

MULTIFAMILY SITE REDEVELOPMENT PLANS

FOR

85 WATER STREET

(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 &
ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)

HAVERHILL, MASSACHUSETTS

OWNER:
THE WATER STREET WATERFRONT LLC
5 ATKINSON FARM ROAD
ATKINSON, NH 03811
BOOK 15004, PAGE 358

ENVIRONMENTAL CONSULTANT:
LEC ENVIRONMENTAL CONSULTANTS, INC.
380 LOWELL STREET
WAKEFIELD, MA 01880
PHONE: 781-245-2500

APPLICANT:
85 WATER STREET REDEVELOPMENT, LLC
231 SUTTON STREET, SUITE 1B
NORTH ANDOVER, MA 01845
PHONE: 978-687-6200

LANDSCAPE ARCHITECT:
RADNER DESIGN ASSOCIATES, INC.
3 ALLIED DRIVE, SUITE 303
DEDHAM, MA 02026
PHONE: 508-733-6144

CIVIL ENGINEER/SURVEYOR:
THE MORIN-CAMERON GROUP, INC.
66 ELM STREET
DANVERS, MA 01923

ARCHITECT:
GSD ASSOCIATES, LLC
146 MAIN STREET
NORTH ANDOVER, MA 01845
PHONE: 978-688-5422

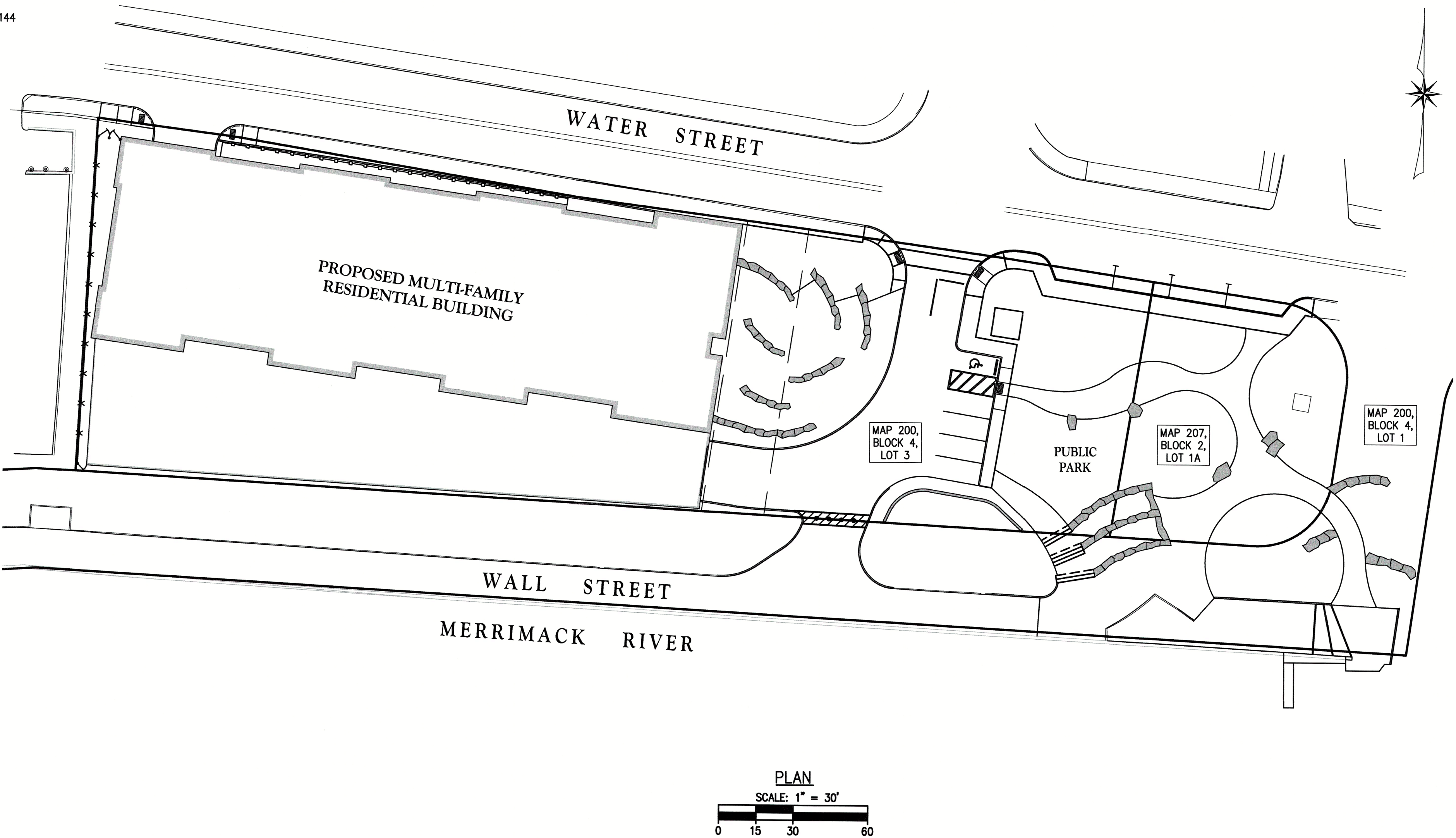
ABBREVIATIONS:

AC	ACRE
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
CB	CATCH BASIN
CCB	CAPE COD BERM
CI	CAST IRON
CLDI	CEMENT LINED DUCTILE IRON
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
DI	DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
DB	DEED BOOK
EL/ELEV	ELEVATION
EXIST	EXISTING
FT	FOOT
GG	GAS GATE
HDPE	HIGH DENSITY POLYETHYLENE
ID	INNER DIAMETER
INV	INVERT
MAHW	MEAN ANNUAL HIGH WATER
MAX	MAXIMUM
MIN	MINIMUM
N/F	NOW OR FORMERLY
N,S,E,W	NORTH SOUTH EAST WEST
NAVD	NORTH AMERICAN VERTICAL DATUM
OC	ON CENTER
±	PLUS/MINUS
PAV	PAVED
PG	PAGE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
REQ'D	REQUIRED
SF	SQUARE FEET
SMH	SEWER MANHOLE
SSA	SNOW STORAGE AREA
SWLL	SINGLE WHITE LANE LINE
TC	TOP OF CURB
TOW	TOP OF WALL
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VCG	VERTICAL GRANITE CURB
WG	WATER GATE

GENERAL NOTE:

THESE PLANS ARE PREPARED FOR PERMITTING WITH THE CITY OF HAVERHILL. THE PLANS SHALL NOT BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSES WITHOUT WRITTEN PERMISSION FROM THE MORIN-CAMERON GROUP, INC.

FOR PERMITTING PURPOSES ONLY.
NOT RELEASED FOR CONSTRUCTION.



SCHEDULE OF PLAN SET DRAWINGS:

C-1	COVER SHEET
C-2	EXISTING CONDITIONS PLAN
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C-4	SITE LAYOUT PLAN
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C-8	CONSTRUCTION DETAILS III
C-9	CONSTRUCTION DETAILS IV
C-10	CUT & FILL PLAN
L0.0	LANDSCAPE PLAN
L1.0	SITE IMPROVEMENTS PLAN
L1.1	MATERIALS ENLARGEMENT PLAN 1
L1.2	MATERIALS ENLARGEMENT PLAN 2
L1.3	MATERIALS ENLARGEMENT PLAN 3
L1.4	LANDSCAPE PLAN ENLARGEMENT - ROOF DECK
L2.1	LANDSCAPE DETAILS

ZONING DISTRICT:
WATERFRONT DISTRICT (SOUTH SIDE OF WATER STREET)

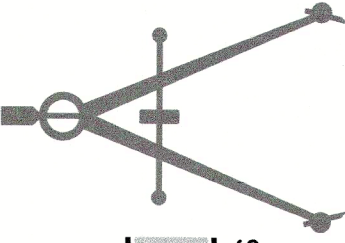
ELEVATION DATUM:
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

LEGEND

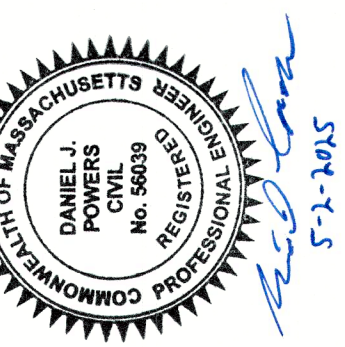
CONTOURS	
MAJOR	-15-
MINOR	-16-
SPOT GRADES	X 167.2
LIMIT OF MAHW	---
LIMIT HISTORIC HIGH WATER	---
100' SETBACK TO MAHW	---
LIMIT OF 200' RIVERFRONT AREA	---
LIMIT OF FEMA FLOOD ZONE	---
CHAIN LINK FENCE	X X X
EDGE OF GRASS	---
DRAIN PIPE	D
GAS MAIN/SERVICE	G
PICKET FENCE	S
SANITARY SEWER MAIN/SERVICE	S
SILT SOCK	---
UNDERGROUND ELECTRIC CONDUIT	UGE
WATER MAIN/SERVICE	W
CATCH BASIN	⊕
DETECTABLE WARNING PANEL	⊕
DRAIN MANHOLE	⊕
ELECTRIC MANHOLE	⊕
GAS GATE VALVE	⊕
LIGHT POLE	⊕
SEWER MANHOLE	⊕
SIGN	⊕
TELECOM MANHOLE	⊕
TREE	⊕
UTILITY POLE	⊕
WATER GATE VALVE	⊕

EXISTING

PROPOSED



The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
100 STATE STREET, SUITE 200
DANVERS, MA 01923
P: 978-777-8886 | W: WWW.MORIN-CAMERON.COM



SURVEY BY: OTHERS
DRAFTED BY: D.J.P.
CHECKED BY: S.P.C.
APPROVED BY: D.J.P.
SCALE: AS NOTED
DATE: MARCH 7, 2025

NO.	DESCRIPTION	DATE
1	REUSE PER REE REVIEW COMMENTS	5-2-2025

MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

COVERSHEET
DRAWING NO. **C-1**

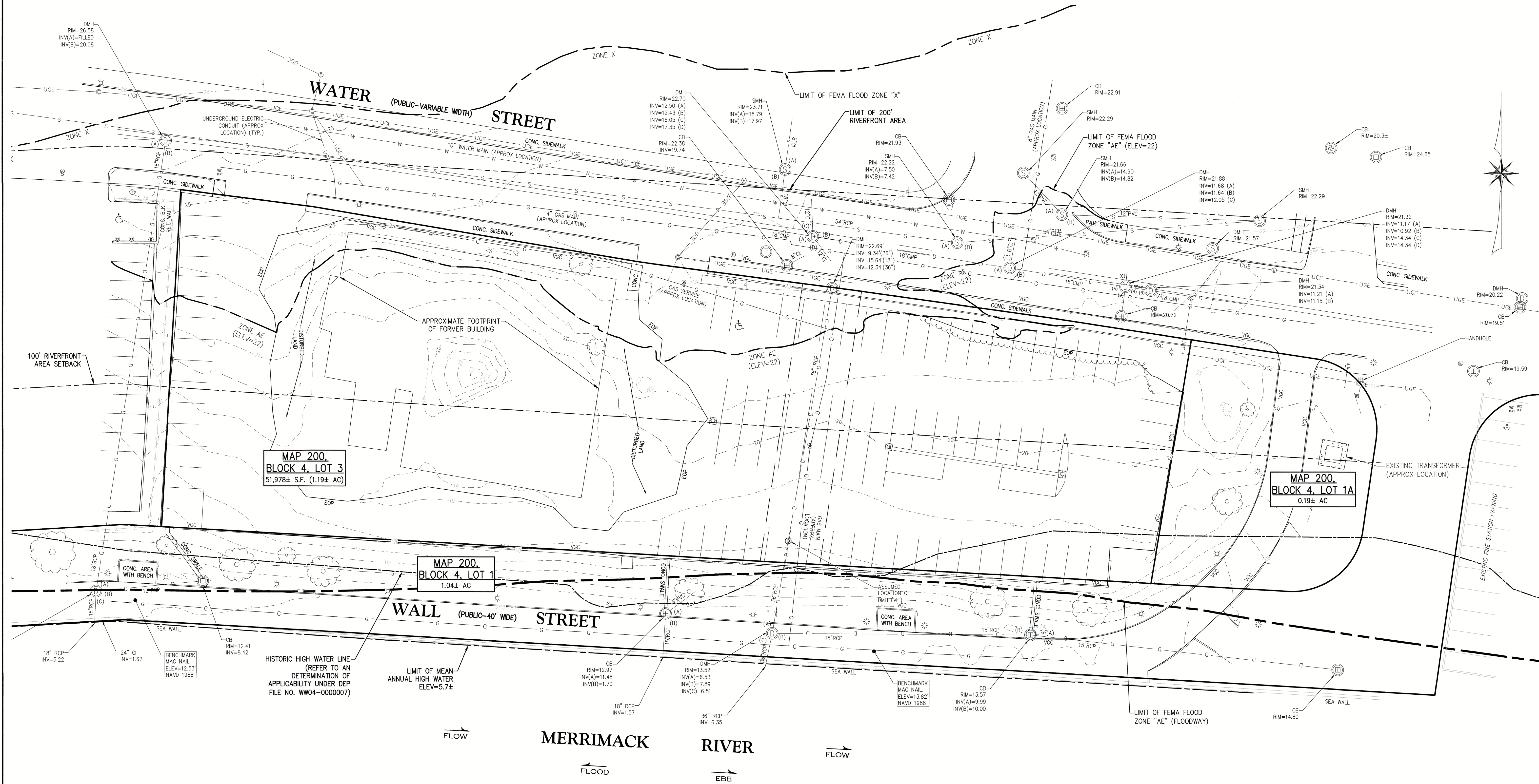
- SURVEY NOTES:**
1. PROPERTY LINE INFORMATION SHOWN HEREON WAS COMPILED BY THE MORIN-CAMERON GROUP, INC.
 2. THE EXISTING CONDITION DEPICTED HEREON IS THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY THE MORIN-CAMERON GROUP, INC.
 3. EXISTING CONDITIONS SHOWN HEREON WERE SUPPLEMENTED WITH A PLAN ENTITLED "EXISTING CONDITIONS, 85 WATER STREET, HAVERHILL, MA" PREPARED BY ALLEN & MAJOR ASSOCIATES, INC. PREPARED APRIL 29, 2003.
 4. ELEVATIONS DEPICTED HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

GENERAL NOTE:

THESE PLANS ARE PREPARED FOR OUR CLIENT'S USE ONLY FOR THE PURPOSE OF SITE CONSTRUCTION AND ARE NOT TO BE USED OR RELIED UPON BY OTHERS WITHOUT THE WRITTEN CONSENT OF THE MORIN-CAMERON GROUP, INC.

FLOOD NOTE:

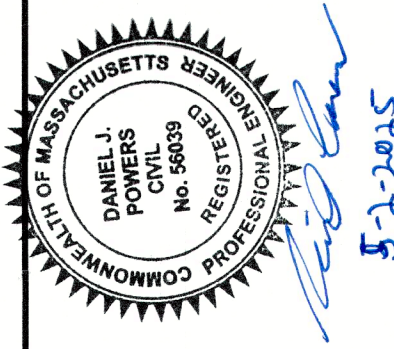
THE SUBJECT PROPERTY IS LOCATED IN A ZONE "AE" (ELEV=22) AND ZONE "X", AS ILLUSTRATED ON THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 25009C0089H, WHICH HAS A PRELIMINARY EFFECTIVE DATE OF MAY 26, 2023.



The Morin-Cameron GROUP, INC.

CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS | LAND SURVEYORS | PLANNING

100 WATER STREET, HAVERHILL, MA 01830
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(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

EXISTING CONDITIONS PLAN
DRAWING NO. **C-2**

CONSTRUCTION SEQUENCE:

TO PREVENT EXCESSIVE EROSION AND SILTING, THE FOLLOWING CONSTRUCTION SEQUENCE COUPLED WITH OTHER WIDELY ACCEPTED PRINCIPALS FOR REDUCING EROSION AND SEDIMENTATION SHALL BE IMPLEMENTED IN THE DEVELOPMENT OF THE SITE.

1. THE CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY WITH THE OWNER (OWNER'S REPRESENTATIVE), CONSERVATION COMMISSION REPRESENTATIVE, PLANNING DEPARTMENT REPRESENTATIVE AND ANY OTHER INTERESTED TOWN DEPARTMENT REPRESENTATIVES.
2. STABILIZATION PRACTICES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. PLACE EROSION CONTROLS AT LOCATIONS INDICATED ON THE SITE DEVELOPMENT PLANS.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT THE LOCATION NOTED.
4. ALL CATCH BASINS (EXISTING AND NEWLY INSTALLED) SHALL BE PROTECTED WITH SILT SACK SEDIMENT TRAPS.
5. IN PREPARING TO REMOVE PAVEMENT AND MATERIALS FROM THE WORK AREA ON THE SITE, CAREFUL CONSIDERATION SHOULD BE MADE TO THE EXTENT OF DISTURBANCE SO AS NOT TO DISTURB MORE OF THE SITE THAN WHAT IS INTENDED TO BE IMMEDIATELY DEVELOPED AND RE-STABILIZED.
6. DUE TO LIMITED SPACE AVAILABLE ON THE PREMISE, LOAM AND SOIL EXCAVATED FROM THE WORK AREA SHALL BE HAULED FROM THE PROPERTY AND STOCK PILED AT A LOCATION TO BE DETERMINED BY THE SITE CONTRACTOR. IF MATERIALS ARE STOCKPILED ON THE SITE WHERE THEY WILL NOT INTERFERE WITH CONSTRUCTION ACTIVITIES, THEY SHALL BE LOCATED SO AS TO MINIMIZE THE POTENTIAL FOR EROSION INTO EXISTING DRAINAGE INFRASTRUCTURE. STOCKPILES SHALL BE STABILIZED WITH MULCH SOCK, SILT FENCING OR EQUIVALENT. STOCKPILES LEFT FOR GREATER THAN 14 DAYS SHALL BE SEED WITH AN EROSION CONTROL MIX. NO STOCKPILES SHALL BE PLACED WITHIN THE 100' BUFFER ZONE TO THE OFFSITE WETLAND.
7. REMOVAL OF ALL DEBRIS OR MATERIAL FROM THE WORK AREA SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS UNDER THE OVERSIGHT OF A LICENSED SITE PROFESSIONAL (LSP).
8. REMOVAL OF ALL EXISTING UTILITIES TO BE CUT AND CAPPED, AND COORDINATED WITH APPROPRIATE UTILITY COMPANIES.

