/A
5P	OCS-5	68.55	4	N/A	N/A
6P	OCS-6	73.20	N/A	6"	N/A



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**SITE PLAN REVIEW/SPECIAL PERMIT SET**

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MAY 02, 2025 10:00 AM BOHLER ENGINEERING NETISHARE\SMA\PROJ\2025\MAB250074-00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\CIVIL\_CND\SMA250074-00-0A-LAYOUT\_C-902.DWG

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SHEET TITLE:  
**CONSTRUCTION DETAILS**  
SHEET NUMBER:  
**C-903**  
REVISION 1 - 03/03/2026

**HORIZONTAL THRUST BLOCKING**  
(BLOCKING HEIGHT GREATER THAN PIPE OD)  
(BLOCKING WIDTH BETWEEN 1 & 2 TIMES HEIGHT)

REQUIRED SF OF UNDISTURBED EARTH WALL FOR REACTION BACKING

PIPE SIZE	TEE & PLUG	BENDS			
		90°	45°	22 1/2°	11 1/4°
3"	1.0	1.0	1.0	1.0	1.0
4"	1.0	1.0	1.0	1.0	1.0
6"	1.5	2.0	1.0	1.0	1.0
8"	2.5	3.5	1.8	1.0	1.0
10"	4.0	5.5	2.8	1.5	1.0
12"	6.0	8.0	4.0	2.0	1.5

NOTES:  
1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE  
2. WRAP ALL FITTINGS WITH VISQUEEN  
3. BACK ALL TEES ACCORDING TO SIZE OF BRANCH  
4. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE  
5. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL OR VERTICAL SHALL BE BACKED  
6. REACTION BACKING TABLE IS BASED ON 100 PSI AND SOIL BEARING PRESSURE OF 2,000 LBS/SF  
ADDITIONAL BACKING MAY BE REQUIRED IN SOME AREAS AS DIRECTED BY ENGINEERS  
7. ALL CONCRETE SHALL BE 2500 PSI  
8. 18" AND LARGER REQUIRES SPECIFIC ANTI-THRUST DESIGN

**UPWARD THRUST BLOCKING**

SEE CHART BELOW FOR CONCRETE VOLUME AND CONTINUOUS REINFORCING BARS AROUND PIPE FITTING

MAXIMUM WIDTH WITHOUT INTERFERING WITH BOLTING OPERATIONS

8" MIN  
12" MAX

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND	
	CONC CY	REIN QTY	CONC CY	REIN QTY	CONC CY	REIN QTY	CONC CY	REIN QTY
6"	1.5	3	1.5	3	1.25	2	1.25	2
8"	2	3	2	3	1.5	2	1.5	2
10"	2.5	3	2.5	3	2	3	2	3
12"	3	3	3	3	2.5	3	2.5	3

NOTES:  
1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE  
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8. 18" AND LARGER REQUIRES SPECIFIC ANTI-THRUST DESIGN

**HORIZONTAL THRUST BLOCKING**  
(NE-U03051 - 11/2024)

NOT TO SCALE

NOTES:  
1. IF NO CURB, LOCATION TO BE AS DIRECTED BY LOCAL DPW OR WATER DEPARTMENT  
2. COVER TO BE MARKED "WATER" WITH ARROW TO SHOW DIRECTION TO OPEN  
3. 4" STEAMER NOZZLE  
4. 4" RESTRAINING RODS COATED WITH KOPFERS SUPERSERVICE BLACK  
5. RETAINING GLANDS  
6. 8" WATER MAIN  
7. CEMENT LINED DUCTILE IRON PIPE  
8. CONCRETE THRUST BLOCK WITH MECHANICAL JOINT ENDS  
9. HEXAGONAL OPERATING NUT CONNECTIONS AS REQUIRED BY LOCAL FIRE DEPARTMENT  
10. NEW HYDRANT OR REUSE EXISTING HYDRANT AS DENOTED ON PLAN (TYP)  
11. LIGHTLY COMPACTED GRANULAR MATERIAL  
12. BURLAP CANVAS OR POLYETHYLENE SHEETING OVER 1 1/2" CRUSHED STONE  
13. HYDRANT DRAIN HOLES TO BE LEFT OPEN  
14. CRUSHED STONE OR COURSE GRAVEL  
15. FLAT ROCK OR CONCRETE  
16. 6" CAST IRON GATE VALVE WITH MECHANICAL JOINT ENDS

**VERTICAL THRUST BLOCKING**  
(NE-U03052 - 11/2024)

NOT TO SCALE

NOTES:  
1. INSTALL OFFSET TO MAINTAIN 5'-0" MIN COVER OVER NEW MAIN

**HYDRANT AND VALVE INSTALLATION**  
(NE-U030101 - 11/2024)

**WATER SERVICE OR MAIN AT UTILITY CROSSING**  
(NE-U050102 - 09/2023)

**CASCADE SEPARATOR DESIGN NOTES**

CS-3 RATED TREATMENT CAPACITY IS 1.01 CFS, OR PER LOCAL REGULATIONS. THE STANDARD CS-3 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

**SITE SPECIFIC DATA REQUIREMENTS**

PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO H20-108 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' @10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M208 AND BE CAST WITH THE CONTECH LOGO.
- CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
- ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

**INSTALLATION NOTES**

- ANY SUBBASE, 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 CASCADE SEPARATOR MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- 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.

**FRAME AND COVER (DIAMETER VARIES)**  
NOT TO SCALE

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45399  
800-338-1122 513-645-7000 513-645-7893 FAX

CS-3 CASCADE SEPARATOR STANDARD DETAIL  
(NE-U010103 - 06/2025)

**STORMCEPTOR DESIGN NOTES**

THE STANDARD STC450 CONFIGURATION WITH ROUND, SOLID FRAME AND COVER, AND INLET PIPE IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

STORMCEPTOR STC450 RATED TREATMENT CAPACITY @ 0.40 CFS, OR PER LOCAL REGULATIONS

**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

**SITE SPECIFIC DATA REQUIREMENTS**

PIPE DATA	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMCEPTOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STORMCEPTOR STRUCTURE SHALL MEET AASHTO H20-108 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' @10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M208 AND BE CAST WITH THE CONTECH LOGO.
- STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
- ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

**INSTALLATION NOTES**

- ANY SUBBASE, 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 STORMCEPTOR MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- 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.

**FRAME AND COVER (MAY VARY)**  
NOT TO SCALE

**FRAME AND GRATE (MAY VARY)**  
NOT TO SCALE

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45399  
800-338-1122 513-645-7000 513-645-7893 FAX

STC450 STORMCEPTOR STANDARD DETAIL  
(NE-U010103 - 09/2025)

**CASCADE STANDARD DETAIL**  
(NE-U010103 - 06/2025)

**STORMCEPTOR STANDARD DETAIL**  
(NE-U010103 - 09/2025)

**TYPICAL STORMTECH DETAIL**  
(NE-U010103 - 06/2025)

NOT TO SCALE

NOTES:  
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F3922 (POLYETHYLENE) OR ASTM F3918 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".  
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".  
3. 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. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.  
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.  
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:  
• TO MAINTAIN THE NOTCH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LOGS.  
• TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2" (50 mm).  
• TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 8.2 OF ASTM F3922 SHALL BE GREATER THAN OR EQUAL TO 325 LBS/FT/L. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73°F / 23°C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

**CASCADE separator**

**PLAN VIEW B-B**  
NOT TO SCALE

**ELEVATION A-A**  
NOT TO SCALE

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45399  
800-338-1122 513-645-7000 513-645-7893 FAX

CASCADE STANDARD DETAIL  
(NE-U010103 - 06/2025)

**CASCADE STANDARD DETAIL**  
(NE-U010103 - 06/2025)

15/03/2025 10:28:26 AM PROJECT: 2025 MAB250074-00-0A DRAWING: SITE PLAN SITE PLAN SITE PLAN CIVIL\_CADD MAB250074-00-0A LAYOUT: C-903 DETAIL



NAD83

### ANDOVER, MASSACHUSETTS LANDSCAPE REQUIREMENTS

SECTION	REQUIREMENT	PROPOSED	CALCULATION	COMPLIANCE
ANDOVER BYLAWS §5.1.8. PARKING IN INDUSTRIAL DISTRICTS	6. EACH PARKING AREA SHALL BE ENCLOSED (EXCEPT FOR ACCESS POINTS) BY A LANDSCAPED BUFFER NOT LESS THAN 12 FEET WIDE, PLANTED WITH SHADE TREES. 7. EACH PARKING AREA SHALL HAVE INTERIOR LANDSCAPING AREAS, PRIMARILY PLANTED WITH TREES, EQUIVALENT IN SIZE TO AT LEAST 5% OF THE PARKING AREAS' TOTAL PAVEMENT AREA.	3,119 SQUARE FEET OF INTERIOR LANDSCAPING AREA REQUIRED 5,311 SQUARE FEET OF INTERIOR LANDSCAPING PROPOSED IN PARKING AREA	TOTAL PAVEMENT AREA = 62,378 SQUARE FEET 5% LANDSCAPING REQUIRED = 3,119 SQUARE FEET	COMPLIES
ANDOVER BYLAWS §8.9.4. DIMENSIONAL REGULATIONS	1. DEVELOPMENT IN THE MOD SHALL COMPLY WITH THE FOLLOWING DIMENSIONAL AND DENSITY REGULATIONS: MINIMUM OPEN SPACE: 10% MODRR	125,359 SQUARE FEET OF OPEN SPACE REQUIRED 169,989 SQUARE FEET OF OPEN SPACE PROPOSED	SITE TOTAL AREA = 417,864 SQUARE FEET 10% OPEN SPACE = 125,359 SQUARE FEET	COMPLIES
ANDOVER BYLAWS §SECTION 5.0 - PARKING AREA DESIGN	2. THE INTERIOR OF PARKING AREAS AND ALL INTERNAL CIRCULATION AREAS TO THE SITE SHOULD BE SHADED BY DECIDUOUS TREES EITHER RETAINED OR PLANTED BY THE DEVELOPER. THERE SHOULD BE A SUFFICIENT TREE CANOPY TO COVER 30 PERCENT OF THE PARKING AREA WITHIN 15 YEARS OF PLANTING THE TREES IDENTIFIED IN AN APPROVED APPLICATION.	18,713 SQUARE FEET OF CANOPY COVER REQUIRED IN PARKING AREA 47,783 SQUARE FEET OF TREE CANOPY COVER IN PARKING AREA PROPOSED	TOTAL PAVEMENT AREA = 62,378 SQUARE FEET 30% TREE CANOPY COVER = 18,713 SQUARE FEET	COMPLIES
ANDOVER BYLAWS §8.9.5. DEVELOPMENT STANDARD, BICYCLE PARKING	D. THE PLANNING BOARD MAY ADOPT RULES AND REGULATIONS AND GUIDELINES FOR THE DESIGN AND PLACEMENT OF BICYCLE RACKS FOR LONG-TERM AND SHORT-TERM BICYCLE PARKING.			COMPLIES
WALK BIKE ANDOVER §8.9.5. DEVELOPMENT STANDARD, BICYCLE PARKING	RACK STYLE: POST AND RING STYLE STRONGLY PREFERRED, BUT OTHER STYLES SUCH AS "INVERTED U" MAY STILL SATISFY ALL CRITERIA RACK SPACING/CLEARANCE: MINIMUM 3' FREE CLEARANCE TO ALL OBSTRUCTIONS, INCLUDING WALLS, BUILDINGS, CURBS, PEDESTRIAN WAYS, OR ADDITIONAL BIKE RACKS RACK PLACEMENT: RACKS SHOULD BE PLACED WITHIN 50' OF BUILDING ENTRANCES ON FIRM AND LEVEL GROUND, EASILY VISIBLE TO USERS, AND IDEALLY COVERED FROM THE WEATHER (BUILDING OVERHANG OR DEDICATED AWNING)	16 VISITOR BIKE SPACES HAVE BEEN LOCATED WITHIN 50' OF BUILDING ENTRANCES	8 BIKE RACKS * 2 BIKES PER RACK = 16 VISITOR BIKE SPACES	COMPLIES

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PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
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#### REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY



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PROJECT No.: MAB250074-00-0A  
DRAWN BY: WG/AT  
CHECKED BY: ZLR  
DATE: 01/09/2025  
CAD ID: P-CIVIL-SITE-MAB250074-00

PROJECT:

### SITE PLAN REVIEW/SPECIAL PERMIT SET

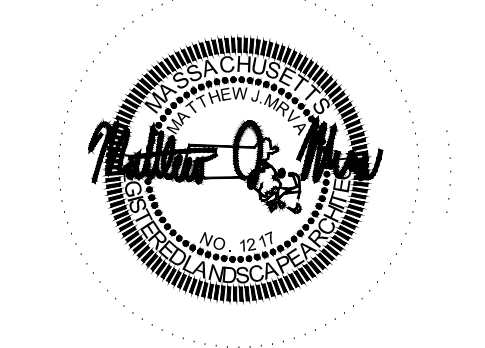
FOR



PROPOSED  
THE COMMONS AT RIVER ROAD  
100 OLD RIVER ROAD  
ESSEX COUNTY  
TOWN OF ANDOVER, MA 01810  
MAP, BLOCK & LOT: 143 - 0 - 8



45 FRANKLIN STREET, 5th FLOOR  
BOSTON, MA 02110  
Phone: (617) 849-8040  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

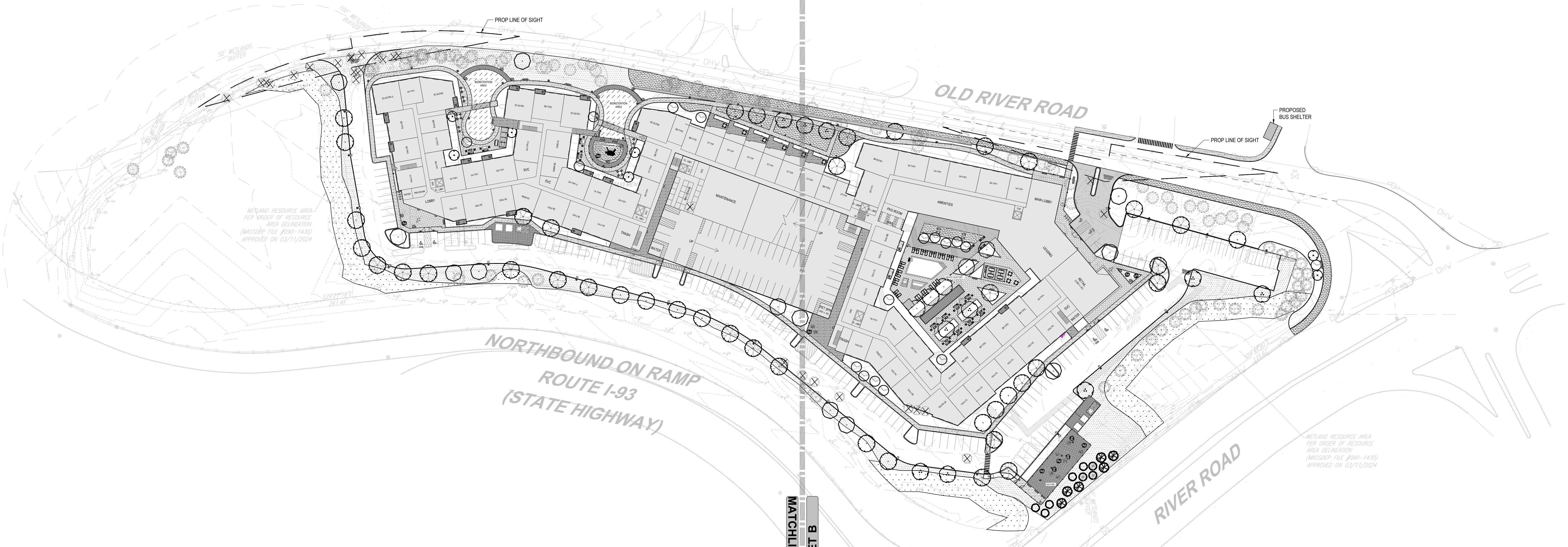


### OVERALL LANDSCAPE PLAN

SHEET NUMBER:  
**L-100**

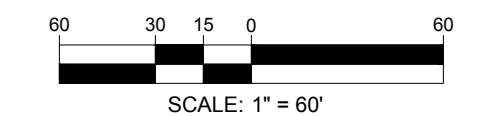
ORG. DATE - 01/09/2025

1/9/2025 10:58:00 AM C:\Users\jcorcoran\OneDrive\Desktop\100-08\100-08-LANDSCAPE\100-08-LANDSCAPE-SITE.MXD (L-100) - LAYOUT: L-100



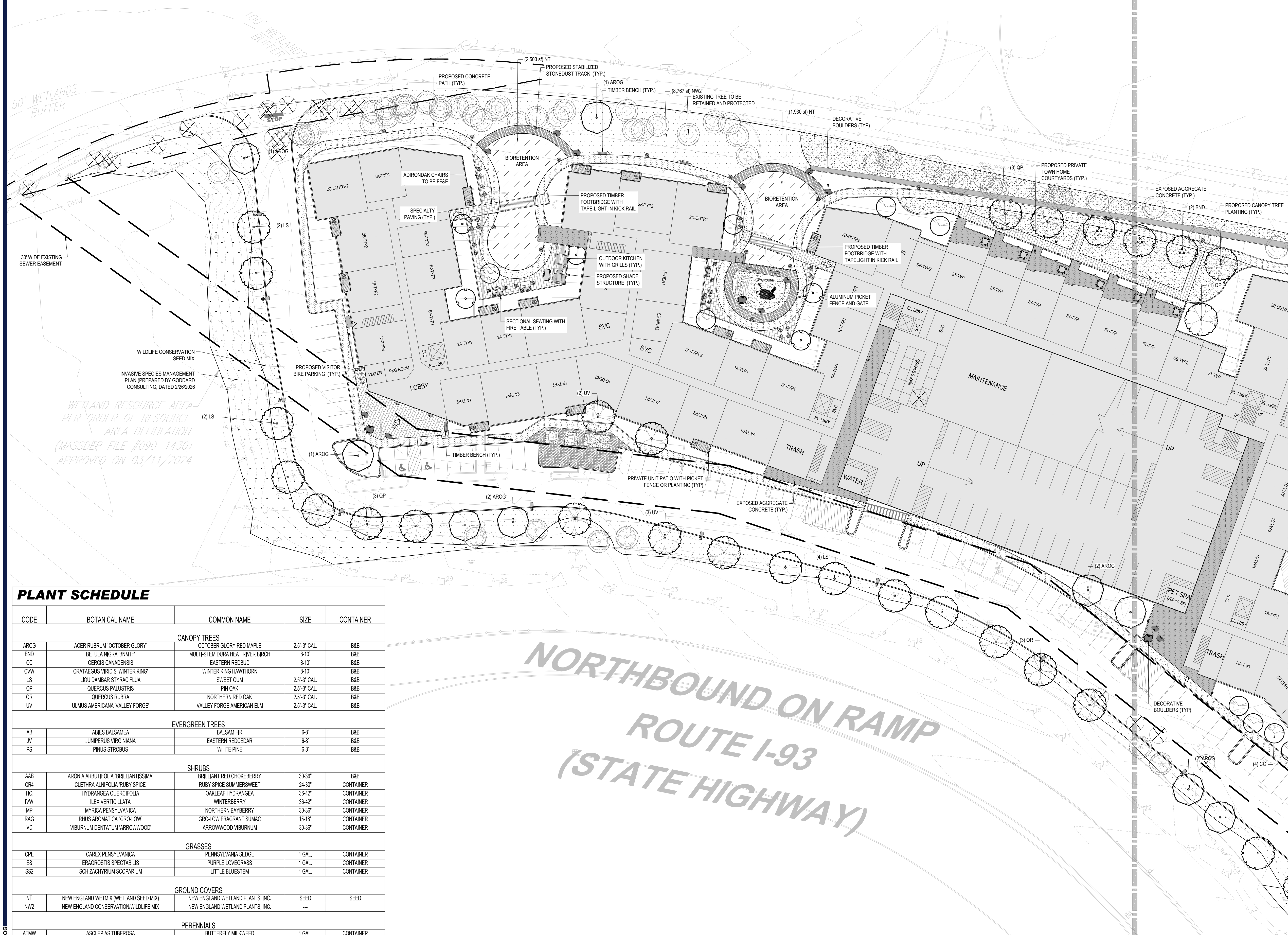
MATCHLINE - SHEET A  
MATCHLINE - SHEET B

