

LOCUS MAP
(NOT TO SCALE)

MULTI-FAMILY SITE DEVELOPMENT

THE RESIDENCES AT THOREAU

275 FOREST RIDGE ROAD CONCORD, MA 01742

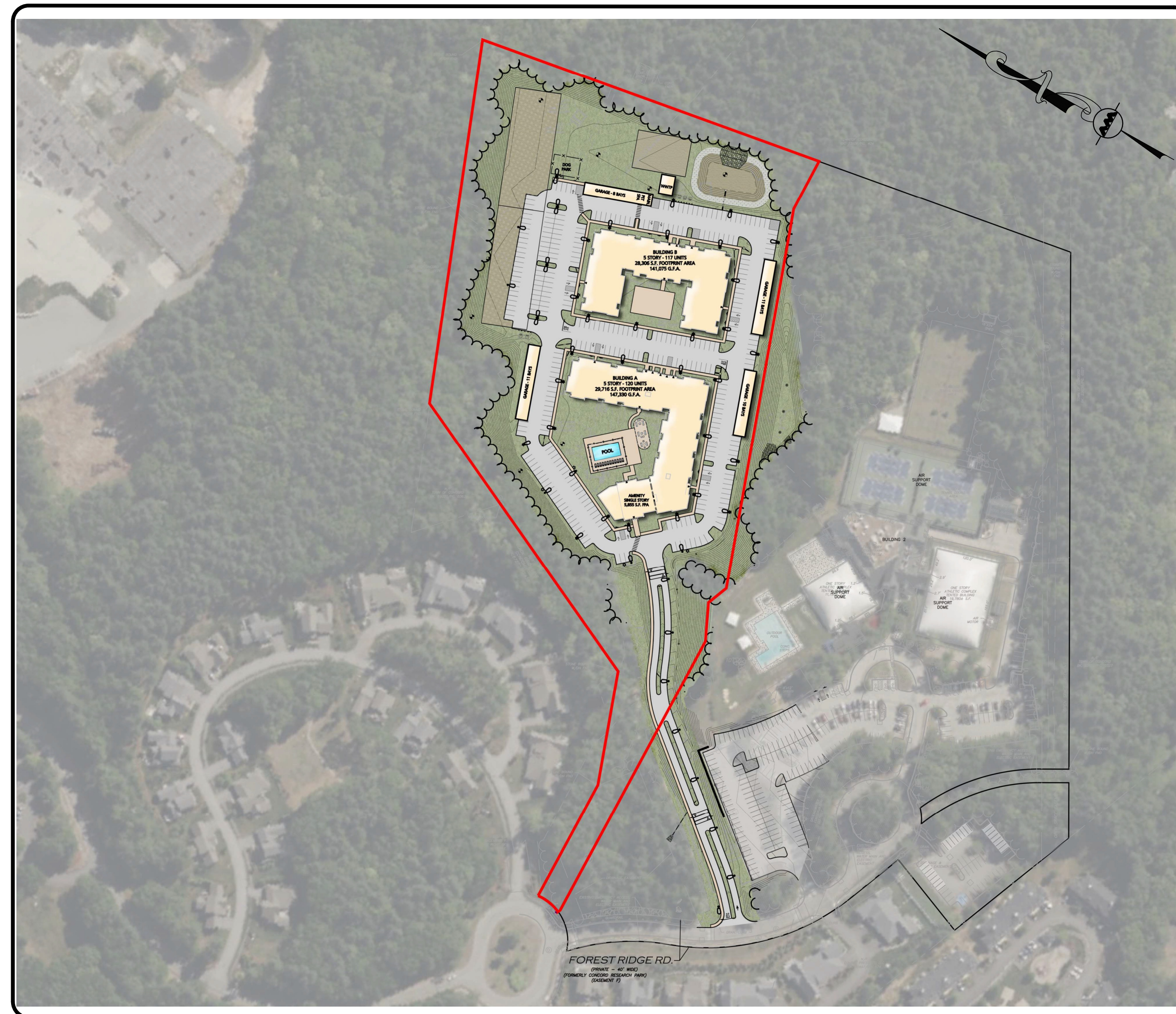
OWNER:
THOREAU REAL ESTATE LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

APPLICANT:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

BUILDING ARCHITECT:
THE ARCHITECTURAL TEAM, INC.
50 COMMANDANT'S WAY AT ADMIRAL'S HILL
CHELSEA, MA 02150
(617) 889-4402

CIVIL ENGINEER / LAND SURVEYOR:
ALLEN & MAJOR ASSOCIATES, INC.
10 MAIN STREET
LAKEVILLE, MA 02347
(508) 923-1010

LANDSCAPE ARCHITECT
HAWK DESIGN, INC.
39 PLEASANT STREET
SAGAMORE, MA 02561
(508) 833-8800



LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
COVER	—	12/20/2023	10/18/2024
EXISTING CONDITIONS	1 - 2	12/20/2023	10/18/2024
ABBREVIATIONS & NOTES	C-001 - C-002	12/20/2023	10/18/2024
LOCUS PLAN	C-100A - C-100B	12/20/2023	10/18/2024
EROSION CONTROL PLAN	C-101A - C-101B	12/20/2023	10/18/2024
SITE PREPARATION PLAN	C-102A - C-102B	12/20/2023	10/18/2024
LAYOUT & MATERIALS PLAN	C-103 - C-103C	12/20/2023	10/18/2024
GRADING & DRAINAGE PLAN	C-104 - C-104C	12/20/2023	10/18/2024
UTILITIES PLAN	C-105 - C-105B	12/20/2023	10/18/2024
SNOW STORAGE PLAN	C-106A - C-106B	12/20/2023	10/18/2024
FIRE TRUCK TURNING PLAN	C-107A - C-107B	12/20/2023	10/18/2024
LIGHTING PLAN	C-108A - C-108C	12/20/2023	10/18/2024
DETAILS	C-501 - C-508	12/20/2023	10/18/2024

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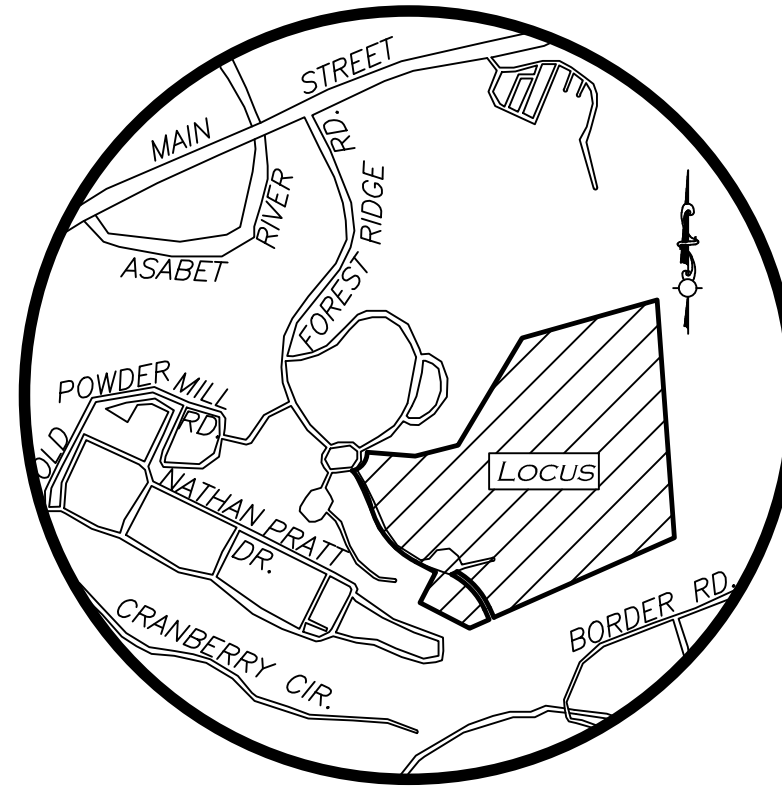
**ALLEN & MAJOR
ASSOCIATES, INC.**

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DECEMBER 20, 2023 REV. OCTOBER 18, 2024

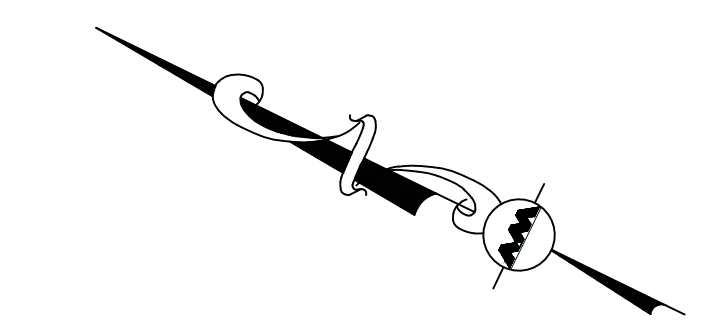


LOCUS MAP
(NOT TO SCALE)

LEGEND

STONE BOUND (SB)	FLARED END SECTION	GAS METER	CONCRETE WALL	CONCRETE	CONC.
IRON ROD (IR)	LIGHT	HANDICAPPED PARKING SPACE	TREE LINE	GRANITE	GRAN.
PK NAIL	FLOODLIGHT	IRRIGATION CONTROL VALVE	EDGE OF PAVEMENT	BOTTOM CENTER	(BC)
DRAIN MANHOLE (DMH)	TRAFFIC SIGNAL	PARKING SPACE COUNT	CURB	REINFORCED CONCRETE PIPE	RCP
SEWER MANHOLE (SMH)	TREE	BASKETBALL HOOP	CHAIN LINK FENCE	POLYVINYL CHLORIDE PIPE	PVC
MISC. MANHOLE (MH)	BUSH / SHRUB	CONCRETE	STOCKADE FENCE	CORRUGATED METAL PIPE	CMP
CATCH BASIN (CB)	SIGN	LANDSCAPED AREA (LSA)	VINYL FENCE	HIGH DENSITY POLYETHYLENE PIPE	HDPE
ROUND CATCH BASIN (RCB)	MAILBOX	RIP-RAP	GUARDRAIL	FOUND	FND
UTILITY POLE	TRANSFORMER	BRICK	WATER LINE	NOW OR FORMERLY	N/F
GUY WIRE	WELL	BUILDING	SEWER LINE	BOOK	BK.
FIRE HYDRANT	MONITOR WELL	BUILDING OVERHANG	DRAIN LINE	PAGE	PG.
FIRE STANDPIPE	DOWNSPOUT	EASEMENT LINE	GAS LINE	PLAN BOOK	PB.
WATER GATE	HAND HOLE	2' CONTOUR	ELECTRIC LINE	PLAN	PL.
GAS GATE	TELEPHONE BOX	10' CONTOUR	OVERHEAD WIRES	CERTIFICATE OF TITLE	COT
BOLLARD	ELECTRIC BOX	PROPERTY LINE	FINISHED FLOOR ELEVATION	LAND COURT	L.C.
CLEANOUT		ABUTTERS LINE	BITUMINOUS	LAND COURT CASE	L.C.C.

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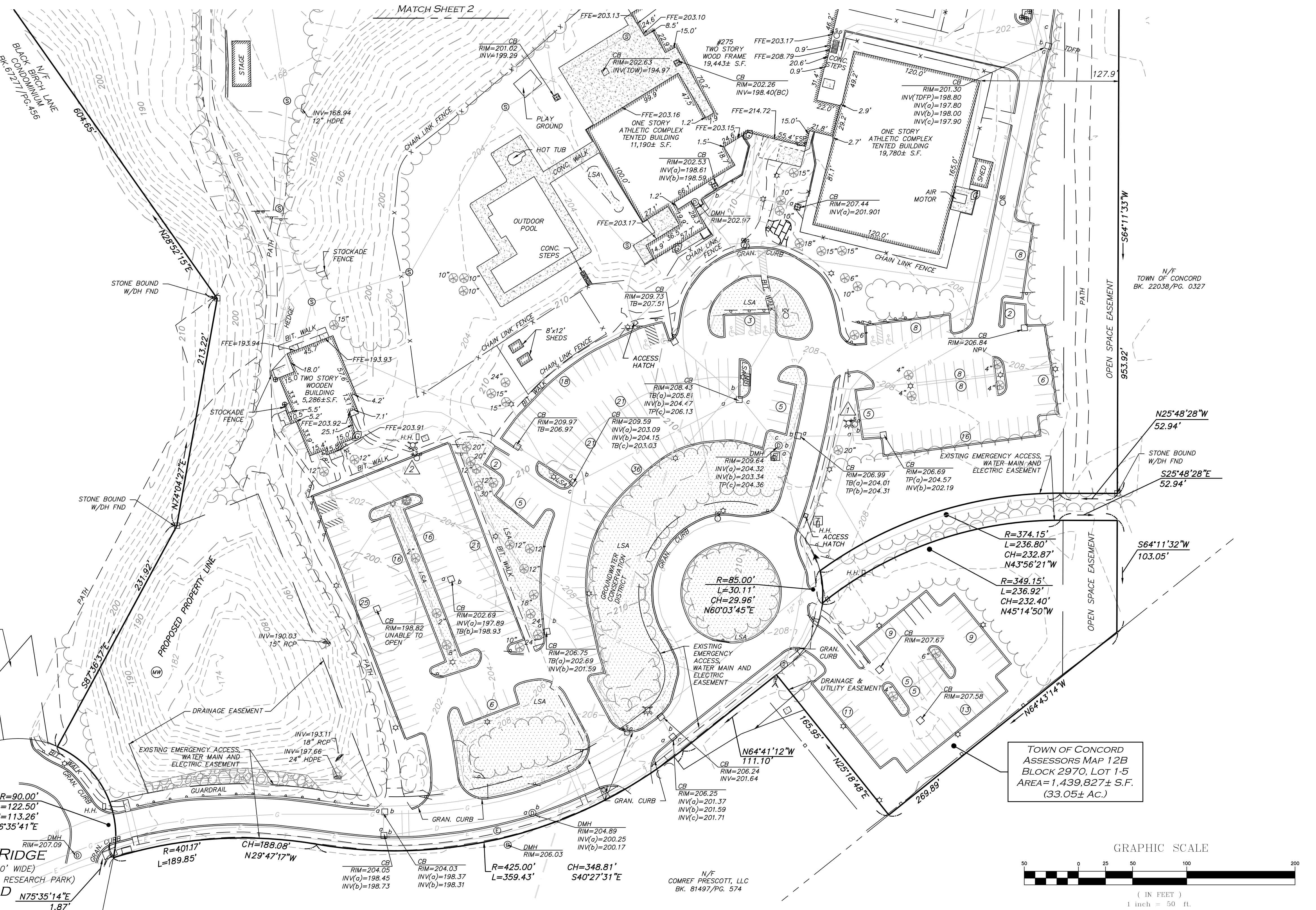
BENCHMARK SUMMARY

TBM #	DESCRIPTION	ELEV.
1	X-CUT ON HYDRANT FLANGE BOLT	210.37
2	X-CUT ON HYDRANT FLANGE BOLT	206.63

PARKING SUMMARY

STANDARD STALLS	298
HANDICAPPED STALLS	10
TOTAL STALLS	308

NOTE
1. SEE SHEET V-102 FOR LOCUS REFERENCES, PLAN REFERENCE, AND ADDITIONAL NOTES.



WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN SEPTEMBER 20, 2023 AND MAY 28, 2024.
THE SUBJECT PREMISES IS LOCATED IN ZONE X (UNSHADED) "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN" AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF CONCORD MASSACHUSETTS MIDDLESEX COUNTY SOUTH DISTRICT COMMUNITY PANEL NUMBER 25017C0366F HAVING AN EFFECTIVE DATE OF JULY 7, 2014.
THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.
ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF CONCORD ASSESSOR'S INFORMATION.
THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.
ALLEN & MAJOR ASSOCIATES, INC.
Oct. 18, 2024
PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.
10/18/24

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
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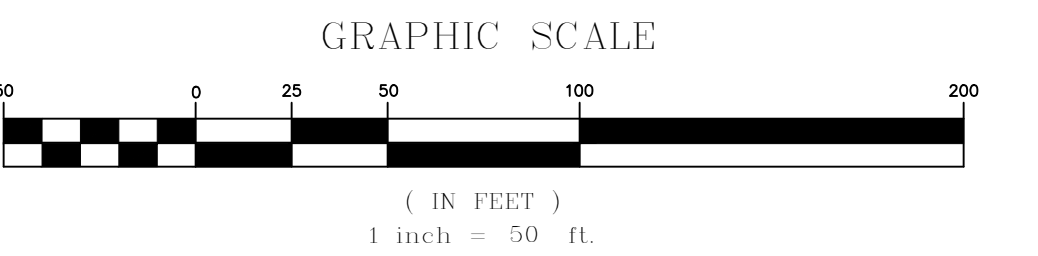
PROJECT NO. 1670-24 DATE: 12/20/23
SCALE: 1" = 50' DWG. NAMES-1670-24-ALTA
DRAFTED BY: KMB/CTP/COB CHECKED BY: NIL

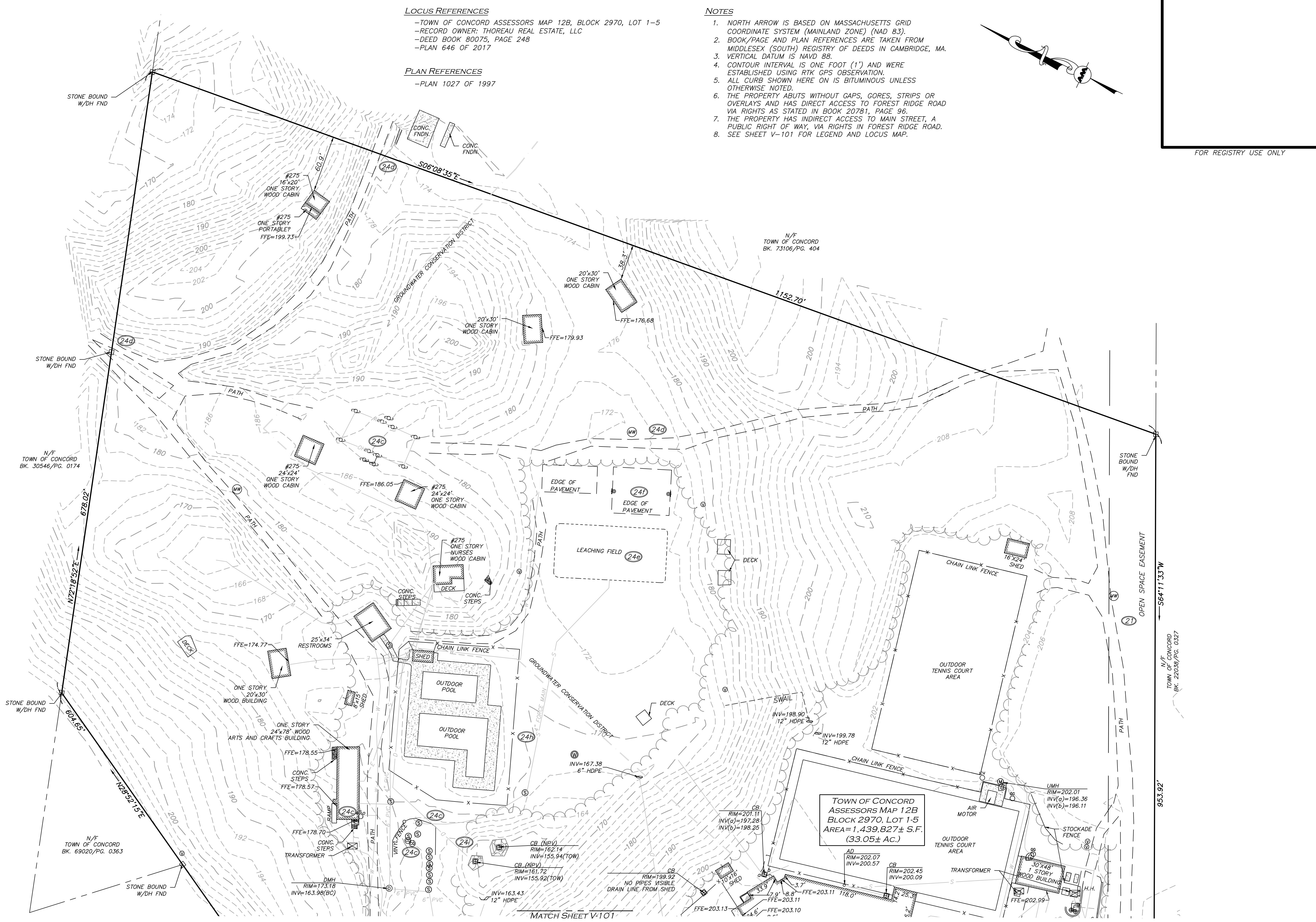
PREPARED BY:

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WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE: **EXISTING CONDITIONS** SHEET NO. **V-101**

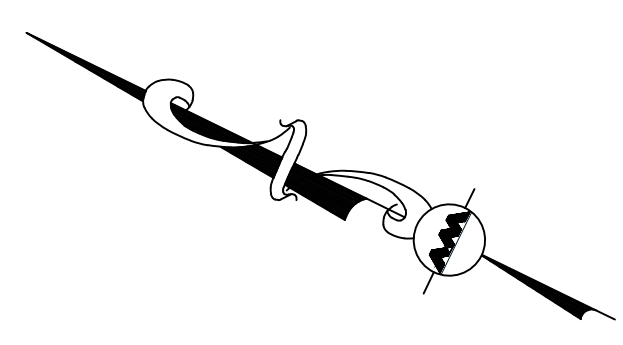




LOCUS REFERENCES
 -TOWN OF CONCORD ASSESSORS MAP 12B, BLOCK 2970, LOT 1-5
 -RECORD OWNER: THOREAU REAL ESTATE, LLC
 -DEED BOOK 80075, PAGE 248
 -PLAN 646 OF 2017

PLAN REFERENCES
 -PLAN 1027 OF 1997

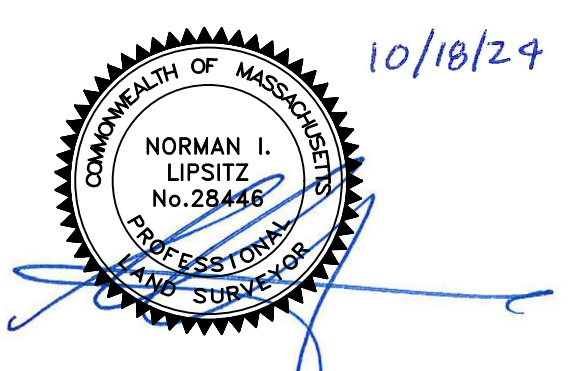
- NOTES**
1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
 2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM MIDDLESEX (SOUTH) REGISTRY OF DEEDS IN CAMBRIDGE, MA.
 3. VERTICAL DATUM IS NAVD 88.
 4. CONTOUR INTERVAL IS ONE FOOT (1') AND WERE ESTABLISHED USING RTK GPS OBSERVATION.
 5. ALL CURB SHOWN HERE ON IS BITUMINOUS UNLESS OTHERWISE NOTED.
 6. THE PROPERTY ABUTS WITHOUT GAPS, GORES, STRIPS OR OVERLAYS AND HAS DIRECT ACCESS TO FOREST RIDGE ROAD VIA RIGHTS AS STATED IN BOOK 20781, PAGE 96.
 7. THE PROPERTY HAS INDIRECT ACCESS TO MAIN STREET, A PUBLIC RIGHT OF WAY, VIA RIGHTS IN FOREST RIDGE ROAD.
 8. SEE SHEET V-101 FOR LEGEND AND LOCUS MAP.



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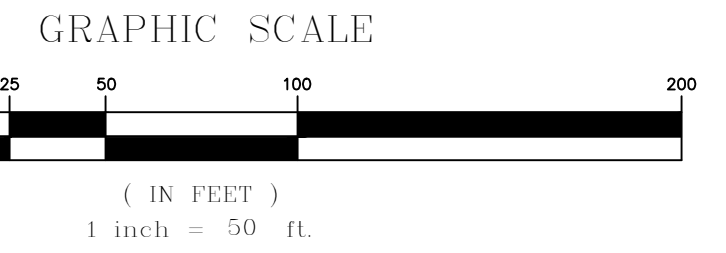
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PREPARED BY:

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DRAWING TITLE: EXISTING CONDITIONS SHEET NO. V-102



NOTES

GENERAL NOTES:

- TOPOGRAPHIC INFORMATION AND EXISTING SITE FEATURES WERE OBTAINED FROM AN ACTUAL FIELD SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES, INC. 100 COMMERCIAL WAY, WOBURN, MASSACHUSETTS.
- ZONING DISTRICT IS LIMITED INDUSTRIAL PARK 2 AND THE GROUND WATER CONSERVATION DISTRICT.
- THE PROPERTY LOCATED AT 275 FOREST RIDGE ROAD, CONCORD, MASSACHUSETTS IS SUBJECT TO AN APPROVAL NOT REQUIRED (ANR) SUBDIVISION PROCESS. SITE WORK SHOWN ON THE SUBSEQUENT DRAWINGS ASSOCIATED WITH THE ANR LOT FOR THE MULTI-FAMILY DEVELOPMENT IS PART OF A COMPREHENSIVE PERMIT APPLICATION TO THE ZONING BOARD OF APPEALS. ANY WORK SHOWN ON THE REMAINING LAND IS FOR COORDINATION PURPOSES ONLY AND SHALL BE DESIGNED AND PERMITTED BY OTHERS AS REQUIRED BY THE TOWN OF CONCORD REGULATIONS.
- OVERALL LOT SIZE: 33.05± ACRES. NEW MULTI-FAMILY LOT AREA IS 13.09 ACRES AND THE REMAINING LAND IS 19.96 ACRES.
- DURING CONSTRUCTION, ALL VEHICLES MUST BE PARKED ON SITE.
- DURING CONSTRUCTION, ALL STAGING AND DELIVERIES WILL OCCUR ON SITE.
- THIS PROJECT WILL BE SERVED BY PUBLIC WATER AND PRIVATE ON-SITE SEWER, TELEPHONE, CABLE AND ELECTRIC. ALL UTILITY LINES WILL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.
- 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 ON 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 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 PLANS AT NO ADDITIONAL COST.
- ALL PROPOSED MAIN BUILDING ENTRANCES AND WALKS SHALL BE HANDICAP ACCESSIBLE PER FEDERAL ADA & MA AAB REGULATIONS.
- ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.
- ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
- ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.
- ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE CITY DEPARTMENTS, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.
- APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROLS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.
- ALL BUILDING DIMENSIONS ARE MEASURED TO THE OUTSIDE FACE OF THE BUILDING.
- ALL RADII ARE 3 FEET UNLESS OTHERWISE NOTED.
- ALL PARKING LOT AND AISLE DIMENSIONS ARE TAKEN FROM THE FACE OF CURB AND INDICATE EDGE OF PAVEMENT.
- CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.
- DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING MISC. CONSTRUCTION DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.
- ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.
- EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE PROTECTED, ABANDONED, REMOVED OR RELOCATED AS NECESSARY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SAME.
- THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.

- ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARKS SHOWN ON THE EXISTING CONDITIONS SITE PLAN AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUND BREAKING.
- CONTRACTOR IS RESPONSIBLE FOR DIGGING TEST HOLES AND VERIFYING ANY EXISTING UTILITY OR STRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY THAT BASED ON EXACT LOCATION OF EXISTING UTILITIES, THERE ARE NO CONFLICTS BETWEEN THE EXISTING AND THE PROPOSED UTILITIES/DRAINAGE STRUCTURES.
- THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO BUILDING PERMITS, DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS. PERMITS FROM THE PLANNING BOARD OR CITY COUNCIL.
- DURING EXCAVATION, ANY EXISTING EARTH CUT MATERIALS THAT DO NOT MEET THE "ORDINARY FILL" SPECIFICATIONS OR "LOAM" SPECIFICATIONS AND CANNOT BE REUSED SHALL BE REMOVED OFF-SITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNERS. MATERIAL WHICH DOES NOT MEET THE SPECIFICATION INCLUDES ALL BOULDERS, ROCKS, CONSTRUCTION DEBRIS, AND MISC. MATERIAL. PRIOR TO REUSE, CONTRACTOR TO PROVIDE TESTING REPORT OF SIEVE ANALYSIS TO ENGINEER FOR APPROVAL. CONTRACTOR CAN AMEND MATERIALS AND CONTINUE TO RETEST AS NECESSARY AT NO ADDITIONAL COST TO OWNER. AFTER AMENDING, IF MATERIAL STILL DOES NOT MEET THE SPECIFICATIONS, IT IS TO BE REMOVED FROM SITE AT NO ADDITIONAL COST TO THE OWNER AND IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
- ANY PROPOSED SIGNAGE SHALL BE APPROVED BY SEPARATE APPLICATION TO THE APPROPRIATE MUNICIPAL AUTHORITY INCLUDING BUT NOT LIMITED TO THE ZONING BOARD OF APPEALS AND CITY COUNCIL. ALL PROPOSED SIGNAGE MUST MEET THE REQUIREMENTS OF THE LOCAL ZONING CODE.

GRADING & DRAINAGE NOTES:

- EXISTING PAVEMENT SHALL BE SAW-CUT AND PAVEMENT JOINT SHALL BE INSTALLED WHERE NECESSARY TO ENSURE A SMOOTH CONTINUOUS GRADE.
- PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS OTHERWISE SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.
- ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
- IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL MATCH THE FINISH GRADE OF THE TOPSOIL. IN PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA.
- TEMPORARY TUBULAR BARRIER PROTECTION AND/OR SILT SACKS SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION, TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM.
- CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE PER DEMOLITION PLAN.
- ALL CATCH BASINS, MANHOLES, INFILTRATION SYSTEMS, AND WATER QUALITY STRUCTURES ARE TO BE CLEANED TO REMOVE ALL CONSTRUCTION SILT AND DEBRIS PRIOR TO FINAL APPROVAL.
- IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.
- ALL STORM PIPES ENTERING STRUCTURES SHALL BE GROUTED TO ENSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
- ALL STORM DRAIN MANHOLES SHALL HAVE TRAFFIC BEARING RING & COVERS & SHALL BE LABELED "DRAIN".
- THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
- CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES STEEPER THAN 3H:1V.
- ALL DRAINAGE SYSTEM COMPONENTS SHALL CONFORM TO LOCAL REQUIREMENTS.