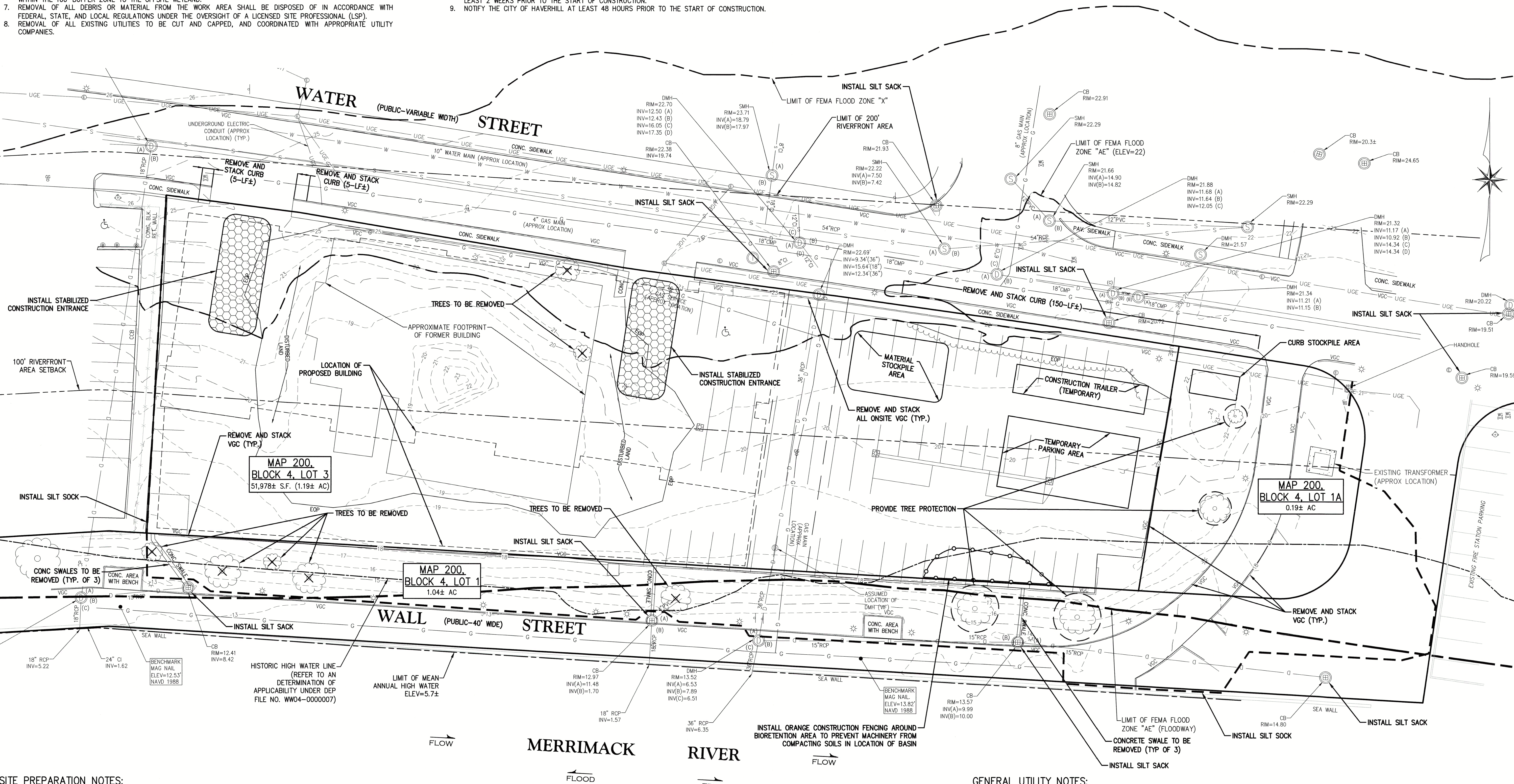
EROSION AND SEDIMENTATION CONTROL:

WIDELY ACCEPTED PRACTICES FOR REDUCING EROSION AND SEDIMENTATION WILL BE EMPLOYED IN THE DEVELOPMENT OF THIS SITE. REFER TO THE CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN FOR THE PROJECT.

1. THE DEVELOPMENT OF THE SITE HAS BEEN PLANNED TO MATCH EXISTING TOPOGRAPHY AND GROUND COVER. EXISTING DRAINAGE PATTERNS OF THE SITE HAVE BEEN MAINTAINED TO THE EXTENT PRACTICABLE.
2. STEEP SLOPES SHOULD NOT BE DISTURBED WHERE POSSIBLE.
3. THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED LAND TO THE EXTENT FEASIBLE.
4. SEDIMENT CONTROL MEASURES WILL BE APPLIED TO CONTROL ANY SEDIMENTS THAT MAY BE PRODUCED AS A RESULT OF SITE CONSTRUCTION ACTIVITIES. EROSION AND DEPOSITION OF SEDIMENT WILL BE CLOSELY MONITORED DURING CONSTRUCTION.
5. TEMPORARY EROSION CONTROL MEASURES WILL INCLUDE, BUT NOT BE LIMITED TO, FILTER FABRIC SILT FENCES, SEEDING AND MULCHING, SEEDED FILTER STRIPS AND SILT SACKS IN CATCH BASINS (EXISTING AND NEWLY INSTALLED).
6. TOPSOIL STRIPPED FROM THE SITE WILL BE STOCKPILED FOR LOAMING AND SEEDING AT LATER CONSTRUCTION STAGES. THE STOCKPILES SHALL BE LOCATED SO AS TO ACT AS TEMPORARY DIVERSIONS, GENERALLY ON AN UPHILL SLOPE.
7. SITE DEVELOPMENT WILL NOT COMMENCE UNTIL ALL TEMPORARY EROSION CONTROL MEASURES ARE IN PLACE. THESE MEASURES SHALL BE EMPLOYED UNTIL FINAL PAVING AND ADEQUATE VEGETATION HAS BEEN ESTABLISHED.
8. THE CONSTRUCTION PHASE MUST COMPLY WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROTOCOLS. AN EPA NOTICE OF INTENT SHALL BE FILLED OUT AT LEAST 2 WEEKS PRIOR TO THE START OF CONSTRUCTION.
9. NOTIFY THE CITY OF HAVERHILL AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.



NOTE:
UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON VISIBLE ABOVE GROUND UTILITIES AND RECORD INFORMATION OF BELOW GROUND UTILITIES AND ARE APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL NECESSARY PRECAUTIONS BEFORE BEGINNING ANY EXCAVATION.



SITE PREPARATION NOTES:

1. THIS PLAN IS INTENDED TO DEPICT EROSION AND SEDIMENTATION CONTROLS AT THE START OF CONSTRUCTION. ADDITIONAL MEASURES WILL BE REQUIRED AND IMPLEMENTED BY THE SITE CONTRACTOR THROUGHOUT THE DURATION OF THE SITE WORK AS REQUIRED.
2. ALL MATERIALS REMOVED FROM THE PREMISES SHALL BE DONE SO IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS FOR HAULING AND DISPOSAL.
3. COORDINATE ANY UTILITY DISCONNECTIONS WITH APPROPRIATE SERVICE PROVIDERS.
4. ALL TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. AVOID HEAVY MACHINERY WITHIN ROOT BALL FOOTPRINT.
5. COORDINATE WITH CITY OF HAVERHILL WATER AND WASTEWATER DIVISION FOR ALL APPLICABLE UTILITY WORK.

GENERAL UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS / ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS / LAND USE PLANNERS
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MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
85 WATER STREET REDEVELOPMENT, LLC
PREPARED FOR:

DEMOLITION & SITE PREPARATION PLAN
DRAWING NO. **C-3**

DIMENSIONAL & DENSITY TABLE WATERFRONT ZONING DISTRICT - SUBZONE D		
SETBACK	REQUIRED	PROPOSED
MINIMUM LOT AREA	N/A	51,978 S.F.
MINIMUM LOT FRONTADE	N/A	430.66 FT.
MAXIMUM BUILDING COVERAGE	N/A	58.6%
MINIMUM OPEN SPACE	N/A	66.8%
MINIMUM SIDE YARD	N/A	2.6 FT.
MINIMUM FRONT YARD	N/A	0.7 FT.
MINIMUM REAR YARD	N/A	1.0 FT.
MAXIMUM HEIGHT OF BUILDINGS	74 FT.	70 FT.
MAXIMUM DENSITY	83 UNITS PER ACRE (1)	113 UNITS (2)

FOOTNOTES:

- (1) IN SUB-ZONE D, A MAXIMUM OF 70 UNITS PER ACRE SHALL BE PERMITTED WHEN A PROJECT PROVIDES IMPROVED PUBLIC ACCESS TO THE MERRIMACK RIVER AND A PUBLIC PARK. THE SIZE AND DESIGN OF THE PARK MUST BE APPROVED BY THE ECONOMIC DEVELOPMENT DIRECTOR (SEE 255-165.A)
- (2) WAIVER REQUIRED

PARKING CALCULATION:

REQUIRED:	# OF UNITS	REQUIRED SPACES
RESIDENTIAL MULTI-FAMILY 1 PER DWELLING UNIT	113	113
PROPOSED:		
124 REGULAR GARAGE PARKING SPACES		
8 COMPACT GARAGE PARKING SPACES		
22 MOTORCYCLE GARAGE PARKING SPACES		
5 PUBLIC PARKING SPACES		

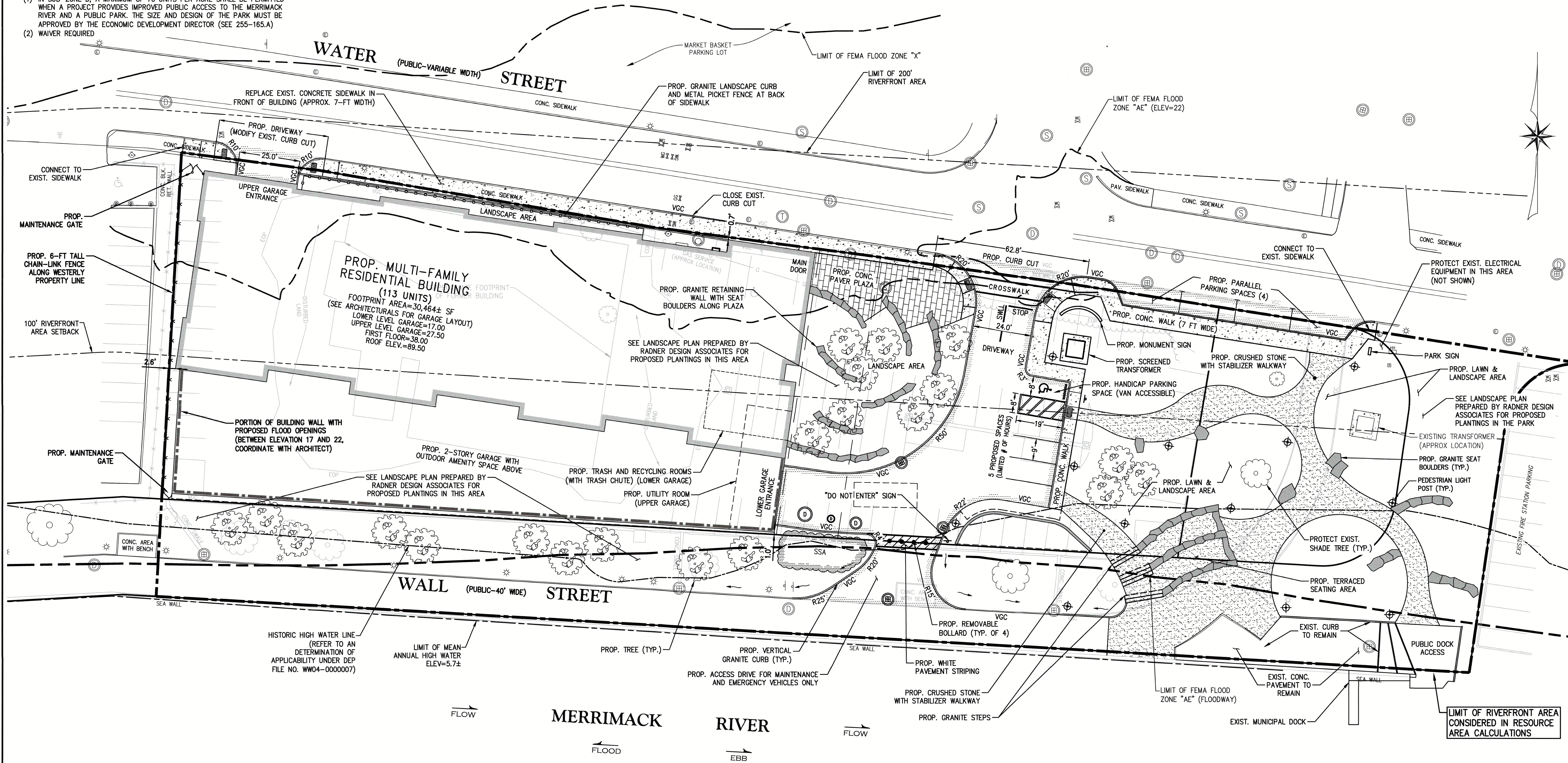
NOTE: SEE ARCHITECTURAL PLANS FOR GARAGE LAYOUT

DWELLING UNIT COUNT:

UNIT TYPE	UNIT COUNT
STUDIO	49
1-BEDROOM	50
2-BEDROOM	14
TOTAL UNITS:	113
TOTAL BEDROOMS:	127

RESOURCE AREA CALCULATIONS:

- TOTAL RIVERFRONT AREA = 86,004 SF±
- 0'-100' RIVERFRONT AREA = 52,853 SF±
- 100'-200' RIVERFRONT AREA = 33,151 SF±
- TOTAL PREVIOUSLY DEGRADED RIVERFRONT AREA = 64,327 SF±
- 0'-100' EXISTING DEGRADED AREA = 36,186 SF±
- 100'-200' EXISTING DEGRADED AREA = 28,142 SF±
- 0'-100' PROPOSED DEGRADED AREA = 31,911 SF±
- 100'-200' PROPOSED DEGRADED AREA = 23,620 SF±



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MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

SEWER NOTES:

- A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN SANITARY SEWER PIPES AND WATER PIPES. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER PIPE, THE WATER PIPE SHALL BE SLEEVED FOR A DISTANCE OF AT LEAST 10' ON EACH SIDE.
- ALL GRAVITY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) SDR-35 UNLESS OTHERWISE NOTED.
- WHERE SANITARY SEWERS CROSS WATER SERVICES, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER PIPE. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER PIPE SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL-JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER PIPE SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER PIPE AND THE SEWER PIPE SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
- SANITARY SEWER LINES WITH LESS THAN 5 FEET OF COVER SHALL BE INSULATED TO PREVENT FREEZING.
- A VALVE SHALL BE INSTALLED IN THE GARAGE FLOOR DRAIN SYSTEM PRIOR TO THE SEPARATOR TO PREVENT FLOOD WATER FROM ENTERING THE SANITARY SEWER SYSTEM. THIS WILL BE COORDINATED WITH THE ARCHITECT AND MEP ENGINEER PRIOR TO CONSTRUCTION. THE VALVE SHOULD BE PAIRED WITH AN AUDIBLE AND VISUAL ALARM INSIDE THE GARAGE, WHICH WILL BE TRIGGERED PRIOR TO FLOOD WATER RISING TO ELEVATION 17 AND ENTERING THE GARAGE.

WATER NOTES:

- WATER SERVICE CONNECTIONS SHALL HAVE A MIN. 5' OF COVER TO PREVENT FREEZING.
- WATER SERVICE CONNECTIONS SHALL BE COORDINATED WITH THE HAVERHILL DEPARTMENT OF PUBLIC WORKS WATER DIVISION. PROVIDE 48 HOURS ADVANCE NOTICE TO SCHEDULE INSPECTIONS.
- COORDINATE TEMPORARY HYDRANT CONNECTIONS DURING CONSTRUCTION WITH HAVERHILL DEPARTMENT OF PUBLIC WORKS WATER DIVISION.

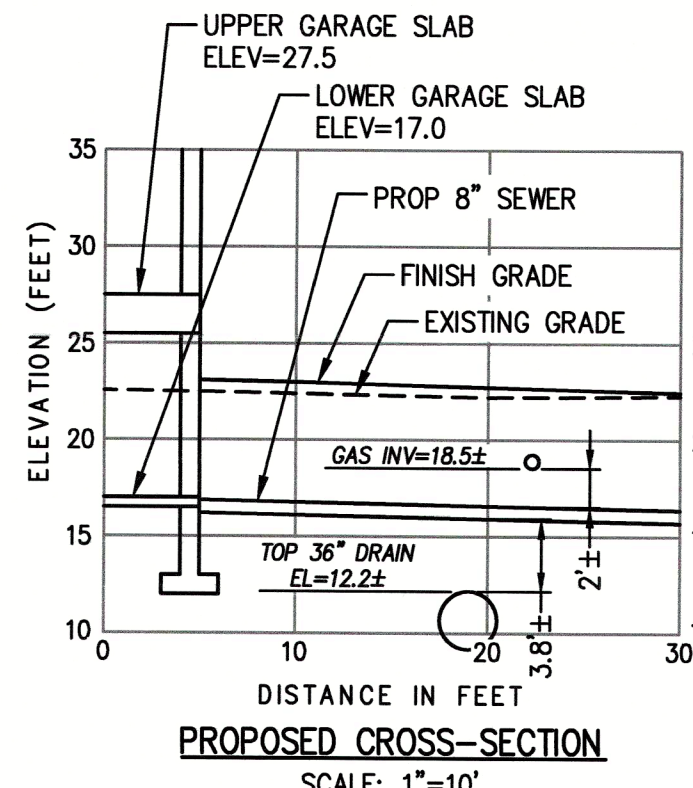
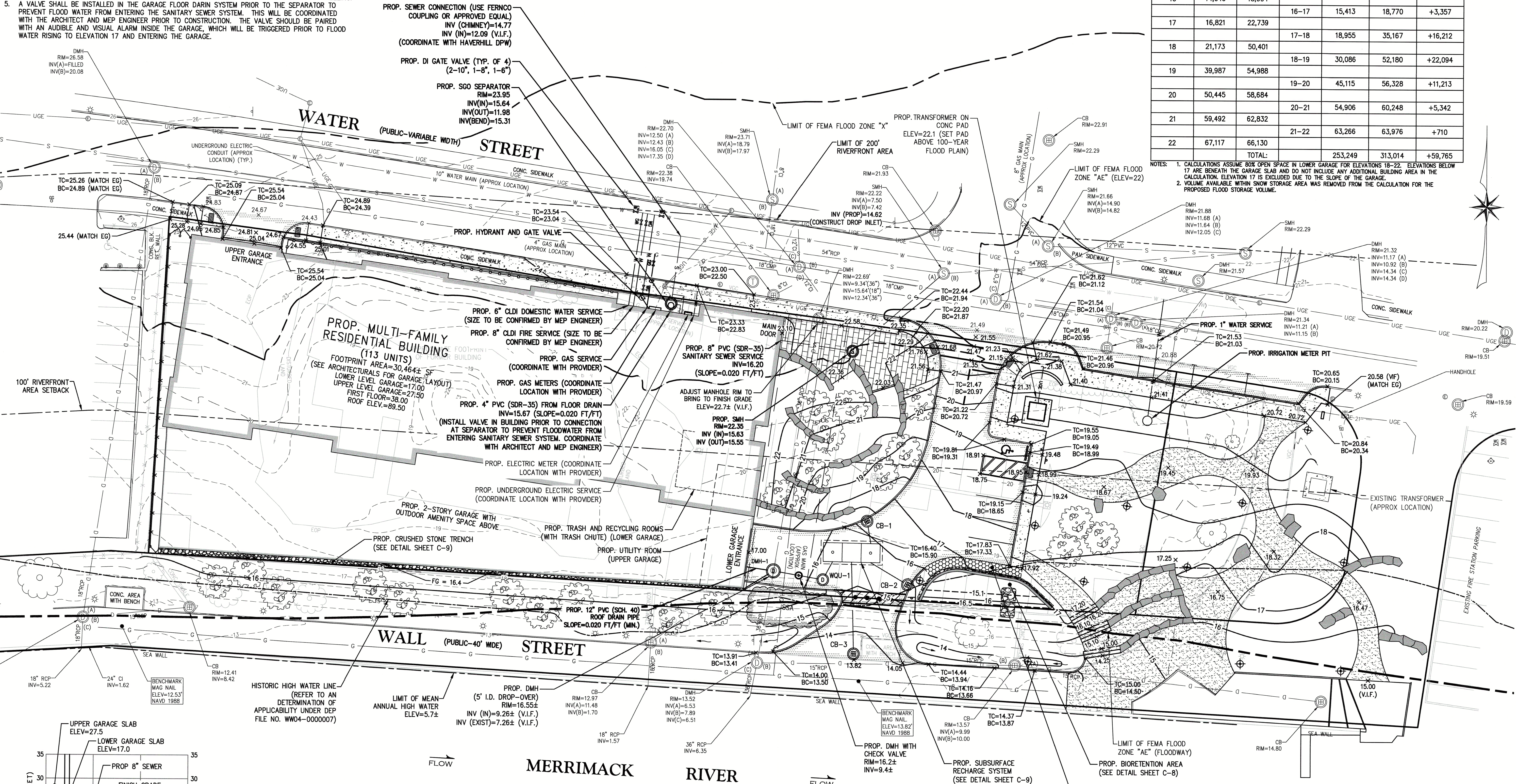
STORM MANAGEMENT SYSTEM NOTES:

- STORMWATER CONVEYANCE PIPES SHALL BE HDPE (ADS N-12) PIPE UNLESS NOTED OTHERWISE.
- BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY BY AASHTO T-1800 METHOD.
- SHEETING, IF USED, SHALL BE REMOVED PRIOR TO BACKFILLING TRENCH.
- UNSATURABLE SOIL (CLAY, ORGANICS, DEBRIS, ETC) BELOW THE INVERT SHALL BE REMOVED AND REPLACED WITH APPROVED MATERIAL AND SHALL NOT BE USED AS BACKFILL.
- ROOF DRAINS SHALL BE DIRECTED TO THE DRAINAGE SYSTEM IN THE LOCATIONS SHOWN. COORDINATE LOCATIONS WITH THE PROJECT ARCHITECT AND LANDSCAPE ARCHITECT.