**THIS PLAN TO BE UTILIZED  
FOR LANDSCAPE  
PURPOSES ONLY**





NAD83



MATCHLINE - SHEET B

MATERIALS LEGEND		
KEY	SYMBOL	DESCRIPTION
SEE CIVIL	[Symbol]	CONCRETE PAVING
	[Symbol]	SPECIALTY PAVING
	[Symbol]	EXPOSED AGGREGATE CONCRETE
	[Symbol]	VEHICULAR GRADE SPECIALTY PAVING
	[Symbol]	PORCELAIN PAVERS
	[Symbol]	STABILIZED STONEDUST
	[Symbol]	TIMBER DECKING
	[Symbol]	VINYL COATED CHAINLINK FENCE WITH GATE
	[Symbol]	TIMBER SCREEN WITH GATE
	[Symbol]	18" STONE MAINTENANCE STRIP
	[Symbol]	BIKE RACKS
	[Symbol]	SHADE STRUCTURE
	[Symbol]	DOG WASTE BIN AND BAG DISPENSER
	[Symbol]	DOG DRINKING FOUNTAIN
	[Symbol]	OUTDOOR KITCHEN
	[Symbol]	FIRE PIT / FIRE TABLE
	[Symbol]	TIMBER BENCH
	[Symbol]	BOULDERS
BY OTHERS	[Symbol]	ADA POOL LIFT
FF&E	[Symbol]	WASTE BIN
FF&E	[Symbol]	MOVEABLE PLANTER
FF&E	[Symbol]	CAFE SEATING WITH UMBRELLA
FF&E	[Symbol]	DINING TABLE
FF&E	[Symbol]	ADIRONDACK CHAIR
FF&E	[Symbol]	SECTIONAL SEATING
FF&E	[Symbol]	POOL LOUNGERS
FF&E	[Symbol]	POOL CABANA
FF&E	[Symbol]	SECTIONAL SEATS
FF&E	[Symbol]	CORNHOLE BOARD

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REVISIONS			
REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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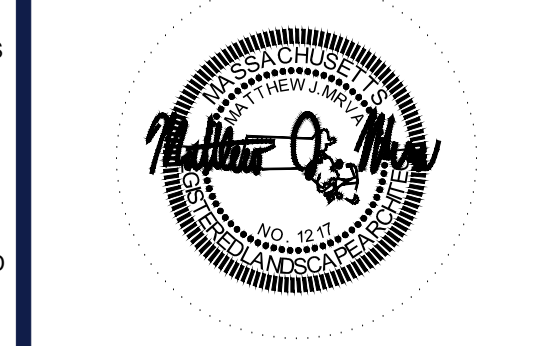
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PROJECT No.: MAB250074-00-0A  
 DRAWN BY: ZLR  
 DATE: 01/09/2025  
 CAD ID: P-CIVIL-SITE-MAB250074-00

**JOHN M. CORCORAN & CO.** **SV + P**

PROPOSED THE COMMONS AT RIVER ROAD  
 100 OLD RIVER ROAD  
 ESSEX COUNTY  
 TOWN OF ANDOVER, MA 01810  
 MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**  
 45 FRANKLIN STREET, 5th FLOOR  
 BOSTON, MA 02110  
 Phone: (617) 849-8040  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)



SHEET TITLE:  
**LANDSCAPE PLAN A**  
 SHEET NUMBER:  
**L-101**  
 ORG. DATE - 01/09/2025

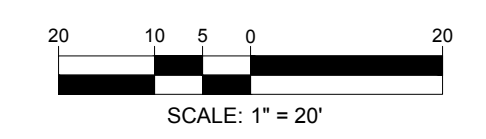
**PLANT SCHEDULE**

CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
<b>CANOPY TREES</b>				
AROG	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.5"-3" CAL	B&B
BND	BETULA NIGRA 'BNMTF'	MULTI-STEM DURA HEAT RIVER BIRCH	8-10'	B&B
CC	CERCIS CANADENSIS	EASTERN REDBUD	8-10'	B&B
CWV	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	8-10'	B&B
LS	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	2.5"-3" CAL	B&B
QP	QUERCUS PALUSTRIS	PIN OAK	2.5"-3" CAL	B&B
QR	QUERCUS RUBRA	NORTHERN RED OAK	2.5"-3" CAL	B&B
UV	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE AMERICAN ELM	2.5"-3" CAL	B&B
<b>EVERGREEN TREES</b>				
AB	ABIES BALSAMICA	BALSAM FIR	6-8'	B&B
JV	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	6-8'	B&B
PS	PINUS STROBUS	WHITE PINE	6-8'	B&B
<b>SHRUBS</b>				
AAB	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	BRILLIANT RED CHOKEBERRY	30-36"	B&B
CR4	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	24-30"	CONTAINER
HQ	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	36-42"	CONTAINER
IWV	ILEX VERTICILLATA	WINTERBERRY	36-42"	CONTAINER
MP	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	30-36"	CONTAINER
RAG	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	15-18"	CONTAINER
VD	VIBURNUM DENTATUM 'ARROWWOOD'	ARROWWOOD VIBURNUM	30-36"	CONTAINER
<b>GRASSES</b>				
CPE	CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	1 GAL	CONTAINER
ES	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	1 GAL	CONTAINER
SS2	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL	CONTAINER
<b>GROUND COVERS</b>				
NT	NEW ENGLAND WETMIX (WETLAND SEED MIX)	NEW ENGLAND WETLAND PLANTS, INC.	SEED	SEED
NW2	NEW ENGLAND WILDLIFE MIX	NEW ENGLAND WETLAND PLANTS, INC.	---	---
<b>PERENNIALS</b>				
ATMV	ASCLEPIS TUBEROSA	BUTTERFLY MILKWEED	1 GAL	CONTAINER

**MATERIALS PLAN NOTES:**

- THE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE TOTAL SCOPE OF WORK AND ALL REQUIRED COORDINATION.
- CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- CONTRACTOR SHALL PREPARE SUBMITTALS TO THE LANDSCAPE ARCHITECT FOR ALL COMPONENTS OF THE FINISHED WORK, INCLUDING SHOP DRAWINGS, PRODUCT DATA, MATERIAL CERTIFICATIONS, MIX DESIGNS AND SAMPLES.
- THE DIMENSIONS OF PAVEMENT JOINTS AS SHOWN ON THE DRAWINGS ARE TO THE CENTER LINE OF EACH TYPE OF JOINT EXCEPT WHERE PAVEMENT MEETS A VERTICAL FACE; AT THIS LOCATION DIMENSIONS ARE TO THE VERTICAL FACE. THE DIMENSIONS SHOWN ON DRAWINGS SHOW DESIGN INTENT AND MUST BE FIELD VERIFIED PRIOR TO PREPARATION OF SHOP DRAWINGS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE INSIDE OR OUTSIDE OF LIMIT OF WORK LINE DUE TO HIS/HER CONSTRUCTION OPERATIONS.
- STORAGE AREAS FOR THE GENERAL CONTRACTOR'S EQUIPMENT AND MATERIALS SHALL BE LOCATED WITHIN THE LIMITS OF WORK AS APPROVED BY THE SITE REPRESENTATIVE.
- WHERE NEW PAVING MEETS EXISTING PAVING, MEET LINE AND GRADE OF EXISTING SMOOTHLY WITH NEW CONSTRUCTION.
- AT ALL LOCATIONS WHERE EXISTING BITUMINOUS CONCRETE PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN SMOOTH EDGE.

**THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY**



MAY 02, 2025 10:00 AM BOHLER ENGINEERING \SHARES\BMA\PROJECTS\2025\MAB250074\00-CAD\DRAWINGS\PLAN SETS\LANDSCAPE SITE PLAN\B-P-PLAN-AD-SITE-MAB250074-00-0A-LAYOUT-L-101



MATCHLINE - SHEET A

OLD RIVER ROAD



**PLANT SCHEDULE**

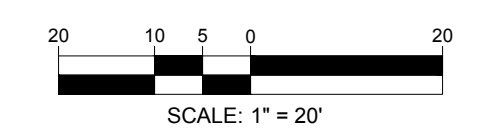
CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
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VD	VIBURNUM DENTATUM 'ARROWWOOD'	ARROWWOOD VIBURNUM	30-36"	CONTAINER
<b>GRASSES</b>				
CPE	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL	CONTAINER
ES	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	1 GAL	CONTAINER
SS2	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1 GAL	CONTAINER
<b>GROUND COVERS</b>				
NT	NEW ENGLAND WETMIX (WETLAND SEED MIX)	NEW ENGLAND WETLAND PLANTS, INC.	SEED	SEED
NW2	NEW ENGLAND CONSERVATION/WILDLIFE MIX	NEW ENGLAND WETLAND PLANTS, INC.	---	---
<b>PERENNIALS</b>				
ATMV	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	1 GAL	CONTAINER

**MATERIALS LEGEND**

KEY	SYMBOL	DESCRIPTION
SEE CIVIL	[Symbol]	CONCRETE PAVING
	[Symbol]	SPECIALTY PAVING
	[Symbol]	EXPOSED AGGREGATE CONCRETE
	[Symbol]	VEHICULAR GRADE SPECIALTY PAVING
	[Symbol]	PORCELAIN PAVERS
	[Symbol]	STABILIZED STONEDUST
	[Symbol]	TIMBER DECKING
	[Symbol]	VINYL COATED CHAINLINK FENCE WITH GATE
	[Symbol]	TIMBER SCREEN WITH GATE
	[Symbol]	18" STONE MAINTENANCE STRIP
	[Symbol]	BIKE RACKS
	[Symbol]	SHADE STRUCTURE
	[Symbol]	DOG WASTE BIN AND BAG DISPENSER
	[Symbol]	DOG DRINKING FOUNTAIN
	[Symbol]	OUTDOOR KITCHEN
	[Symbol]	FIRE PIT / FIRE TABLE
	[Symbol]	TIMBER BENCH
	[Symbol]	BOULDERS
BY OTHERS	[Symbol]	ADA POOL LIFT
FF&E	[Symbol]	WASTE BIN
FF&E	[Symbol]	MOVEABLE PLANTER
FF&E	[Symbol]	CAFE SEATING WITH UMBRELLA
FF&E	[Symbol]	DINING TABLE
FF&E	[Symbol]	ADIRONDACK CHAIR
FF&E	[Symbol]	SECTIONAL SEATING
FF&E	[Symbol]	POOL LOUNGERS
FF&E	[Symbol]	POOL CABANA

- MATERIALS PLAN NOTES:**
- THE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE TOTAL SCOPE OF WORK AND ALL REQUIRED COORDINATION.
  - CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
  - CONTRACTOR SHALL PREPARE SUBMITTALS TO THE LANDSCAPE ARCHITECT FOR ALL COMPONENTS OF THE FINISHED WORK, INCLUDING SHOP DRAWINGS, PRODUCT DATA, MATERIAL CERTIFICATIONS, MIX DESIGNS AND SAMPLES.
  - THE DIMENSIONS OF PAVEMENT JOINTS AS SHOWN ON THE DRAWINGS ARE TO THE CENTER LINE OF EACH TYPE OF JOINT EXCEPT WHERE PAVEMENT MEETS A VERTICAL FACE. AT THIS LOCATION DIMENSIONS ARE TO THE VERTICAL FACE. THE DIMENSIONS SHOWN ON DRAWINGS SHOW DESIGN INTENT AND MUST BE FIELD VERIFIED PRIOR TO PREPARATION OF SHOP DRAWINGS.
  - THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE INSIDE OR OUTSIDE OF LIMIT OF WORK LINE DUE TO HIS/HER CONSTRUCTION OPERATIONS.
  - STORAGE AREAS FOR THE GENERAL CONTRACTOR'S EQUIPMENT AND MATERIALS SHALL BE LOCATED WITHIN THE LIMITS OF WORK AS APPROVED BY THE SITE REPRESENTATIVE.
  - WHERE NEW PAVING MEETS EXISTING PAVING, MEET LINE AND GRADE OF EXISTING SMOOTHLY WITH NEW CONSTRUCTION.
  - AT ALL LOCATIONS WHERE EXISTING BITUMINOUS CONCRETE PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN SMOOTH EDGE.

**THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY**



**BOHLER**  
 SITE CIVIL AND CONSULTING ENGINEERING  
 PROGRAM MANAGEMENT  
 LANDSCAPE ARCHITECTURE  
 SUSTAINABLE DESIGN  
 PERMITTING SERVICES  
 TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY

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**ENTITLEMENT SET**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR ARCHITECT REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAB250074-00-0A  
 DRAWN BY: WG/AT  
 CHECKED BY: ZLR  
 DATE: 01/09/2025  
 CAD ID: P-CIVIL-SITE-MAB250074-00

**JOHN M. CORCORAN & CO.** SV + P

PROPOSED  
 THE COMMONS AT RIVER ROAD  
 100 OLD RIVER ROAD  
 ESSEX COUNTY  
 TOWN OF ANDOVER, MA 01810  
 MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**  
 45 FRANKLIN STREET, 5th FLOOR  
 BOSTON, MA 02110  
 Phone: (617) 849-8040  
 www.BohlerEngineering.com



SHEET TITLE:  
**LANDSCAPE PLAN B**  
 SHEET NUMBER:  
**L-102**  
 ORG. DATE - 01/09/2025

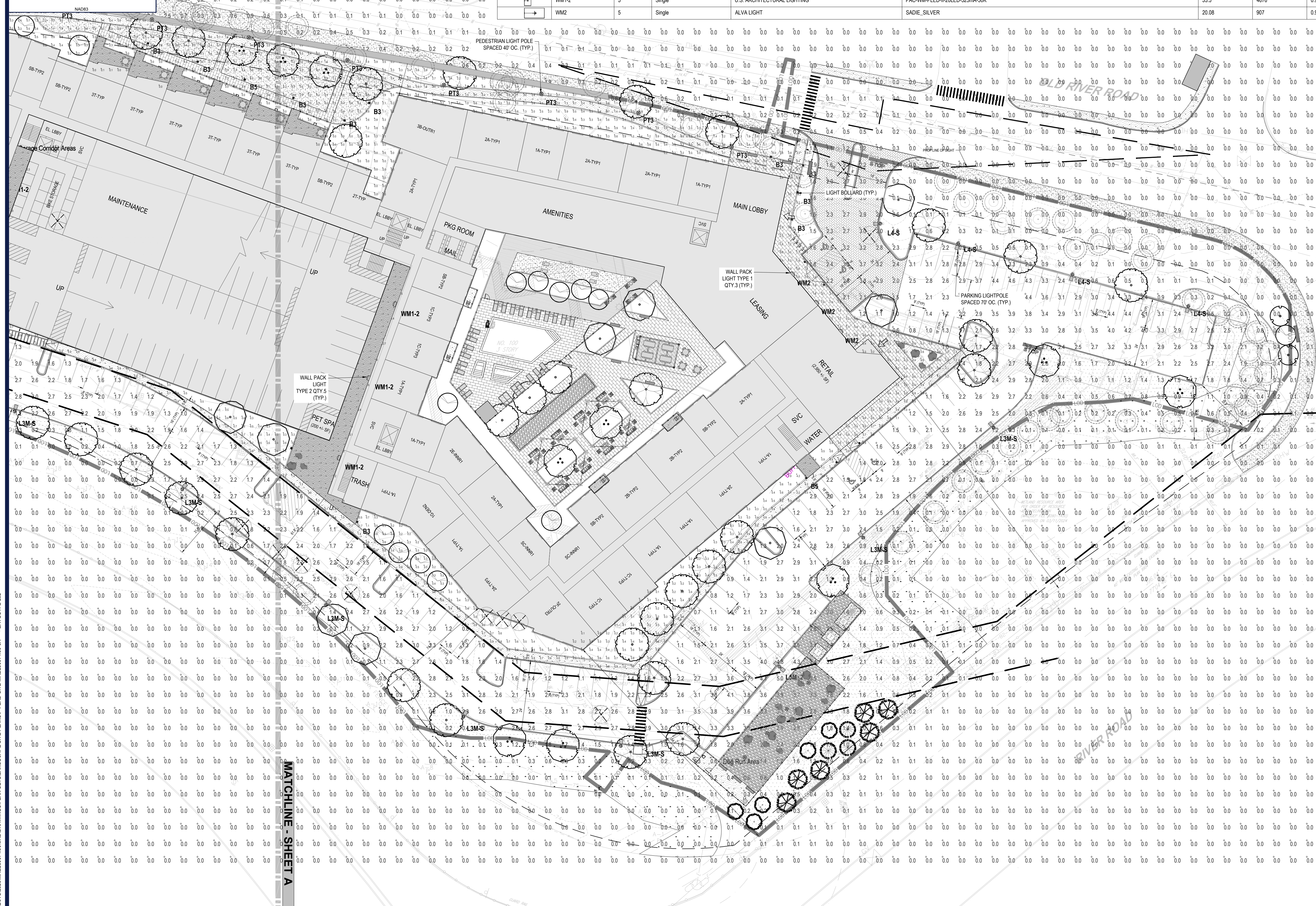
MAB250074-00-0A-143-0-8-102-102





Symbol	Label	Qty	Arrangement	Manufacturer	Description	Lum. Watts	Lum. Lumens	LLF
	B3	15	Single	U.S. ARCHITECTURAL LIGHTING	AXMRB-PLED-NL-III-W-12LED-350mA-30K	13	1596	0.920
	B5	3	Single	U.S. ARCHITECTURAL LIGHTING	AXMRB-PLED-NL-VSQ-W-12LED-350mA-30K	13	1782	0.920
	L2-S	1	Single	U.S. ARCHITECTURAL LIGHTING	PAC24-PLED-II-80LED-525mA-30K-HS	129.7	12779	0.920
	L3M-S	11	Single	U.S. ARCHITECTURAL LIGHTING	PAC24-PLED-III-M-80LED-525mA-30K-HS	129.7	12928	0.920
	L4-S	5	Single	U.S. ARCHITECTURAL LIGHTING	PAC24-PLED-IV-80LED-525mA-30K-HS	129.7	13353	0.920
	LSM_2	1	Back-Back	U.S. ARCHITECTURAL LIGHTING	PAC24-PLED-VSQ-M-80LED-525mA-30K	129.7	18084	0.920
	PT3	20	Single	U.S. ARCHITECTURAL LIGHTING	PAC18-PT2-PLED-AL-ASY-48LED-175mA-30K	26.5	3081	0.920
	WM1-2	5	Single	U.S. ARCHITECTURAL LIGHTING	PAC-WM-PLED-II-20LED-525mA-30K	35.5	4676	0.920
	WM2	5	Single	ALVA LIGHT	SADIE_SILVER	20.08	907	0.920