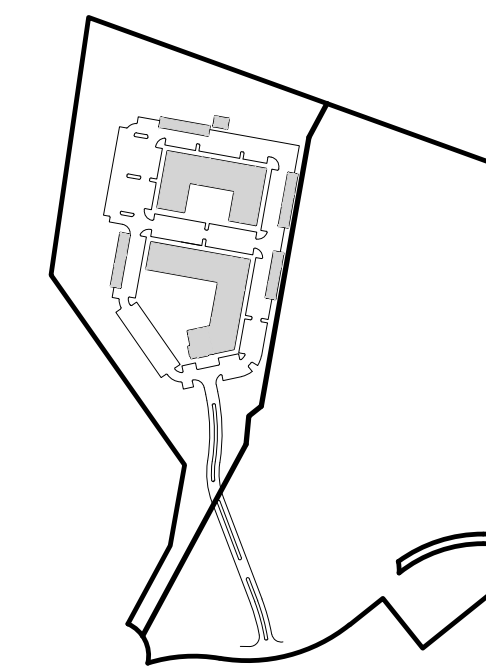
UTILITY NOTES:

- THE LATEST STANDARDS OF THE LOCAL MUNICIPALITY SHALL BE FOLLOWED WHEN INSTALLING ANY STORM DRAIN WORK. STORM DRAIN WORK WILL BE INSPECTED BY THE LOCAL GOVERNING AUTHORITY PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.
- ABANDONED EXISTING UTILITIES AND UTILITIES TO BE ABANDONED SHALL EITHER BE ABANDONED IN PLACE AS NOTED OR SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED. ALL UTILITIES SCHEDULED FOR ABANDONMENT OR REMOVAL AND DISPOSAL MUST BE COORDINATED BY THE CONTRACTOR WITH THE RESPECTIVE UTILITY OWNER. WHEN ABANDONED UTILITIES ARE TO BE LEFT IN PLACE, PLUG OR CAP THE ENDS OF THE CONDUITS AND PIPES. REMOVE ABANDONED UTILITY MANHOLES, JUNCTION BOXES AND SIMILAR STRUCTURES TO A MINIMUM DEPTH OF 4 FEET BELOW FINISHED GRADE AND PUNCTURE OR BREAK THE BOTTOM SLABS OF MANHOLES AND SIMILAR STRUCTURE TO ALLOW DRAINAGE. BACKFILL AND COMPACT EXCAVATIONS RESULTING FROM REMOVAL OF UTILITY FACILITIES, AS REQUIRED TO RESTORE THE ORIGINAL GRADE.
- THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF NATURAL GAS, ELECTRIC, TELEPHONE AND ANY OTHER UTILITY BY THE UTILITY OWNER.
- THE CONTRACTOR SHALL USE THE FOLLOWING PIPE MATERIALS:
 - DRAIN - HDPE (HIGH DENSITY CORRUGATED POLYETHYLENE PIPE WITH SMOOTH INNER WALL), ASTM D2321 (UNLESS OTHERWISE SPECIFIED ON PLAN)
 - WATER - CLDI (CONCRETE LINED DUCTILE IRON PIPE)
 - SEWER - PVC PIPE (POLYVINYL CHLORIDE PLASTIC PIPE)

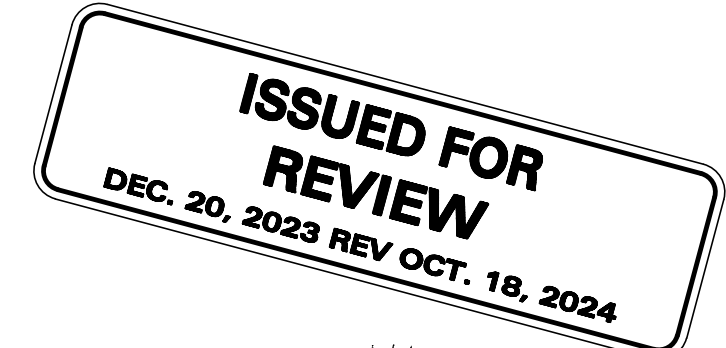
- BEFORE UTILITY WORK BEGINS, THE CONTRACTOR WILL COORDINATE WITH THE LOCAL MUNICIPALITY FOR THE APPROPRIATE PERMIT AND INSPECTION FEES.
- A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
- ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
- CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
- MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5'-0" COVER AND A MAXIMUM OF 8'-0" COVER ON ALL WATERLINES.
- IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE BETWEEN THE PIPES. WHERE THE WATERLINE IS LESS THAN THE 18" VERTICAL CLEARANCE AND MEETING 10' HORIZONTAL CLEARANCE CANNOT BE MET, THE WATER MUST BE ENCASED IN CONCRETE.
- ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I.
- CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER, SEWER, GAS AND ELECTRICAL AND TELECOMMUNICATIONS LINES.
- ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
- DRAWINGS DO NOT NECESSARILY SHOW ALL EXISTING UTILITIES.

ABBREVIATIONS

ABAN	ABANDON	L	LENGTH
ADJ	ADJUST	LB	LEACHING BASIN
		LP	LIGHT POLE
B	BORING		
BC	BOTTOM OF CURB	MAT	MATERIAL
BIT	BITUMINOUS	MAX	MAXIMUM
BCB	BITUMINOUS CONCRETE BERM	MH	MANHOLE
BLDG	BUILDING	MIN	MINIMUM
BM	BENCH MARK	MISC	MISCELLANEOUS
BOS	BOTTOM OF SLOPE	MTD	MOUNTED
BOW	BOTTOM OF WALL	MW	MONITORING WELL
BRK	BRICK		
BV&B	BUTTERFLY VALVE & BOX	N	NORTH
BVW	BORDERING VEGETATED WETLAND	NO	NOT IN CONTRACT
		NTS	NUMBER NOT TO SCALE
CATV	CABLE TELEVISION		
CB	CATCH BASIN	OC	ON CENTER
CF	CUBIC FEET	OD	OUTSIDE DIAMETER
CFS	CUBIC FEET PER SECOND	OHW	OVERHEAD WIRE
CI	CAST IRON (PIPE)	OVHD	OVERHEAD
CL	CENTERLINE	OW	OBSERVATION WELL
CLDI	CEMENT LINED DUCTILE IRON (PIPE)		
CM	CONSTRUCTION MANAGER	PC	POINT OF CURVATURE
CMP	CORRUGATED METAL PIPE	PCC	PRECAST CONCRETE CURB
CO	CLEAN OUT	PI	POINT OF INTERSECTION
CONC	CONCRETE	PKG	PARKING
CONST	CONSTRUCTION	PL	PROPERTY LINE
CONT	CONTRACTOR	PLMB	PLUMBING
CRD	COORDINATE	POC	POINT ON CURVATURE
CPP	CORRUGATED POLYETHYLENE PIPE	POT	POINT ON TANGENT
CUL	CULVERT	PRC	POINT OF REVERSE CURVATURE
	CUBIC YARD	PROP, P	PROPOSED
		PT	POINT (OR POINT OF TANGENT)
		PVC	POLYVINYL CHLORIDE (PIPE)
DB	DISTRIBUTION BOX		
DBL	DOUBLE	R&R	REMOVE & RESET/REPLACE
DEM	DEMOLISH	R&S	REMOVE & STACK
DET	DETENTION	RCP	REINFORCED CONCRETE PIPE
DI	DUCTILE IRON (PIPE)	RD	ROAD (OR ROOF DRAIN)
DIA	DIAMETER	RED	REDUCER
DIM	DIMENSION	RELOC	RELOCATE
DMH	DRAIN MANHOLE	REM	REMOVE
DW	DOMESTIC WATER (OR DRY WELL)	RET	RETAIN, RETAINING OR RETENTION
DWG	DRAWING	RFT	RIGHT OF WAY
DYCL	DOUBLE YELLOW CENTERLINE	RR	RAILROAD
		RWL	RAIN WATER LEADER
		RWY	ROADWAY
EHH	ELECTRIC HANDHOLE		
EL	ELEVATION	SD	SUBDRAIN
ELEC	ELECTRIC	SF	SQUARE FEET
EMH	ELECTRIC MANHOLE	SGC	SLOPED GRANITE CURB
EOP	EDGE OF PAVEMENT	SMH	SEWER MANHOLE
EOR	EDGE OF ROAD	SP	STANDPIPE
EOW	EDGE OF WETLANDS	SPEC	SPECIFICATION
ETC	ELECTRIC, TELEPHONE, CABLE	STA	STATION
EXIST	EXISTING	STC	STORMCEPTOR
EXT	EXTERIOR	STD	STANDARD
		STRTL	STRUCTURAL
		SWEL	SOLID WHITE EDGE LINE
FA	FIRE ALARM	SW	SOLID WHITE LANE LINE
FCC	FLUSH CONCRETE CURB	SWLL	SOLID YELLOW CENTERLINE
FES	FLARED END SECTION		
FFE	FINISH FLOOR ELEVATION		
FLNP	FIRE LANE NO PARKING	TB	TEST BORING
FPS	FEET PER SECOND	TC	TOP OF CURB
FS	FIRE SERVICE	TD	TRENCH DRAIN
FT	FOOT/FEET	TEL, T	TELEPHONE
		TMH	TELEPHONE MANHOLE
GC	GENERAL CONTRACTOR	TOS	TOP OF SLOPE
GEN	GENERAL	TOW	TOP OF WALL
GG	GAS GATE	TP	TEST PIT
GR	GUIDE RAIL	TS&V	TAPPING SLEEVE & VALVE
GRAN	GRANITE	TYP	TYPICAL
GV	GATE VALVE	UD	UNDERDRAIN
GV&B	GATE VALVE & BOX	UL	UNDERWRITERS LABORATORY
GW	GROUND WATER	UP	UTILITY POLE
HCR	HANDICAP RAMP	VCP	VITRIFIED CLAY PIPE
HOR	HORIZONTAL	VERT	VERTICAL
HT	HEIGHT	VGC	VERTICAL GRANITE CURB
HW	HEADWALL		
HWY	HIGHWAY	WD	WOOD
HYD	HYDRANT	WG	WATER GATE
		WM	WATER MAIN
		WMH	WATER MANHOLE
ID	INSIDE DIAMETER	WSO	WATER SHUTOFF
IN	INCHES		
INCL	INCLUDE		
INST	INSTALLED		
INV, I.E.	INVERT, INVERT ELEVATION		



KEYSHEET



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

REV	DATE	DESCRIPTION
APPLICANT/OWNER:		
THOREAU RESIDENCES, LLC		
275 FOREST RIDGE ROAD		
CONCORD, MA 01742		

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
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SCALE:	NONE	DWG. NAME:	C-1670-24
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DESIGNED BY:	BDP	CHECKED BY:	PLC
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PREPARED BY:

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ABBREVIATIONS & NOTES	C-001

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EROSION CONTROL NOTES

EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH B.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2017 "CONSTRUCTION GENERAL PERMIT" MANUAL, AND MASSACHUSETTS 2003 EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS. ANY SUCH MODIFICATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER OR THE LOCAL MUNICIPALITY.
2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND/OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY (UNLESS MUNICIPALITY HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED) IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS, IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.
3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS ON VEGETATED SLOPES IN EXCESS OF 15%, AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.
4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEED WITH RYE AT 3LBS PER 1,000 SQUARE FOOT AND MULCHED, AND REUSED AS REQUIRED. TUBULAR BARRIERS SHALL BE PLACED DOWN GRADIENT FROM STOCKPILED LOAM. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.
5. ALL TUBULAR BARRIERS, SILT SACKS, AND EROSION CONTROL BERMS SHALL BE INSTALLED ACCORDING TO THE SITE PREPARATION PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85-90% VIGOROUS PERENNIAL COVER OF GRASSES.
6. ADJACENT ROADS SHALL BE PERIODICALLY SWEEPED OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA AS OFTEN AS NECESSARY (WHICH COULD BE ON A DAILY BASIS) TO REMOVE ANY SOIL OR SEDIMENTS AT NO ADDITIONAL COST TO THE OWNER. A WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. BOTH EXISTING AND PROPOSED CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE SILT SACKS AND/OR TUBULAR BARRIERS AROUND EACH INLET AS NOTED ON THE PLANS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85-90% OF VIGOROUS PERENNIAL GROWTH.
8. AS APPLICABLE, EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDING AREAS AS SPECIFIED ON THE DESIGN PLANS.
9. AT A MINIMUM, ALL TUBULAR BARRIERS AND FILTER FABRIC SHALL REMAIN IN PLACE UNTIL SEEDINGS OR PLANTINGS HAVE BECOME 85-90% ESTABLISHED. THE DESIGN ENGINEER MUST APPROVE THE REMOVAL OR RELOCATION OF ANY OF THE TUBULAR BARRIERS AND FILTER FABRIC. ONCE THE TUBULAR BARRIERS ARE REMOVED THE AREAS ARE TO BE LOAMED AND SEED TO ACHIEVE FULL STABILIZATION.
10. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP, THE ENGINEER AND THE LOCAL MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.
11. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGH THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR AND LOCATED IN THE CONTRACTORS FIELD OFFICE ONSITE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.
12. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED AT THE STORMWATER MANAGEMENT AREA INLETS, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.
13. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI-MONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85-90% VEGETATED VIGOROUS GROWTH. RE-SEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.
14. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH & FOLLOW ALL APPROVED PERMITS AND CONDITIONS. CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ONSITE. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.

15. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE LOCAL MUNICIPALITY.
16. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
17. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.
18. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEED FOR TEMPORARY VEGETATIVE COVER. NO AREA SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.
19. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED BY TUBULAR BARRIER FILTERS AND STONE CHECK DAMS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
20. TUBULAR BARRIER DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS, NO SEDIMENTATION SHALL ENTER THE ON-SITE OR OFF-SITE DRAINAGE SYSTEMS AT ANY TIME.
21. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED, CLEANED AND REPAIRED OR REPLACED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTIONS SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT.
22. ALL PROPOSED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
23. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL TUBULAR BARRIERS FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.
24. AS CONSTRUCTION DISTURBANCE IS GREATER THAN 1 ACRE, A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERAL PERMIT NOI AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL NEED TO BE SUBMITTED TO THE EPA. THE NPDES PERMIT FOR STORM WATER DISCHARGE, & CONSTRUCTION GENERAL PERMIT NOI WILL BE REQUIRED TO BE SUBMITTED AT LEAST 14 DAYS PRIOR TO COMMENCING CONSTRUCTION BY THE CONTRACTOR.
25. OWNER AND CONTRACTOR ARE RESPONSIBLE FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT NOI. WEEKLY SWPPP INSPECTION REPORTS TO BE PERFORMED BY CONTRACTOR. COPIES OF ALL SWPPP INSPECTION REPORTS SHALL BE PROVIDED TO THE LOCAL MUNICIPALITY, EPA, DEP, OR ANY OTHER AUTHORITY REQUESTING WITHIN 3 DAYS OF EACH INSPECTION.
26. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL LOCAL, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE LOCAL AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.
27. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.
28. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL BE EMPTY. THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURE'S CAPACITY TO SETTLE AND FILTER FLOW OR ITS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.
29. INITIATE STABILIZATION OF EXPOSED AREAS IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.
30. ALL DISCHARGES FROM POLLUTION SOURCES ARE PROHIBITED ONSITE SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, FORM RELEASE OILS, SOLVENTS, ADHESIVES, CURING COMPOUNDS, POLLUTANTS USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE IN ACCORDANCE WITH BOTH THE MANUFACTURER RECOMMENDATIONS, FEDERAL, STATE, AND LOCAL REQUIREMENTS. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK-PROOF CONTAINERS STORED AWAY FROM WETLANDS, SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ONSITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT MEASURE OF ALL CHEMICALS IN ADDITION TO SPILL-PROOF CONTAINERS.
31. PRIOR TO COMMENCEMENT OF CONSTRUCTION, APPLICABLE CONTRACTOR PERSONNEL MUST HAVE AN UNDERSTANDING OF THE EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND THEIR SPECIFIC RESPONSIBILITIES UNDER THE PERMIT. AT A MINIMUM, PERSONNEL MUST BE TRAINED AND UNDERSTAND THE FOLLOWING: LOCATION OF ALL STORMWATER CONTROLS AND HOW TO MAINTAIN THEM. PROCEDURES FOR COMPLYING WITH THE POLLUTION PREVENTION REQUIREMENTS. PROCEDURES FOR CONDUCTING INSPECTIONS, RECORDING FINDINGS, AND TAKING CORRECTIVE ACTION.
32. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.
33. ALL USE OF CATIONIC TREATMENT CHEMICALS (EXAMPLES INCLUDE POLYMERS, CHITOSAN, CATIONIC PAM, FLOCCULANTS OR OTHER CHEMICAL UTILIZED FOR STABILIZATION) ARE PROHIBITED. IF ALL OTHER AVAILABLE STABILIZATION MEASURES ARE NOT POSSIBLE AND USE OF CATIONIC CHEMICALS IS ABSOLUTELY NECESSARY THE CONTRACTOR WILL NEED TO CONTACT THE EPA NEW ENGLAND OFFICE IN WRITING FOR APPROVAL AND SPECIFIC REQUIREMENTS (MAXIMUM DOSAGE RATE, RESIDUAL TESTING, SPECIFIC LIMITATIONS, ETC) PRIOR TO USE.