BORDERING LAND SUBJECT TO FLOODING
COMPENSATORY FLOOD STORAGE CALCULATIONS

CONTOUR ELEVATION	EXISTING AREA (SF)	PROPOSED AREA (SF)	CONTOUR ELEVATION	EXISTING FLOOD STORAGE (CF)	PROPOSED FLOOD STORAGE (CF)	FLOOD STORAGE CHANGE (CF)
13	627	627	13-14	3,501	3,524	+23
14	7,681	7,742	14-15	9,398	9,460	+62
15	11,226	11,427	15-16	12,610	13,361	+751
16	14,046	15,994	16-17	15,413	18,770	+3,357
17	16,821	22,739	17-18	18,955	35,167	+16,212
18	21,173	50,401	18-19	30,086	52,180	+22,094
19	39,987	54,988	19-20	45,115	56,328	+11,213
20	50,445	58,684	20-21	54,906	60,248	+5,342
21	59,492	62,832	21-22	63,266	63,976	+710
22	67,117	66,130				
TOTAL:				253,249	313,014	+59,765

NOTES: 1. CALCULATIONS ASSUME 80% OPEN SPACE IN LOWER GARAGE FOR ELEVATIONS 18-22. ELEVATIONS BELOW 17 ARE BEHIND THE GARAGE SLAB AND DO NOT INCLUDE ANY ADDITIONAL BUILDING AREA IN THE CALCULATION. ELEVATION 17 IS EXCLUDED DUE TO THE SLOPE OF THE GARAGE.
2. VOLUME AVAILABLE WITHIN SNOW STORAGE AREA WAS REMOVED FROM THE CALCULATION FOR THE PROPOSED FLOOD STORAGE VOLUME.



GENERAL UTILITY NOTES:

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.

SOIL TESTING NOTE:

TEST PITS SHALL BE PERFORMED IN THE VICINITY OF EACH OF THE THE PROPOSED STORMWATER SYSTEMS PRIOR TO CONSTRUCTION ACTIVITIES BY A LICENSED SOIL EVALUATOR TO VERIFY DEPTH TO THE ESTIMATED SEASONAL HIGH WATER TABLE AND PARENT SOIL CONDITIONS. THE TEST PIT INFORMATION SHALL BE PROVIDED TO THE DESIGN ENGINEER TO VERIFY THAT THE SYSTEMS WILL FUNCTION AS INTENDED OR IF CHANGES ARE REQUIRED TO THE SYSTEMS.

DRAIN PIPE SCHEDULE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	PIPE						NOTES
		RIM (US)	INVERT (US)	INVERT (DS)	LENGTH (FT)	DIA (IN)	SLOPE (FT/FT)	
CB-1	RS-1	16.27	11.17	11.00	8	12	0.021	
CB-2	RS-1	15.43	11.33	11.00	16	12	0.021	
CB-3	RS-1	13.85	10.75	10.45	37	12	0.008	
RS-1	WQU-1	----	11.83	11.50	7	8	0.047	
WQU-1	DMH-1	15.67	9.60	9.26	17	12	0.020	PVC (SCH 40)
ROOF DRAIN	DMH-1	----	9.44	9.26	9	12	0.020	PVC
STONE TRENCH	DMH-1	----	15.40	12.95	12	6	0.213	PVC

MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

GRADING,
DRAINAGE &
UTILITY PLAN

DRAWING NO.

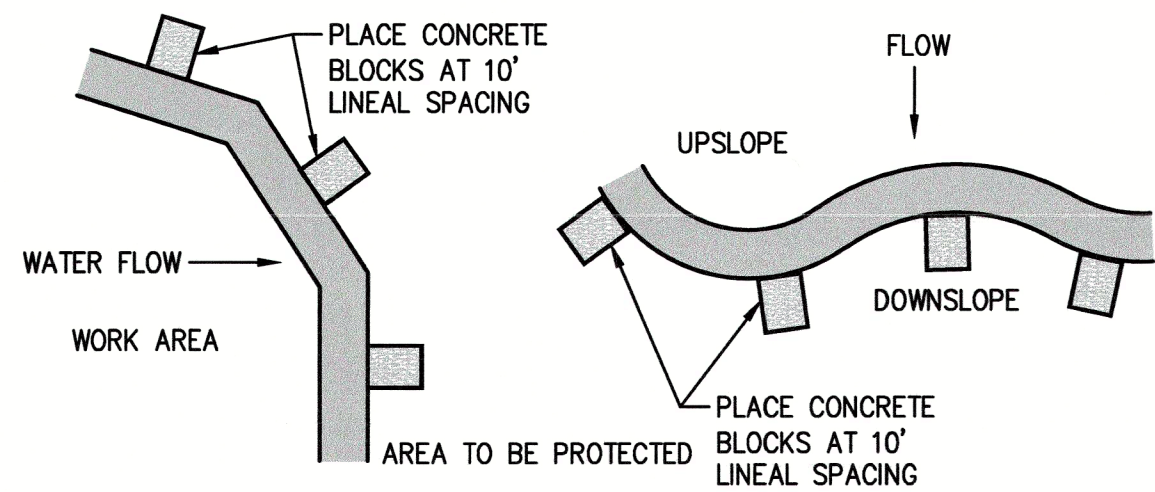
C-5

SURVEY BY: OTHERS
DRAFTED BY: D.J.P.
CHECKED BY: S.P.C.
APPROVED BY: D.J.P.
SCALE: AS NOTED
DATE: MARCH 7, 2025

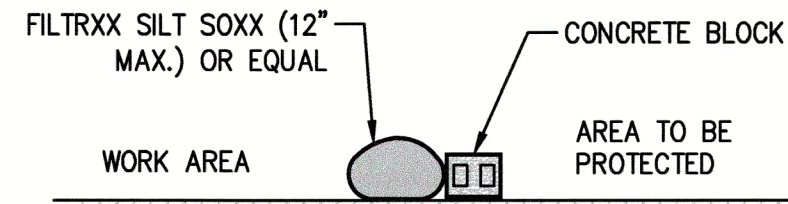
NO.	REVISIONS	DESCRIPTION	DATE
1	REUSE PER FEED REVIEW COMMENTS		5-2-2025



The
Mornin-Cameron
GROUP, INC.
CIVIL ENGINEERS / ENVIRONMENTAL CONSULTANTS
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165 ELLIS STREET, SUITE 200
HAVERHILL, MA 01830
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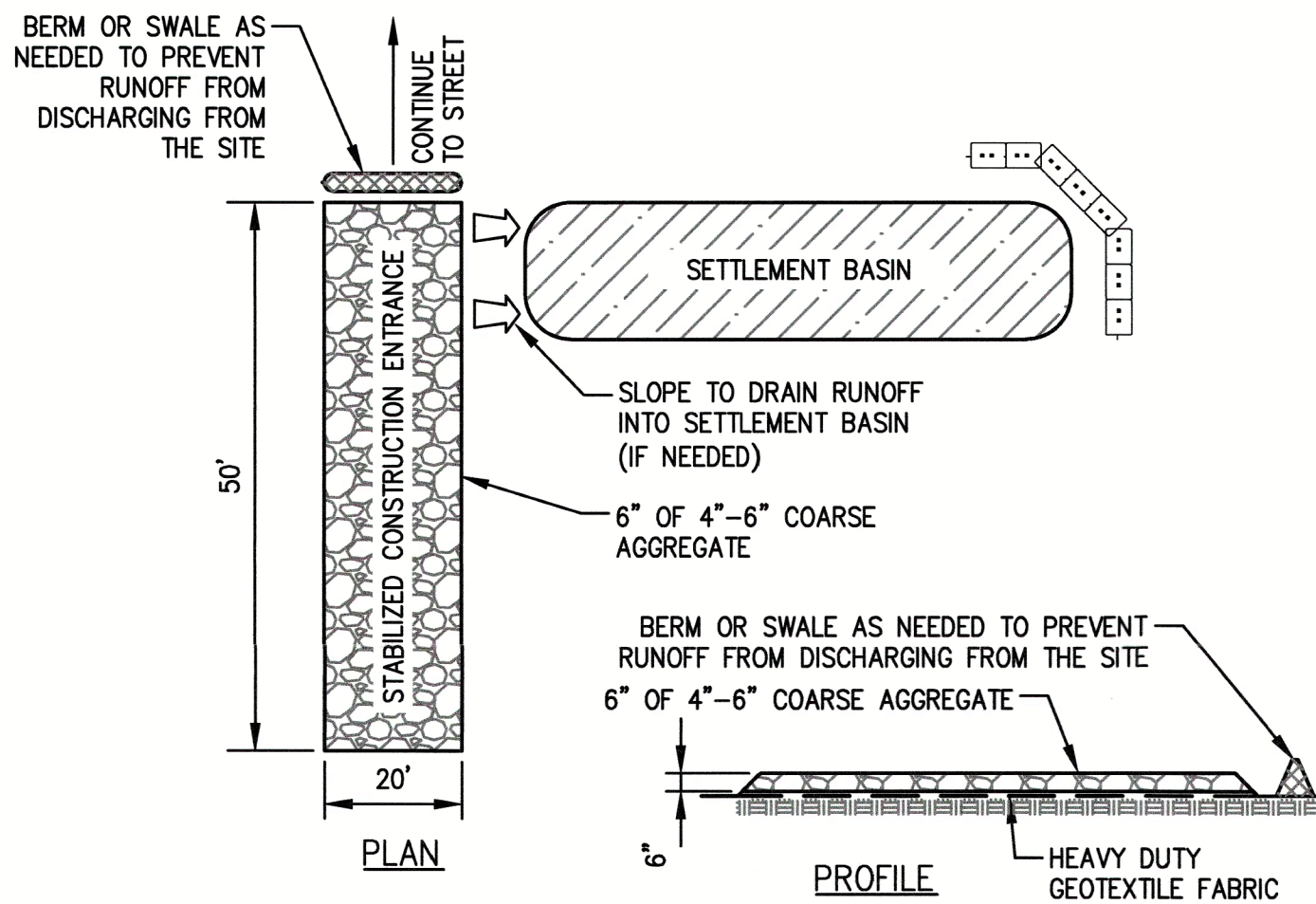


FILTREXX SILT SOCK PLAN VIEW



FILTREXX SILT SOCK SECTION

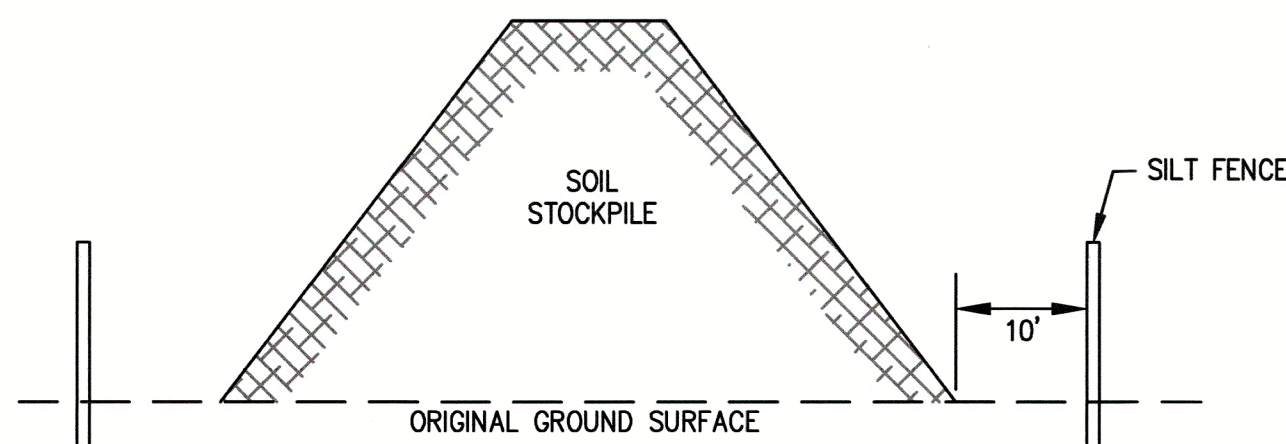
SILT SOCK ON PAVEMENT
NOT TO SCALE



SITE CONSTRUCTION EXIT SPECIFICATIONS

1. STONE FOR STABILIZATION CONSTRUCTION ENTRANCE SHALL BE 4"-6" STONE.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 40 FEET.
3. THE WIDTH OF THE ENTRANCE SHALL BE NO LESS THAN THE WIDTH OF THE INGRESS OR EGRESS DRIVE, OR 16 FEET, WHICHEVER IS GREATER.
4. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH MINIMUM 1 TO 5 SLOPES THAT CAN BE CROSSED BY VEHICLES CAN BE SUBSTITUTED.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED OR TRACKED ONTO THE RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
(NOT TO SCALE)



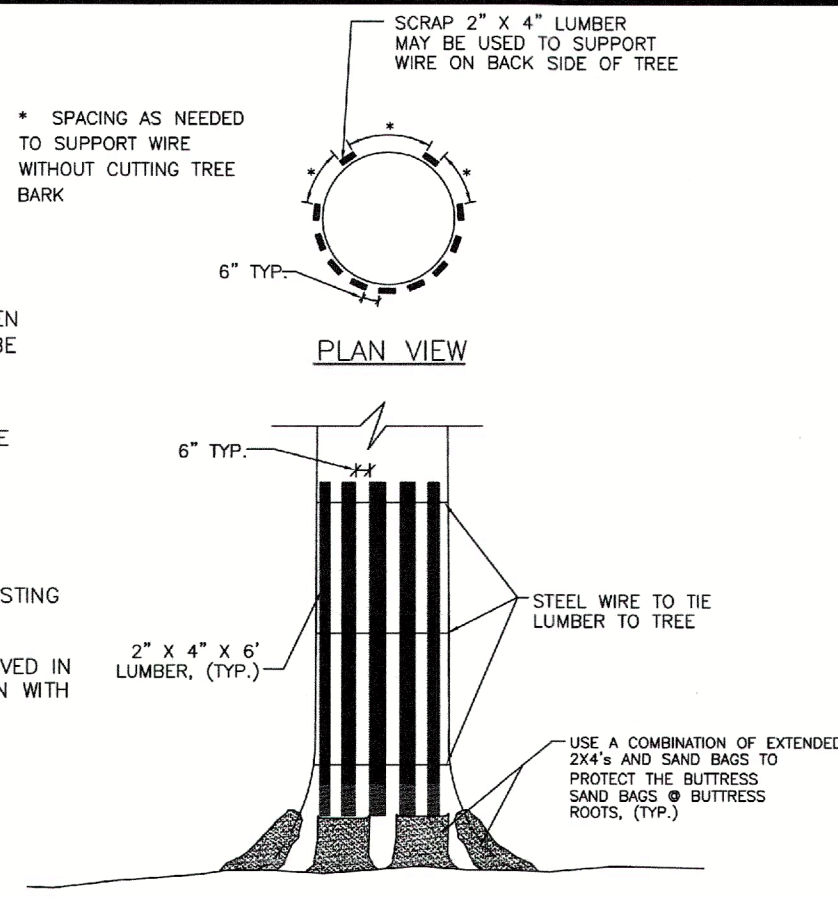
NOTES:

1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE IF ON LEVEL GROUND OR TO EXTEND AROUND DOWNGRADIENT PORTION STOCKPILE IS ON SLOPE.
2. IF THE STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS IT SHALL BE STABILIZED WITH AN EROSION CONTROL BLANKET OR SEEDED (IF LOAM).
3. INSPECTION OF SILT FENCES SHALL BE AT LEAST ONCE PER WEEK AND AFTER RAIN EVENTS IN EXCESS OF 1/2". REPAIR OR REPLACEMENT OF SILT FENCE SHALL BE MADE PROMPTLY AS NEEDED.
4. SEDIMENT TRAPPED BY SILT FENCES SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN SEDIMENT DEPTH REACHES 12".
5. SILT FENCES SHALL BE MAINTAINED UNTIL STOCKPILE IS ELIMINATED.
6. STOCKPILE SHALL BE COVERED BY AT LEAST 1 LAYER OF 6-MIL POLYETHYLENE SHEETING WHEN NOT IN USE. SHEETING SHALL BE SECURED AT THE END OF EACH WORKDAY.

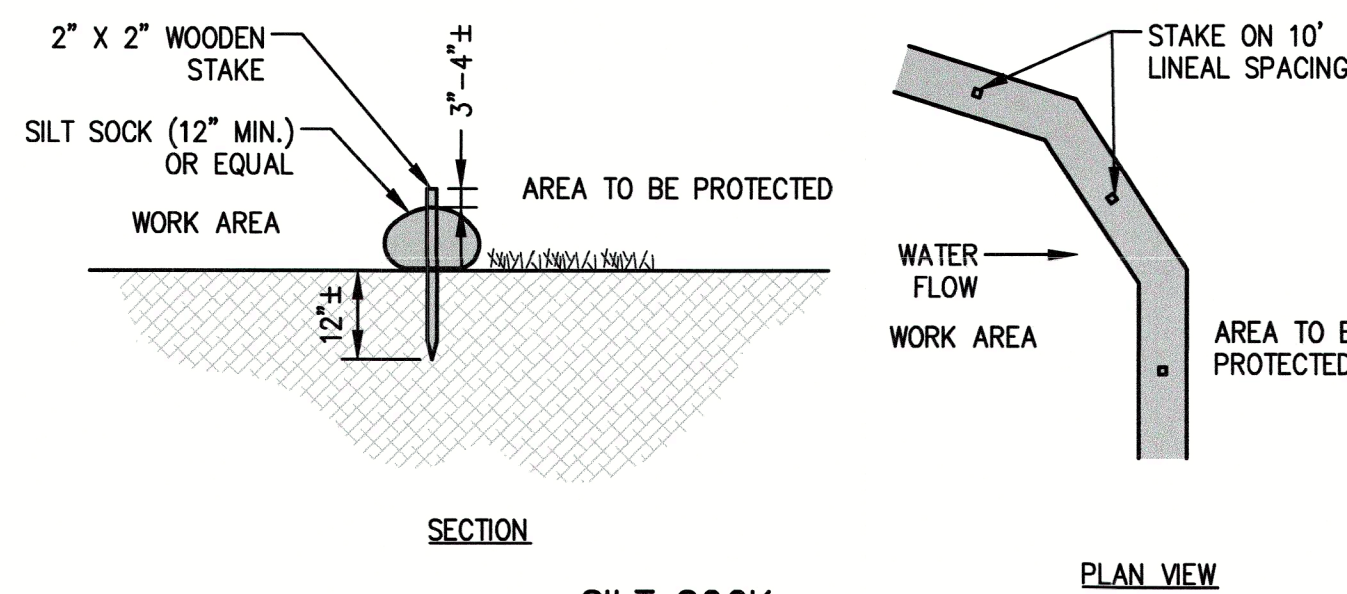
TEMPORARY SOIL STOCKPILE
(NOT TO SCALE)

NOTES:

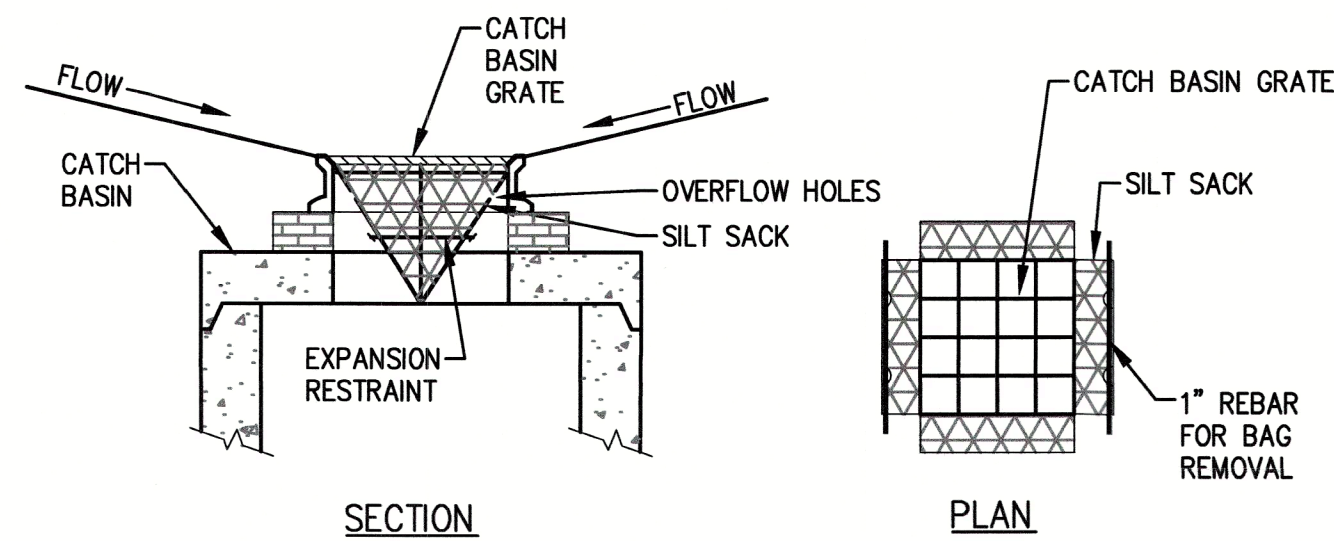
1. THIS TREE BUMPER DETAIL SHALL BE USED WHEN WORKING WITHIN 10' OF AN EXISTING TREE TO BE PROTECTED.
2. ALL TREES SHALL BE SAVED UNLESS NOTED OTHERWISE ON THE PLANS OR DIRECTED BY THE ENGINEER.
3. LUMBER, WIRE, AND SANDBAGS MAY BE REUSED FOR OTHER TREES.
4. THE INTENT OF THIS DETAIL IS TO PROTECT EXISTING TREES FROM DAMAGE DURING CONSTRUCTION ESPECIALLY FROM BACKHOE ARM SWING. AN ALTERNATE APPROACH MAY BE USED IF APPROVED IN WRITING BY THE ENGINEER AFTER CONSULTATION WITH THE TOWN ARBORIST OR HIS DULY AUTHORIZED REPRESENTATIVE.