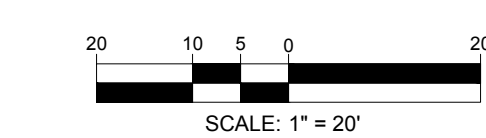
KEY	SYMBOL	DESCRIPTION
LP1		PARKING LOT LIGHTPOLE
PT1		PEDESTRIAN LIGHTPOLE
B1		LIGHT BOLLARD
W1/W2		WALL PACK



**LIGHTING PLAN NOTES:**

- THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR MUST BECOME FAMILIAR WITH, REFER TO AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY.
- THE ELECTRICAL CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THIS LIGHTING PLAN, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY, AND ALL APPLICABLE AGENCY AND GOVERNMENTAL REGULATIONS. THE LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER(S). ACTUAL SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY DIFFER FROM THE VALUES DEPICTED ON THIS PLAN DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, MAINTENANCE, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES, EXISTING AMBIENT LIGHT SOURCE ON AND OFF SITE, AND OTHER RELATED VARIABLE FIELD CONDITIONS.
- THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ANALYZED ON A HORIZONTAL GEOMETRIC PLANE AT GROUND LEVEL UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOT-CANDELS (FC).
- THE LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES, POWER SYSTEM, CONDUITS, WIRING, CONTROLS, AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECT'S, ELECTRICAL ENGINEER'S AND/OR ELECTRICAL CONTRACTOR'S RESPONSIBILITY, AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS. THE CONTRACTOR MUST COORDINATE WITH THE PROJECT ARCHITECT AND/OR ELECTRICAL ENGINEER REGARDING ANY AND ALL POWER SOURCES AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE BUILDING AND LOCAL ELECTRICAL CODES.
- THE ELECTRICAL CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURE(S) TO THE PROFESSIONAL OF RECORD'S ATTENTION, PRIOR TO THE START OF CONSTRUCTION.
- THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL LIGHTING IS INSTALLED PER THIS LIGHTING PLAN, INCLUDING THE LOCATION, ORIENTATION, SHIELDING, AND/OR ROTATED OPTICS IN ORDER TO ACHIEVE THE LIGHTING LEVELS DEPICTED ON THIS PLAN. EXISTING POLES AND FOUNDATIONS ARE NOT TO BE REUSED.
- UPON OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT, THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE, SERVICING, REPAIR AND INSPECTION OF THE LIGHTING SYSTEM AND ALL OF ITS COMPONENTS AND RELATED SYSTEMS. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY INSPECTED/MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, AND OTHER MAINTENANCE SPECIFIED BY THE MANUFACTURER. FAILURE TO FOLLOW THE ABOVE STEPS COULD RESULT IN IMPROPER LIGHT DISTRIBUTION AND FAILURE TO COMPLY WITH THE APPROVED DESIGN.
- THE LIGHT LOSS FACTORS (LLF) DEPICTED IN THE LUMINAIRE SCHEDULE ON THIS PLAN ARE BASED ON DATA PROVIDED BY THE MANUFACTURER. FOLLOWING IESNA LM-80-21 TESTING (OR MOST RECENT EDITION), THE LIGHT LEVELS DEPICTED ON THIS PLAN WERE CALCULATED BASED ON THE LLF LISTED IN THE LUMINAIRE SCHEDULE.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO BOHLER FOR REVIEW AND APPROVAL. SUBSTITUTION REQUESTS MUST BE ACCOMPANIED BY A HORIZONTAL PHOTOMETRIC STUDY DEMONSTRATING THAT THE LUMINAIRE(S) IN QUESTION WILL MEET THE DESIGN INTENT OF THIS PLAN. SUBSTITUTION REQUESTS WITHOUT A PHOTOMETRIC STUDY WILL BE REJECTED.
- LIGHT POLE FOUNDATIONS ARE SHOWN ON THE PLAN IN THE INTENDED LOCATION BASED ON THE LIGHTING CALCULATIONS. UNLESS OTHERWISE NOTED, LIGHT SYMBOLS ARE SHOWN LARGER THAN ACTUAL SIZE, HOWEVER FOUNDATION SIZE IS SHOWN AT ACTUAL SIZE.

**THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY**



**REVISIONS**

REV	DATE	COMMENT	DRAWN BY

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**ENTITLEMENT SET**

PROJECT No.: MA0250074-00-0A  
DRAWN BY: WGIAT  
CHECKED BY: ZLR  
DATE: 01/09/2025  
CAD ID.: P-CIVIL-SITE-MA0250074-00

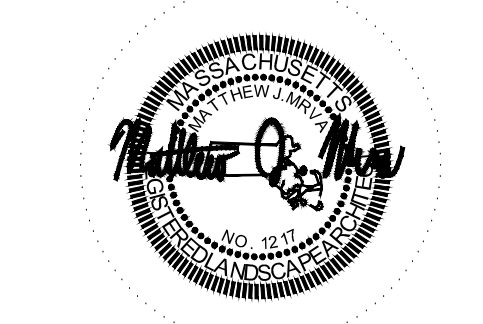
**SITE PLAN REVIEW/SPECIAL PERMIT SET**



PROPOSED  
THE COMMONS AT RIVER ROAD  
100 OLD RIVER ROAD  
ESSEX COUNTY  
TOWN OF ANDOVER, MA 01810  
MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**

45 FRANKLIN STREET, 5th FLOOR  
BOSTON, MA 02110  
Phone: (617) 849-8040  
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SHEET TITLE:

**LIGHTING PLAN B**

SHEET NUMBER:  
**L-202**

ORG. DATE - 01/09/2025

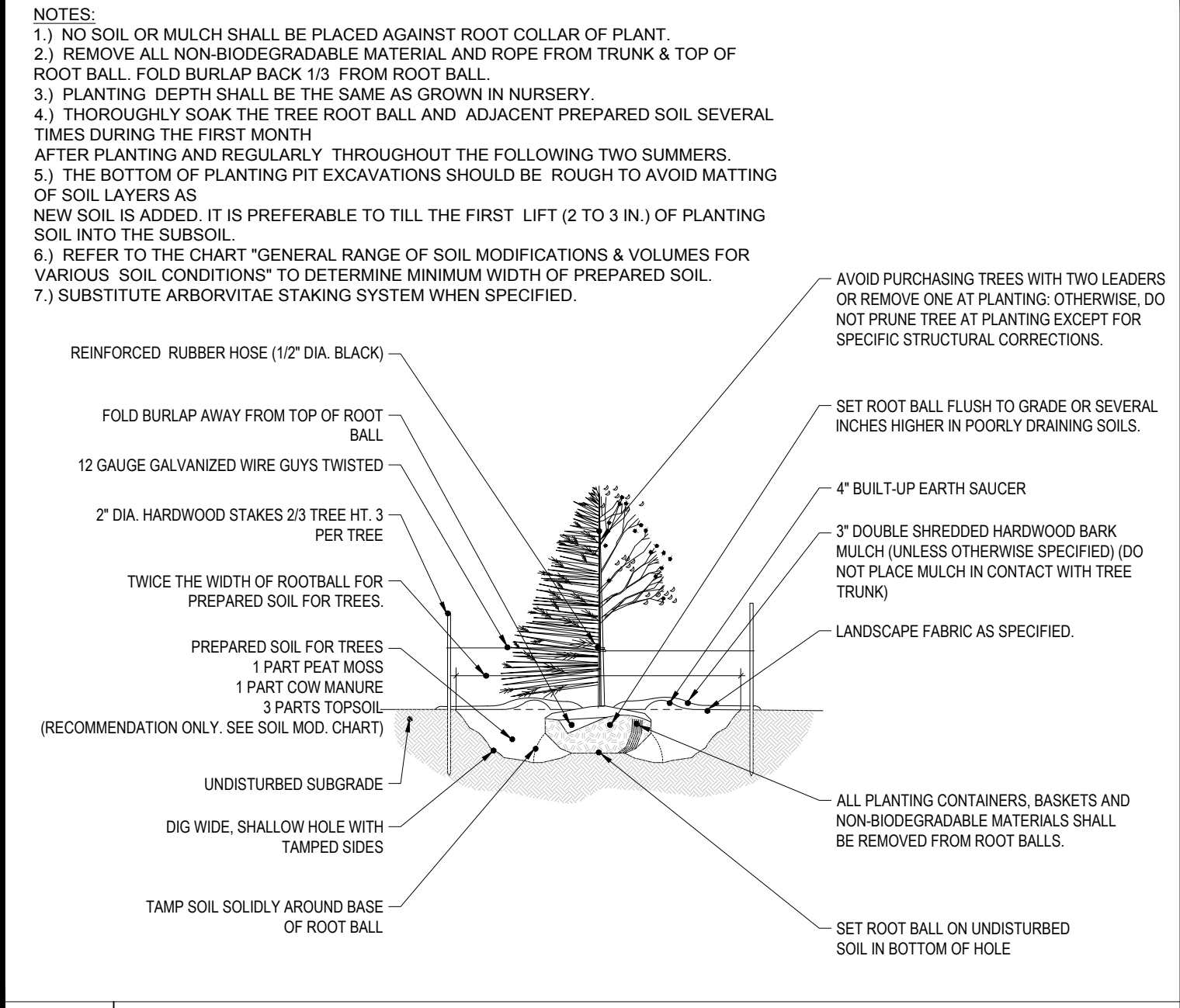
Mar 02, 2025  
 BOHLER ENGINEERING, INC./DRAWINGS/PLAN SETS/LANDSCAPE SITE PLANS/P-PLAD-SITE-MA0250074-00-0A-LAYOUT-L-202

MATCHLINE - SHEET A

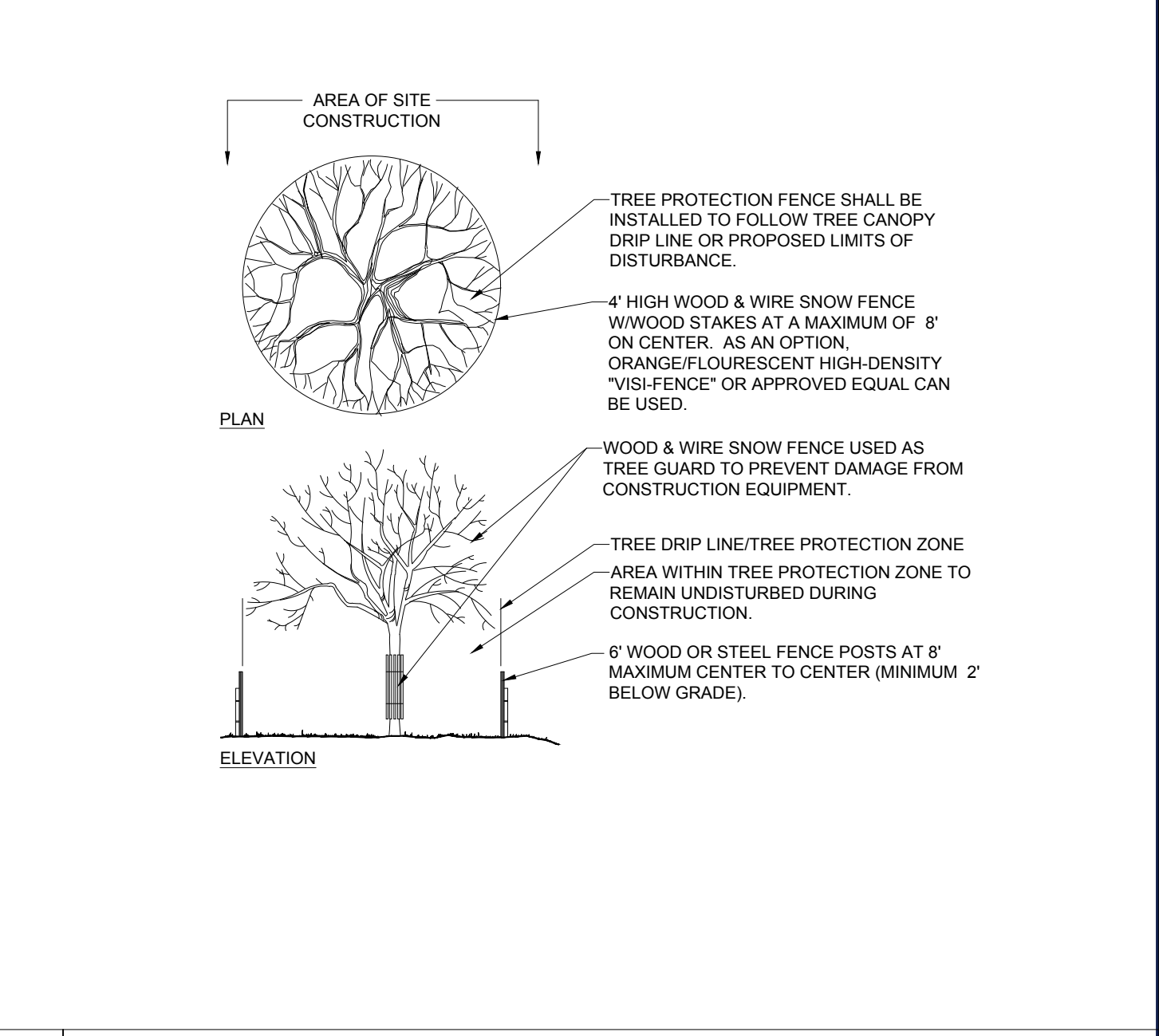
MASSACHUSETTS LANDSCAPE SPECIFICATION

- 1. SCOPE OF WORK: a) THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION... 2. MATERIALS: a) GENERAL: ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS. b) TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0...

- a) INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY... b) PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE... c) ANY INJURED ROOTS OR BRANCHES SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE... d) ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING...

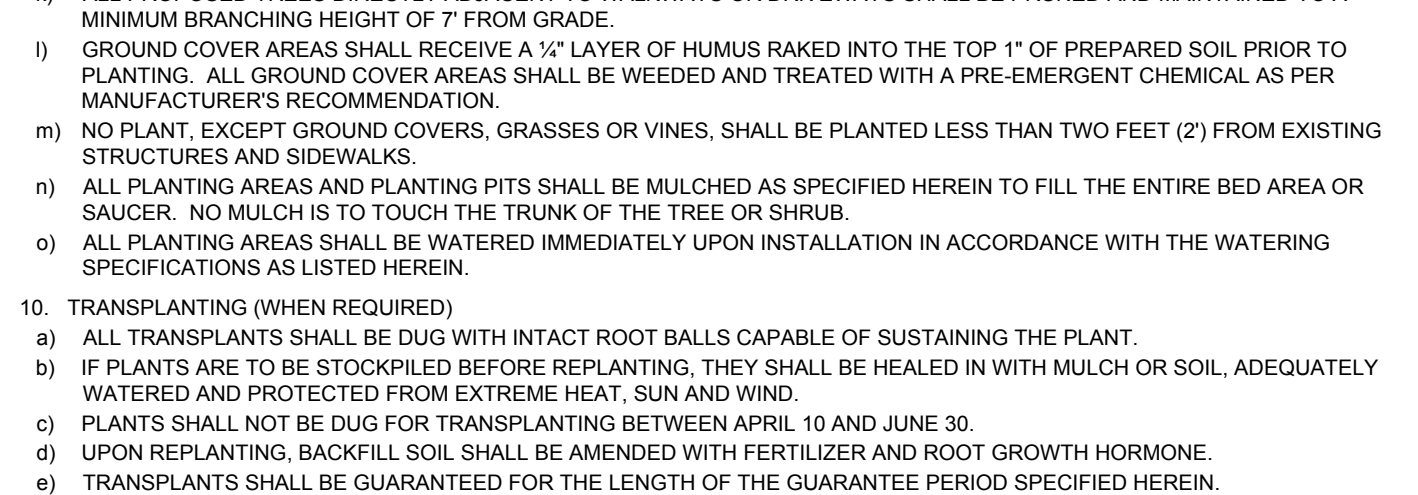


2 TREE PLANTING NOT TO SCALE

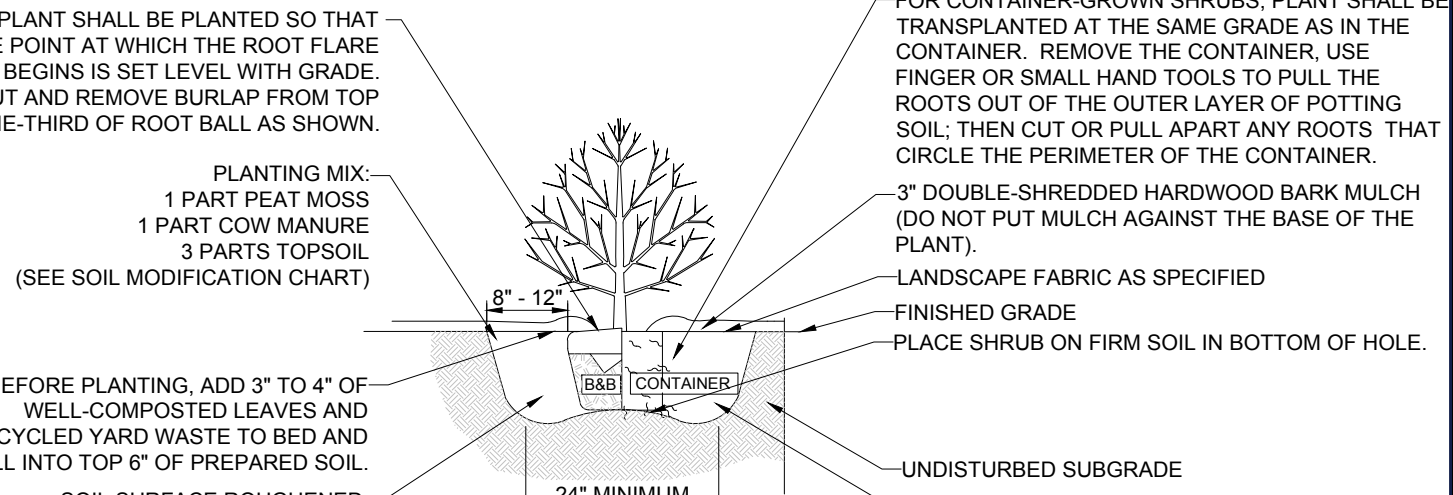


1 TREE PROTECTION DURING SITE CONSTRUCTION NOT TO SCALE

- 3. GENERAL WORK PROCEDURES: a) CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION... b) WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE... 4. SITE PREPARATIONS: a) BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT...