MAINTENANCE:

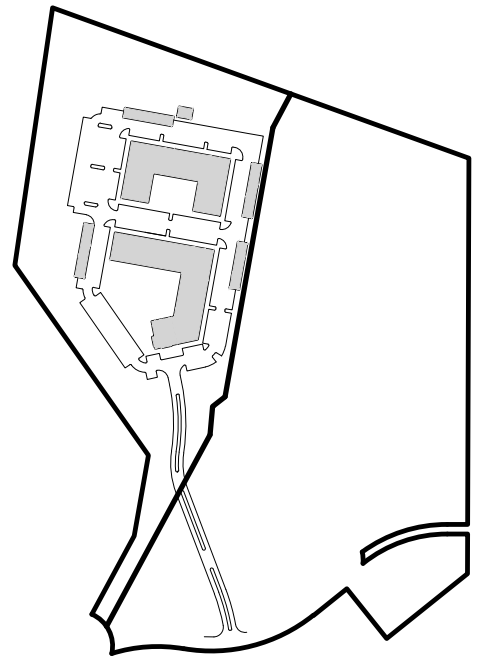
1. ALL MEASURES STATED ON THE STORMWATER POLLUTION PREVENTION PLANS, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION BY CONTRACTOR UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:
 - INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
 - ALL SEEDING AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDING AS NEEDED.
 - ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.
 - THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
 - THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
 - OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

CONSTRUCTION GENERAL PERMIT NOTES AND NARRATIVE:

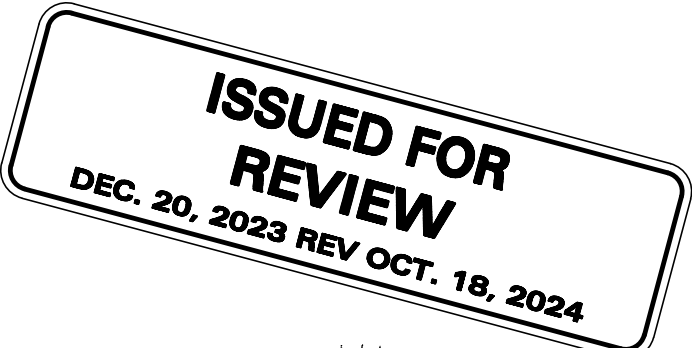
1. NARRATIVE: THE STORMWATER POLLUTION PREVENTION PLANS CONSIST OF THE SITE PREPARATION PLAN TOGETHER WITH AN EXISTING CONDITIONS PLANS, GRADING PLANS, ABBREVIATIONS AND NOTES SHEETS, AND DETAIL SHEETS.

THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:

- A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.
- B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE RECEIVING WATERS.
- C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.



KEYSHEET



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	NONE	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

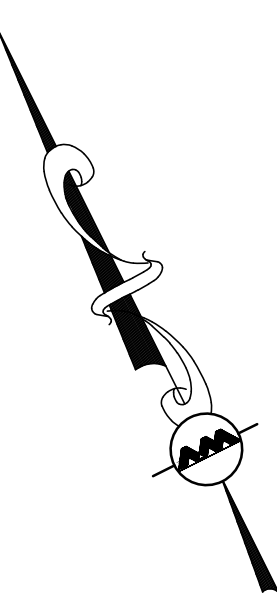
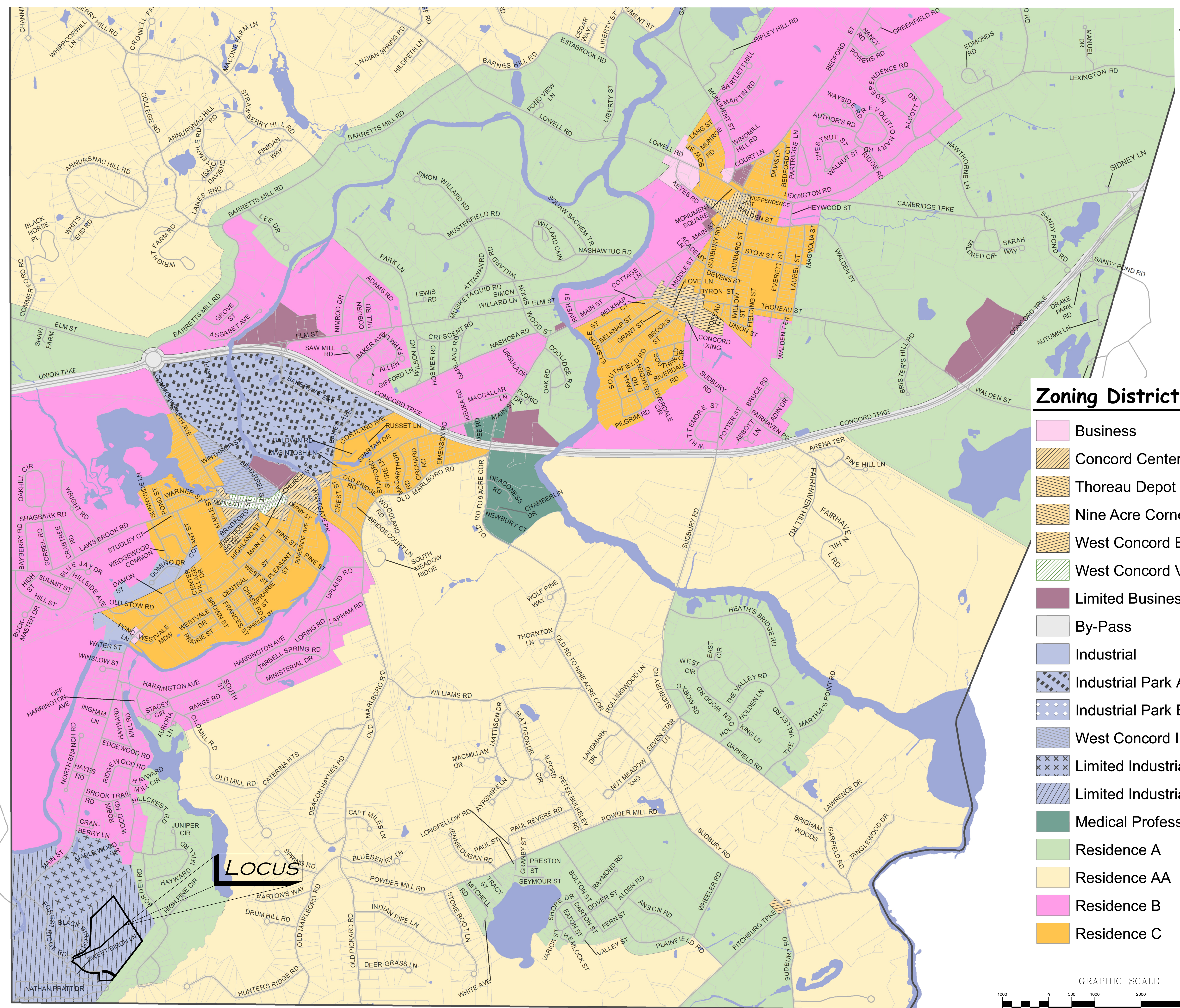
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DRAWING TITLE:	SHEET No.
ABBREVIATIONS & NOTES	C-002

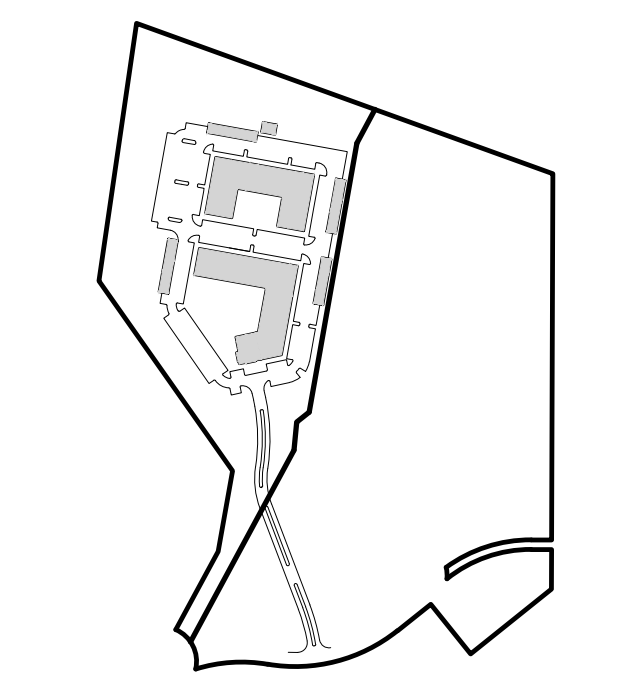
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M:\PROJECTS\1670-24\CIVIL\DRAWINGS\CURRENT\C-1670-24_LOCUS PLAN A 1000 SCALE.DWG



Zoning Districts

- Business
- Concord Center Business
- Thoreau Depot Business
- Nine Acre Corner Business
- West Concord Business
- West Concord Village
- Limited Business
- By-Pass
- Industrial
- Industrial Park A
- Industrial Park B
- West Concord Industrial
- Limited Industrial Park 1
- Limited Industrial Park 2
- Medical Professional
- Residence A
- Residence AA
- Residence B
- Residence C



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CONCORD, MA 01742

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DESIGNED BY:	BDP	CHECKED BY:	PLC

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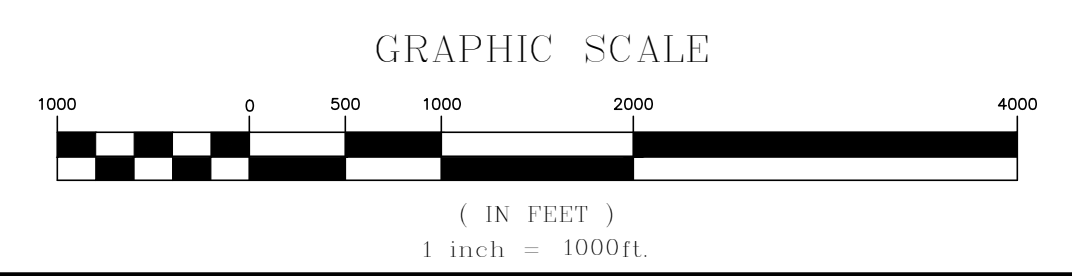
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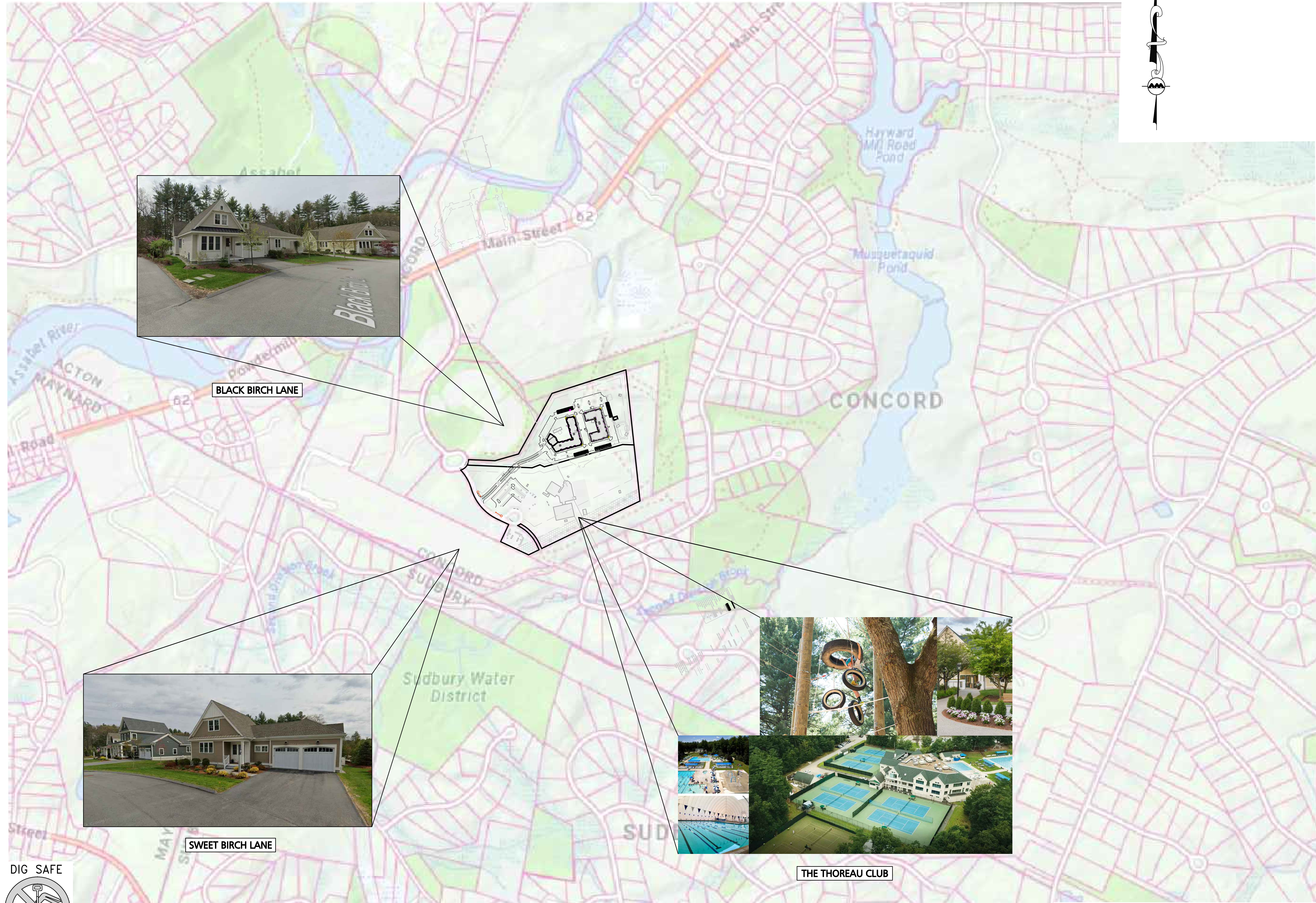
DRAWING TITLE:	SHEET No.
LOCUS PLAN	C-100A

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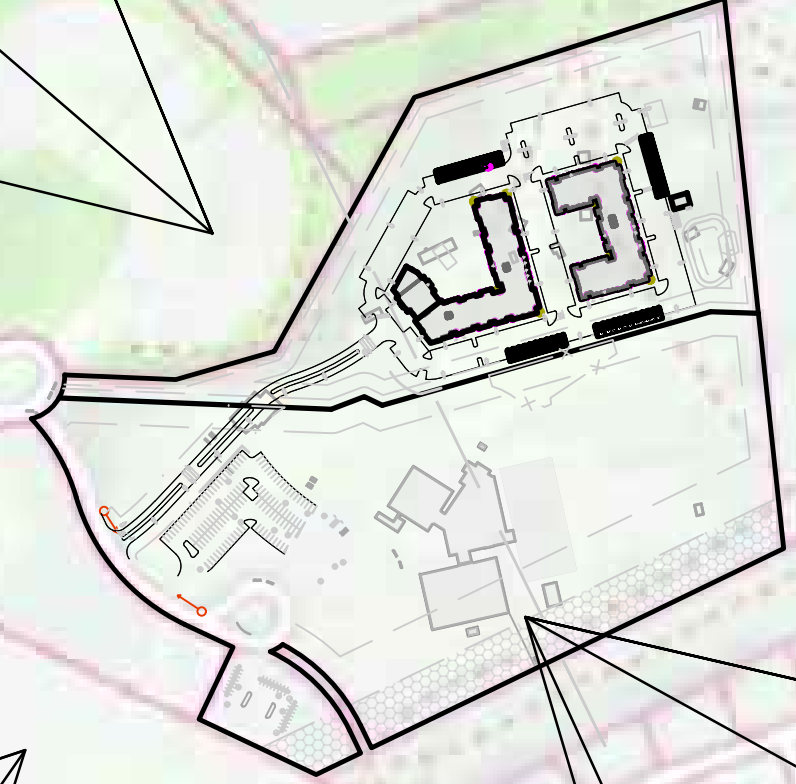
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BLACK BIRCH LANE