TREE PROTECTION DETAIL
(NOT TO SCALE)



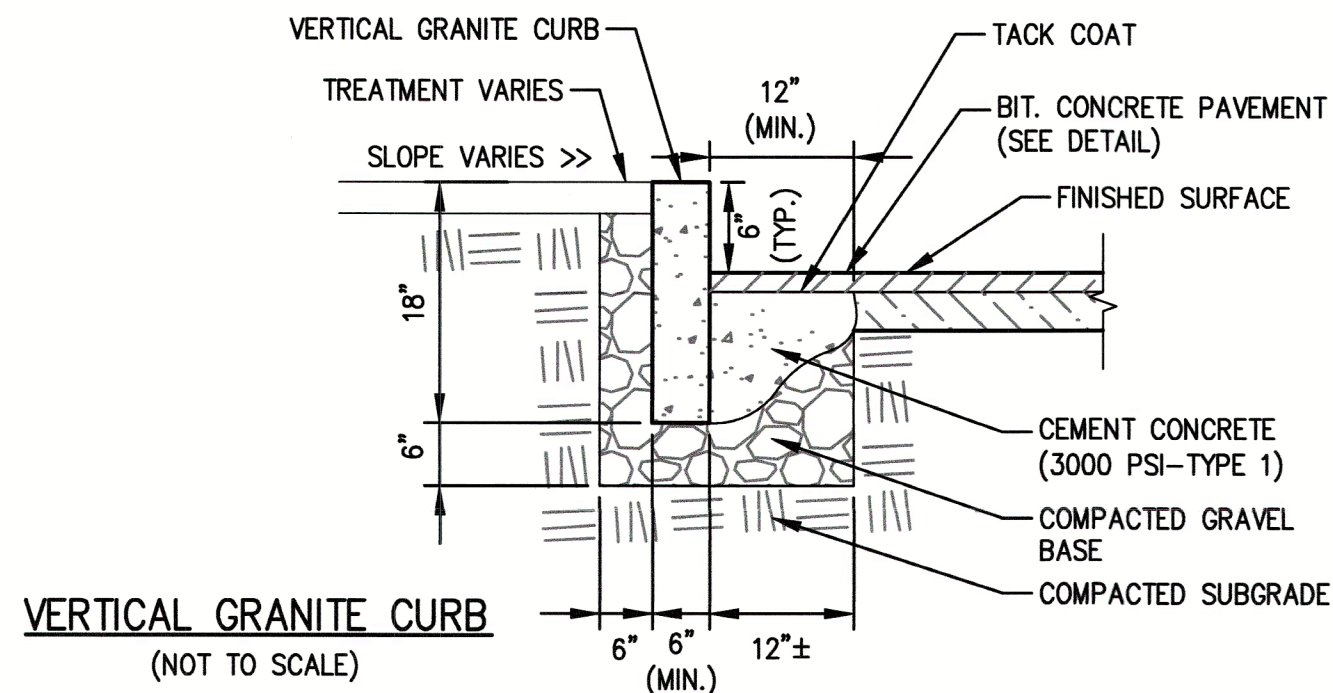
SILT SOCK
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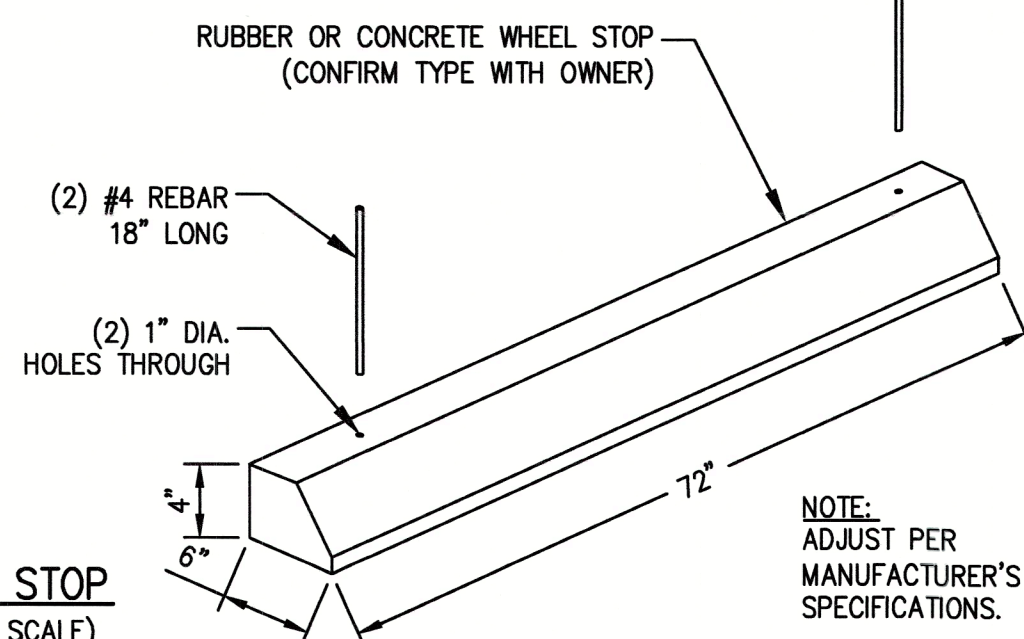
NOTES:

1. INSTALL SILT SACKS IN ALL EXISTING CATCH BASINS WITHIN 100' OF THE LIMIT OF WORK. INSTALL SILT SACKS IN NEW CATCH BASINS AFTER INSTALLATION.
2. GRATES TO BE PLACED OVER SILT SACKS.
3. SEE SHEET 3 FOR FURTHER MAINTENANCE INFORMATION.

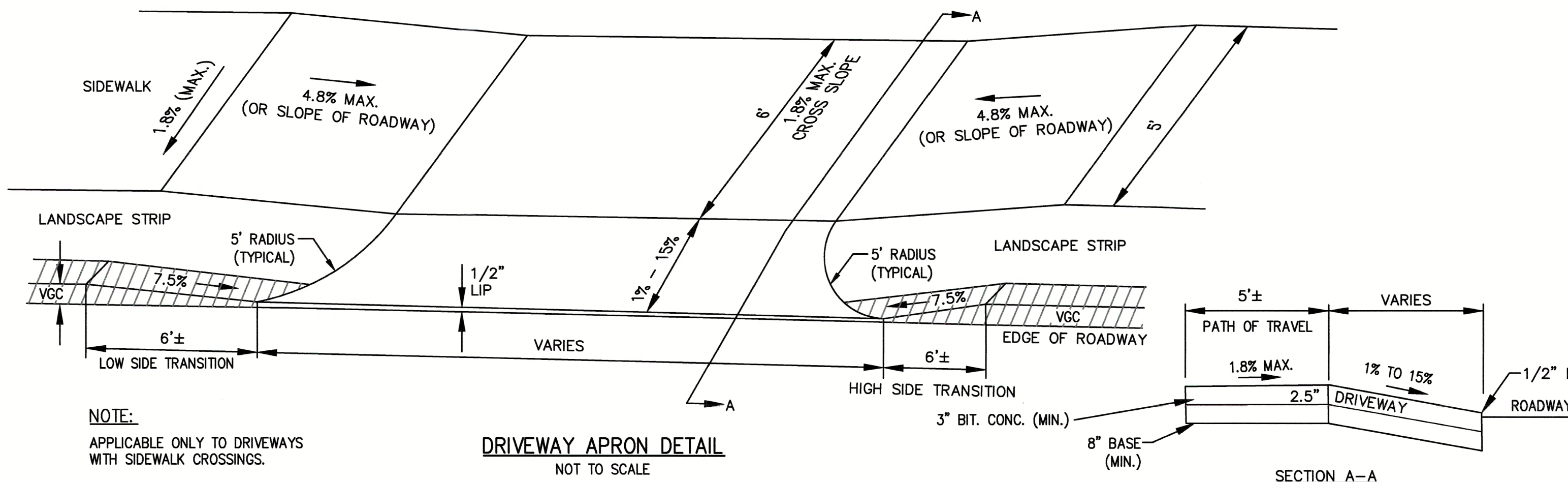
SILT SACK SEDIMENT TRAP
(NOT TO SCALE)



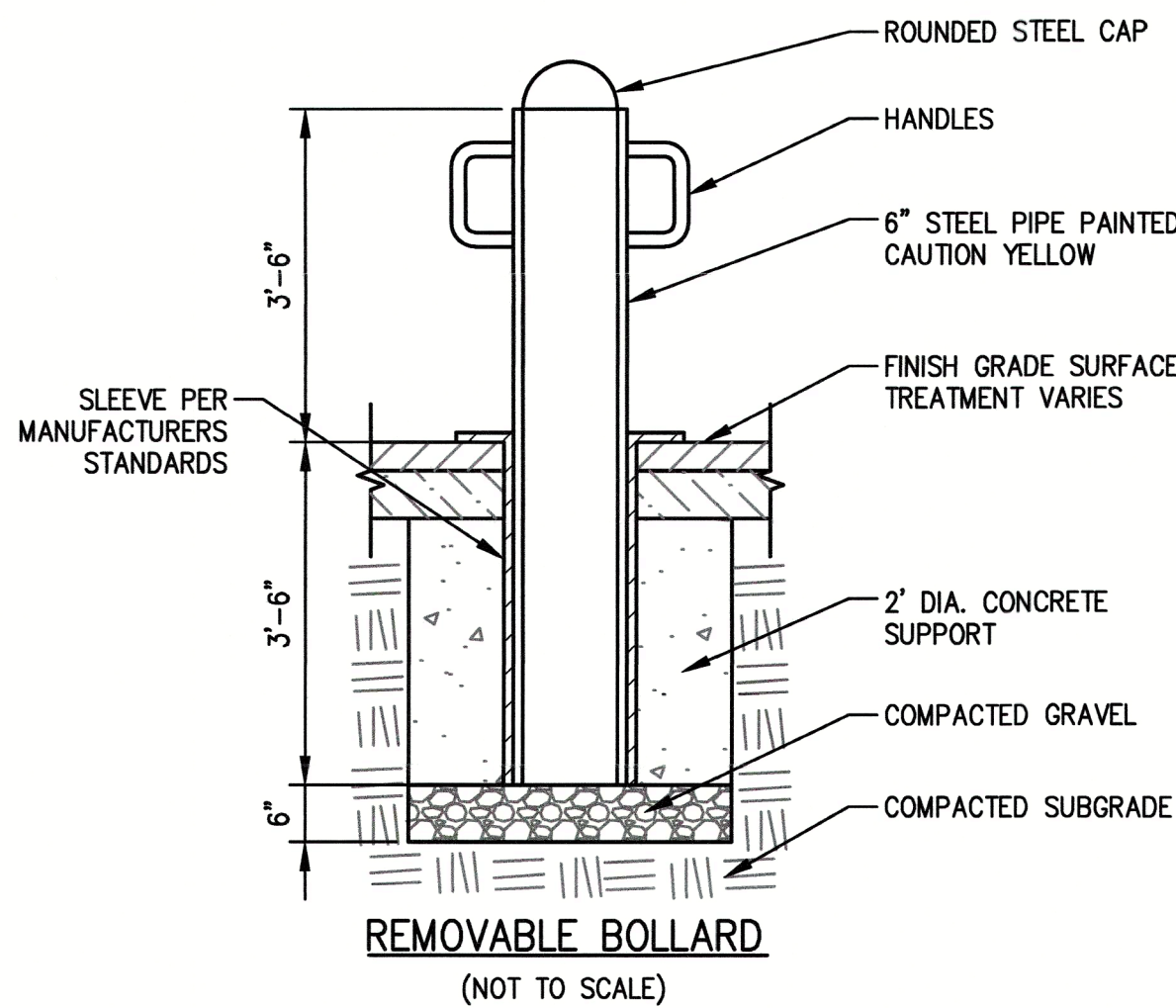
VERTICAL GRANITE CURB
(NOT TO SCALE)



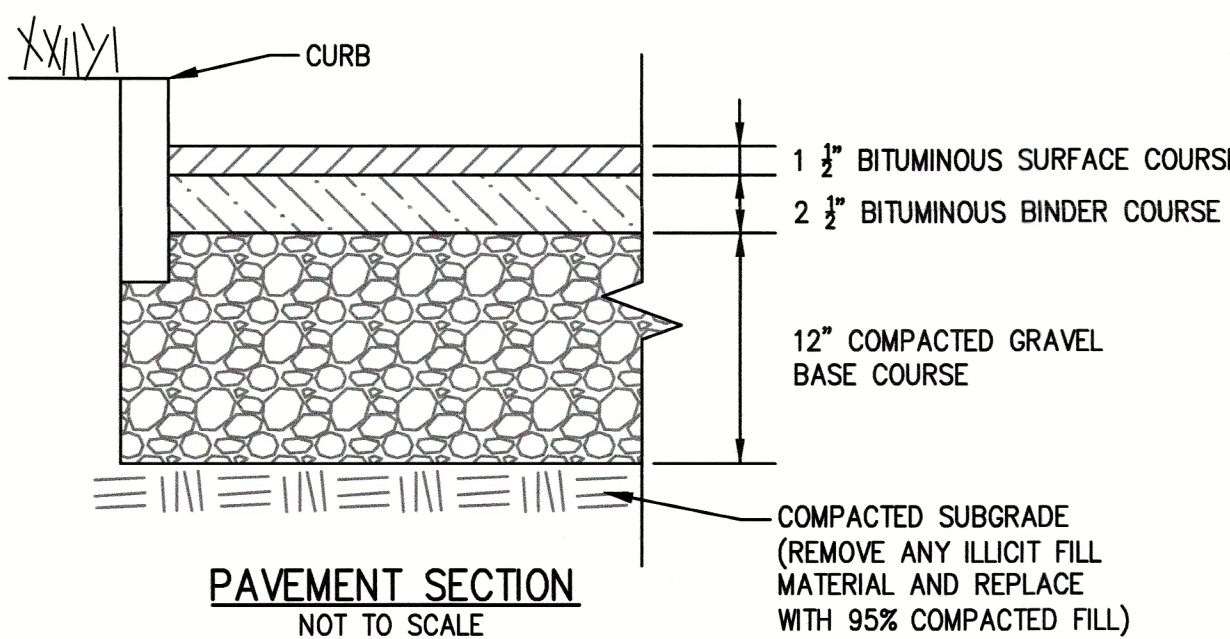
WHEEL STOP
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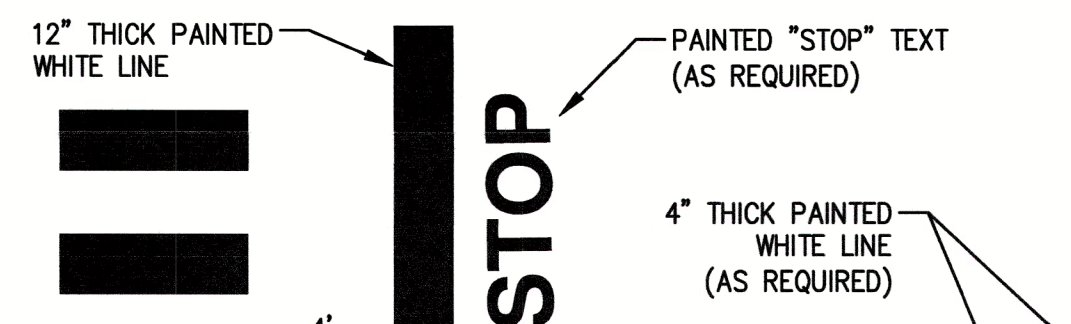
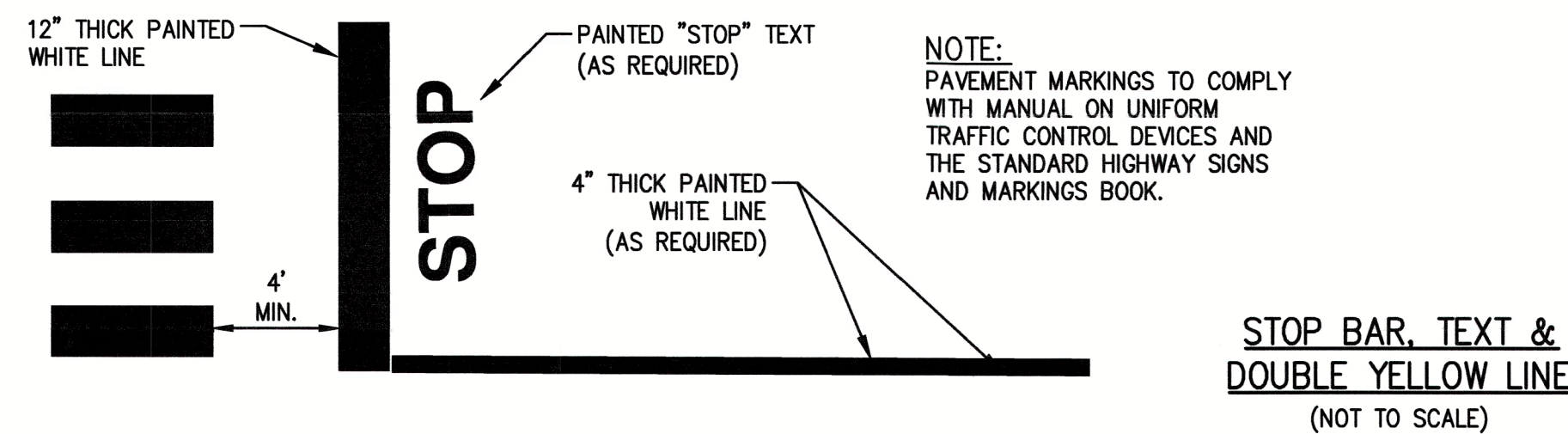
DRIVEWAY APRON DETAIL
NOT TO SCALE



REMOVABLE BOLLARD
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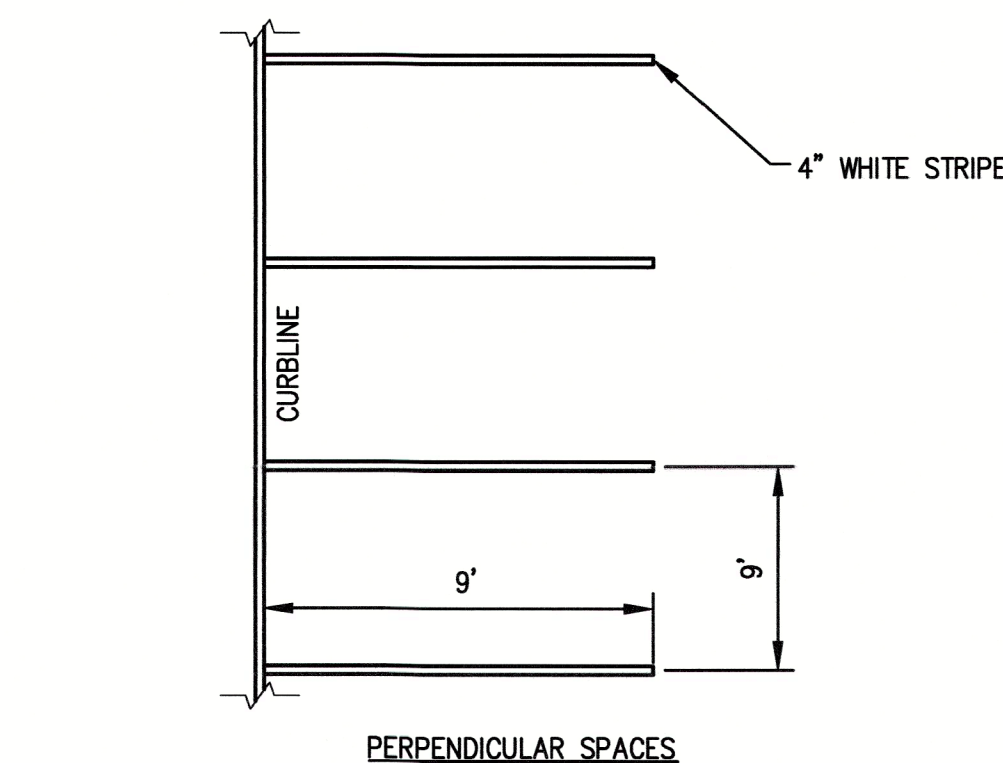


PAVEMENT SECTION
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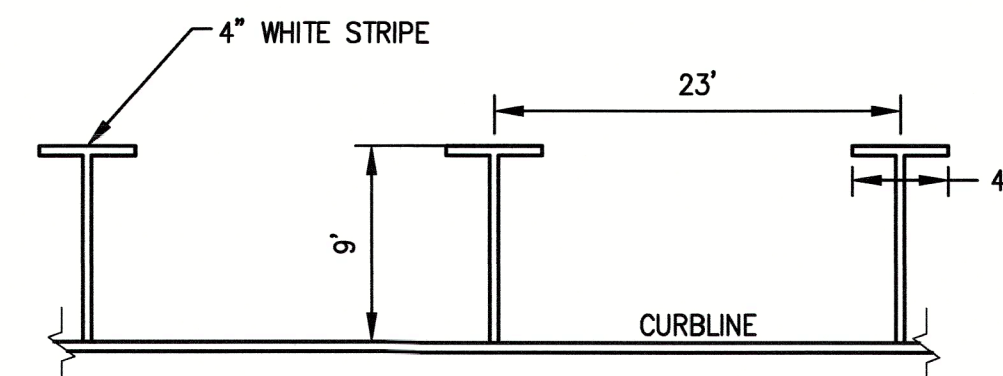


VAN ACCESSIBLE
PARKING SPACE
(NOT TO SCALE)

- NOTE:
1. PAVEMENT MAX SLOPE 2% IN ALL DIRECTIONS.