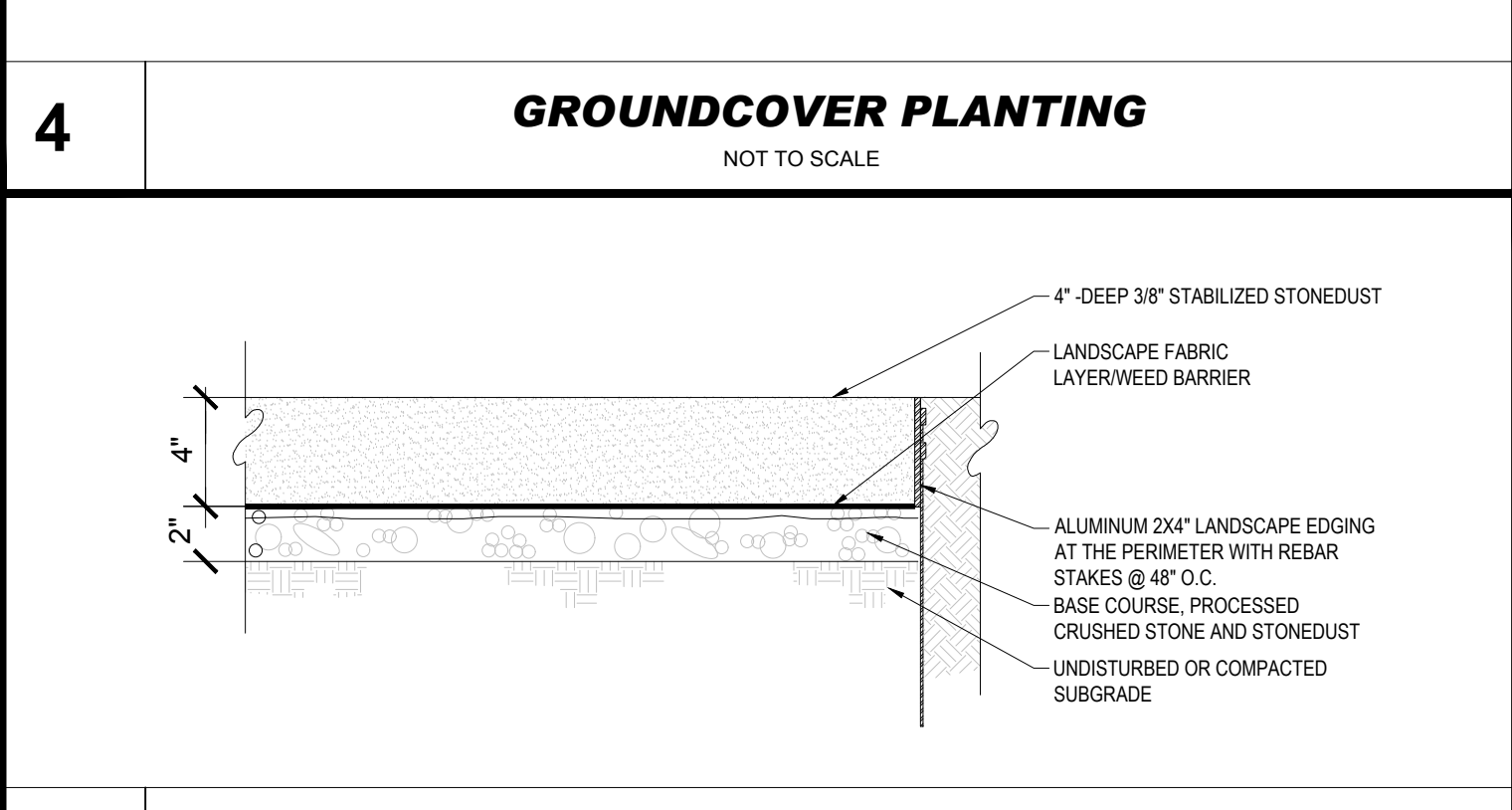


4 GROUNDCOVER PLANTING NOT TO SCALE

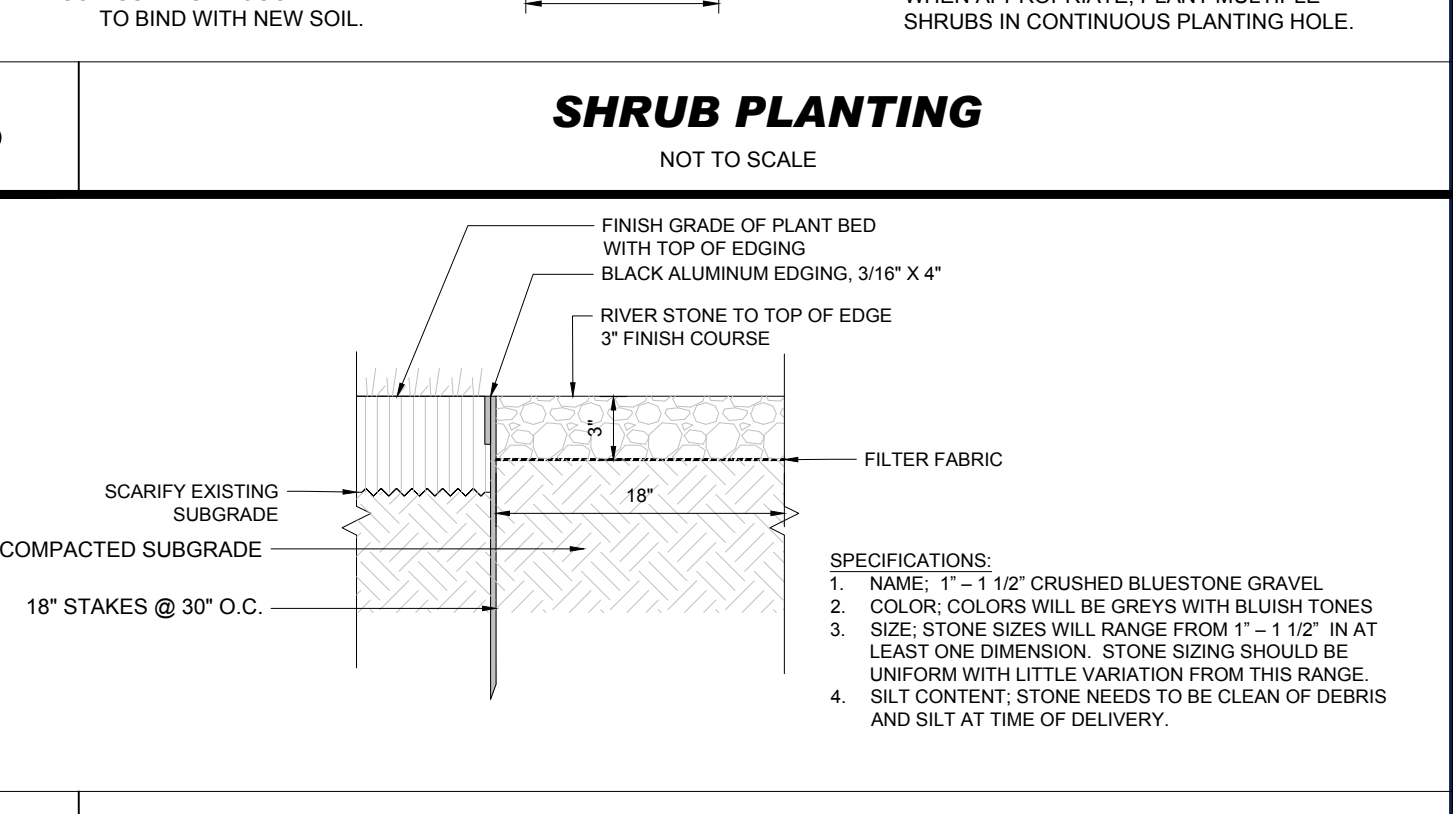


3 SHRUB PLANTING NOT TO SCALE

- 5. TREE PROTECTION: a) CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN... b) A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY VISH-FENCE... 6. SOIL MODIFICATIONS: a) CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING...

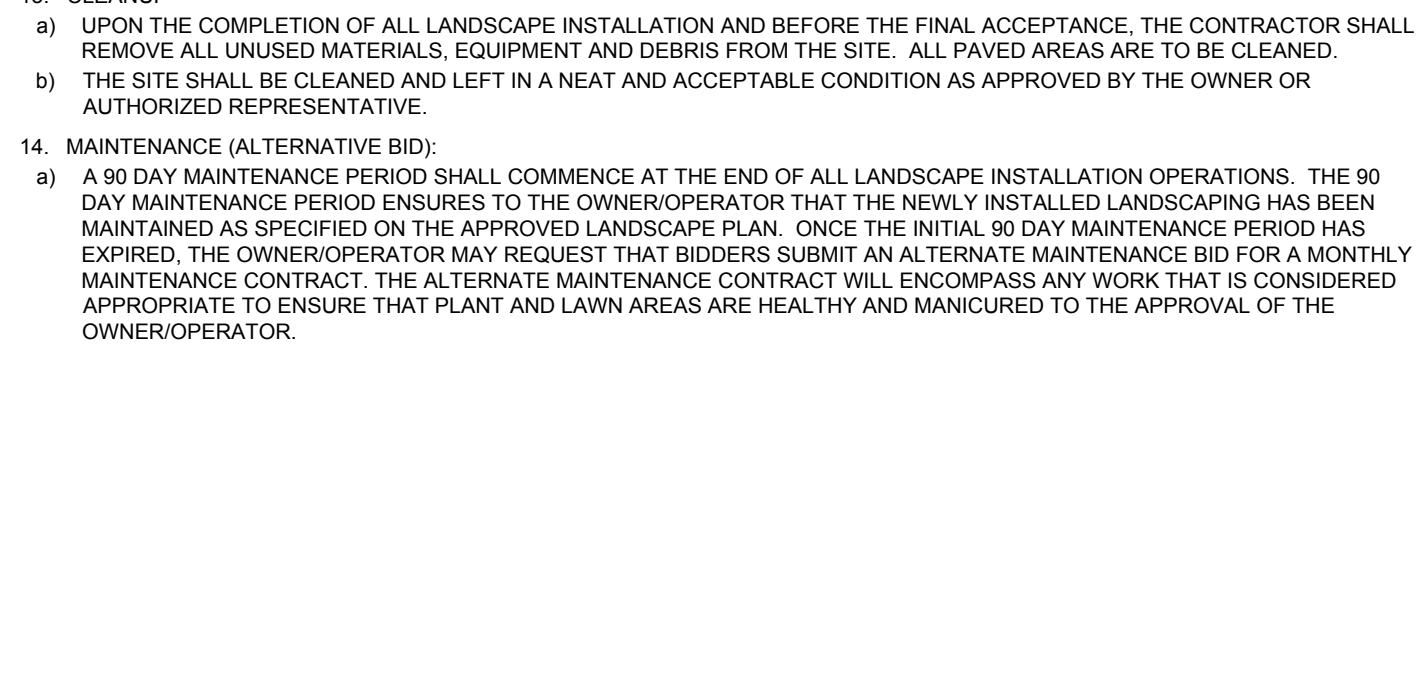


6 STABILIZED STONEDUST SURFACING NOT TO SCALE

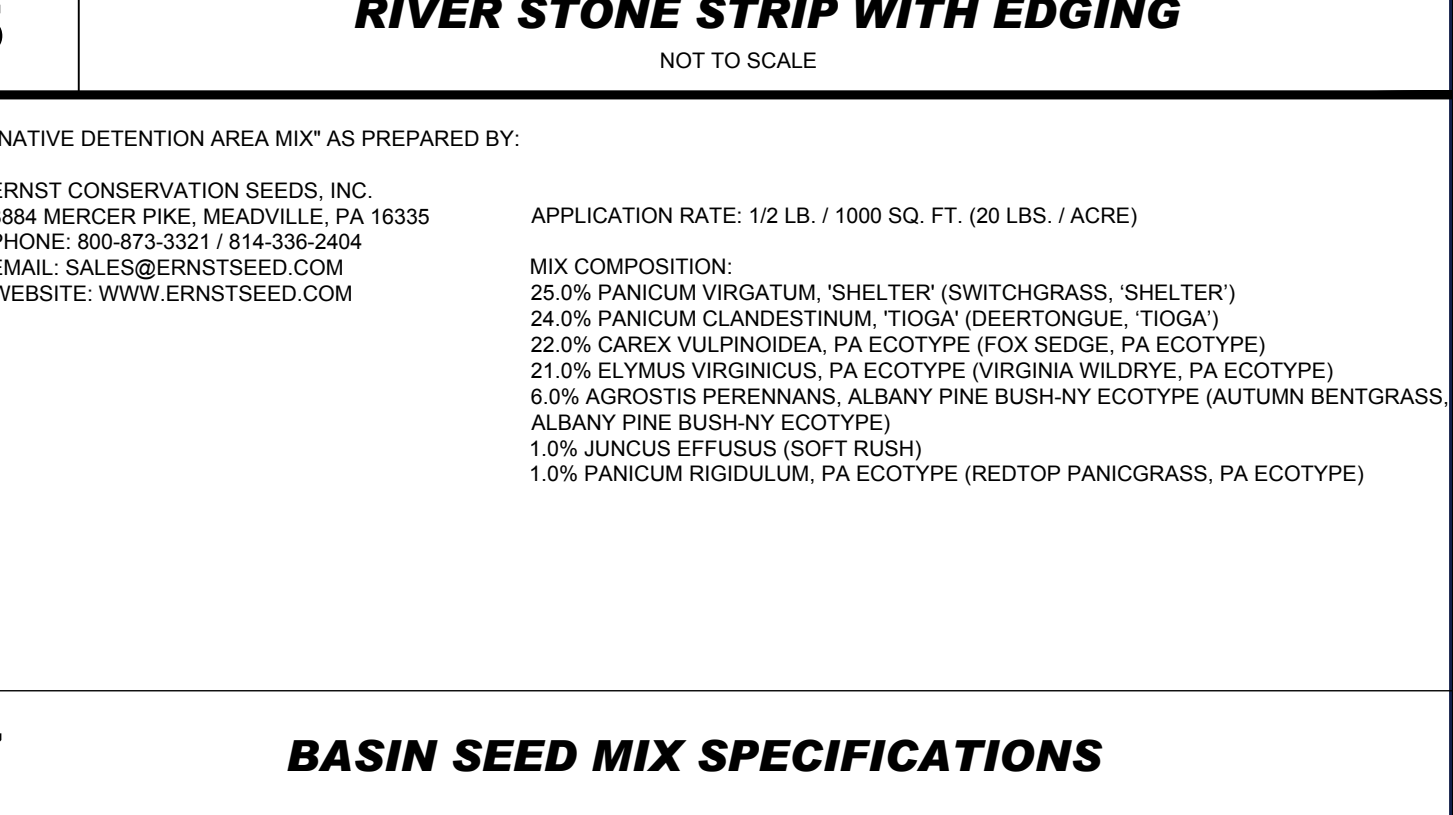


5 RIVER STONE STRIP WITH EDGING NOT TO SCALE

- 7. FINISHED GRADING: a) UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL... b) LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED... 8. TOPSOILING: a) CONTRACTOR SHALL PROVIDE A 6" THICK MINIMUM LAYER OF TOPSOIL FOR THE NEW ENGLAND SHOWY WILDFLOWER MIX AREA...

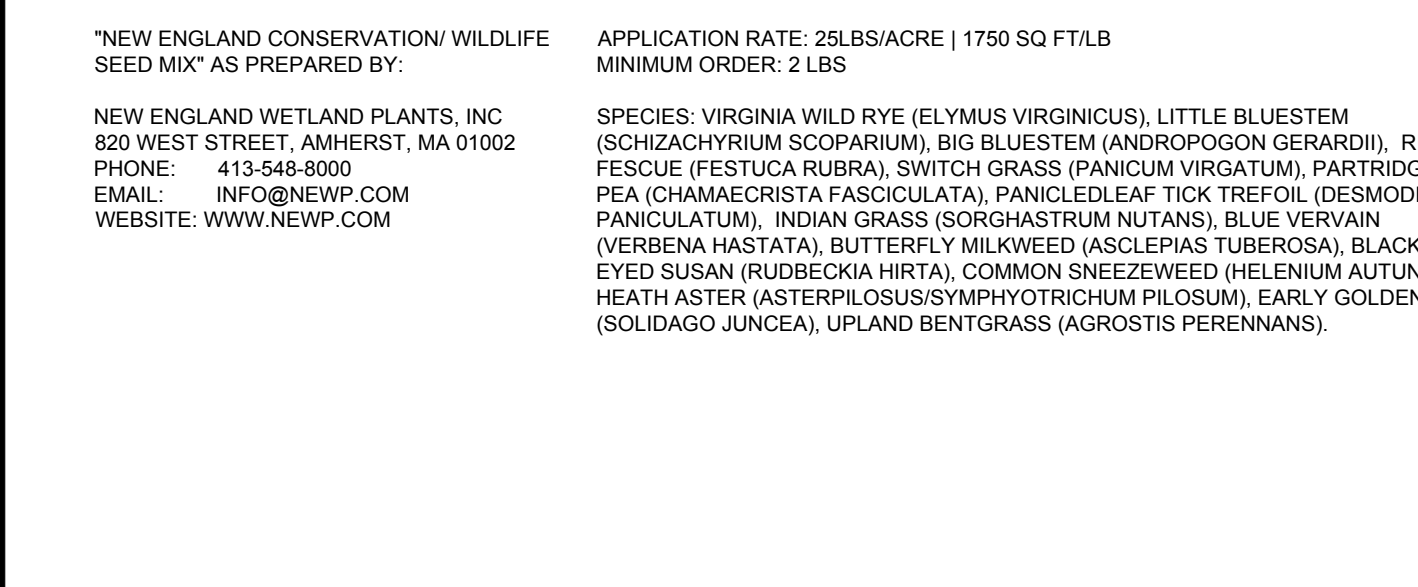


8 SODDED LAWN NOT TO SCALE

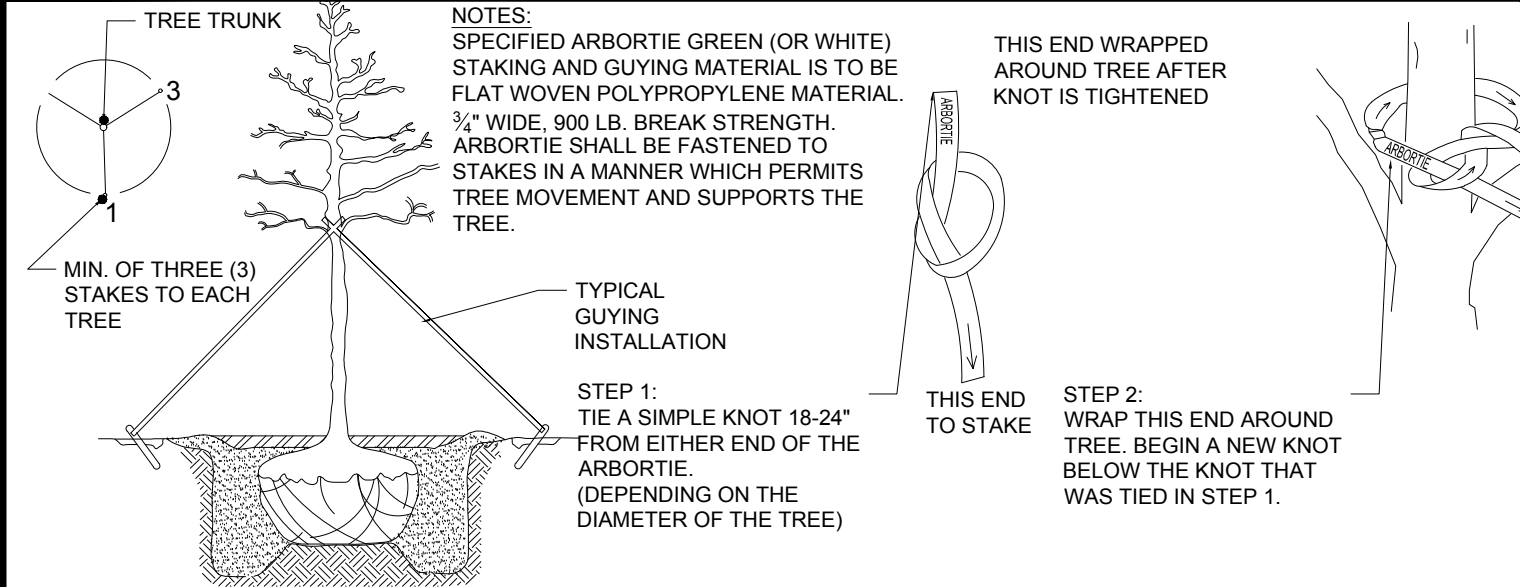


7 BASIN SEED MIX SPECIFICATIONS

- 9. PLANTING: a) CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN... b) A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY VISH-FENCE... 10. WATERING: a) NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING...