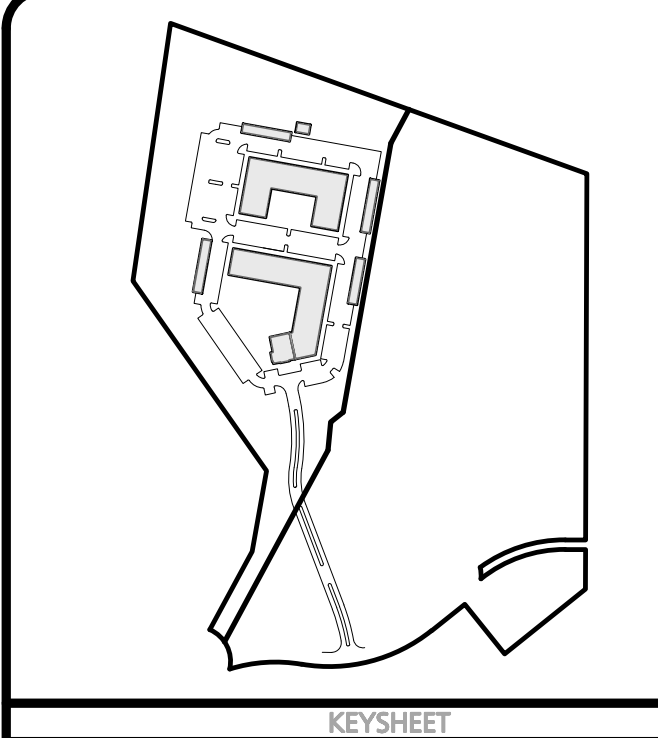
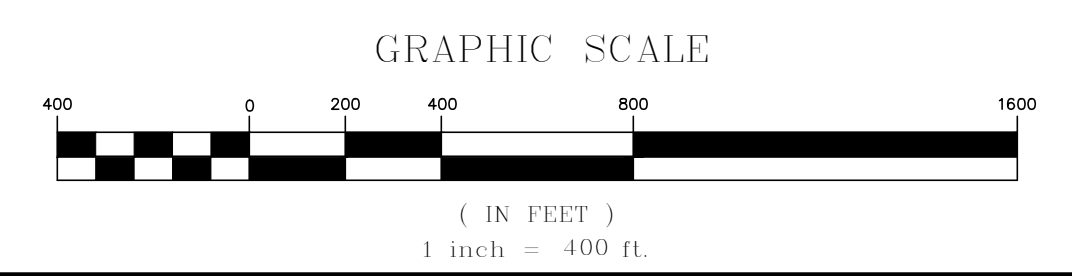
SWEET BIRCH LANE



THE THOREAU CLUB

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PREPARED BY:

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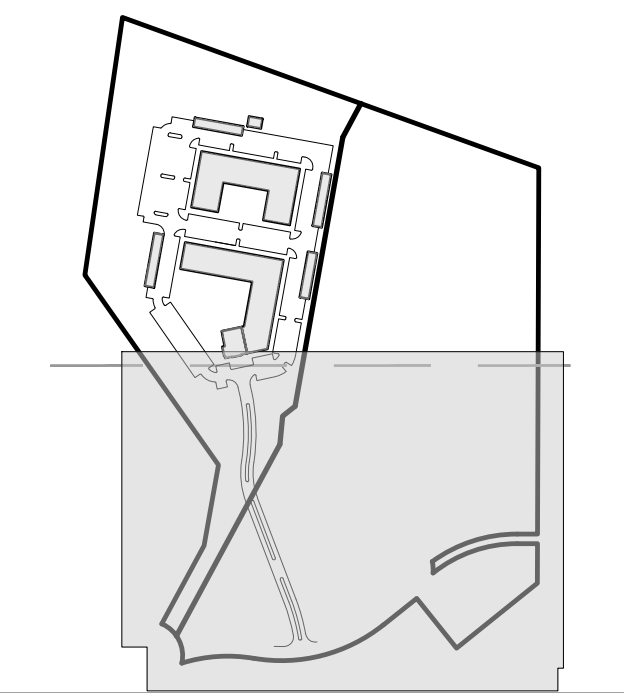
DRAWING TITLE:	SHEET No.
LOCUS PLAN	C-100B

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LEGEND

- SILT FENCE — SF —
- TUBULAR BARRIER — x x x x —
- EROSION CONTROL FABRIC — [hatched pattern] —
- CATCH BASIN FILTER — [grid pattern] —
- STONE CHECK DAM — [stone pattern] —
- STABILIZED ENTRANCE — [stippled pattern] —
- STOCKPILE/STAGING AREA — [diagonal lines] —



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DESIGNED BY:	BDP	CHECKED BY:	PLC

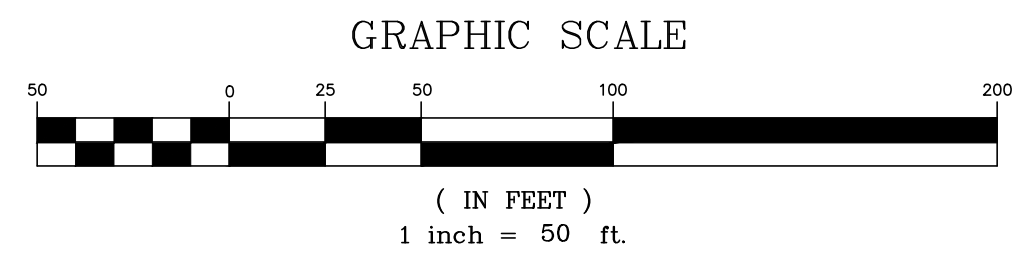
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DRAWING TITLE: **EROSION CONTROL PLAN** SHEET No. **C-101A**



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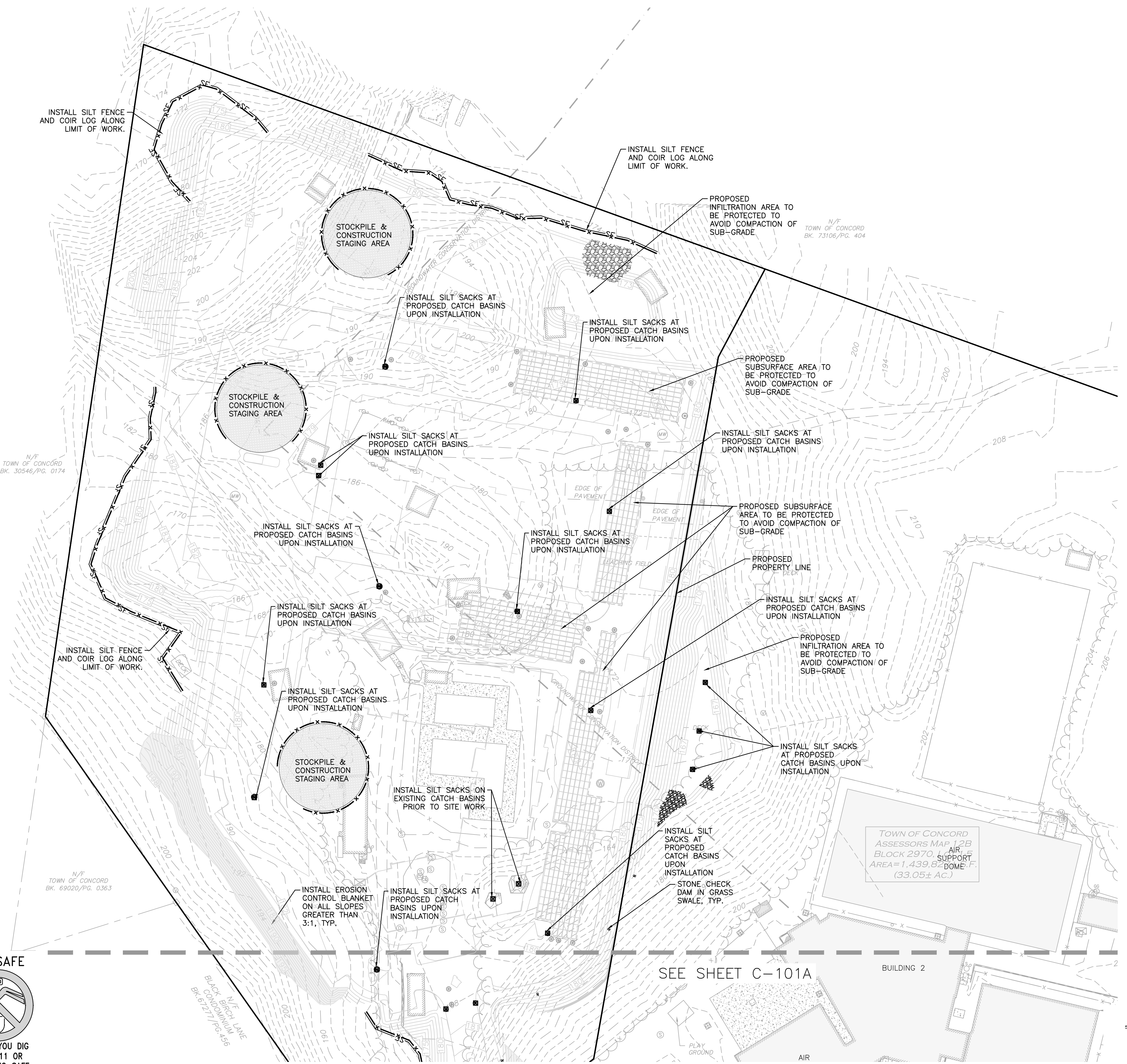
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 COMREF PRESCOTT, LLC
 BK. 81497/PG. 574

TOWN OF CONCORD
 ASSESSORS MAP 12B
 BLOCK 2970, LOT 1-5
 AREA=1,439,827± S.F.
 (33.05± AC.)

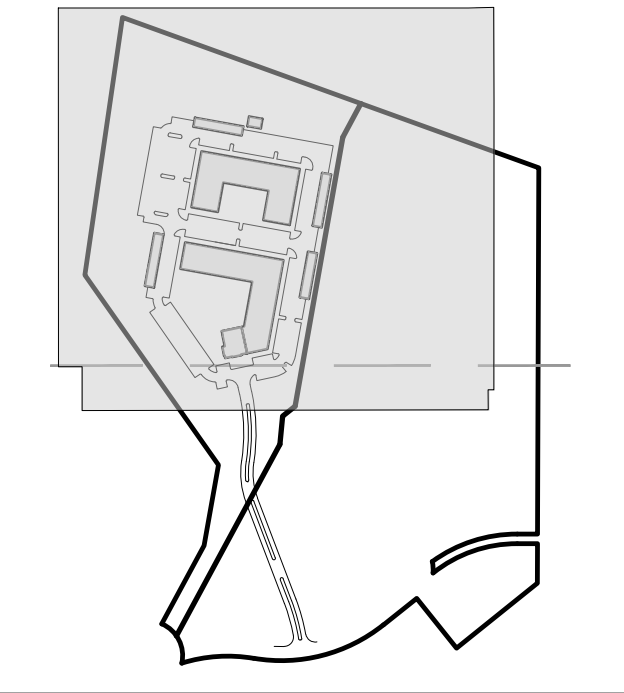
TOWN OF CONCORD
 ASSESSORS MAP 12B
 BLOCK 2970, LOT 1-5
 AREA=1,439,827± S.F.
 (33.05± AC.)

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LEGEND

SILT FENCE	—SF—
TUBULAR BARRIER	—X—X—X—X—
EROSION CONTROL FABRIC	▨
CATCH BASIN FILTER	⊠
STONE CHECK DAM	⊞
STABILIZED ENTRANCE	▨
STOCKPILE/STAGING AREA	▨



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PHILIP L. GORBERG
CIVIL
NO. 47068
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
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CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

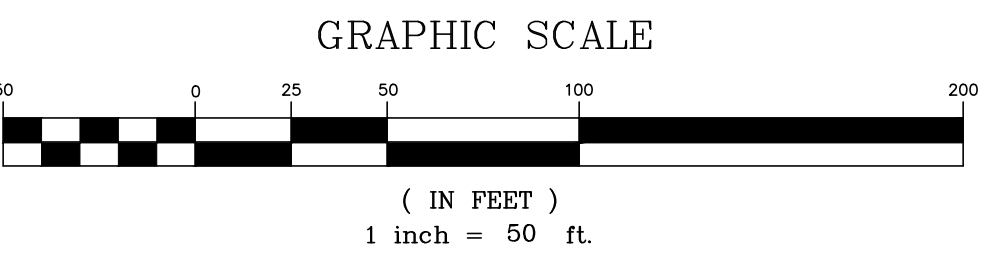
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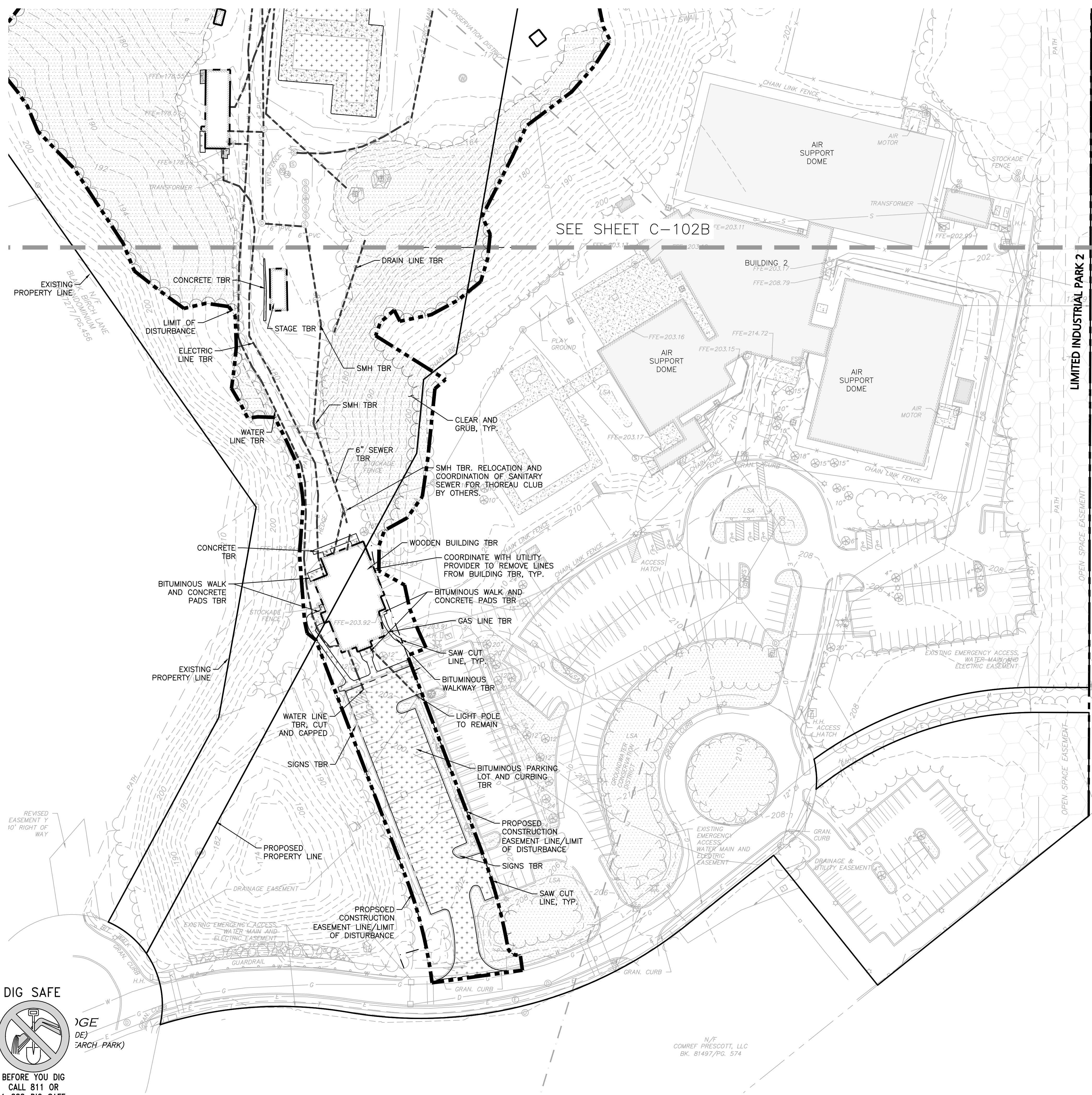
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DRAWING TITLE: EROSION CONTROL PLAN
SHEET No. C-101B