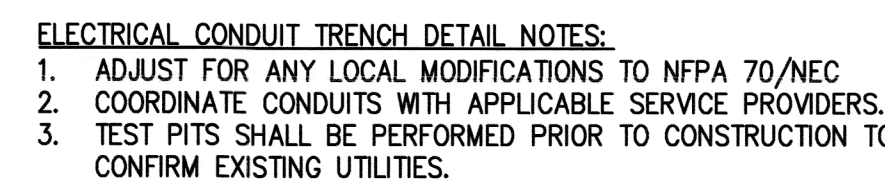
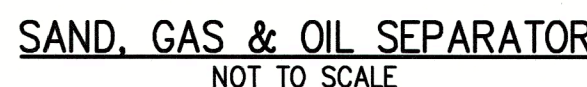
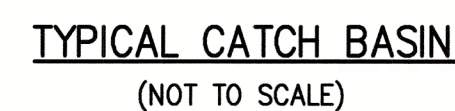
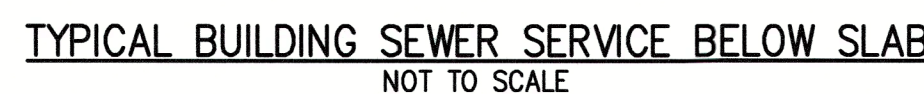
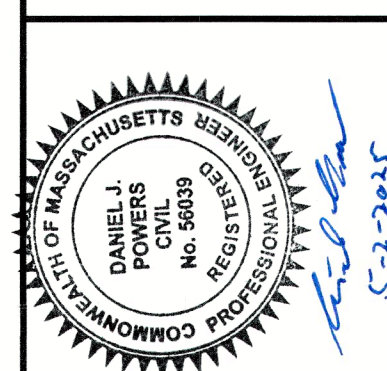
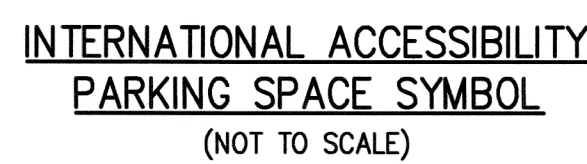
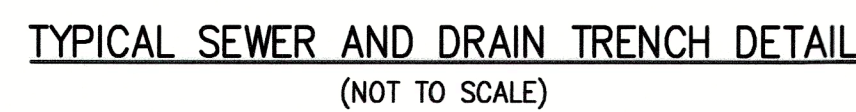
PERPENDICULAR SPACES



PARALLEL SPACES

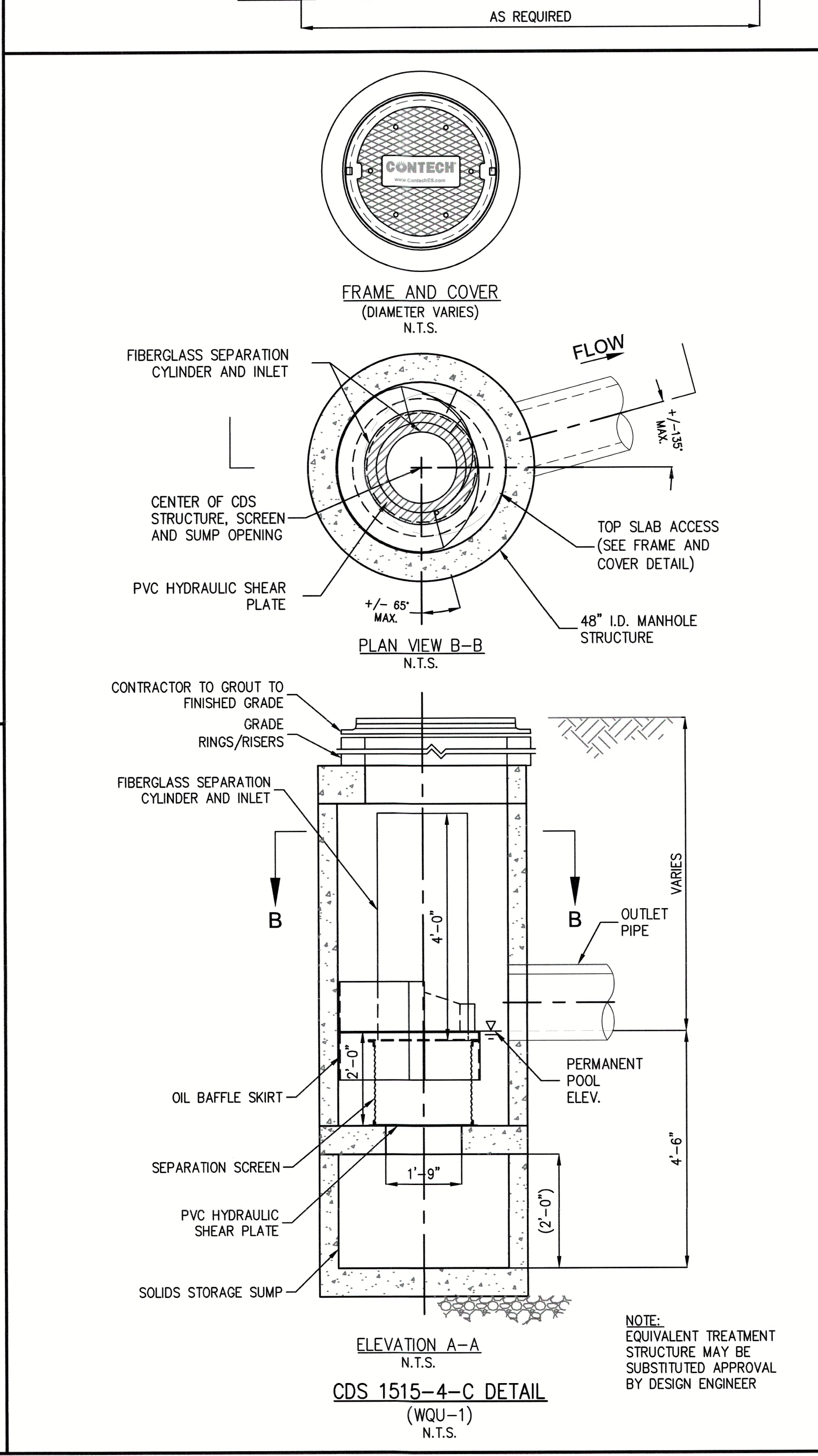
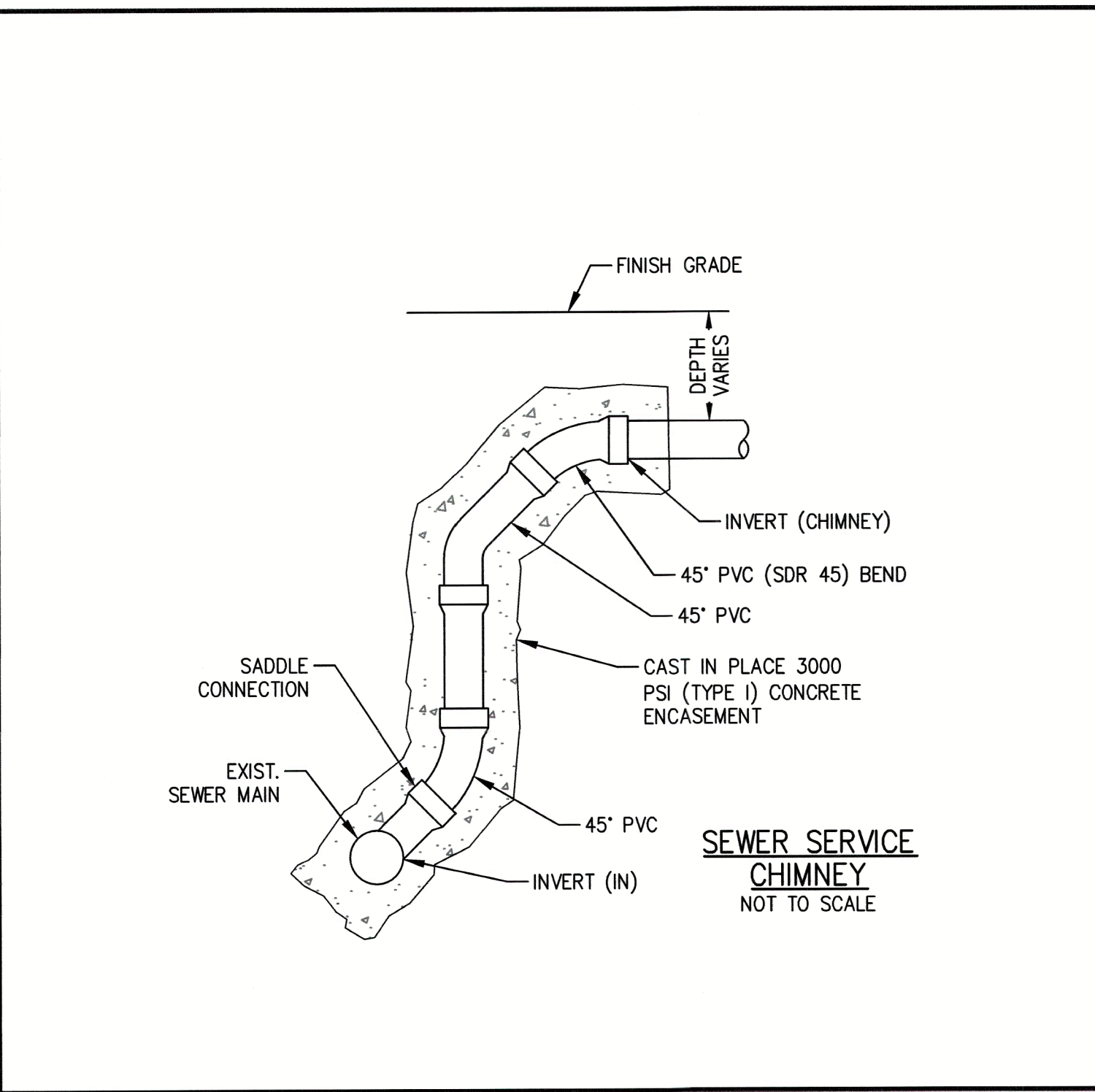
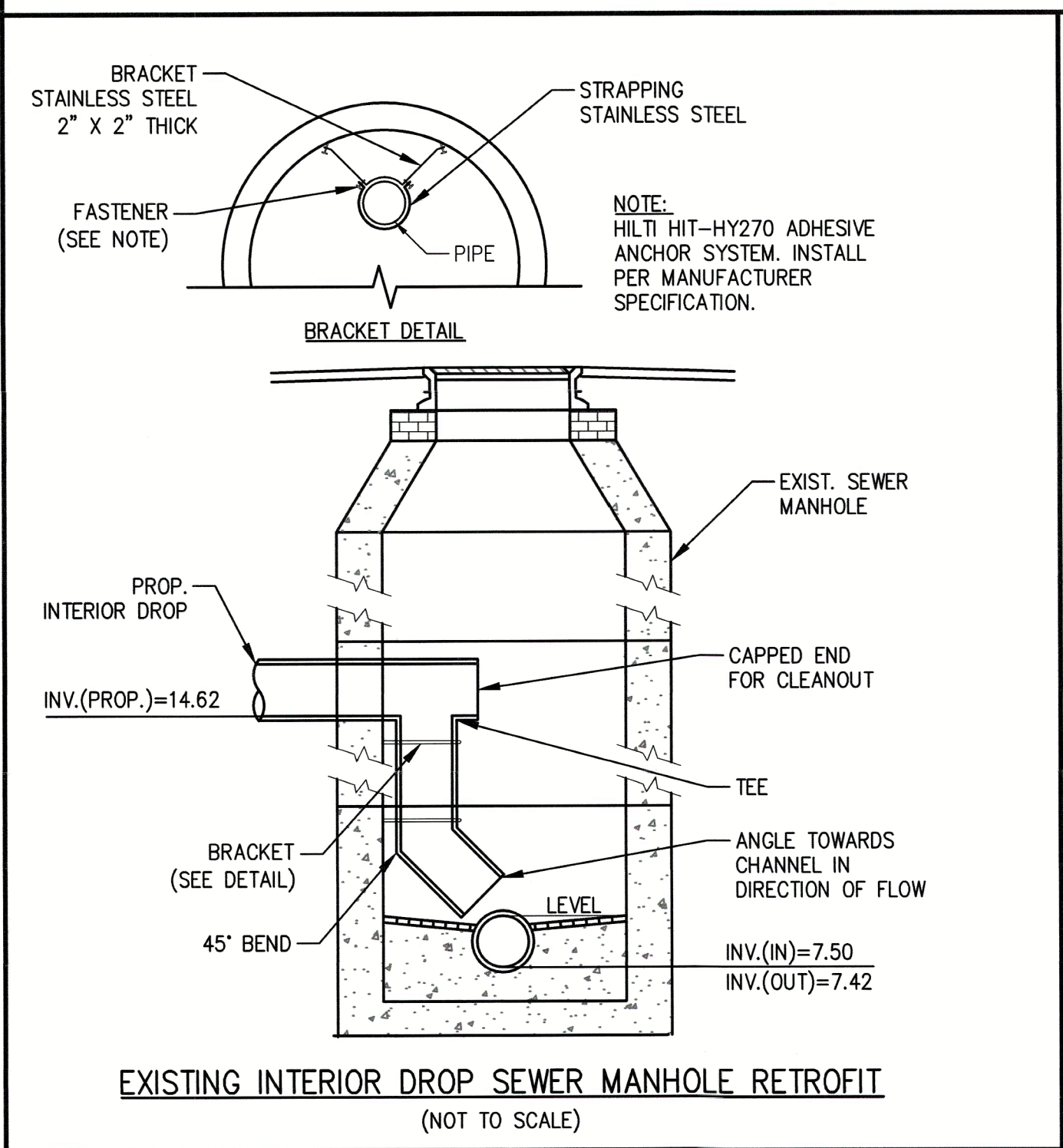
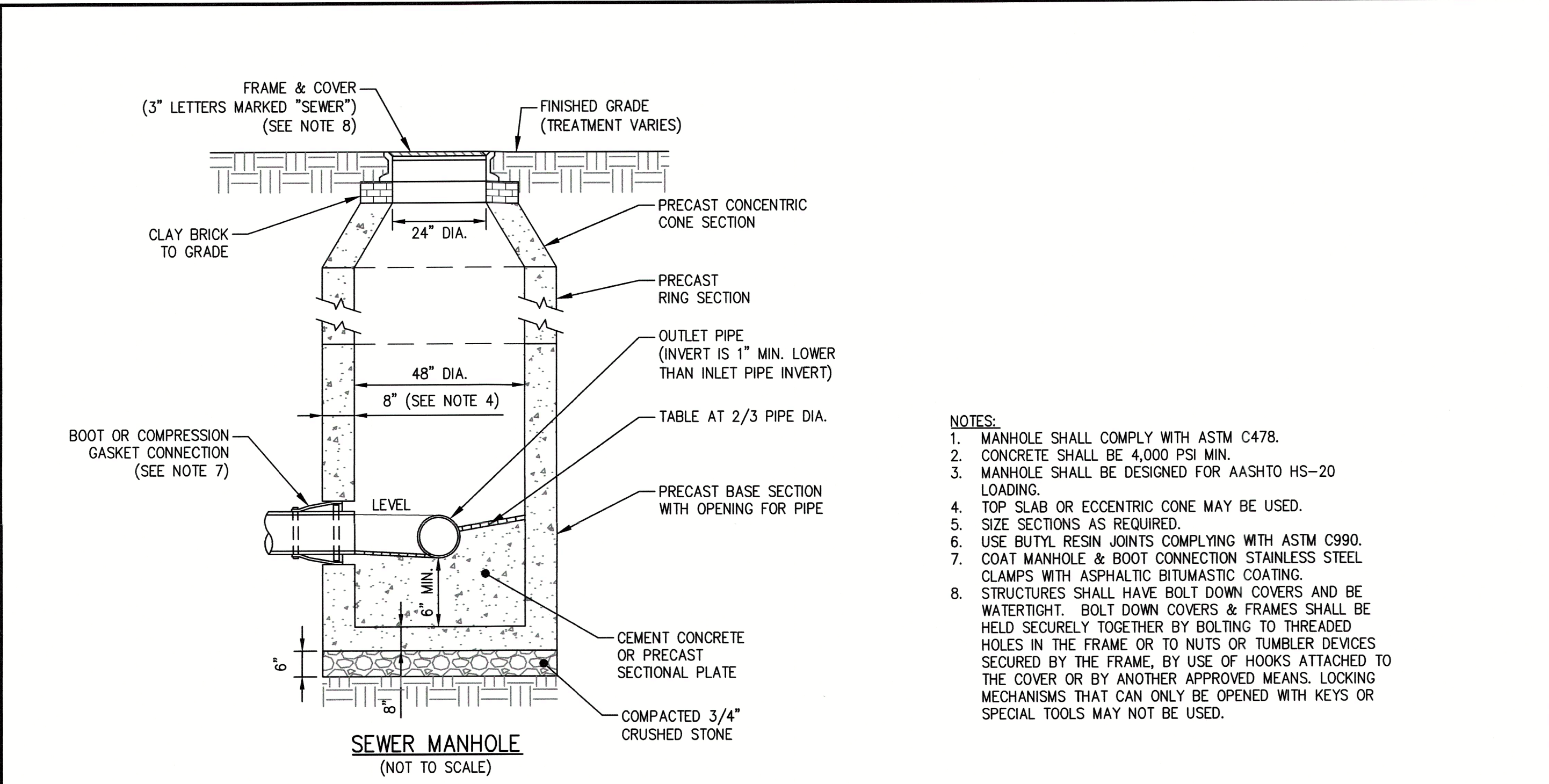
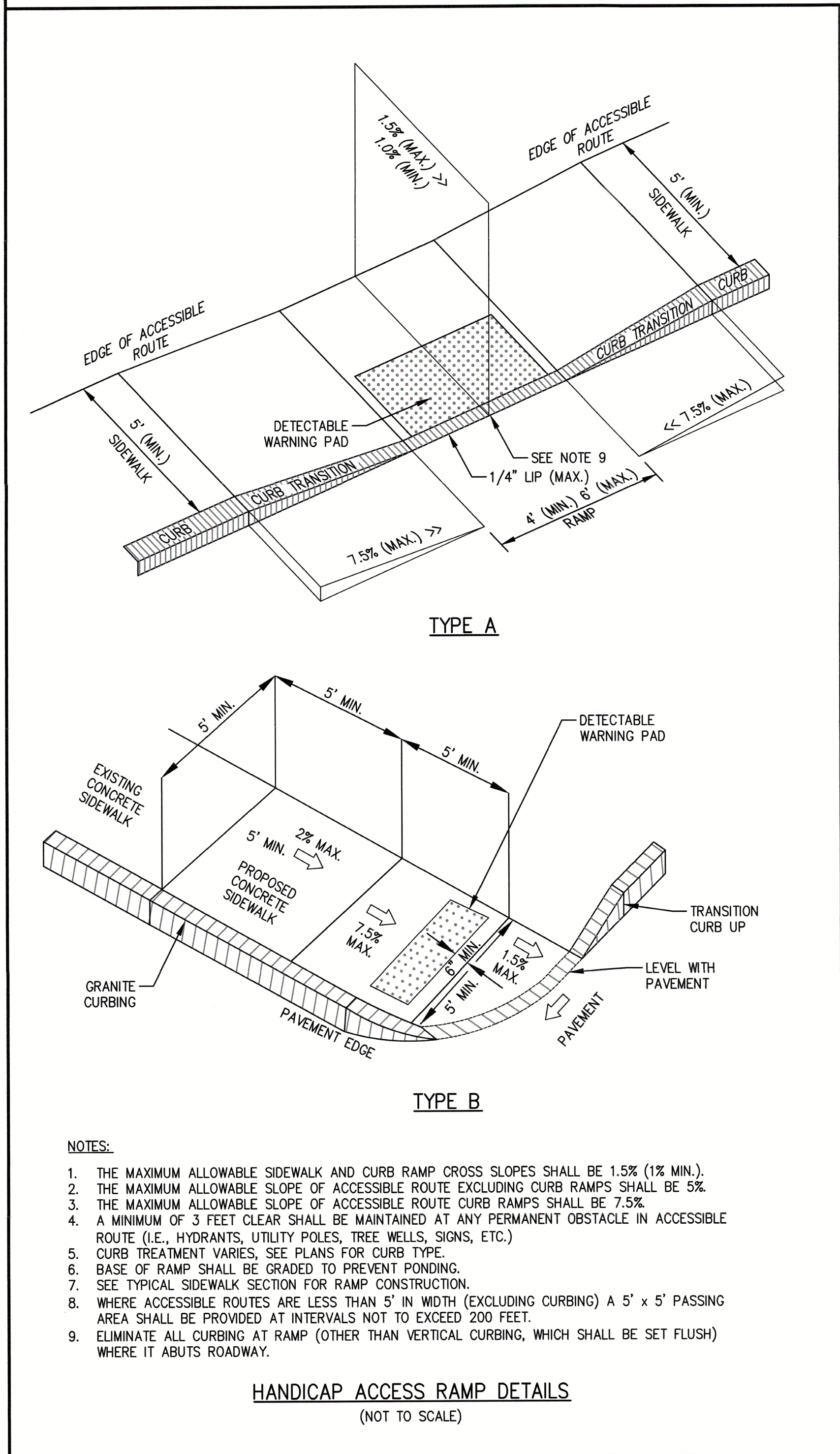
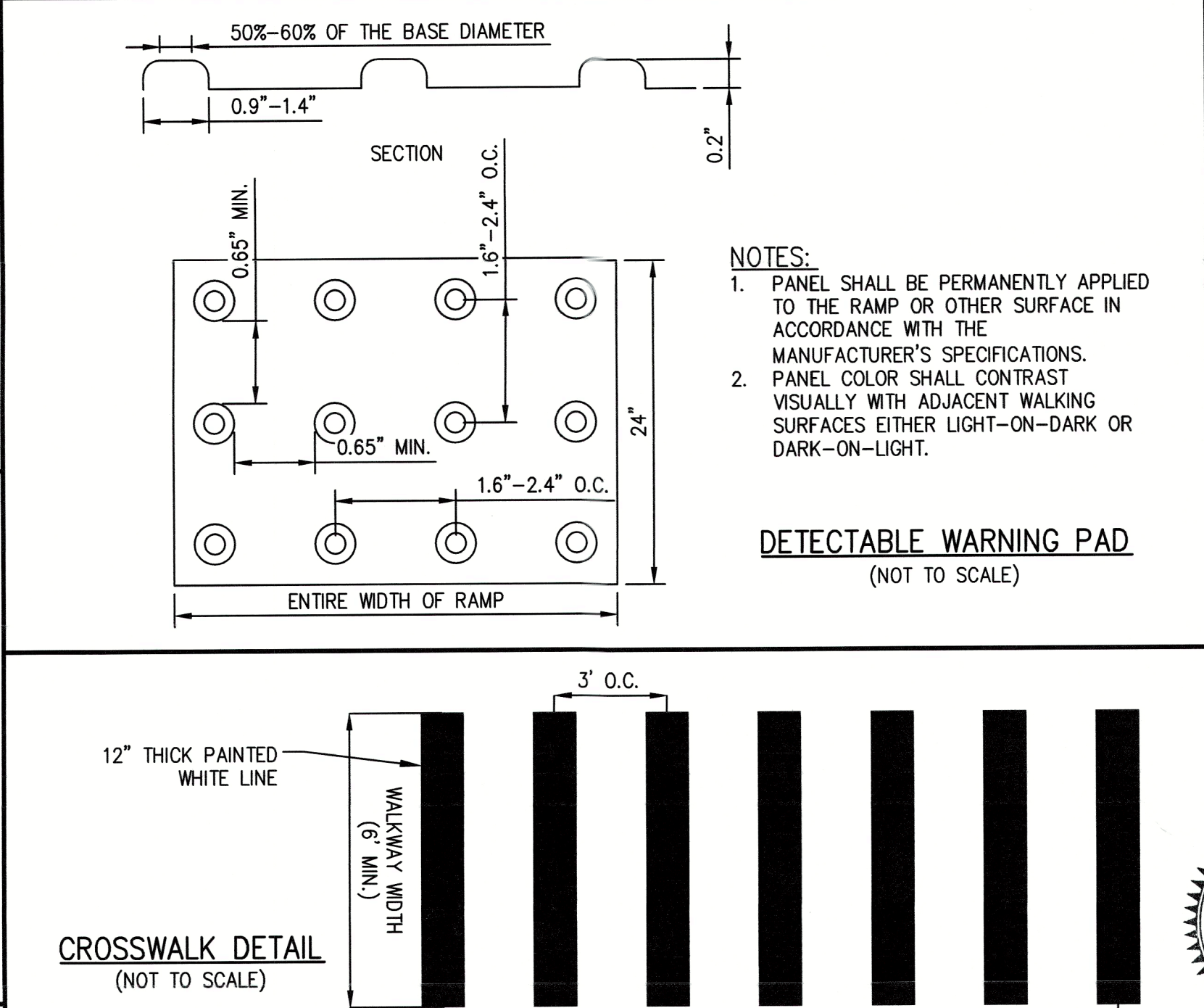
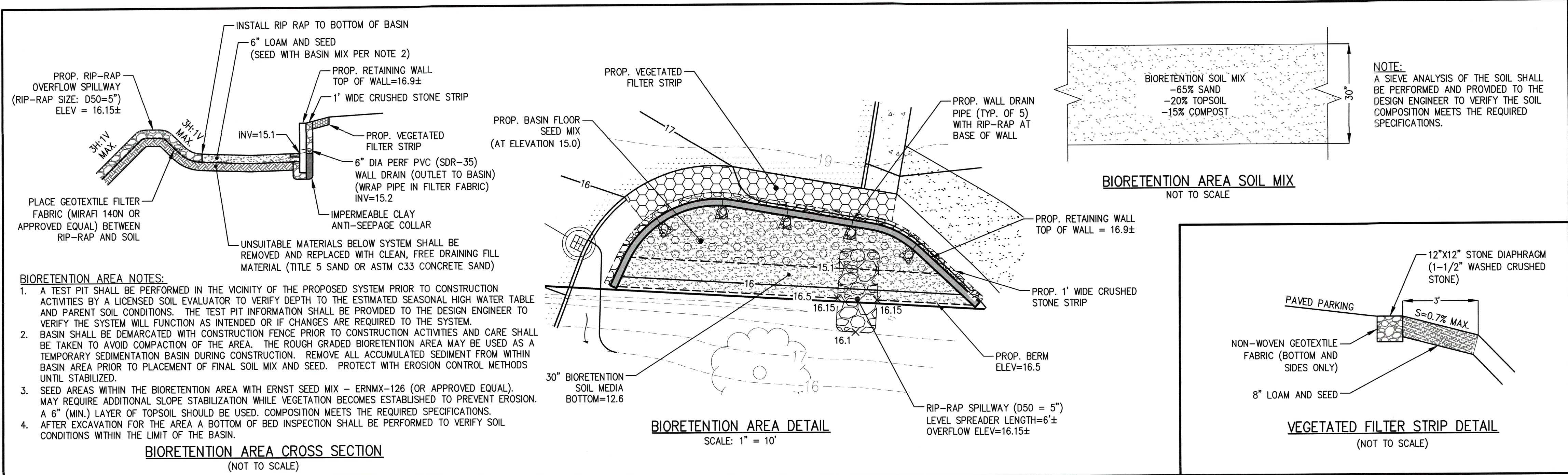
PARKING SPACE STRIPING
(NOT TO SCALE)