9 NEW ENGLAND CONSERVATION WILDLIFE SEED MIX SPECIFICATIONS



ARBORVITAE STAKING DETAIL

BOHLER logo and contact information for site civil and consulting engineering, landscape architecture, and sustainable design services.

Table with columns for REVISIONS, REV, DATE, COMMENT, and DRAWN BY.

811 logo and text: 'Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.'

ENTITLEMENT SET section with project details: PROJECT No. MAR250074-00-0A, DRAWN BY: ZLR, DATE: 01/09/2025, CAD LID: P-CIVL-SITE-MAR250074-00-0A.

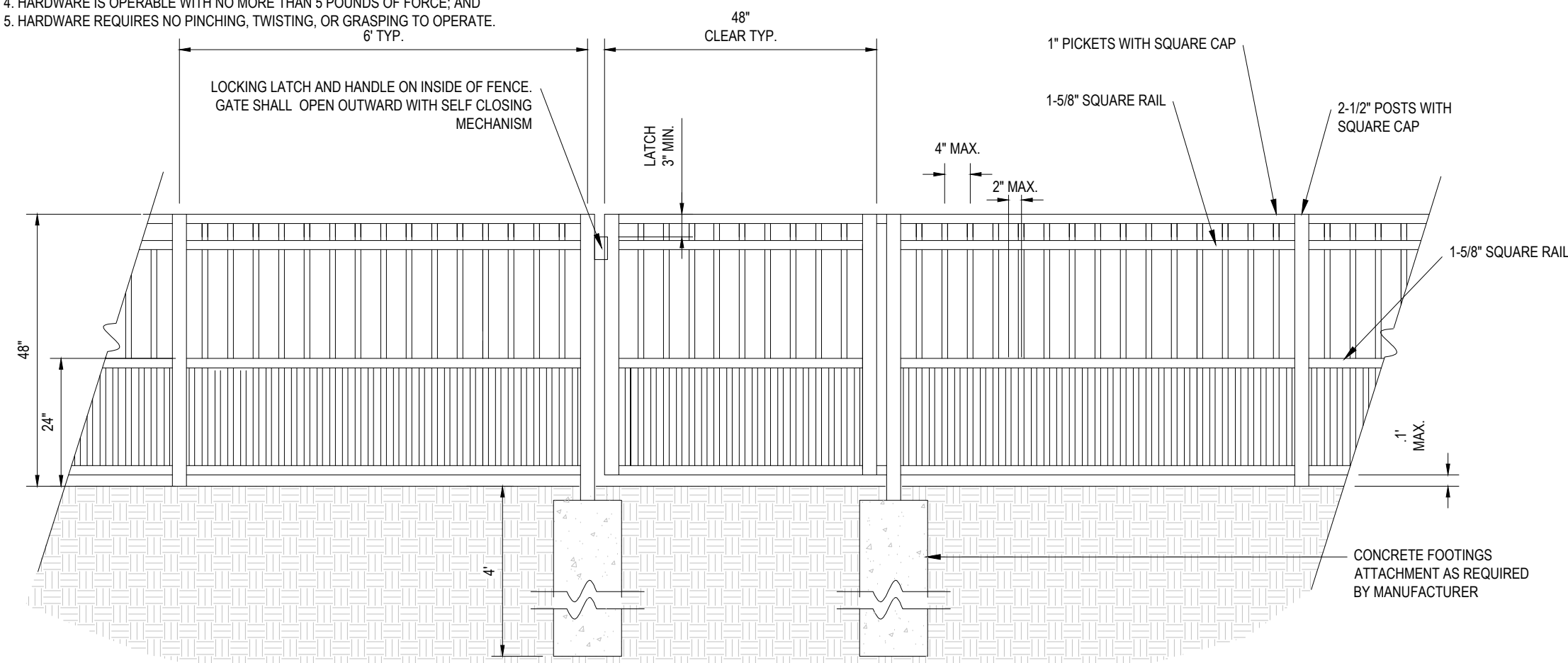
PROPOSED THE COMMONS AT RIVER ROAD, 100 OLD RIVER ROAD, ESSEX COUNTY, TOWN OF ANDOVER, MA 01810, MAP, BLOCK & LOT: 143 - 0 - 8.

BOHLER logo and address: 45 FRANKLIN STREET, 5th FLOOR, BOSTON, MA 02110, Phone: (617) 849-8040.

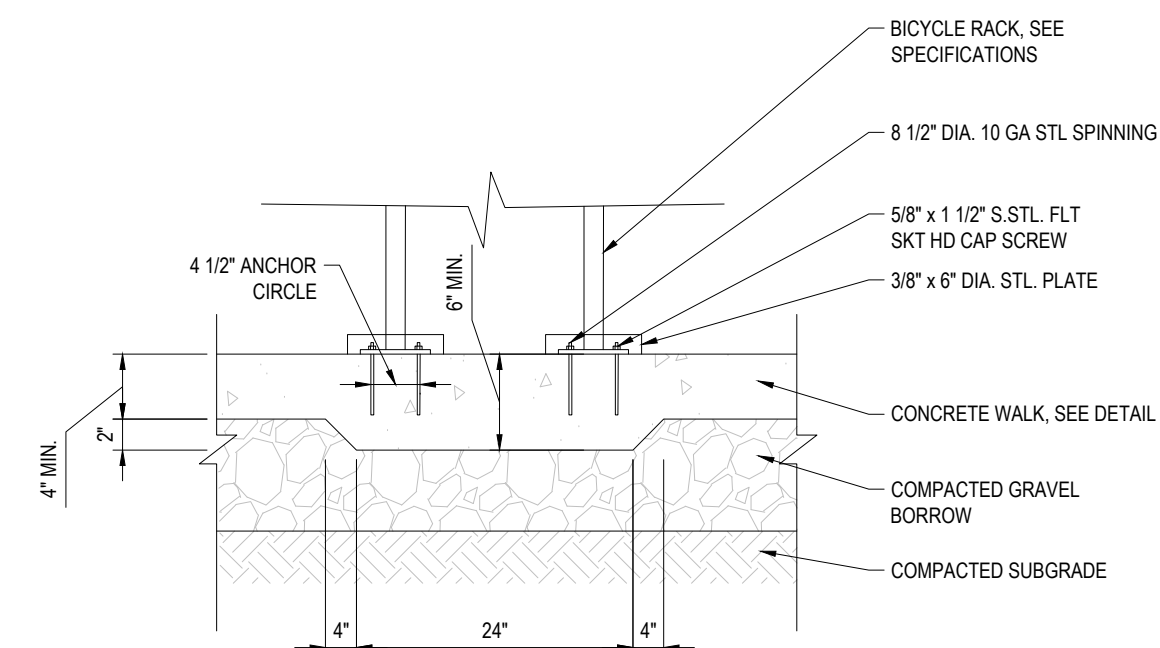
LANDSCAPE DETAILS SHEET NUMBER: L-300

ORG. DATE - 01/09/2025

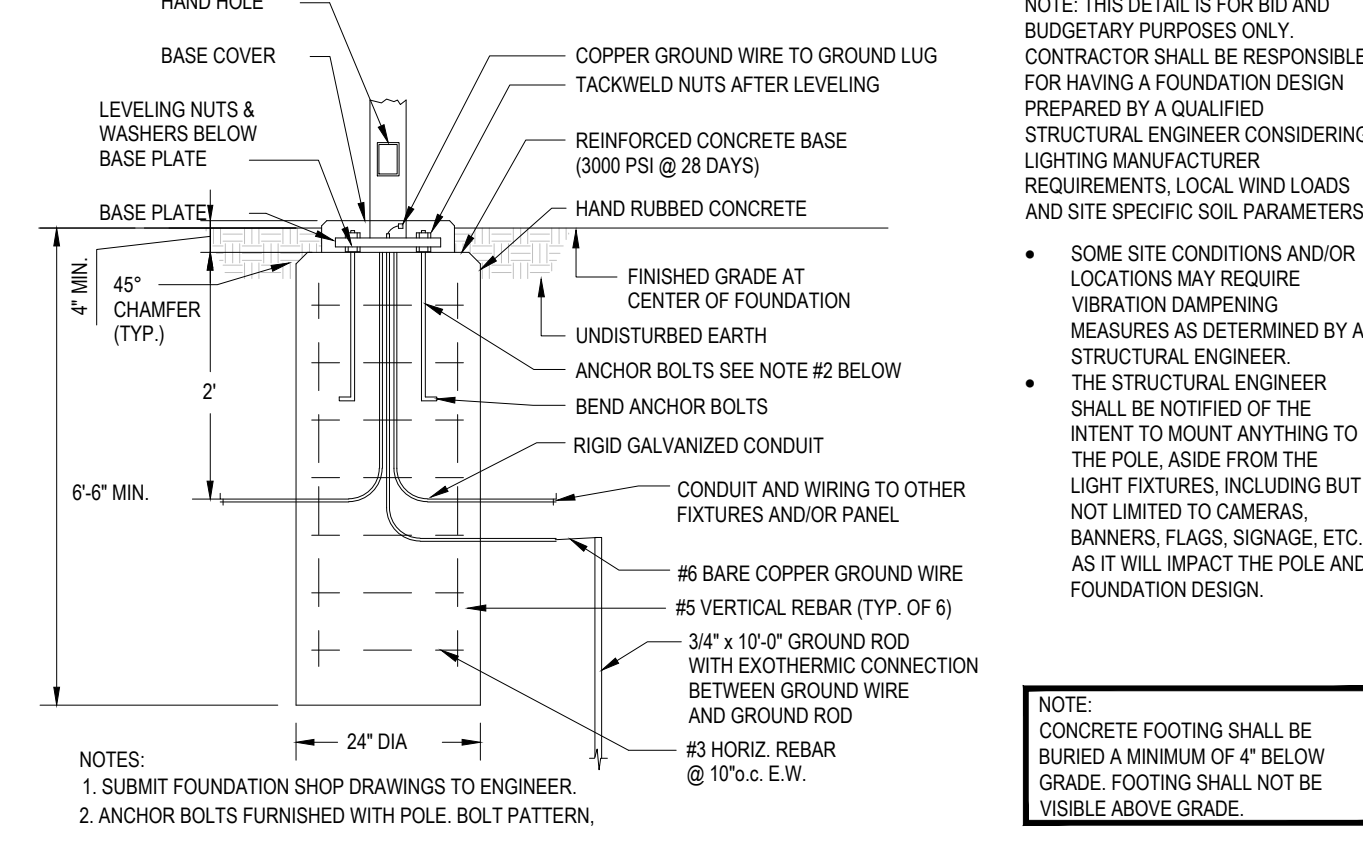
- NOTES:  
 1. HARDWARE IS PROVIDED ON BOTH SIDES OF THE GATE.  
 2. HARDWARE DOES NOT REQUIRE REACHING OVER THE GATE TO OPERATE.  
 3. HARDWARE IS OPERABLE WITH ONE HAND.  
 4. HARDWARE IS OPERABLE WITH NO MORE THAN 5 POUNDS OF FORCE, AND  
 5. HARDWARE REQUIRES NO PINCHING, TWISTING, OR GRASPING TO OPERATE.  
 6 TYP.



**3 DOGPARK METAL PICKET FENCE**  
 NOT TO SCALE



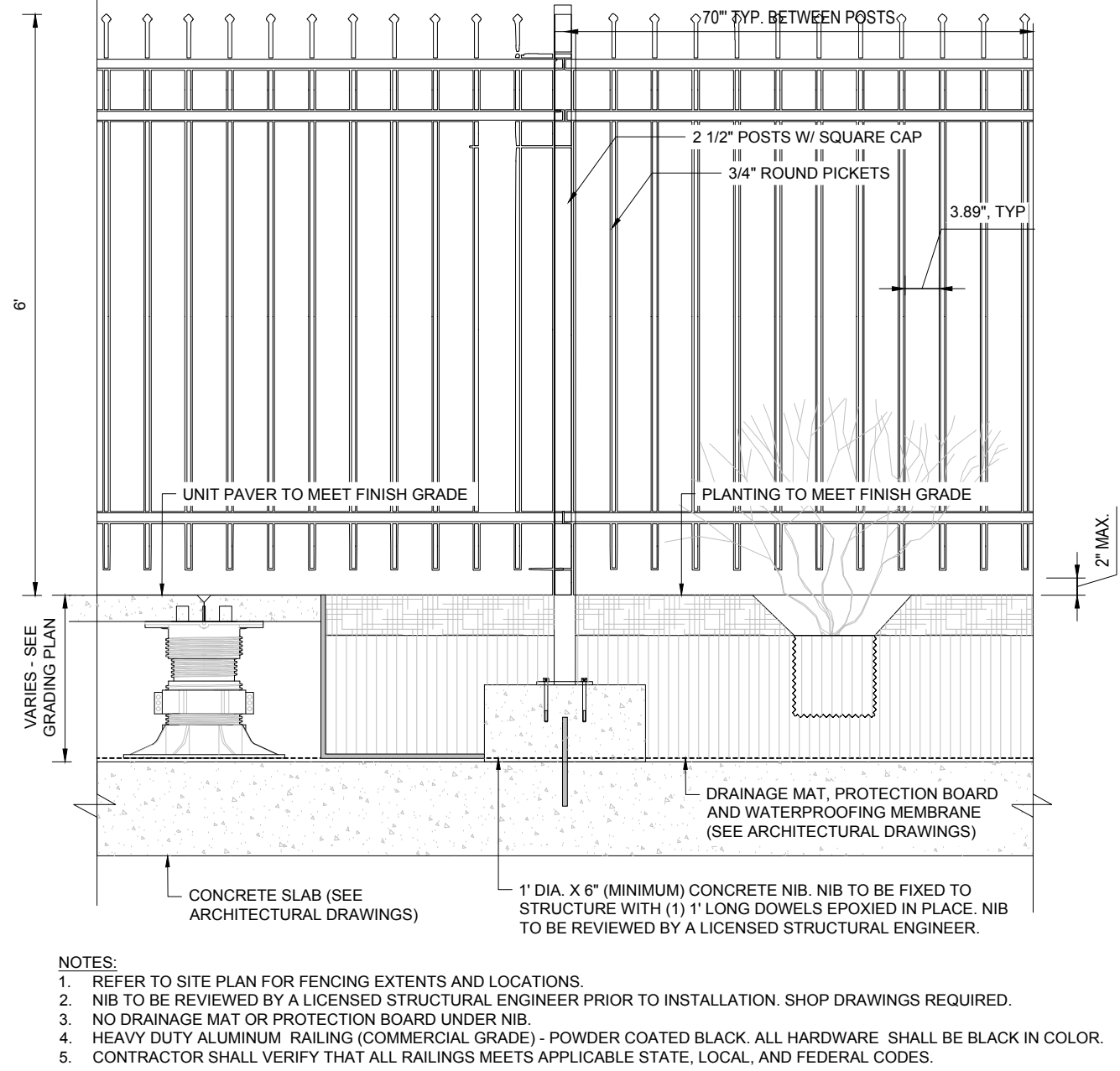
**2 LOOP BIKE RACK - 2 BIKES**  
 NOT TO SCALE