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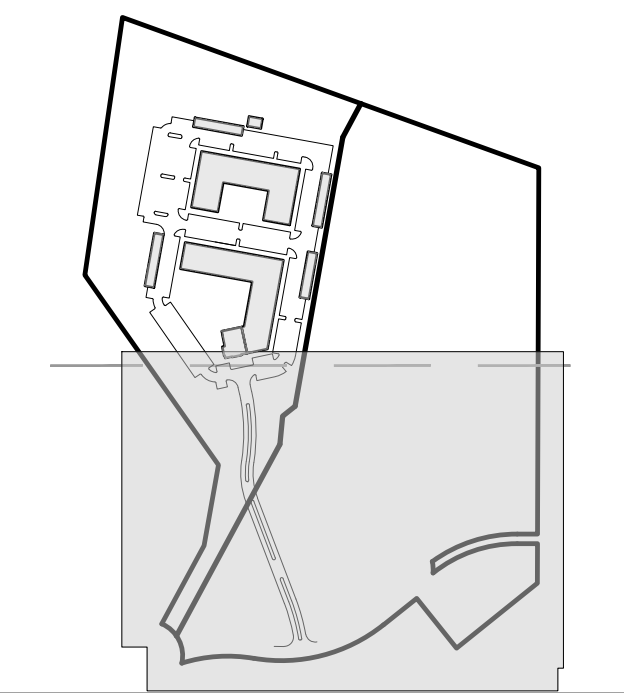
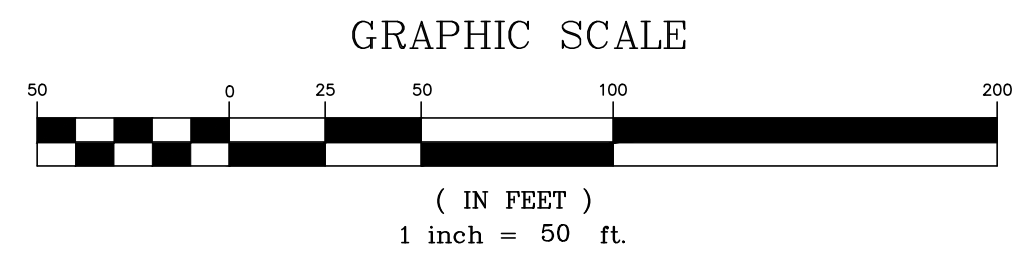


SEE SHEET C-102B

LEGEND

- LIMIT OF DISTURBANCE
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED
- LIMIT OF 'CLEAR AND GRUB'
- UTILITY CUT AND CAP
- TEMPORARY FENCE

- NOTES:**
- ALL EXISTING UTILITY SERVICES SHALL BE SHUTOFF, DISCONNECTED AND REMOVED. WATER UTILITIES SHALL BE CUT AND CAPPED AT THE SERVICE MAIN. ANY ALTERNATE LOCATIONS MUST BE APPROVED BY THE TOWN, OWNER, OR OWNER'S REPRESENTATIVE PRIOR TO DISCONTINUANCE.
 - ALL EXISTING SITE FEATURES WITHIN THE LIMIT OF WORK AREAS ARE TO BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
 - PRIOR TO DEMOLITION, ALL EROSION CONTROL AND GENERAL CONSTRUCTION SAFETY MEASURES SHALL BE IN PLACE. REFER TO SHEET C-102 FOR EROSION CONTROL.
 - ALL LOAM ON SITE IS TO BE STRIPPED AND STOCKPILED ON-SITE OR EXPORTED AS NEEDED AND IS THE RESPONSIBILITY OF THE CONTRACTOR.
 - CONSTRUCTION STAGING, TRAILERS, ETC. SHALL BE COORDINATED BY SITE CONTRACTOR PRIOR TO BREAKING GROUND.
 - NOT ALL UTILITIES MAY BE SHOWN AND/OR THEIR EXACT LOCATIONS. ALL SERVICES TO BE COORDINATED WITH SPECIFIC PROVIDER.
 - THE ONSITE EXISTING SEWER AND DRAINAGE LINES ARE TO BE REMOVED AND RELOCATED AS SHOWN ON THE SITE UTILITY PLAN.
 - FOR VOID AREAS OR FILL AREAS, REFER TO GEOTECHNICAL REPORT FOR BACKFILL MATERIAL & COMPACTION SPECIFICATIONS.
 - LIMIT OF GRADING/WORK IS TO BE MARKED IN FIELD PRIOR TO TREE REMOVAL. ONCE MARKED, OWNER SHALL REVIEW TO DETERMINE ANY TREES THAT SHOULD REMAIN AND BE PROTECTED DURING CONSTRUCTION. REFER TO GRADING PLAN FOR LIMIT OF SITE GRADING.
 - ALL UTILITY SERVICE TRENCHES WITHIN STREETS SHALL RECEIVE ASPHALT TRENCH PATCHES AS APPROVED BY THE TOWN OF CONCORD DEPARTMENT OF PUBLIC WORKS.
 - FINAL LOCATION OF GRANITE CURB REMOVAL SHALL BE DONE IN THE FIELD, BASED ON THE LOCATION OF EXISTING JOINTS AND COORDINATED WITH THE OWNER.
 - THE SITE PREPARATION PLAN HEREON DOES NOT DEPICT ANY WORK ASSOCIATED WITH ENVIRONMENTAL CONDITIONS. PLEASE REFER TO SPECIFIC ENVIRONMENTAL REPORT PREPARED BY OTHERS.
 - IF FLOWABLE FILL OR GROUT IS UTILIZED TO PLUG EXISTING UTILITY LINES IT SHOULD BE A MIN. STRENGTH OF 1500 PSI AND WILL NEED TO BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.



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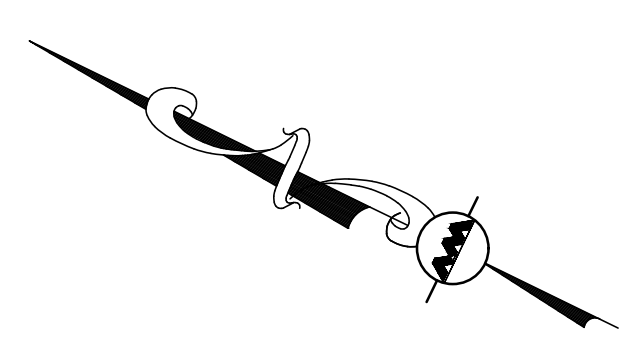
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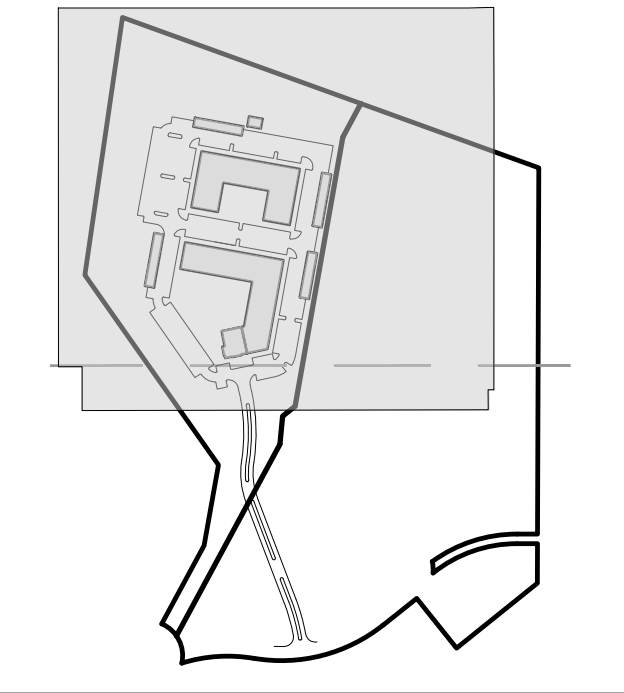
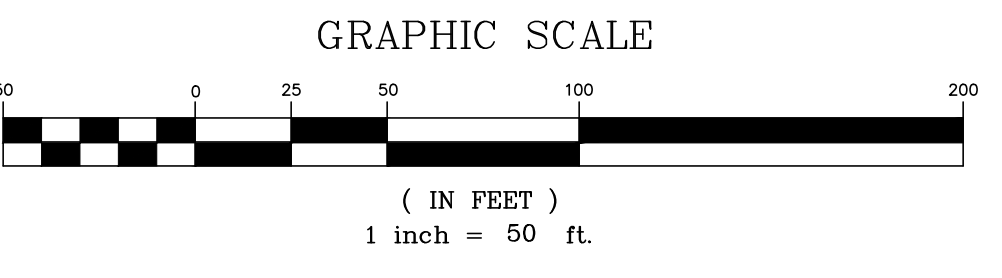
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BK. 81497/PG. 574

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LEGEND	
LIMIT OF DISTURBANCE	
BUILDING TO BE REMOVED	
PAVEMENT TO BE REMOVED	
LIMIT OF 'CLEAR AND GRUB'	
UTILITY CUT AND CAP	
TEMPORARY FENCE	

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CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347
TEL: (508) 923-1010
FAX: (508) 923-6309

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DRAWING TITLE: **SITE PREPARATION PLAN** SHEET No. **C-102B**

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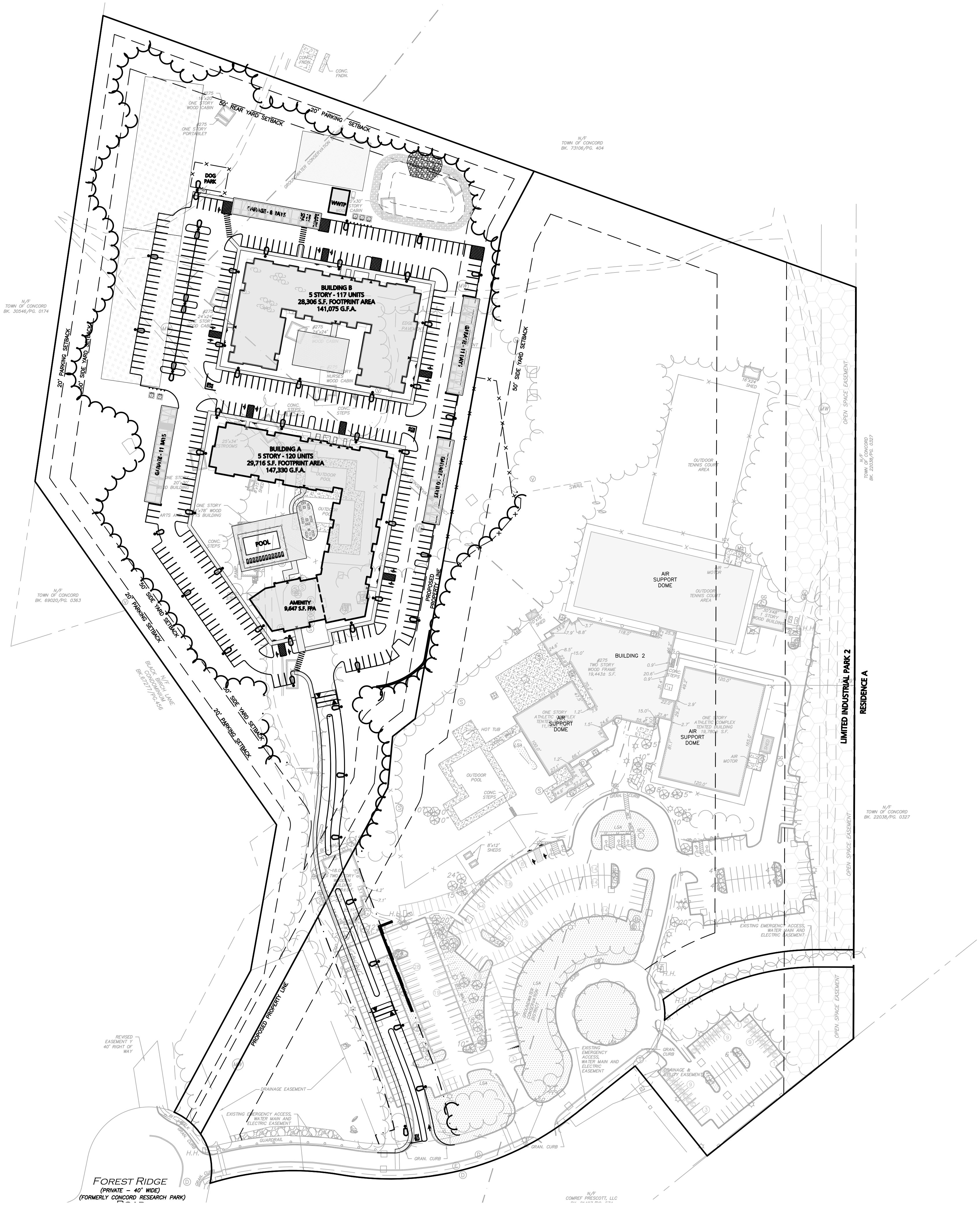
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SEE SHEET C-102A

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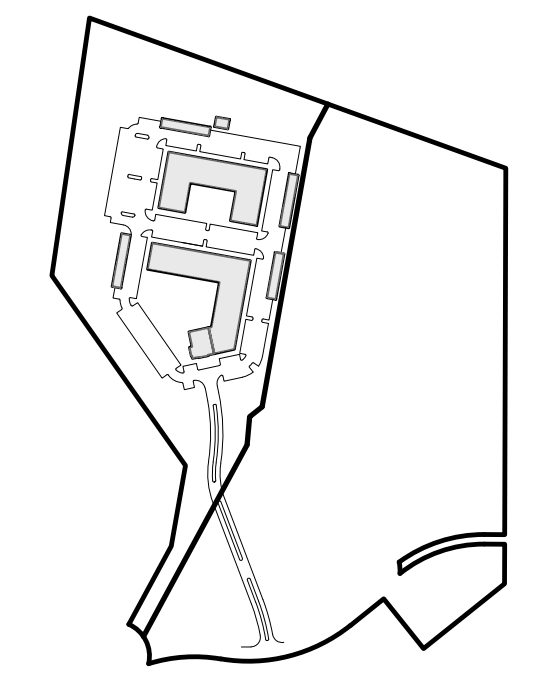
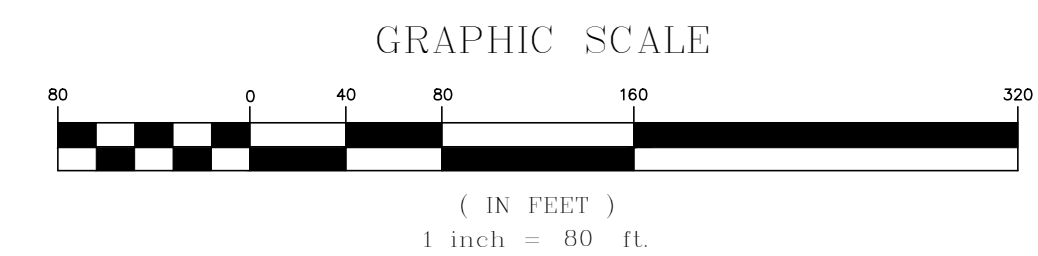
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LEGEND

- PROP. PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- CURB
- RETAINING WALL
- PARKING STRIPING
- TRAFFIC ARROWS
- HEAVY DUTY CONCRETE
- SIDEWALK
- ADA ACCESSIBLE RAMP
- ADA DET. WARNING SURFACE
- GRAVEL ACCESS
- SETBACK LINE
- PARKING COUNT
- CHAIN LINK FENCE
- TRANSFORMER
- TREE LINE
- LIGHTING



ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 80'	DWG. NAME:	C-1670-24
DESIGNED BY:		CHECKED BY:	PLC