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE PER PEER REVIEW COMMENTS	5-2-2025



MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

CONSTRUCTION
DETAILS II



The Morin-Cameron GROUP, INC.

CIVIL ENGINEERS / ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS / PLANNERS
146 RUM STREET, DARTMOUTH, MASSACHUSETTS 01923
P: 978-777-8586, W: WWW.MORINCAMERON.COM

REVISIONS

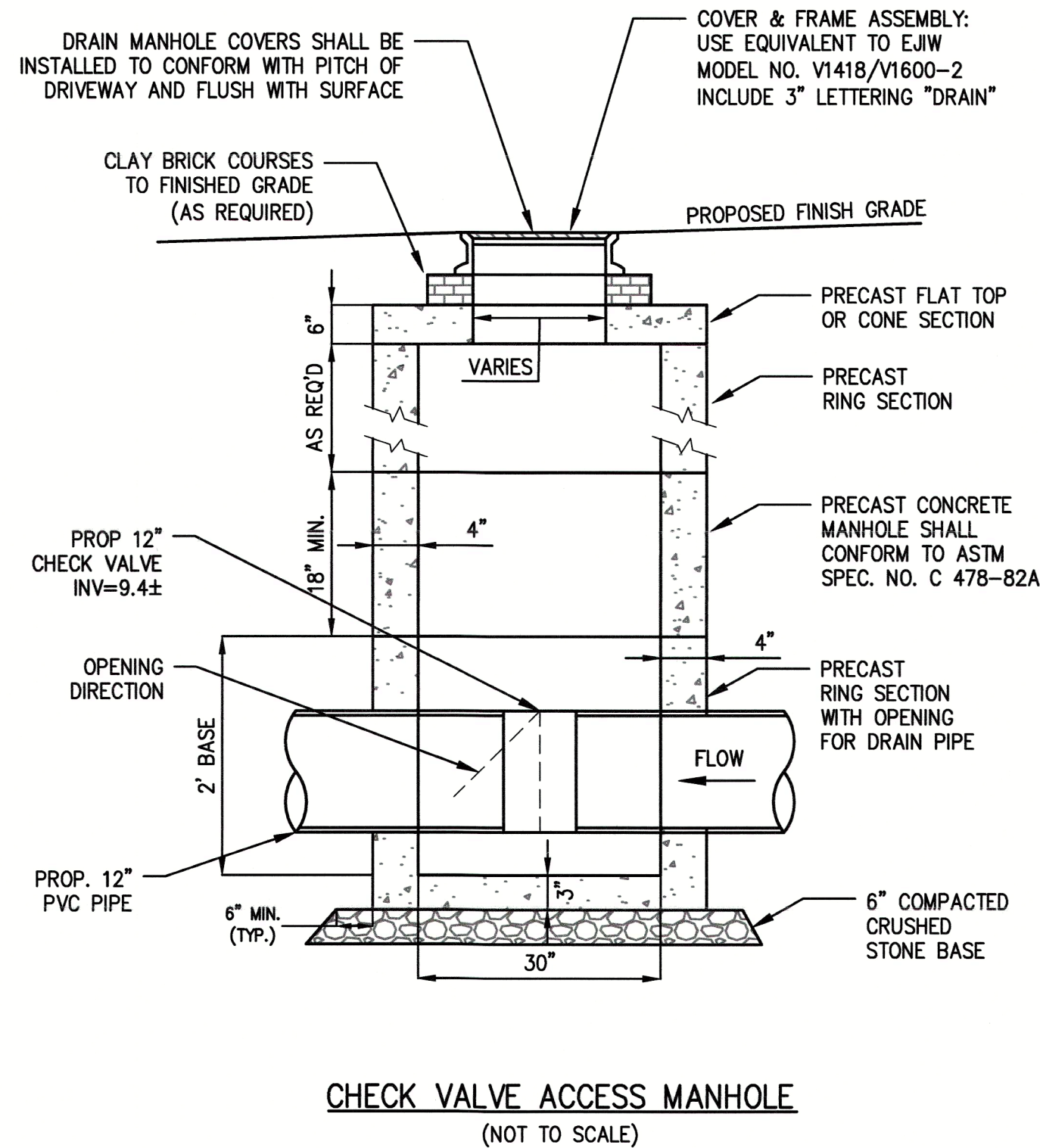
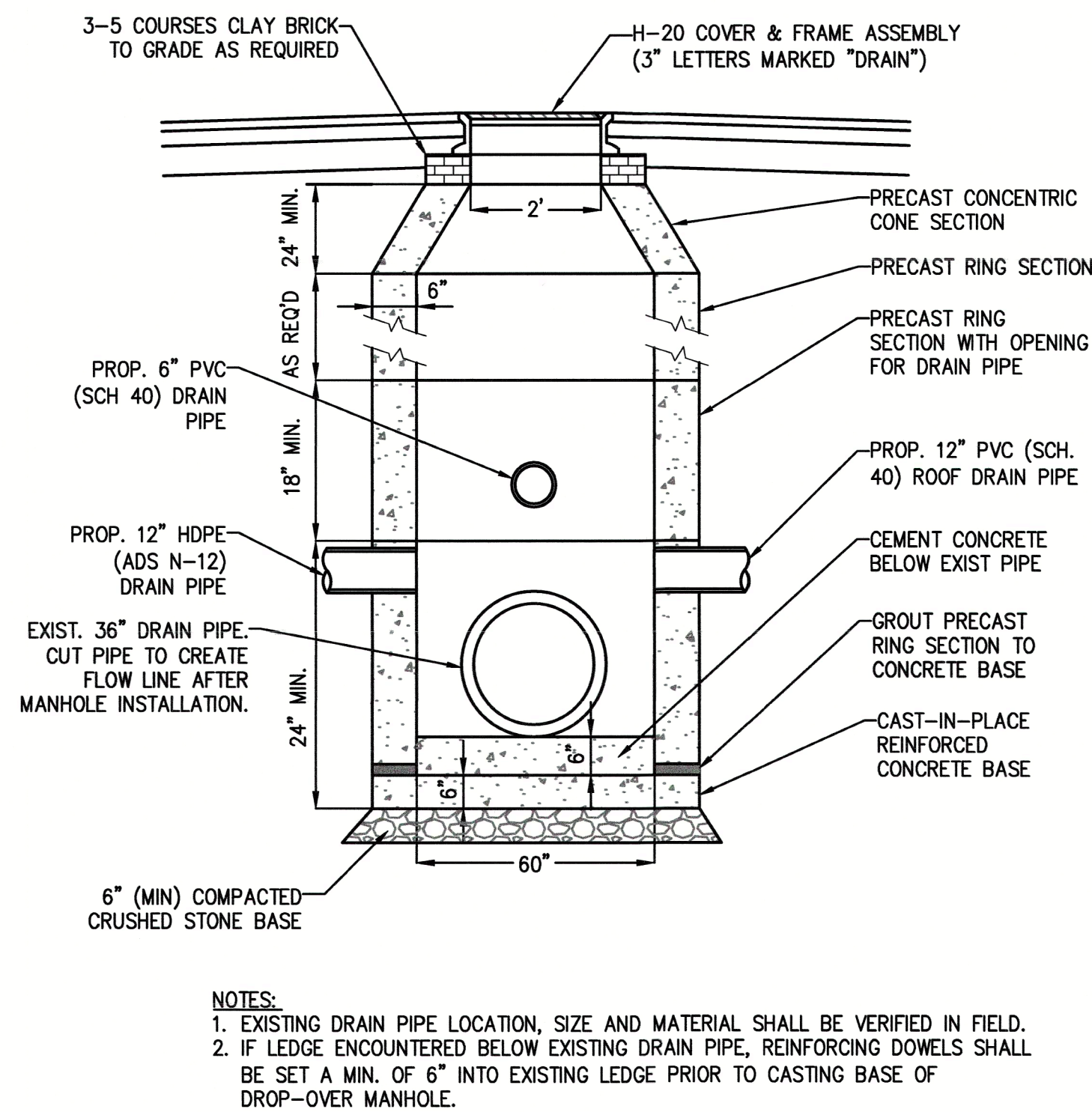
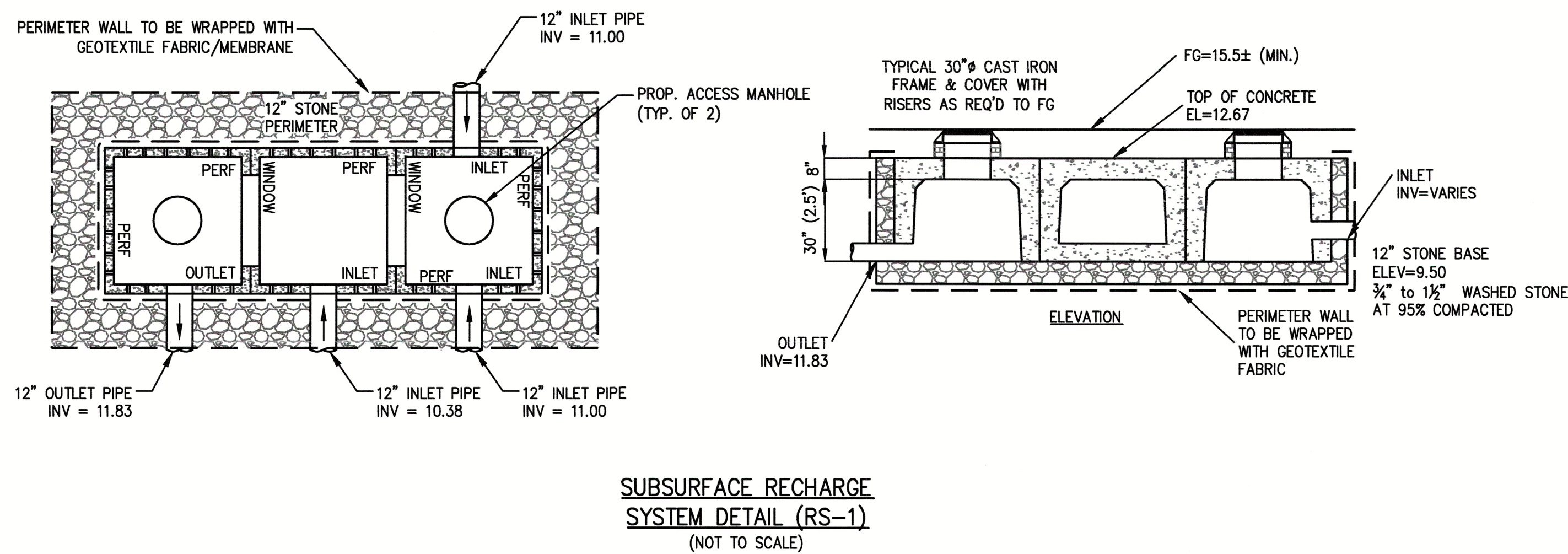
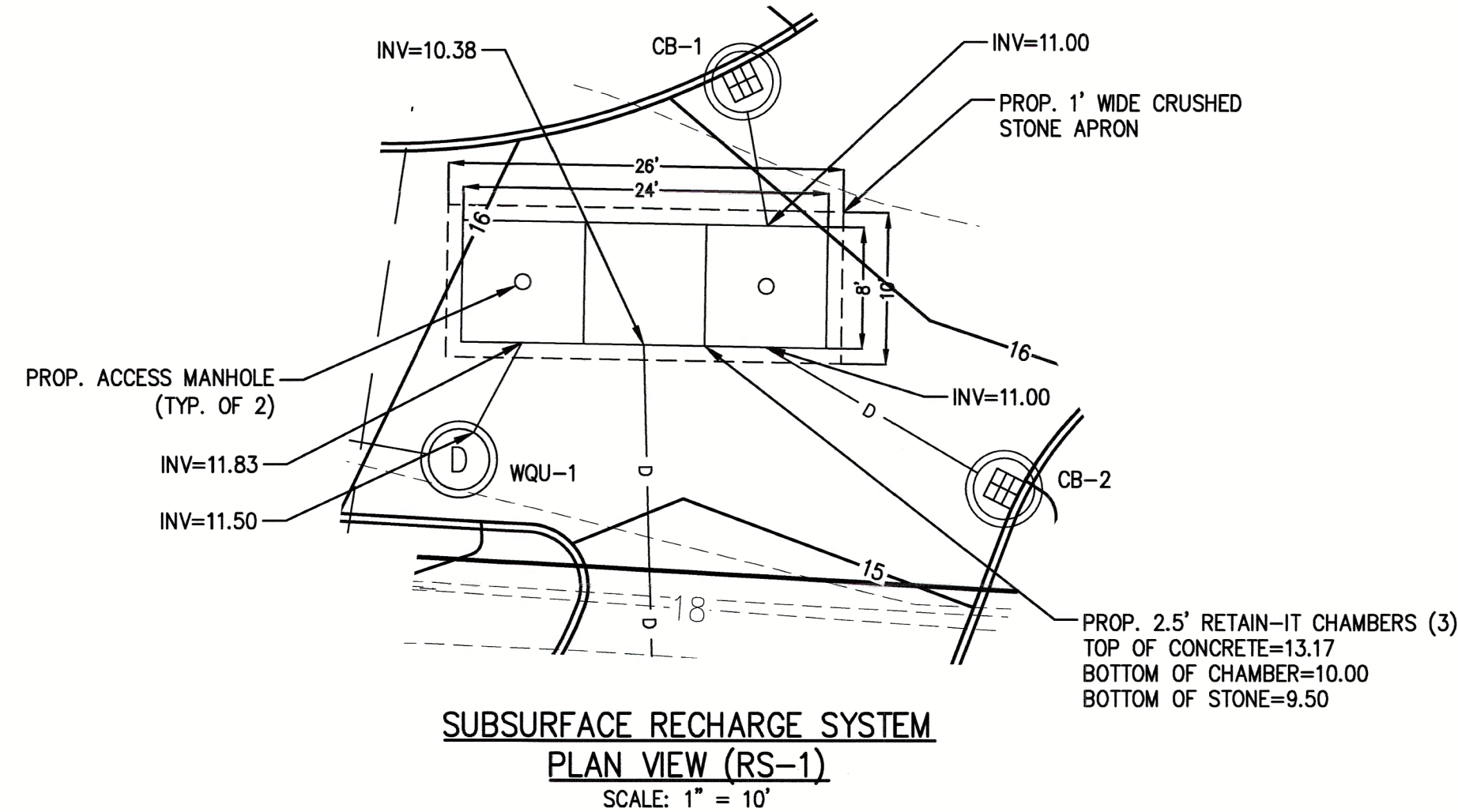
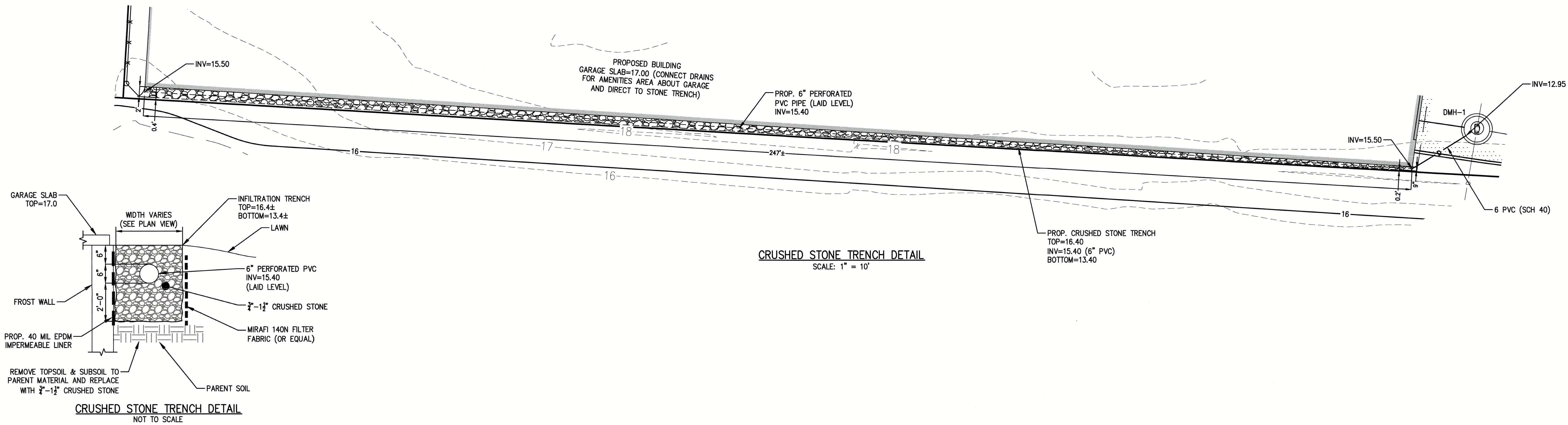
NO.	DESCRIPTION	DATE
1	REVISE PER PEER REVIEW COMMENTS	5-2-2025

MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

CONSTRUCTION DETAILS III

DRAWING NO. **C-8**

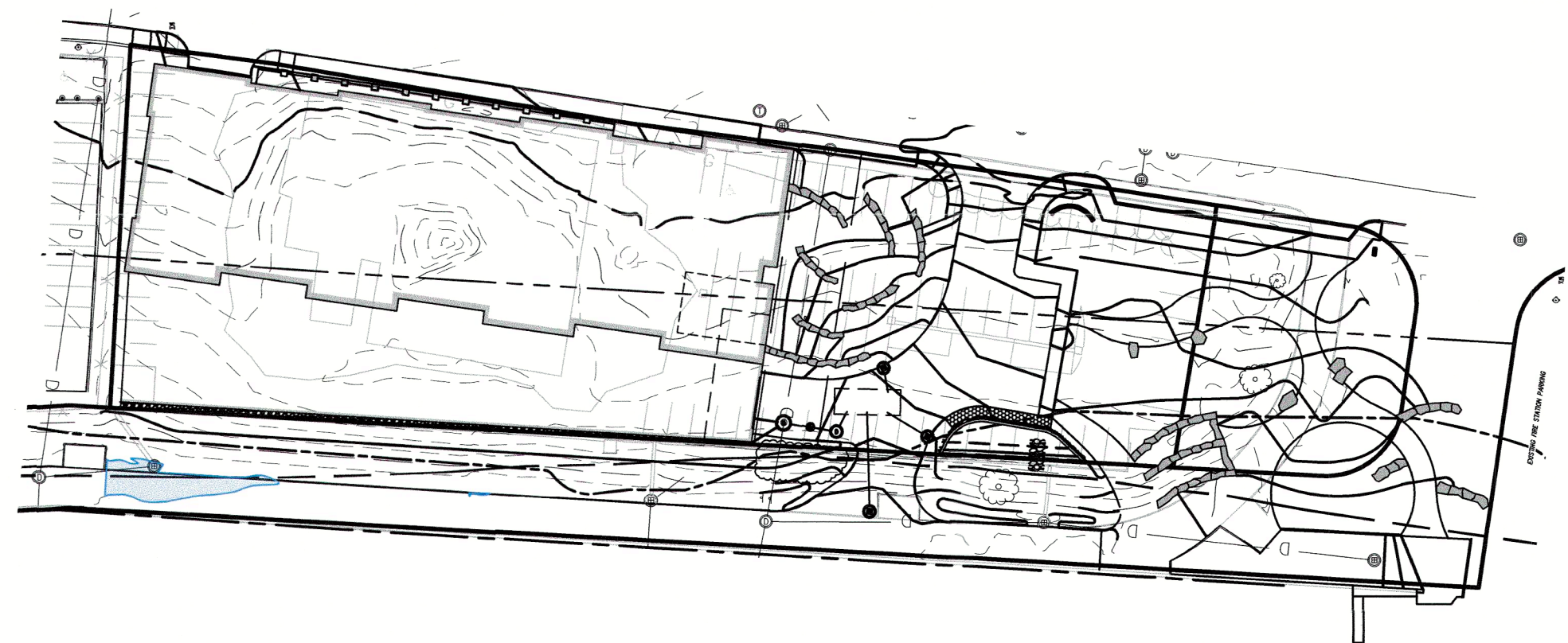
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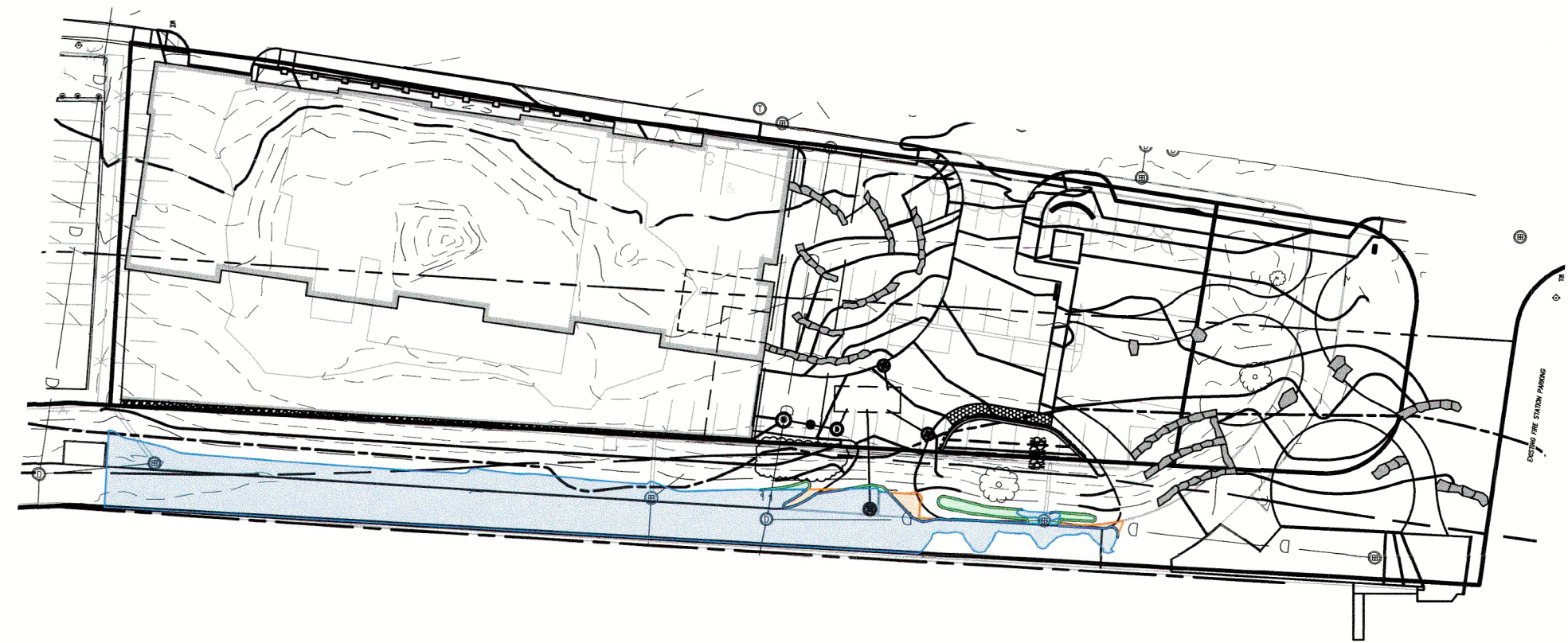
REVISIONS			
NO.	DESCRIPTION	DATE	
1	REVISE PER PEER REVIEW COMMENTS	5-2-2025	

MULTIFAMILY SITE REDEVELOPMENT PLANS
 FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
 (ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
85 WATER STREET REDEVELOPMENT, LLC
 PREPARED FOR:

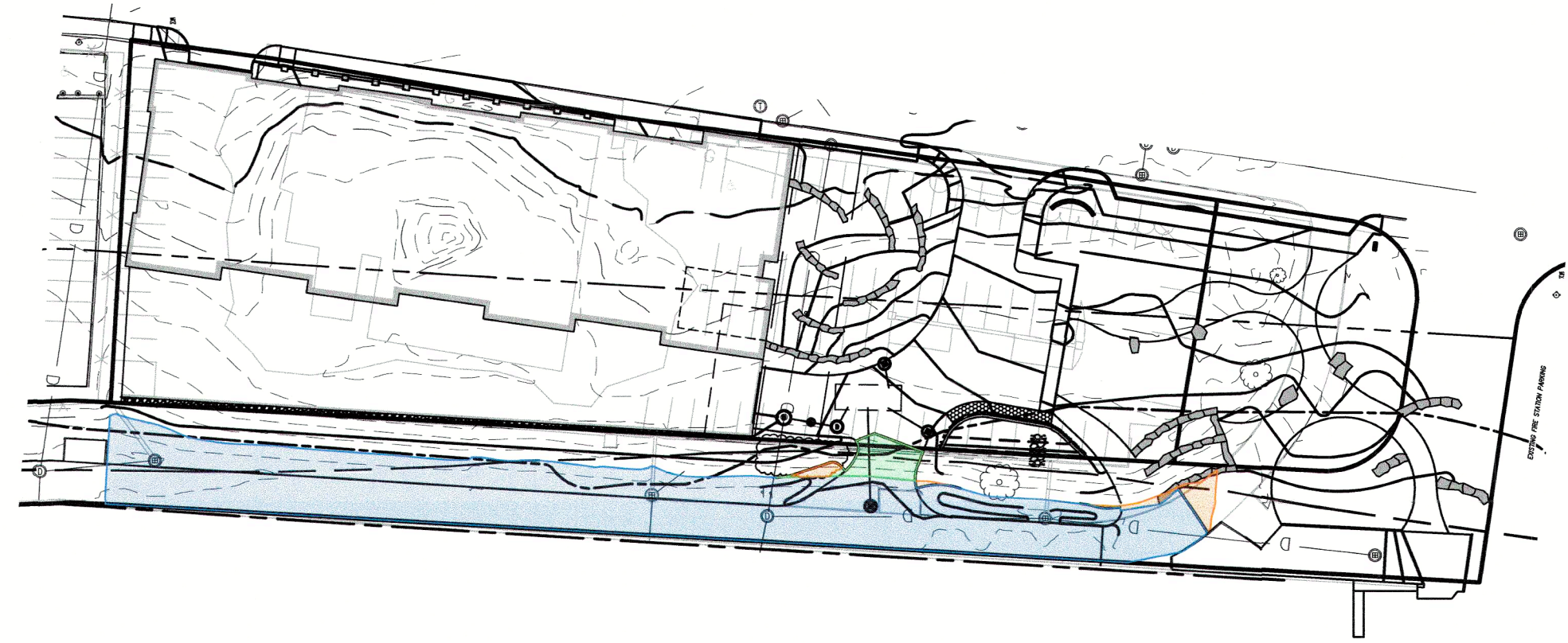
CONSTRUCTION DETAILS IV
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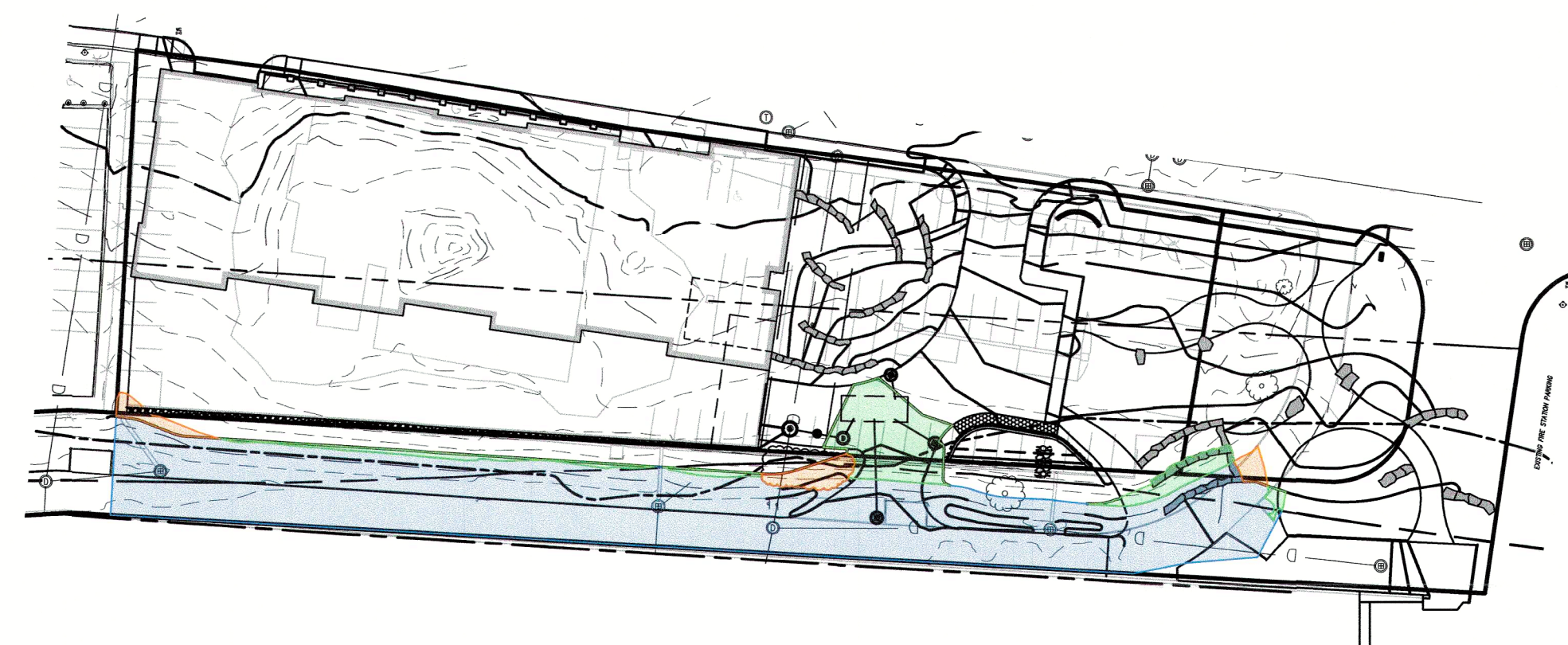
ELEVATION 13
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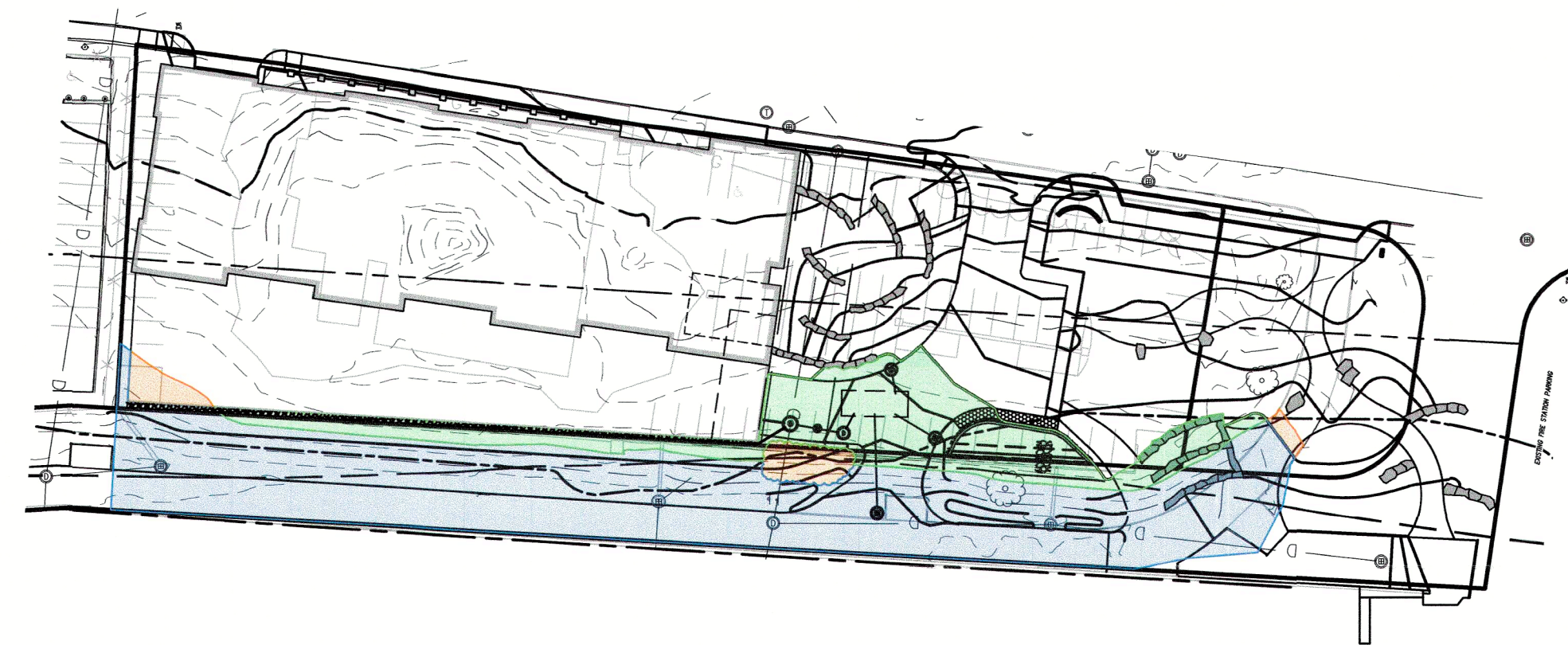
ELEVATION 14
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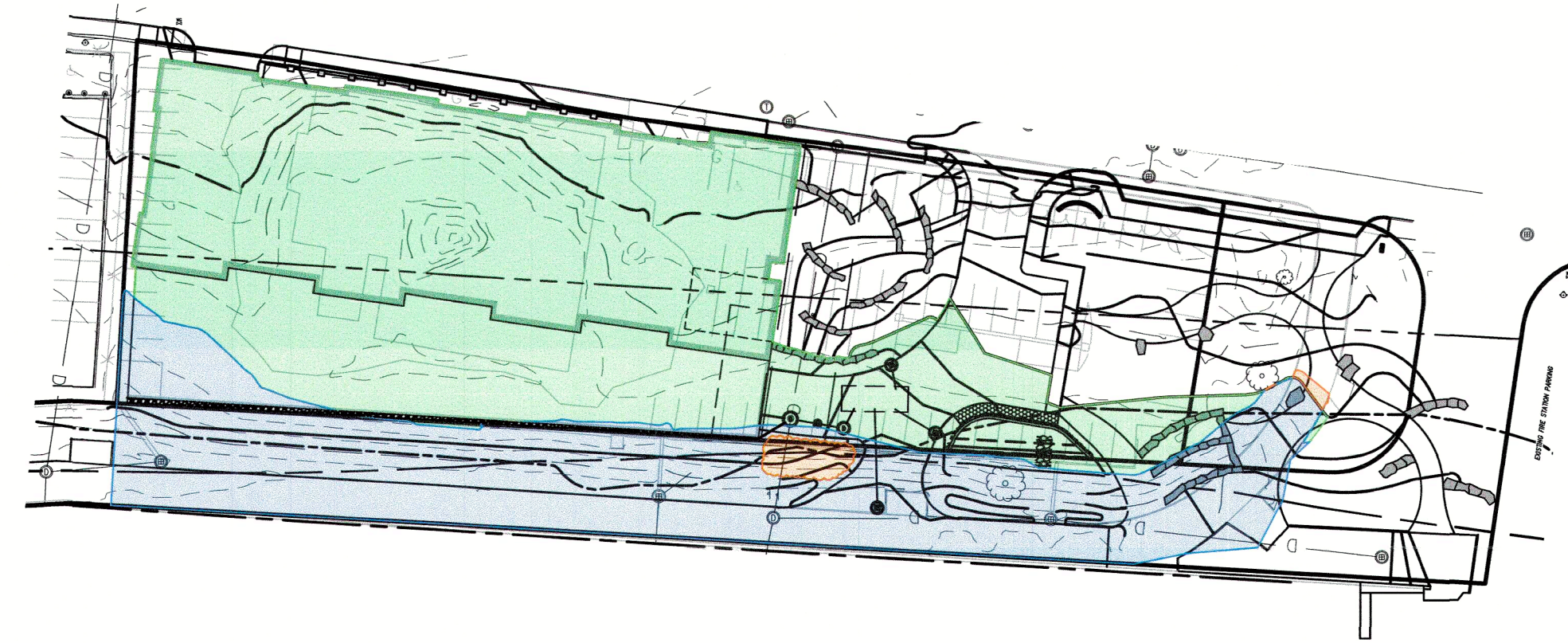
ELEVATION 15
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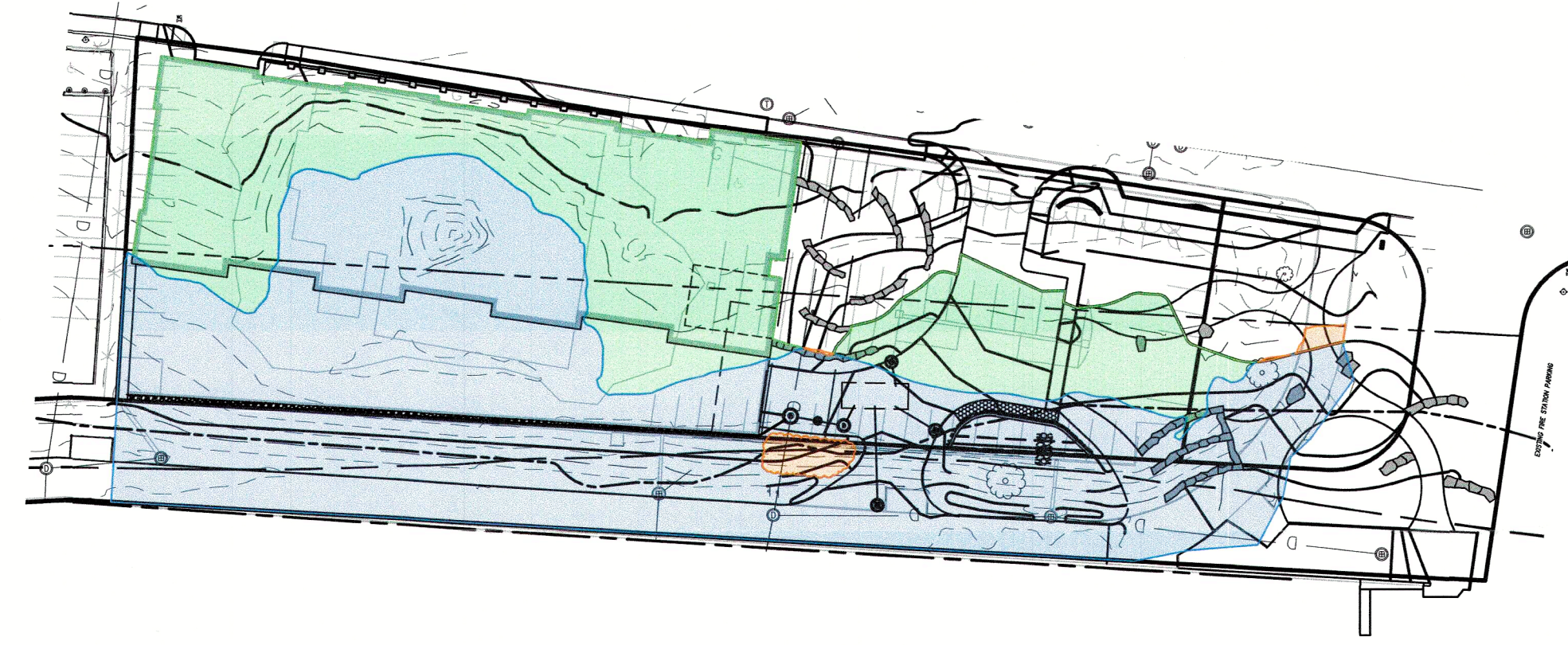
ELEVATION 16
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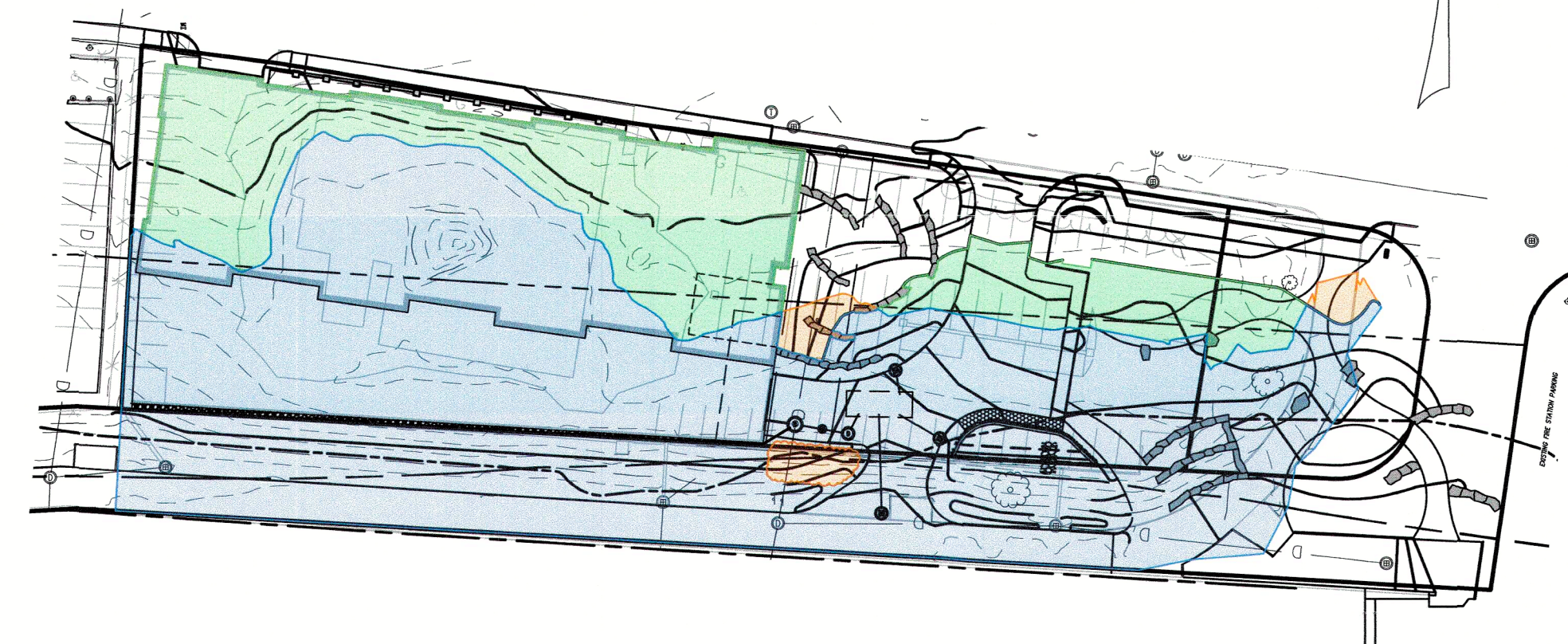
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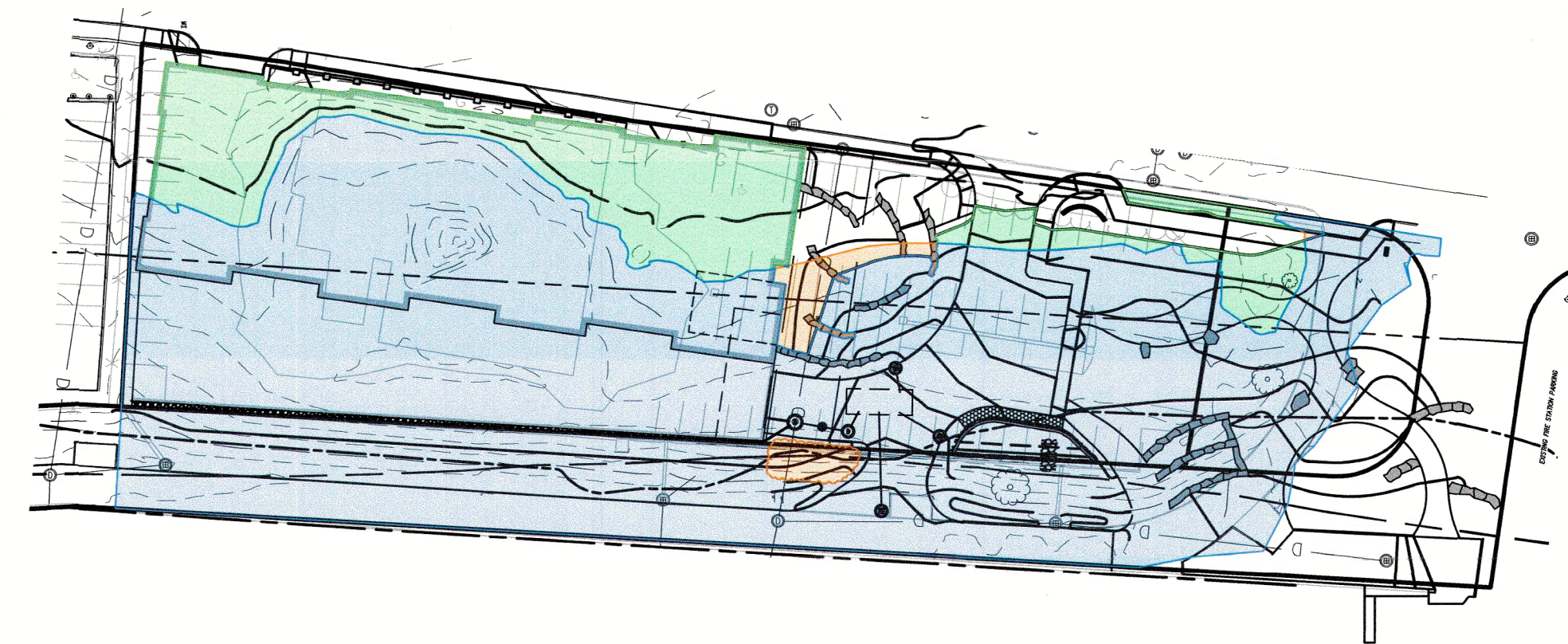
ELEVATION 18
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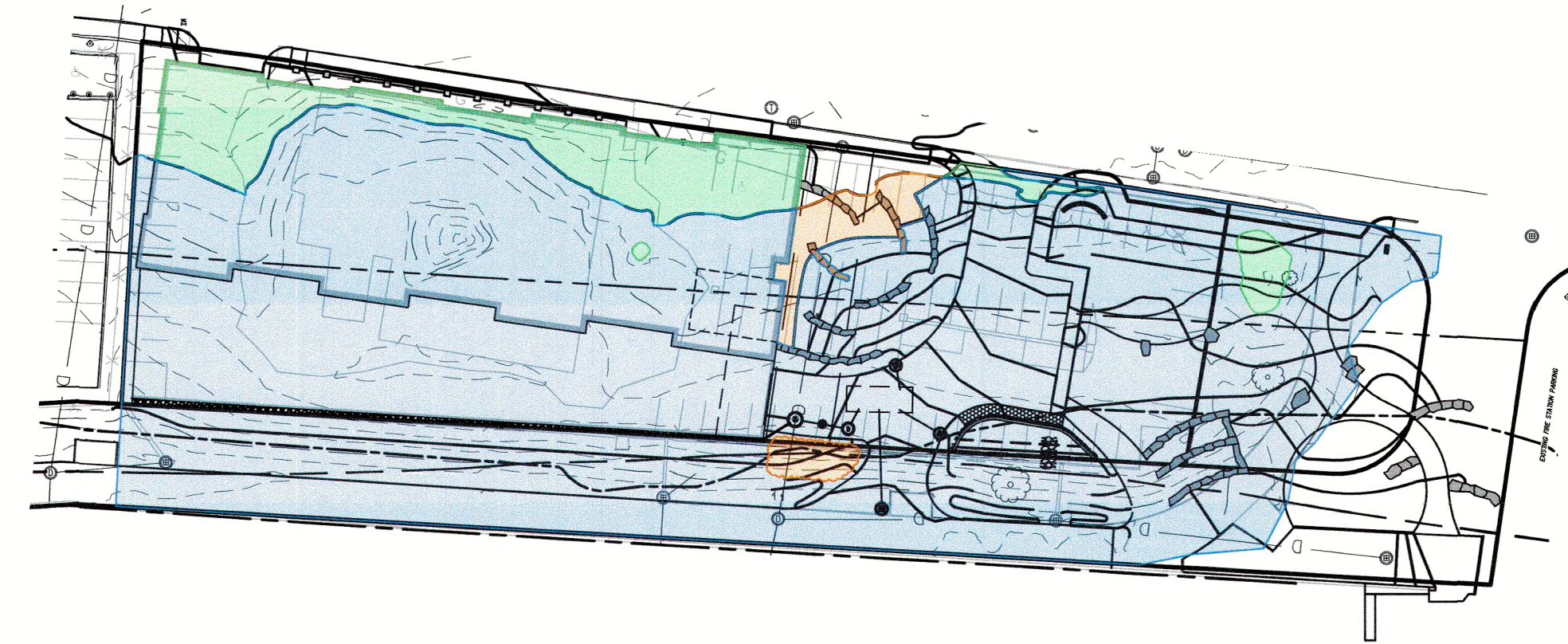
ELEVATION 19
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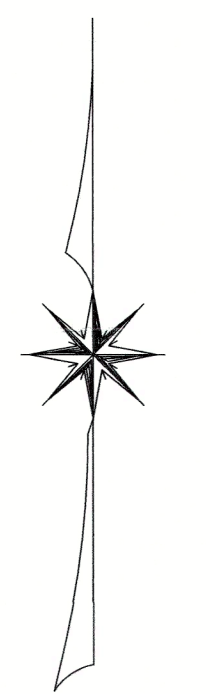
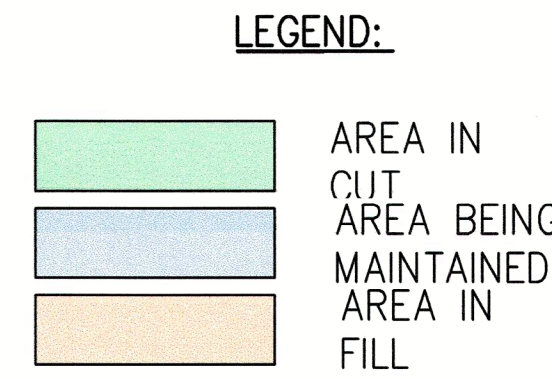
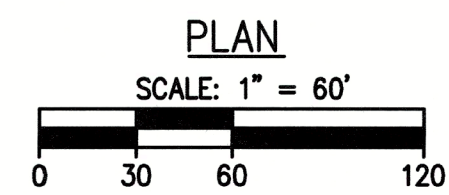
ELEVATION 20
(SCALE: 1" = 60')



ELEVATION 21
(SCALE: 1" = 60')



ELEVATION 22
(SCALE: 1" = 60')



The Morin-Cameron GROUP, INC.
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REVISIONS		SURVEY BY: OTHERS	
NO.	DESCRIPTION	DATE	
1	REVISE PER PEER REVIEW COMMENTS	5-2-2025	
		DRAFTED BY: D.J.P.	
		CHECKED BY: S.P.C.	
		APPROVED BY: D.J.P.	
		SCALE: AS NOTED	
		DATE: MARCH 7, 2025	

MULTIFAMILY SITE REDEVELOPMENT PLANS
FOR
85 WATER STREET, HAVERHILL, MASSACHUSETTS
(ASSESSOR'S MAP 200, BLOCK 4, LOTS 1 & 3 & ASSESSOR'S MAP 207, BLOCK 2, LOT 1A)
PREPARED FOR:
85 WATER STREET REDEVELOPMENT, LLC

CUT & FILL PLAN

DRAWING NO. **C-10**