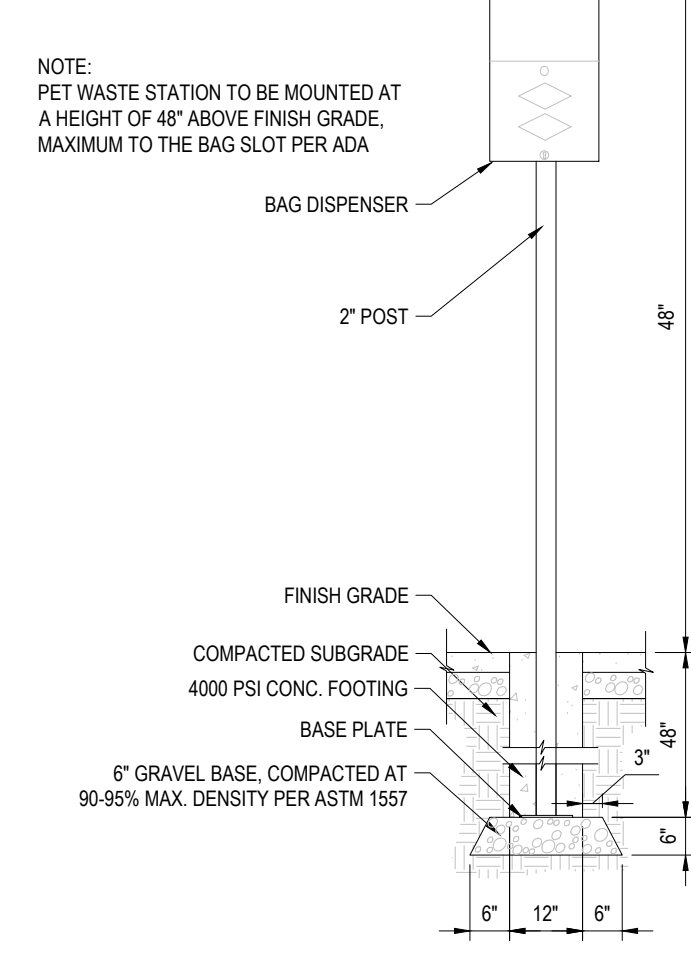
**1 LIGHTPOLE FOOTING**  
 NOT TO SCALE

**REVISIONS**

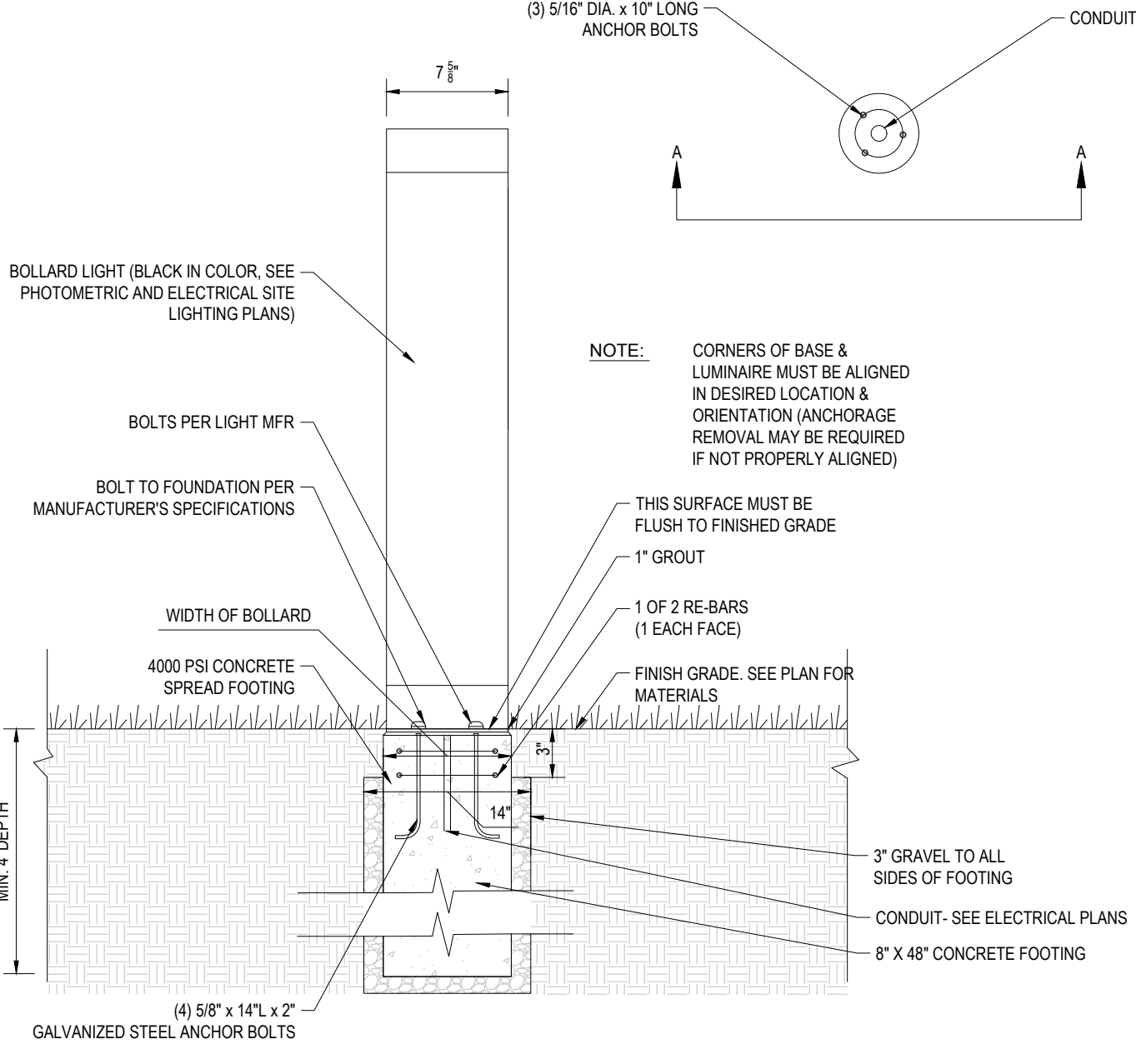
REV	DATE	COMMENT	DRAWN BY	CHECKED BY



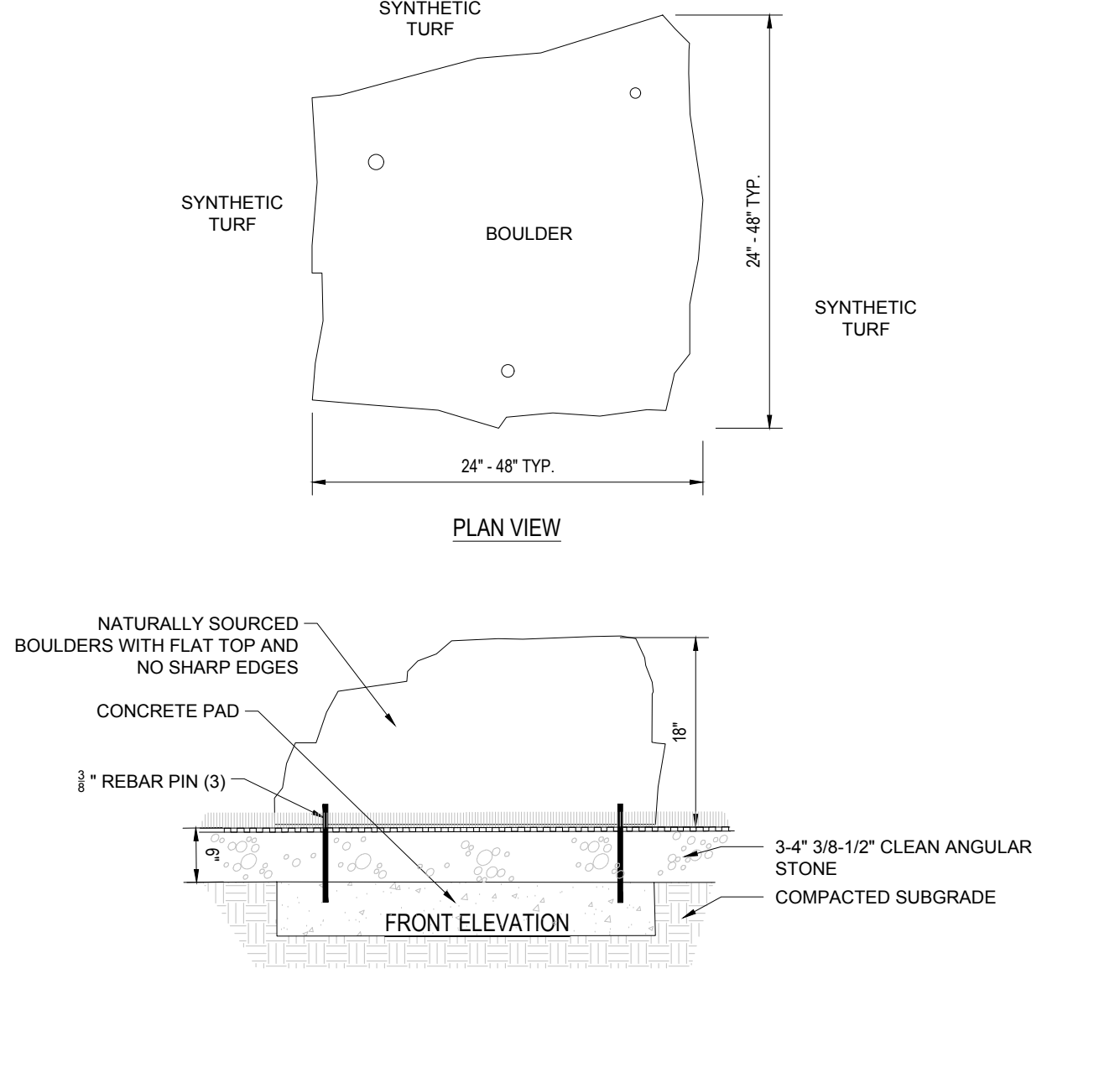
**6 ALUMINUM PICKET FENCE**  
 NOT TO SCALE



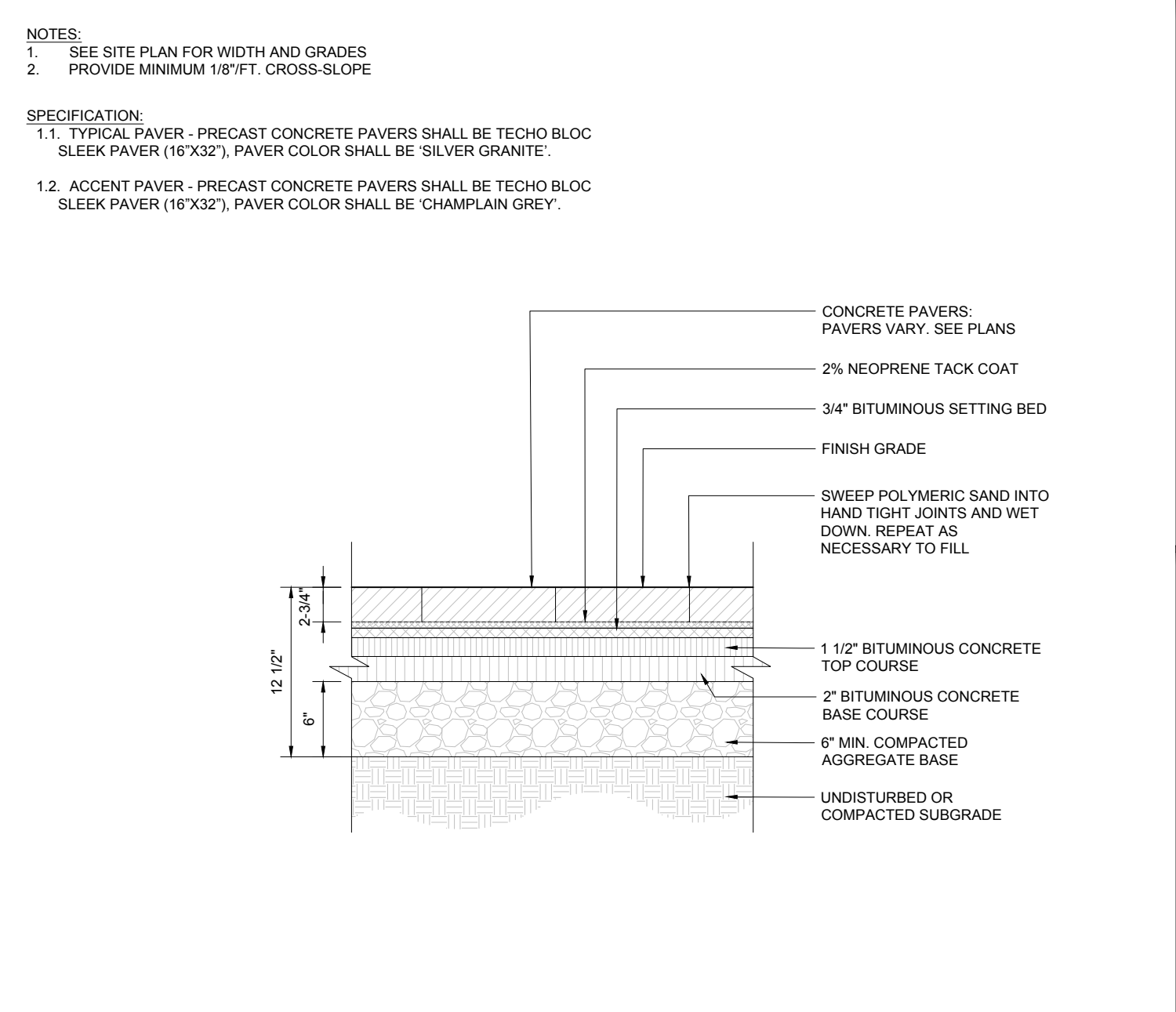
**5 DOG WASTE BIN**  
 NOT TO SCALE



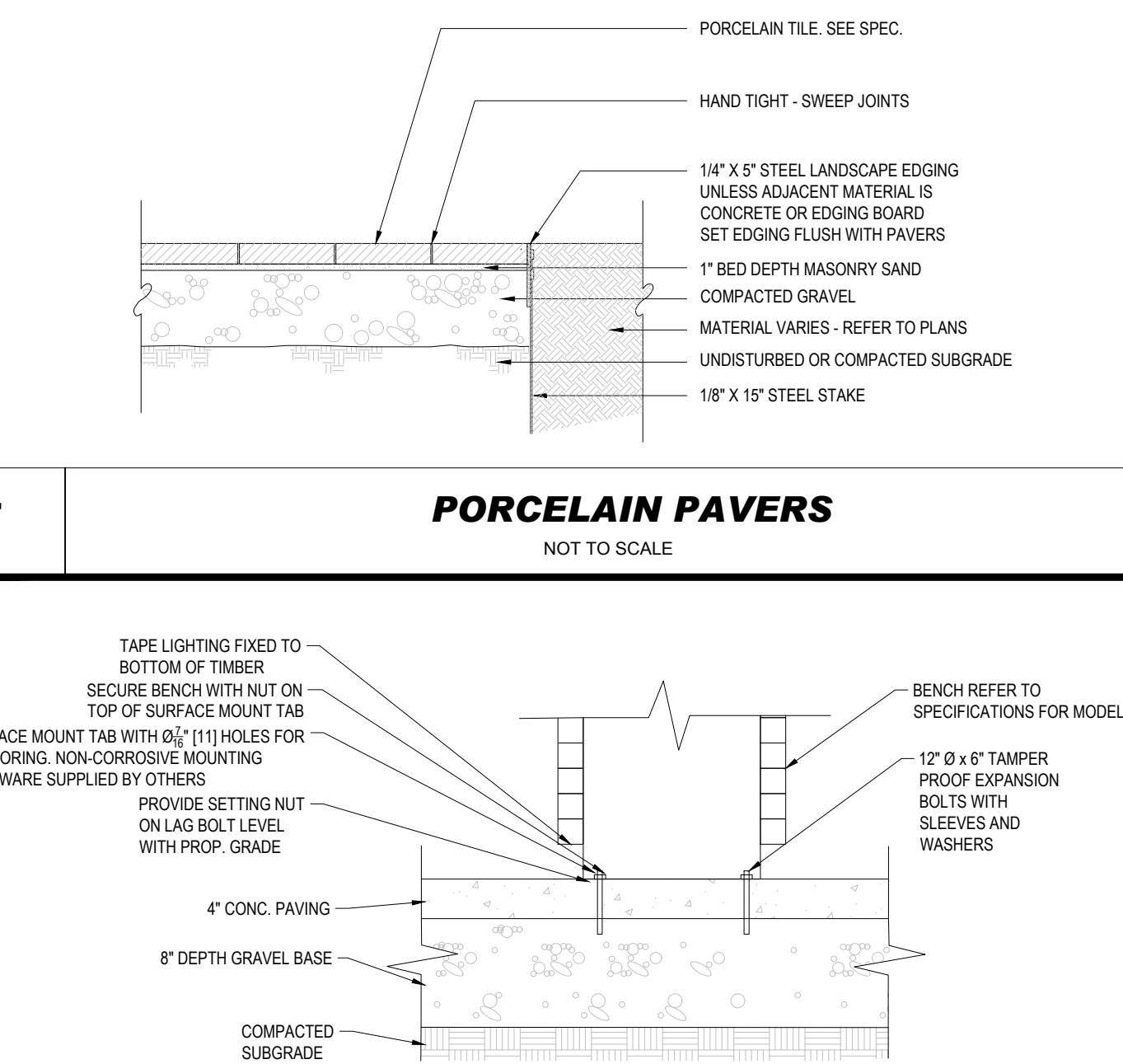
**4 LIGHT BOLLARD**  
 NOT TO SCALE



**10 NATURAL BOULDERS AT DOG PARK**  
 NOT TO SCALE



**9 CONCRETE PAVERS ON BITUMINOUS**  
 NOT TO SCALE



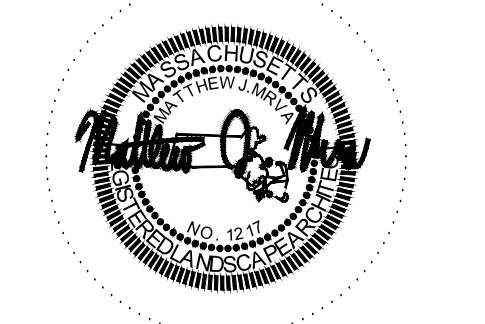
**8 TIMBER BENCH**  
 NOT TO SCALE

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 PROJECT No.: MAB250074-00-0A  
 DRAWN BY: WG/AT  
 CHECKED BY: ZLR  
 DATE: 01/09/2025  
 CAD I.D.: P-CIVIL-SITE-MAB250074-00