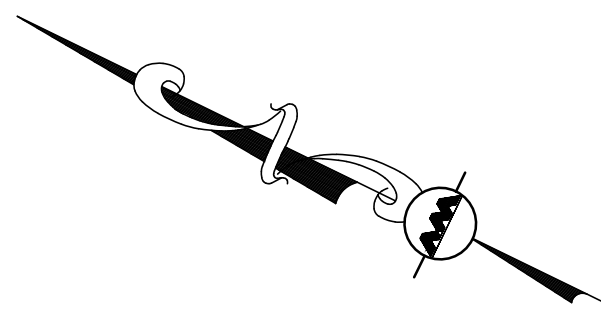
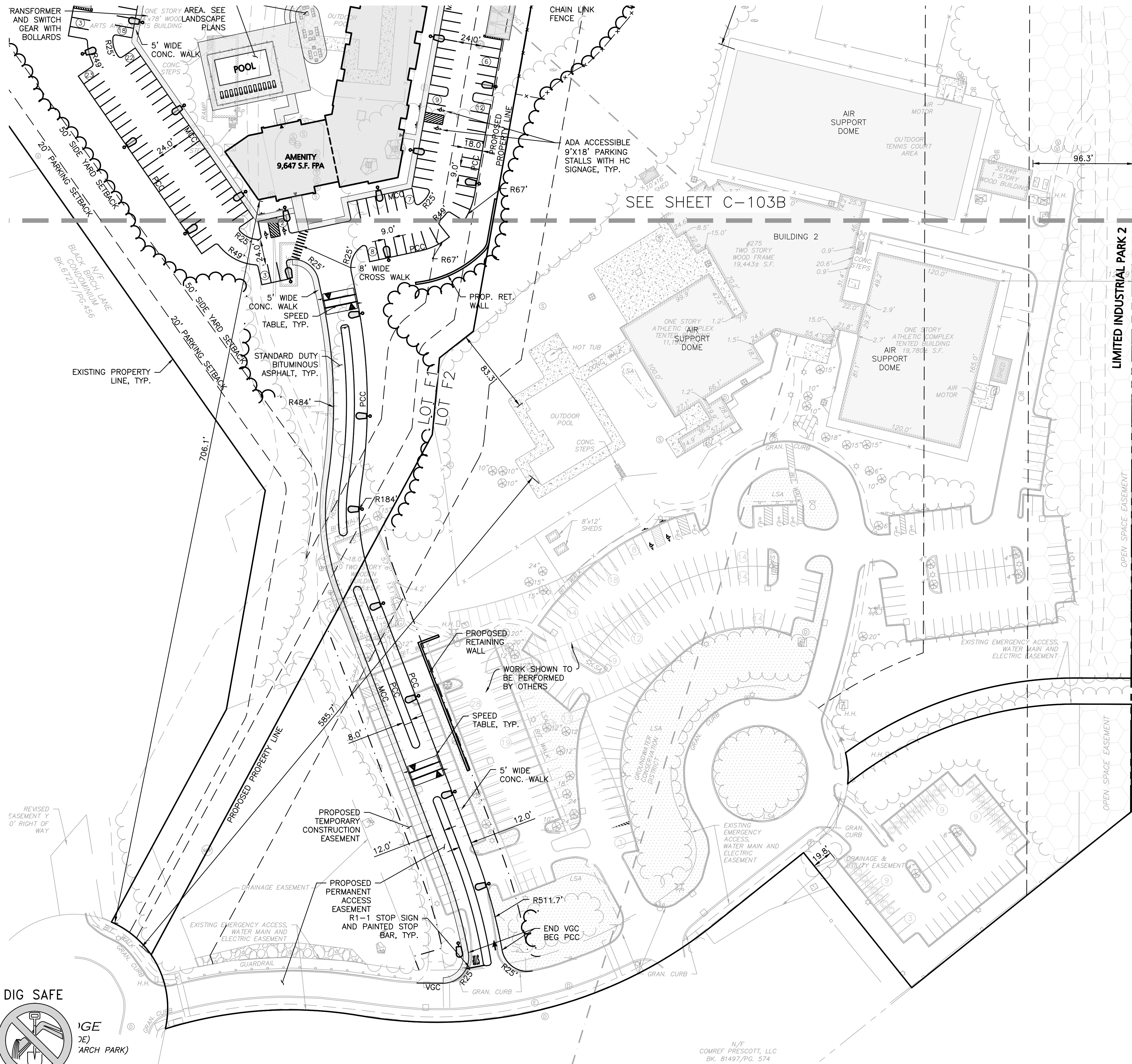
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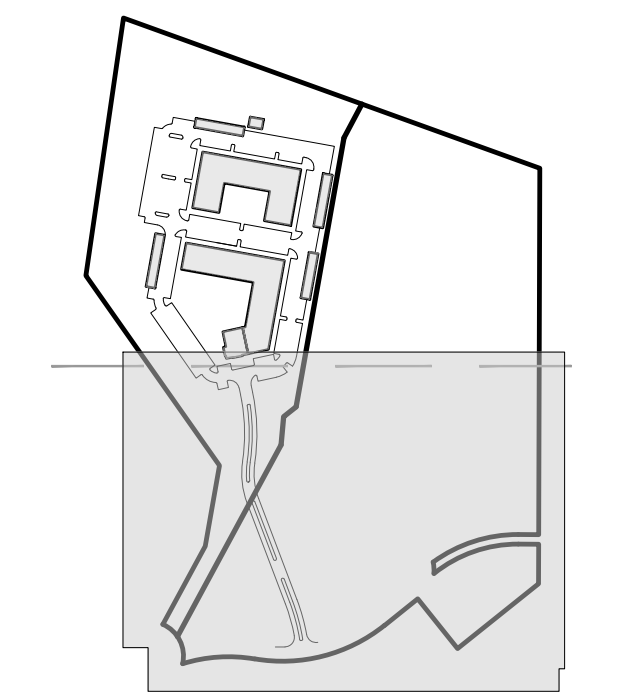
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DRAWING TITLE: **OVERALL LAYOUT & MATERIALS PLAN** SHEET No. **C-103**
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LEGEND	
PROP. PROPERTY LINE	---
SIGN	+
BOLLARD	•
BUILDING	▭
CURB	▬▬▬
RETAINING WALL	▬▬▬▬▬
PARKING STRIPING	▨▨▨▨▨
TRAFFIC ARROWS	➔ ➔
HEAVY DUTY CONCRETE	▨▨▨▨▨
SIDEWALK	▨▨▨▨▨
ADA ACCESSIBLE RAMP	▭
ADA DET. WARNING SURFACE	▨▨▨▨▨
GRAVEL ACCESS	▨▨▨▨▨
SETBACK LINE	---
PARKING COUNT	⑩
CHAIN LINK FENCE	—x—x—
TRANSFORMER	⊥
TREE LINE	~
LIGHTING	⊙

- NOTES:
- ALL CURB RADII ARE 3' UNLESS OTHERWISE NOTED.
 - ALL CURBING SHALL BE PRECAST CONCRETE CURBING UNLESS OTHERWISE NOTED.
 - ALL SIDEWALKS SHALL BE 5 FEET MINIMUM WIDTH UNLESS OTHERWISE NOTED.



ISSUED FOR REVIEW
 DEC. 20, 2023 REV OCT. 18, 2024

PHILIP L. CORDERO
 CIVIL
 NO. 47083
 REGISTERED
 PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
 THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
 THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
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DESIGNED BY:	BDP	CHECKED BY:	PLC

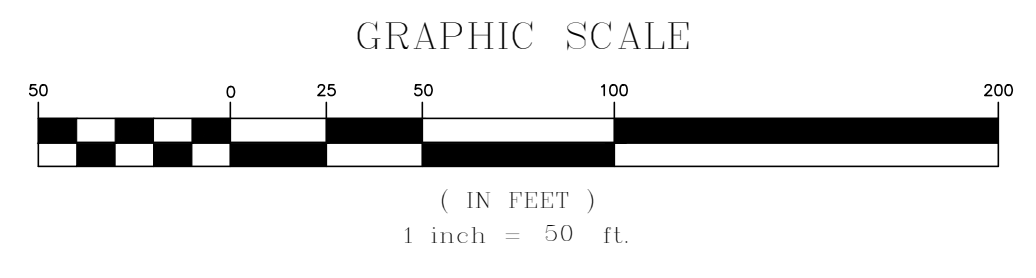
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DRAWING TITLE: LAYOUT & MATERIALS PLAN
 SHEET No. C-103A



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DIMENSIONAL REQUIREMENTS: LIMITED INDUSTRIAL PARK2 (LIP2)

ITEM	REQUIRED/ALLOWED	EXISTING	LOT 5F1	LOT 5F2
LOT AREA MINIMUM	217,800± S.F. 5.0± ACRES	1,439,826± S.F. 33.05± ACRES	570,160± S.F. 13.09± ACRES	869,666± S.F. 19.96± ACRES
FRONTAGE (MIN)	50 FEET	122.5 FEET	50 FEET	74.4 FEET
FRONT YARD (MIN)	50 FEET	352± FEET	706.1 FEET	585.7 FEET
SIDE YARD (MIN)	50 FEET	68.9 FEET	12.9 FEET	83.3 FEET
SIDE YARD (MIN) ABUTTING RESIDENTIAL DISTRICT	200 FEET	96.3* FEET	N/A	96.3* FEET
REAR YARD (MIN)	50 FEET	38.5 FEET	124.4 FEET	460.2 FEET
PARKING SETBACK (MIN)	20 FEET	19.8 FEET*	20.8 FEET	19.8 FEET*
LOT COVERAGE (MAX.)	35%	274,114± S.F. 18.9%	234,142± S.F. 41.1%	285,109± S.F. 32.8%
BUILDING HEIGHT/STORIES (MAX.)	40'/3	26.2'/2	60'/5	26.2'/2
FLOOR AREA RATIO (MAX.)	3,000 SQ.FT. PER ACRE	3,000 SQ.FT * 33.22 AC. = 99,660 (MAX.) 67,847 SQ.FT	3,000 SQ.FT * 13.09 AC. = 39,270 (MAX.) 314,376 SQ.FT (PROP.)	3,000 SQ.FT * 19.96 AC. = 59,880 (MAX.) 42,508 SQ.FT

*EXISTING NON-CONFORMING

OFF-STREET PARKING SUMMARY - LOT 5F1

USE: MULTI-FAMILY RESIDENTIAL
 2 SPACES PER DWELLING UNIT
 (ONE AND A HALF PER DWELLING UNIT FOR SUBSIDIZED LOW AND MODERATE INCOME HOUSING DEVELOPMENTS)

237 DWELLING UNITS PROPOSED * 2 SPACES = 474 SPACES

ADA REQUIRED: 9 TOTAL PARKING STALLS SHALL BE ACCESSIBLE
 (MINIMUM OF 2 ACCESSIBLE STALLS SHALL BE VAN ACCESSIBLE)

ADA PROVIDED: 13 TOTAL ACCESSIBLE PARKING STALLS (ALL ARE VAN ACCESSIBLE)

STANDARD STALLS PROVIDED	ADA ACCESSIBLE STALLS PROVIDED	GARAGE STALLS PROVIDED	TOTAL STALLS PROVIDED	TOTAL STALLS REQUIRED
341	13	40	394	474

PROPOSED PARKING RATIO = 1.66 PER UNIT

OFF-STREET PARKING SUMMARY - LOT 5F2

USE: TENNIS COURTS
 3 SPACES PER COURT PLUS (1) SPACE PER EMPLOYEE ON THE LARGEST SHIFT

11 TENNIS COURTS * 3 + 12 EMPLOYEES = 45 SPACES

SWIMMING POOL
 1 SPACES PER 75 SQUARE FEET OF GROSS WATER AREA

9,202 SQ.FT. OF WATER AREA = 123 SPACES

FITNESS CLUB
 1 SPACES PER 250 SQUARE FEET OF GROSS FLOOR AREA

21,900 SQ.FT. / 250 = 88 SPACES

OUTDOOR RECREATIONAL FACILITY
 1 SPACES PER 4 PERSONS GENERALLY EXPECTED ON THE PREMISES AT ONE TIME

125 PERSONS = 32 SPACES

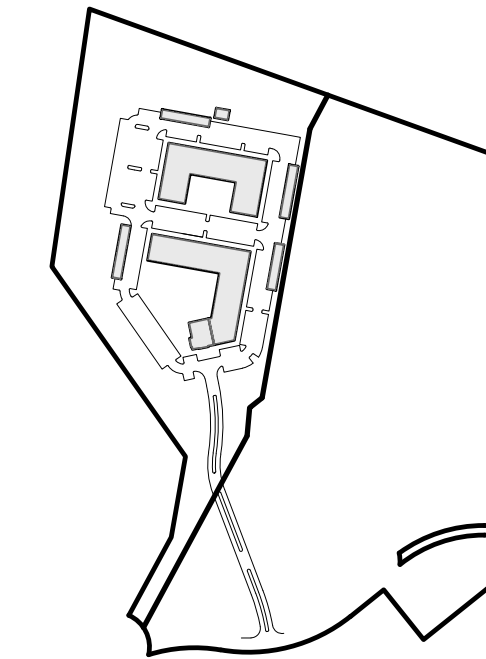
TOTAL REQUIRED = 288

ADA REQUIRED: 7 TOTAL PARKING STALLS SHALL BE ACCESSIBLE
 (MINIMUM OF 2 ACCESSIBLE STALLS SHALL BE VAN ACCESSIBLE)

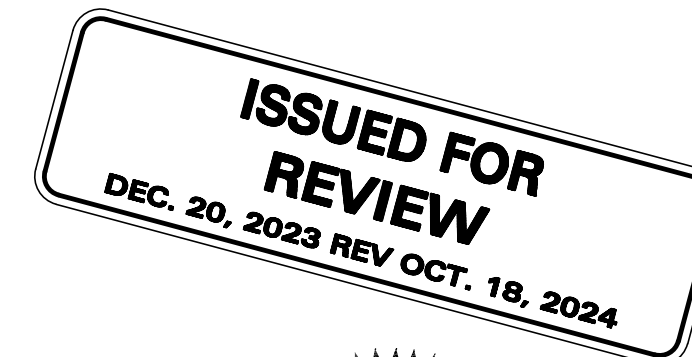
ADA PROVIDED: 7 TOTAL ACCESSIBLE PARKING STALLS INCLUDING 4 VAN STALLS

STANDARD STALLS PROVIDED	ACCESSIBLE STALLS PROVIDED	TOTAL STALLS PROVIDED	TOTAL STALLS REQUIRED
298	7	305	288

PROPOSED PLAN PROVIDES FOR RE-STRIPING SPACES IN KIND OR CONVERSION TO COMPACT SPACES AS ALLOWED UNDER THE BYLAW. NET PARKING REMAINS UNCHANGED.