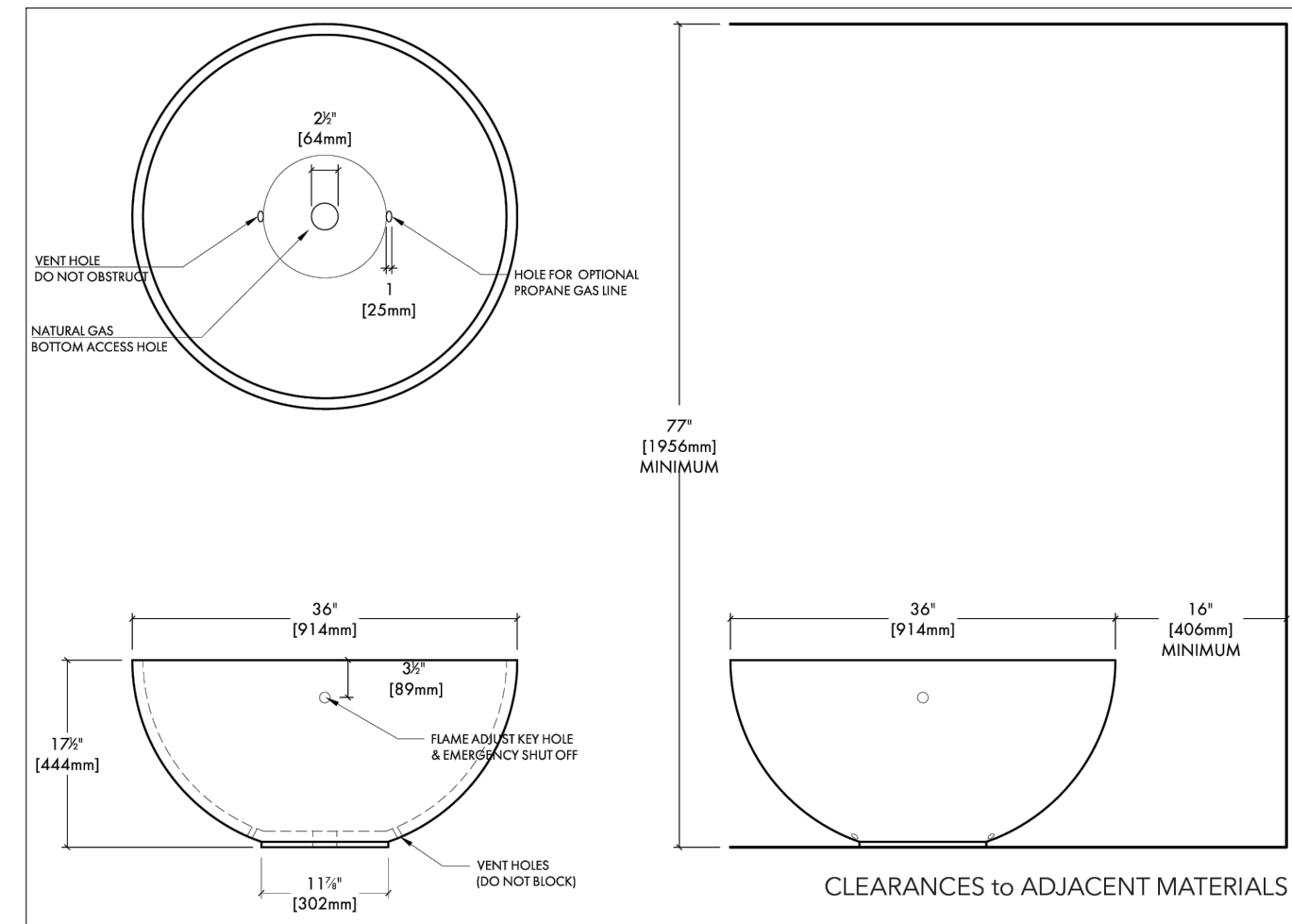
**SITE PLAN REVIEW/SPECIAL PERMIT SET**  
 FOR  
**JOHN M. CORCORAN & CO.** **SV + P**

PROPOSED  
**THE COMMONS AT RIVER ROAD**  
 100 OLD RIVER ROAD  
 ESSEX COUNTY  
 TOWN OF ANDOVER, MA 01810  
 MAP, BLOCK & LOT: 143 - 0 - 8  
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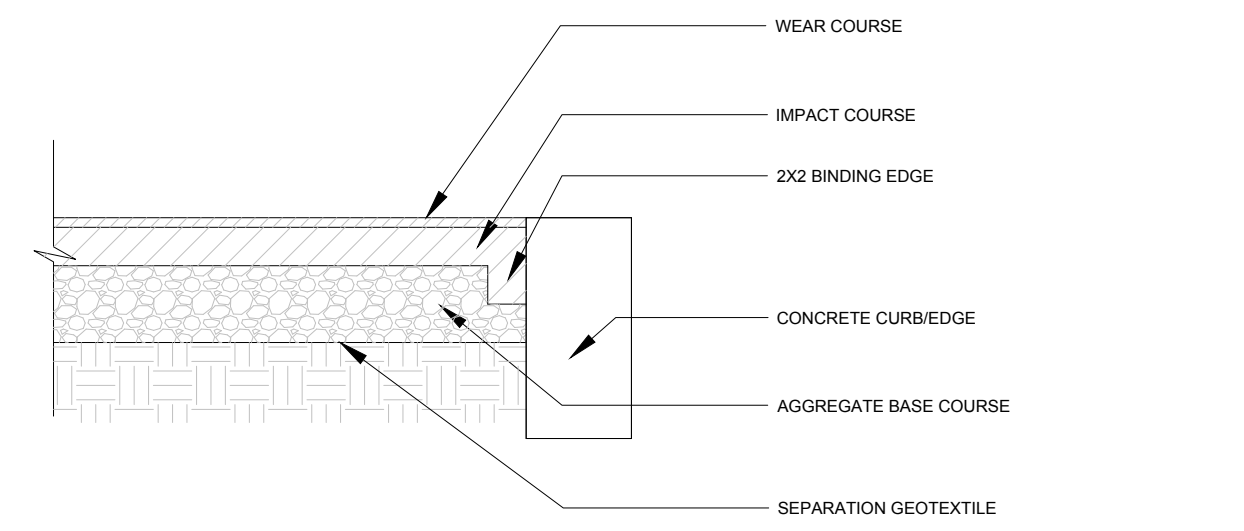
SHEET TITLE:  
**LANDSCAPE DETAILS**  
 SHEET NUMBER:  
**L-301**  
 ORG. DATE - 01/09/2025

MAB250074-00-0A-CAD/DRAWINGS/PLAN SETS/LANDSCAPE SITE PLAN/8P-PLAD-SITE-MAB250074-00-0A-LAYOUT-L-301  
 01/09/2025 10:02 AM  
 BOHLER ENGINEERING



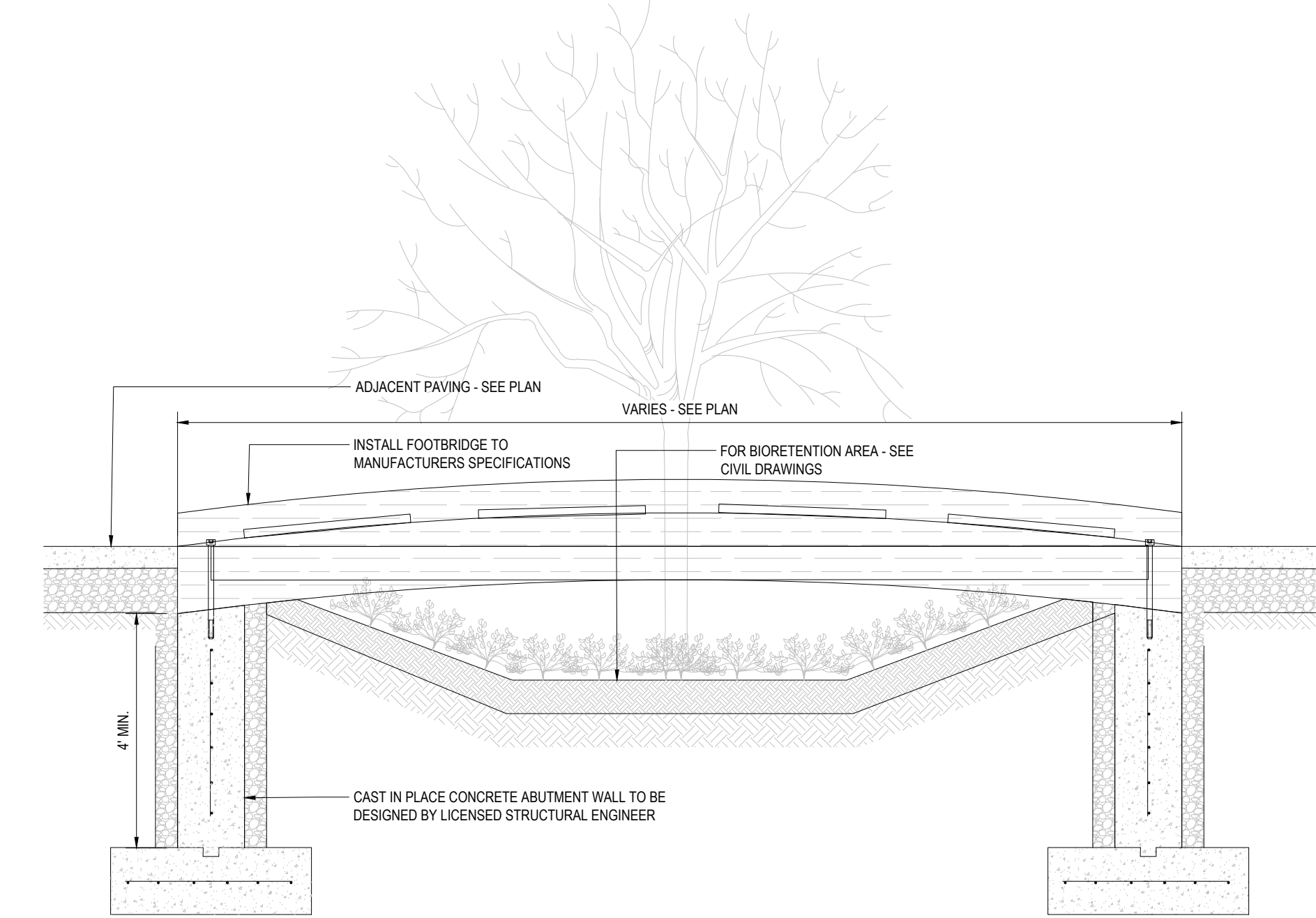
NOTES:  
1. CONTRACTOR TO PROVIDE ELECTRONIC START AND EMERGENCY GAS SHUTOFF BUTTONS SEPARATE FROM THE FIRE BOWL LOCATED WITHIN NEARBY LANDSCAPE AREAS. REFER TO THE UTILITY DRAWINGS FOR LOCATIONS. THE BUTTONS ARE TO BE ADA COMPLIANT.  
2. FINAL COLOR/FINISH FOR ALL SITE FURNITURE TO BE SELECTED BY THE OWNER PRIOR TO PURCHASE AND INSTALLATION.  
3. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL.

**2 FIRE PLACE**  
NOT TO SCALE

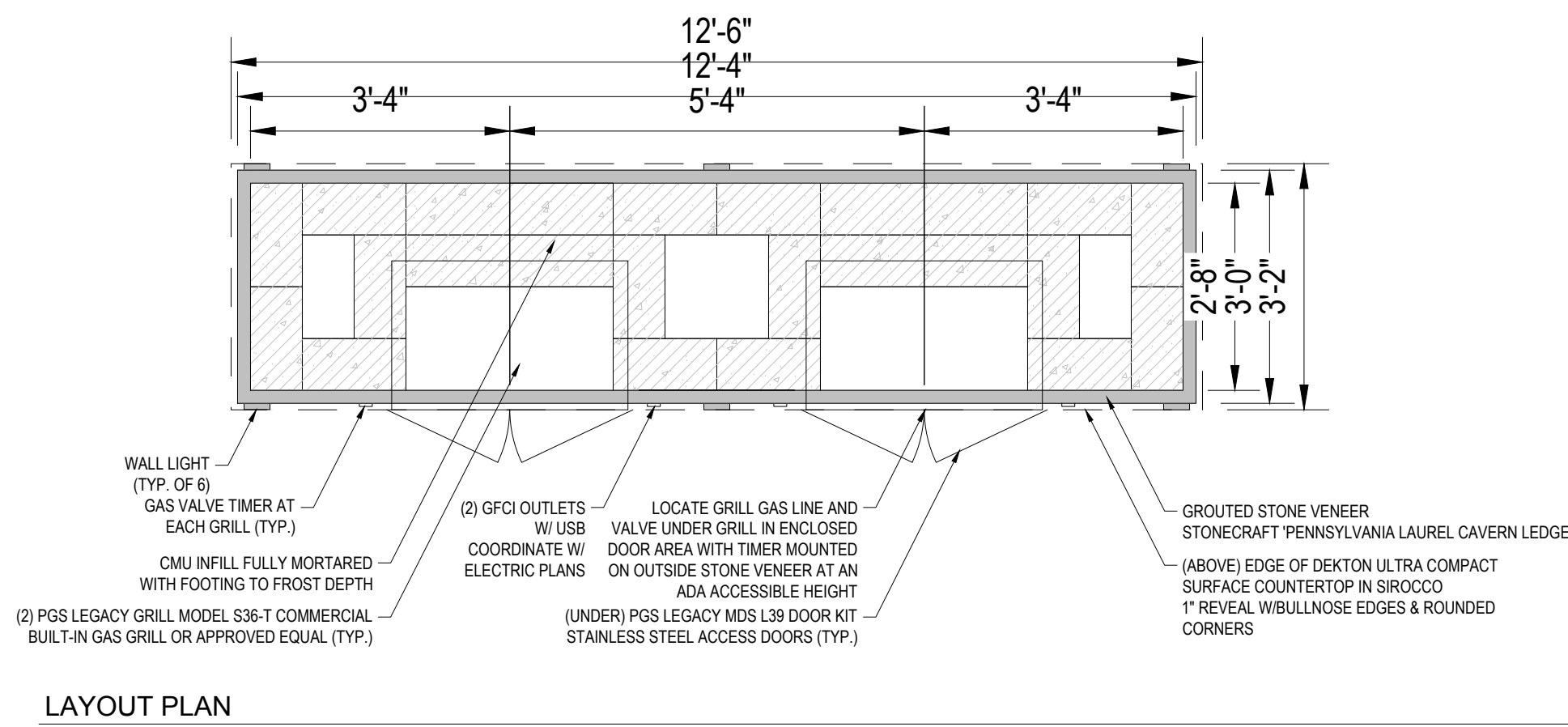


**3 POUR IN PLACE SURFACING**  
NOT TO SCALE

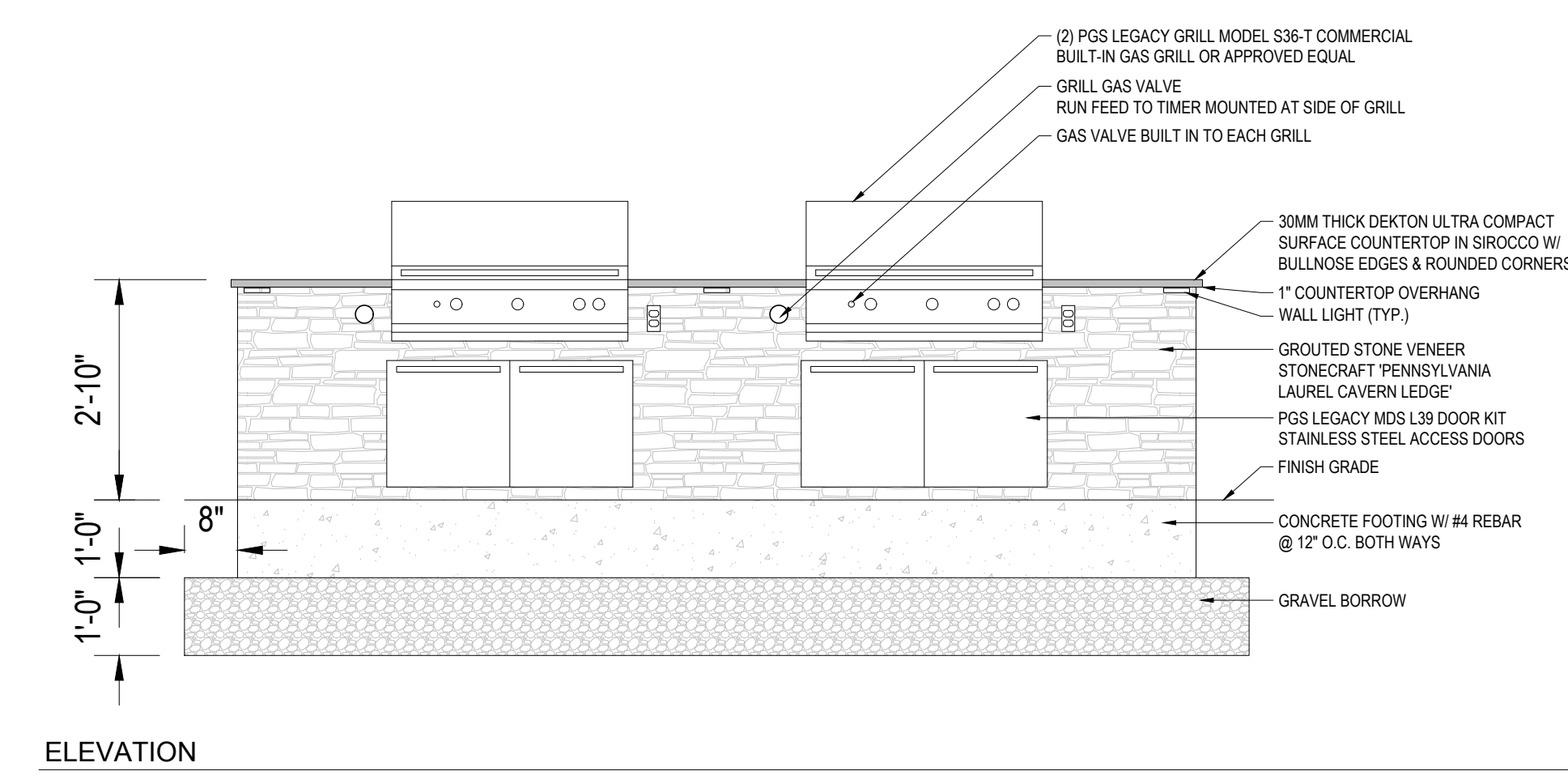
BASIS OF DESIGN:  
WOODLAND FOOTBRIDGE AS MANUFACTURED  
ENWOOD STRUCTURES



**6 TIMBER FOOTBRIDGE**  
NOT TO SCALE



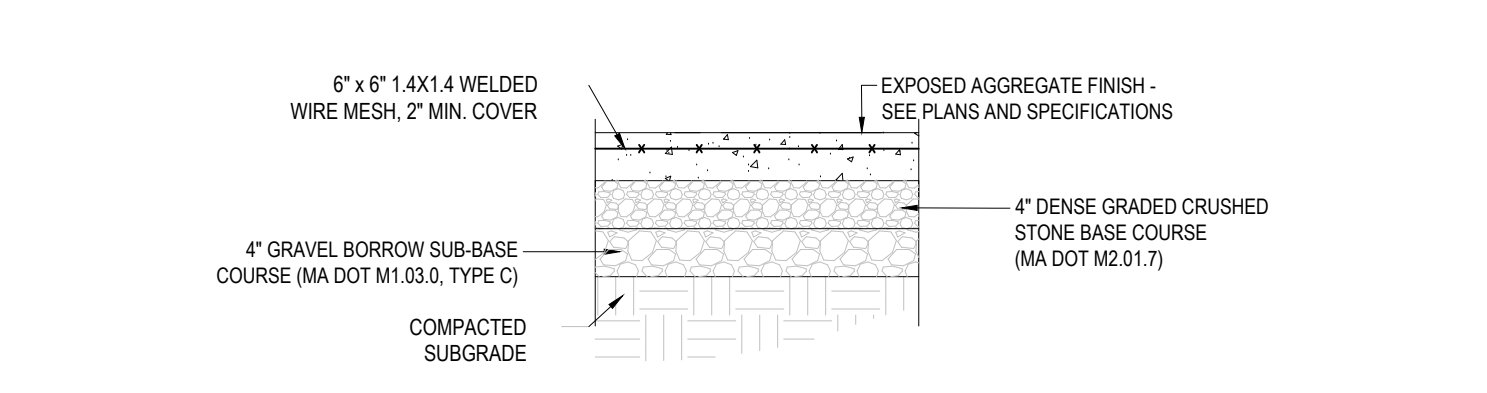
LAYOUT PLAN



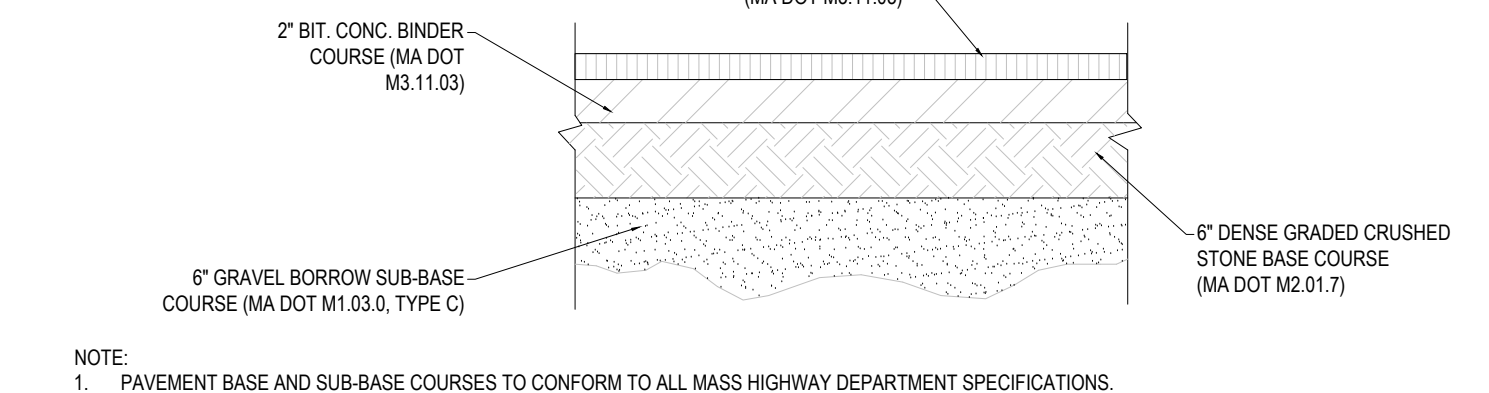
ELEVATION

NOTES:  
1. REFER TO MANUFACTURER'S INFORMATION FOR ADDITIONAL REQUIREMENTS AND MEASUREMENTS.  
2. CONTRACTOR TO SUBMIT SAMPLES OF ALL MATERIALS TO LANDSCAPE ARCHITECT & AVALONBAY FOR APPROVAL PRIOR TO ORDERING.  
3. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT OF DISCREPANCIES IN DIMENSIONS & LAYOUT.  
4. CONTRACTOR RESPONSIBLE FOR GAS FEED LINE INSTALLATION BY LICENSED MASSACHUSETTS PLUMBER.  
5. CONTRACTOR RESPONSIBLE FOR ANY ELECTRICAL FEED LINES & ASSOCIATED WORK REQUIRED.  
6. COORDINATE WITH PLUMBING & ELECTRIC DRAWINGS FOR SERVICE LINES.  
7. CONTACT LOUI HEMIGHAUS WITH AEI CORPORATION FOR ADDITIONAL INFORMATION  
ADDRESS: 2641 DU BRIDGE AVE  
IRVINE, CA 92606  
OFFICE: 949-474-3070  
CELL: 949-491-1763  
EMAIL: LHEMIGHAUS@AEICORPORATION.COM  
WEBSITE: WWW.AEICORPORATION.COM

**1 OUTDOOR KITCHEN**  
NOT TO SCALE



**5 EXPOSED AGGREGATE CONCRETE**  
NOT TO SCALE



**4 VEHICULAR BITUMINOUS CONCRETE**  
NOT TO SCALE

NOTE:  
1. PAVEMENT BASE AND SUB-BASE COURSES TO CONFORM TO ALL MASS HIGHWAY DEPARTMENT SPECIFICATIONS.  
2. SUB-BASE SHALL BE PLACED IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS FOR SITE SPECIFIC SOIL CONDITIONS. SPECIFIC DESIGN INFORMATION FOR PAVEMENT BASE AND SUB-BASE DESIGNS AS IT RELATES TO THIS DETAIL HAVE NOT BEEN RECEIVED BY BOHLER ENGINEERING AND IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE A LICENSED REGISTERED GEOTECHNICAL ENGINEER TO PREPARE A SITE SPECIFIC DESIGN AND DETAIL PRIOR TO COMMENCING WORK.

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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ENTITLEMENT SET

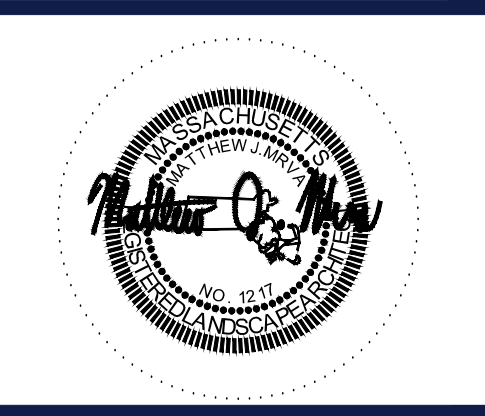
THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAB250074-00-0A  
DRAWN BY: WG/AT  
CHECKED BY: ZLR  
DATE: 01/09/2025  
CAD I.D.: P-CIVIL-SITE-MAB250074-00

PROJECT:  
**SITE PLAN REVIEW/SPECIAL PERMIT SET**  
FOR  
**JOHN M. CORCORAN & CO.** **SV + P**

PROPOSED  
THE COMMONS AT RIVER ROAD  
100 OLD RIVER ROAD  
ESSEX COUNTY  
TOWN OF ANDOVER, MA 01810  
MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**  
45 FRANKLIN STREET, 5th FLOOR  
BOSTON, MA 02110  
Phone: (617) 849-8040  
www.BohlerEngineering.com




SHEET TITLE:  
**LANDSCAPE DETAILS**  
SHEET NUMBER:  
**L-302**  
ORG. DATE - 01/09/2025

**SOLID STATE LIGHTING**

**Pacifica® - BOLLARD**  
CONTEMPORARY ROUND FORM BOLLARD

PROJECT NAME: \_\_\_\_\_  
PROJECT TYPE: \_\_\_\_\_



**Optical Housing**  
Contemporary, die-cast aluminum housing with anodized finish. All housing components are heavy wall, low copper aluminum alloy (A36 alloy, 42% copper). Removable internal heat sink provides direct mounting of the LED module and thermal control for long life and efficiency. Bolted top is removable for LED Module access. Bolted head is removable for electrical and driver access. All hardware is stainless steel.

**Shaft & Base**  
Bollard shaft is heavy wall anodized 6063-T6 aluminum alloy. Base is heavy cast aluminum. All hardware is stainless steel and tamper resistant. Standard shaft height provides a 42.5" overall height, consult factory for custom heights, lengths, and stainless bolts.

**Anchor Bolts**  
Four 3/8" x 12" x 2" galvanized anchor bolts with couplings, leveling nuts, washers, spacers, and stainless bolts.

**PLED™ Optics**  
Emitters (LED's) are arranged on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED reflector. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the reflector redirects the house side emitter output towards the street side, maximizing usable light. Optional house side shields are available that cover each individual optic. Reflectors are injection molded H12 acrylic. Each LED reflector is sealed to the PCB over an emitter and all reflectors are related by an aluminum frame. Any one Panel, or group of Panels in a luminance, have the same optical pattern. LED reflectors produce standard Ambiance distributions. Panels are field replaceable and field installable in 90° increments. Quick disconnects are provided above each panel for fast field replacement. All future optical options will provide a 100° no uplight optical package and a one cast sky finish.



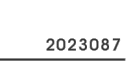
**Luminaire Lens**  
Optional Ambiance Lens (AL) provides low luminance reduced glare distributions. Lens utilizes the PLED Optics and provides a more uniform luminance across the aperture reducing glare of all angles. Lens is provided with an aluminum frame and is sealed to the housing with high temp gasketing.

**LED Emitters**  
LED thermal management is designed to maintain LED operating temperature below 90 °C, well below the manufacturer's thermal max of 150 °C for long life, high lumen maintenance and color stability. High Power White LED's are driven between 300mA and 875mA for a maximum output of 2.5 Watts nominal. LED's are available in standard Warm White (2700 & 3000K), Neutral White (4000K), or Cool White (5000K). All Standard LED's have a minimum of 70 CRI. Consult Factory for other LED options. Lumen Maintenance of 80% at 100,000 hours (M12) calculated at full test time.

**True Amber LED's**  
180 True Amber LED's emit light in the amber spectral bandwidth centered on 585-590nm. True Amber has negligible blue light and is suitable for wildlife.

**LED Driver**  
Constant current electronic with a power factor of >90 and a minimum operating temperature of -40°F (-40°C). Dimmer, 180mA, 0-10V dimmer, three terminal blocks facilitate wiring between the driver and optical array. Drivers accept an input of 120-277V, 50/60Hz or 347-480V, 50/60Hz. 0 - 10V dimmable driver is standard. Driver has a minimum of 3kV internal surge protection. Luminaire supplied with a separate 20kV surge protector for field installation.

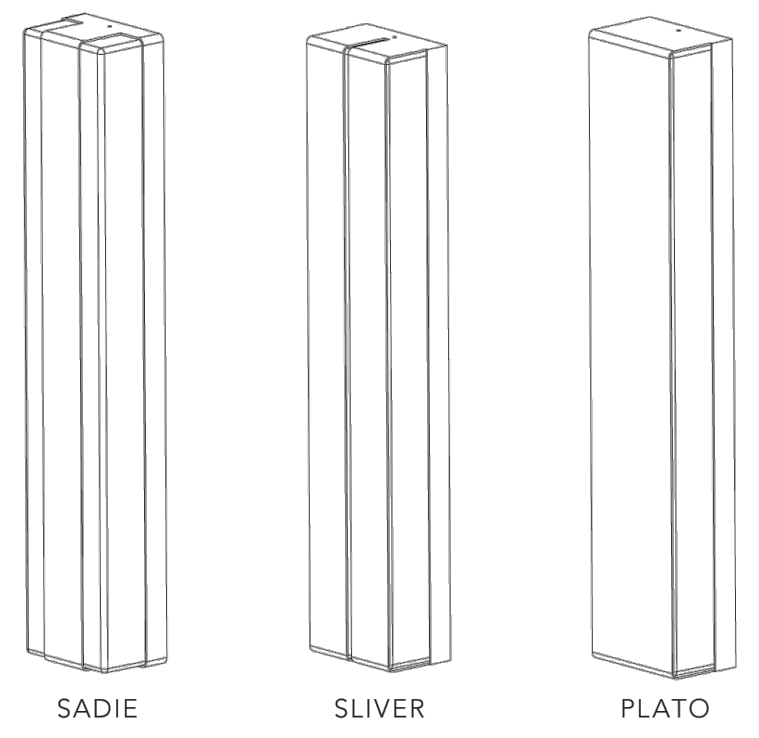

**Finish**  
Polyester powder coat incorporates four step zinc phosphate process to precoat metal surfaces for maximum adhesion. Top coat is baked at 400° F for maximum hardness and exterior durability.

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**Installation Guide**

SADIE 24", 46", 69", 90"  
SLIVER 24", 46", 69", 90"  
PLATO 24", 46", 69", 90"

UL LISTED FOR USE LOCATION

ALVALIGHT.COM | P: 510 993 0998

SPECIFICATIONS SUBJECT TO CHANGE, REVISED OCTOBER, 2024

**U.S. ARCHITECTURAL LIGHTING**

**Pacifica® - PLED**  
CONTEMPORARY, ROUND FORM POLE MOUNT LUMINAIRE

PROJECT NAME: \_\_\_\_\_  
PROJECT TYPE: \_\_\_\_\_



**Luminaire**  
Housing and arm are heavy wall, low copper cast aluminum alloy (A36 alloy, 42% copper). Removable internal heat sink provides direct mounting of the LED module and thermal control for long life and efficiency. Bolted top is removable for LED Module access. Bolted head is removable for electrical and driver access. All hardware is stainless steel. Casted access is through housing aperture. Hinged door on arm provides access to the driver and electrical compartment. Integrated mounting bolts for quick mounting to the pole. Optional heavy cast aluminum wall mounting bracket.

**PLED™ Optics**  
Emitters (LED's) are arranged on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED reflector. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the reflector redirects the house side emitter output towards the street side, maximizing usable light. Optional house side shields are available that cover each individual optic. Reflectors are injection molded H12 acrylic. Each LED reflector is sealed to the PCB over an emitter and all reflectors are related by an aluminum frame. Any one Panel, or group of Panels in a luminance, have the same optical pattern. LED reflectors produce standard Ambiance distributions. Panels are field replaceable and field installable in 90° increments. Quick disconnects are provided above each panel for fast field replacement. All future optical options will provide a 100° no uplight optical package and a one cast sky finish.

**Ambiance™ Low Luminance Lens**  
Optional Ambiance Lens (AL) provides low luminance reduced glare distributions. Lens utilizes the PLED Optics and provides a more uniform luminance across the aperture reducing glare of all angles. Lens is provided with an aluminum frame and is sealed to the housing with high temp gasketing.

**LED Emitters**  
LED thermal management is designed to maintain LED operating temperature below 90 °C, well below the manufacturer's thermal max of 150 °C for long life, high lumen maintenance and color stability. High Power White LED's are driven between 300mA and 875mA for a maximum output of 2.5 Watts nominal. LED's are available in standard Warm White (2700 & 3000K), Neutral White (4000K), or Cool White (5000K). All Standard LED's have a minimum of 70 CRI. Consult Factory for other LED options. Lumen Maintenance of 80% at 100,000 hours (M12) calculated at full test time.

**True Amber LED's**  
180 True Amber LED's emit light in the amber spectral bandwidth centered on 585-590nm. True Amber has negligible blue light and is suitable for wildlife.

**LED Driver**  
Constant current electronic with a power factor of >90 and a minimum operating temperature of -40°F (-40°C). Dimmer, 180mA, 0-10V dimmer, three terminal blocks facilitate wiring between the driver and optical array. Drivers accept an input of 120-277V, 50/60Hz or 347-480V, 50/60Hz. 0 - 10V dimmable driver is standard. Driver has a minimum of 3kV internal surge protection. Luminaire supplied with a separate 20kV surge protector for field installation.

**Finish**  
Super TBC polyester powder coating is applied onto a metal substrate this has been pre-treated with a four-stage process for maximum adhesion and color retention. The top coat is baked at 400° F for maximum hardness and exterior durability.






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**AREA & ROADWAY LIGHTING**

**Pacifica® - PT2 PLED**  
CONTEMPORARY, ROUND FORM POST TOP LUMINAIRE

PROJECT NAME: \_\_\_\_\_  
PROJECT TYPE: \_\_\_\_\_



**Luminaire**  
All housing components are all heavy wall cast aluminum alloy (A36 alloy, 42% copper). Removable internal heat sink provides direct mounting of the LED module and thermal control for long life and efficiency. Bolted top is removable for LED Module access. Bolted head is removable for electrical and driver access. All hardware is stainless steel.

**Post Top Mounting**  
Luminaire fits inside over 3/4" O.D. x 1.07" length. Stainless steel set screws provided for leveling and securing luminaire over lantern.

**PLED™ Optics**  
Emitters (LED's) are arranged on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED reflector. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the reflector redirects the house side emitter output towards the street side, maximizing usable light. Optional house side shields are available that cover each individual optic. Reflectors are injection molded H12 acrylic. Each LED reflector is sealed to the PCB over an emitter and all reflectors are related by an aluminum frame. Any one Panel, or group of Panels in a luminance, have the same optical pattern. LED reflectors produce standard Ambiance distributions. Panels are field replaceable and field installable in 90° increments. Quick disconnects are provided above each panel for fast field replacement. All future optical options will provide a 100° no uplight optical package and a one cast sky finish.




**Ambiance™ Low Luminance Lens**  
Optional Ambiance Lens (AL) provides low luminance reduced glare distributions. Lens utilizes the PLED Optics and provides a more uniform luminance across the aperture reducing glare of all angles. Lens is provided with an aluminum frame and is sealed to the housing with high temp gasketing.

**LED Emitters**  
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**LED Driver**  
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**Finish**  
Super TBC polyester powder coating is applied onto a metal substrate this has been pre-treated with a four-stage process for maximum adhesion and color retention. The top coat is baked at 400° F for maximum hardness and exterior durability.

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**BOHLER**

SITE CIVIL AND CONSULTING ENGINEERING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PERMITTING SERVICES  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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4	B1 LIGHT BOLLARD CUT SHEET NOT TO SCALE	3	W1 WALL PACK ENTRANCES CUT SHEET NOT TO SCALE	2	LP1 PARKING LIGHTPOLE CUT SHEET NOT TO SCALE	1	PT1 PEDESTRIAN LIGHTPOLE CUT SHEET NOT TO SCALE
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**U.S. ARCHITECTURAL LIGHTING**

**Pacifica® - WM PLED**  
CONTEMPORARY, ROUND FORM WALL MOUNT

PROJECT NAME: \_\_\_\_\_  
PROJECT TYPE: \_\_\_\_\_



**Optical Housing**  
Heavy cast, low copper aluminum alloy (A36 alloy, 42% copper) with a minimum wall thickness of 0.188". Integrated optical and electrical chamber. LED module and hardware are removable for service. Internal aluminum wall bracket mounts over recessed joist with suitable hardware (by others) for wall mounting. All hardware is stainless steel. Housing is built to an IP66 standard.

**Electrical Housing**  
Heavy cast low copper aluminum alloy (A36 alloy, 42% copper) assembly. Minimum wall thickness is 0.188". Three Mounting Hole offers to mounting luminaire over a recessed joist. Electrical Housing connects to the top edge of the Mounting Hole and the rim seal provides weather seals against the Electrical Housing to the Mounting Hole from the bottom.

**PLED™ Optics**  
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**Finish**  
Super TBC polyester powder coating is applied onto a metal substrate this has been pre-treated with a four-stage process for maximum adhesion and color retention. The top coat is baked at 400° F for maximum hardness and exterior durability.

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**ENTITLEMENT SET**

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**PROJECT No.:** MAB250074-00-0A  
**DRAWN BY:** WG/AT  
**CHECKED BY:** ZLR  
**DATE:** 01/09/2025  
**CAD ID:** P-CIVIL-SITE-MAB250074-00

**PROJECT:**

**SITE PLAN REVIEW/SPECIAL PERMIT SET**  
FOR

**JOHN M. CORCORAN & CO.** **SV + P**

**PROPOSED THE COMMONS AT RIVER ROAD**

100 OLD RIVER ROAD  
ESSEX COUNTY  
TOWN OF ANDOVER, MA 01810  
MAP, BLOCK & LOT: 143 - 0 - 8

**BOHLER**

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BOSTON, MA 02110  
Phone: (617) 849-8040  
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**SHEET TITLE:**

**LANDSCAPE DETAILS**

**SHEET NUMBER:**

**L-303**

**ORG. DATE - 01/09/2025**