KEYSHEET



PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:

THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:

THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO. 1670-24 DATE: 12/20/2023

SCALE: 1" = 50' DWG. NAME: C-1670-24

DESIGNED BY: BDP CHECKED BY: PLC

PREPARED BY:

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DRAWING TITLE: LAYOUT & MATERIALS PLAN SHEET No. C-103C

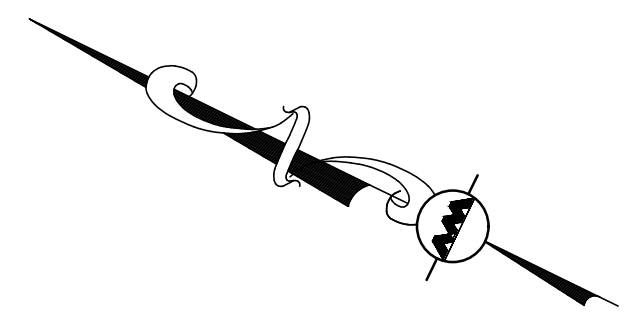
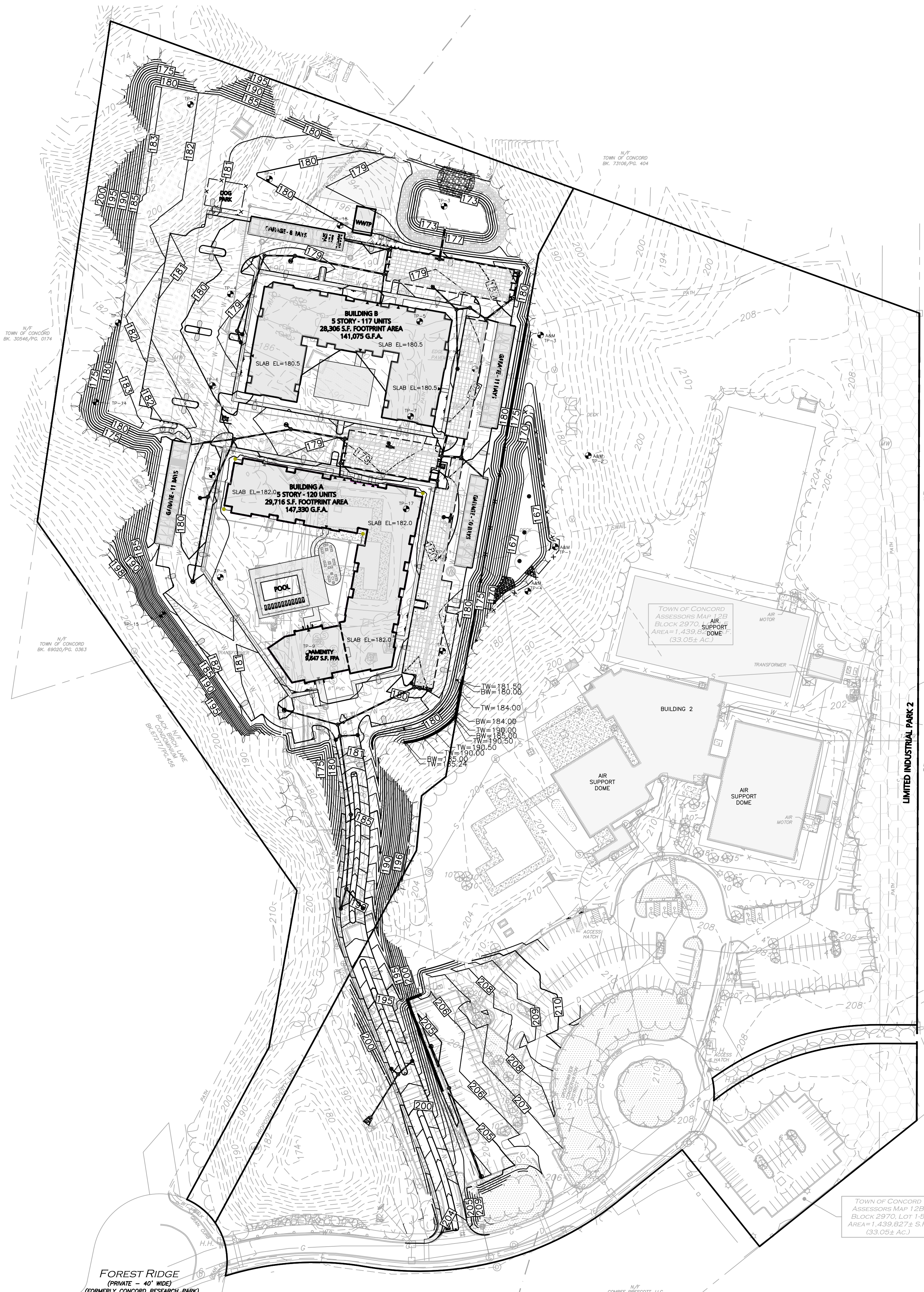
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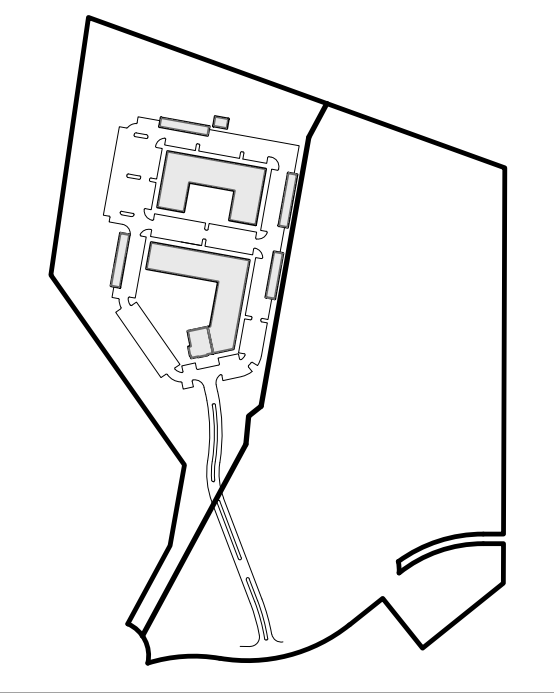


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LEGEND	
DRAIN MANHOLE (DMH)	⊙
CATCH BASIN (CB)	⊙
CATCH BASIN - DOUBLE GRATE	⊙
FLARED END SECTION (FES)	◁
DRAIN LINE	—
RIPRAP OUTFALL	▨
HEADWALL	⌒
5' CONTOUR	—180—
1' CONTOUR	—177—
SPOT GRADE	×180.50
INFILTRATION SYSTEM	▭
INFILTRATION CHAMBERS	▭
ISOLATOR ROW	▭
FLOW DIRECTION	→



ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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CONCORD, MA 01742

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DESIGNED BY:	PGM	CHECKED BY:	PLC

PREPARED BY:

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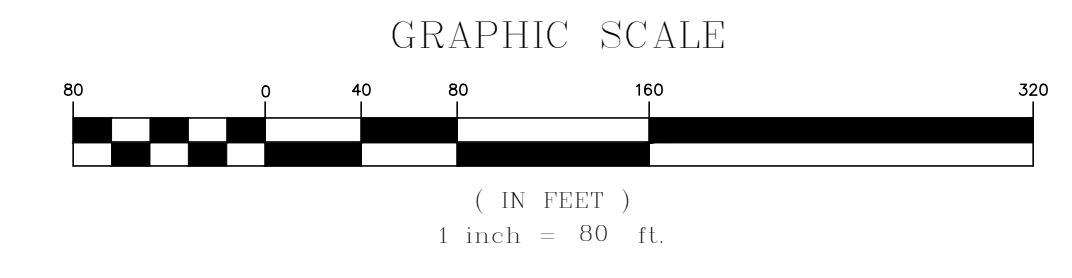
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DRAWING TITLE:	SHEET No.
OVERALL GRADING & DRAINAGE PLAN	C-104

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(PRIVATE - 40' WIDE)
(FORMERLY CONCORD RESEARCH PARK)

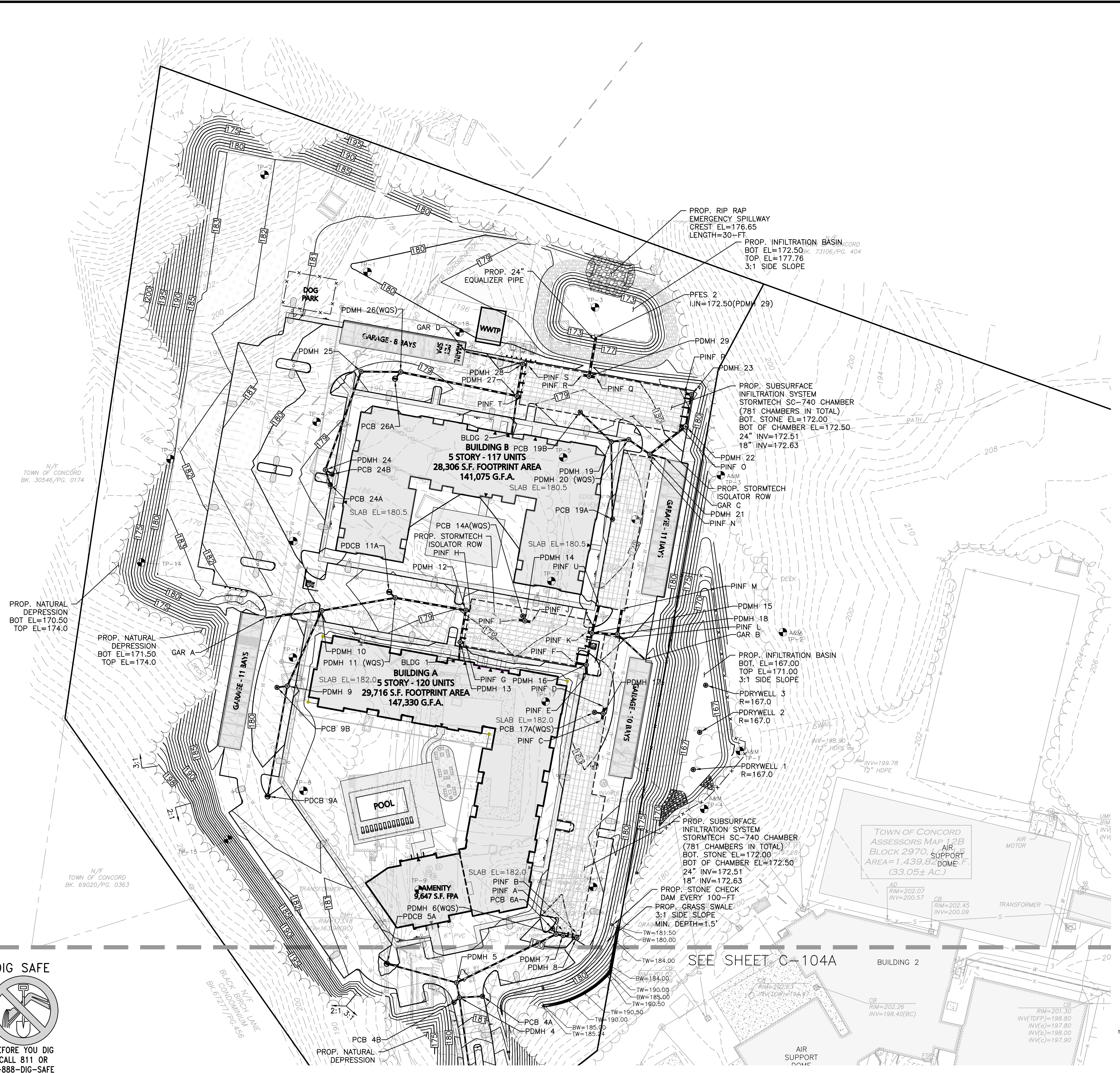
TOWN OF CONCORD
ASSESSORS MAP 129
BLOCK 2970, LOT 1-5
AREA=1,439.627± S.F.
(33.05± Ac.)

N.P.
CONREF PRESCOTT, LLC
200 WASHINGTON ST.
CONCORD, MA 01742















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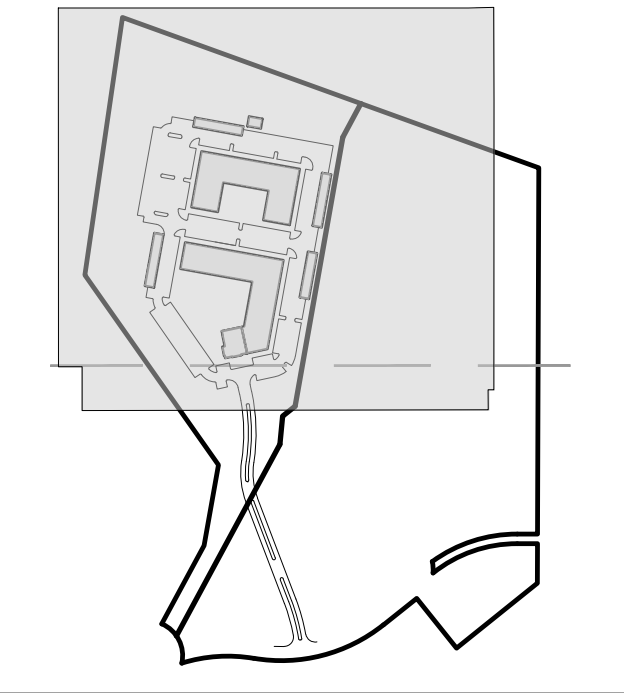
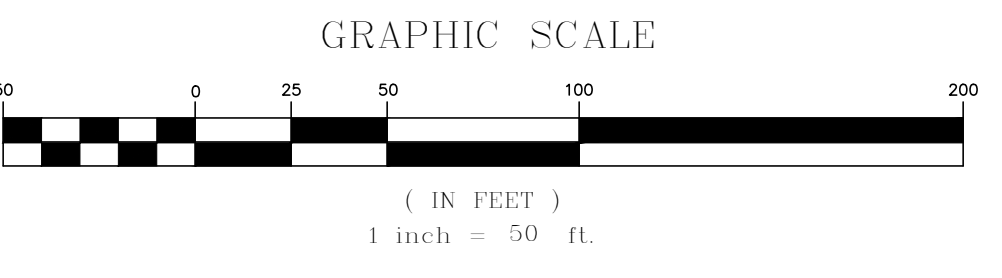
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LEGEND

- DRAIN MANHOLE (DMH) 
- CATCH BASIN (CB) 
- CATCH BASIN - DOUBLE GRATE 
- FLARED END SECTION (FES) 
- DRAIN LINE 
- RIPRAP OUTFALL 
- HEADWALL 
- 5' CONTOUR 
- 1' CONTOUR 
- SPOT GRADE 
- INFILTRATION SYSTEM 
- INFILTRATION CHAMBERS 
- ISOLATOR ROW 
- FLOW DIRECTION 

- NOTES:**
- GRADING SHOWN ON PLANS ARE GENERAL IN NATURE DEMONSTRATING INTENT FOR PERMITTING DRAWINGS AND DO NOT TAKE INTO ACCOUNT ALL DOOR LOCATIONS AND THE AMENITY COURTYARDS. THESE AREAS WILL NEED TO BE FINE GRADED AND COORDINATED WITH ARCHITECT AND LANDSCAPE ARCHITECT DURING THE SCHEMATIC DESIGN PHASE, DESIGN DEVELOPMENT PHASE, BUILDING PERMIT PHASE AND CONSTRUCTION DRAWING PHASE.
 - REFER TO SHEET C-104C TO DRAINAGE STRUCTURE AND PIPE TABLES.
 - THE FOLLOWING DRAINAGE STRUCTURES SHALL BE WATER QUALITY STRUCTURES:
 - PDMH 1, PDMH 6, PDMH 11, PDMH 20, PDMH 26
 - PCB 14A, PCB 17A



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PROFESSIONAL ENGINEER FOR
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DRAWING TITLE: **GRADING & DRAINAGE PLAN** SHEET No. **C-104B**

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STRUCTURE	STRUCTURE DETAILS
PCB 1A	RIM = 197.82 INV IN = 193.78 (PDMH 1)
PCB 1B	RIM = 197.82 INV OUT = 193.75 (PDMH 1)
PCB 2A	RIM = 190.07 INV OUT = 186.44 (PDMH 2)
PCB 2B	RIM = 190.07 INV OUT = 186.30 (PDMH 2)
PCB 4A	RIM = 180.31 INV OUT = 176.70 (PDMH 4)
PCB 4B	RIM = 180.31 INV OUT = 176.53 (PDMH 4)
PCB 6A	RIM = 179.51 INV OUT = 175.25 (PDMH 6)
PCB 9B	RIM = 179.17 INV OUT = 175.32 (PDMH 9)
PCB 14A	RIM = 178.23 INV OUT = 174.10 (PDMH 14)
PCB 17A	RIM = 179.40 INV OUT = 175.10 (PDMH 17)
PCB 19A	RIM = 178.25 INV OUT = 174.75 (PDMH 19)
PCB 19B	RIM = 178.53 INV OUT = 174.77 (PDMH 19)
PCB 24A	RIM = 178.45 INV OUT = 175.12 (PDMH 24)
PCB 24B	RIM = 178.44 INV OUT = 175.10 (PDMH 24)
PCB 26A	RIM = 178.39 INV OUT = 174.29 (PDMH 26)
PDCB 5A	RIM = 179.74 INV OUT = 176.10 (PDMH 5)
PDCB 9A	RIM = 180.04 INV OUT = 176.36 (PDMH 9)
PDCB 11A	RIM = 178.19 INV OUT = 174.20 (PDMH 11)

STRUCTURE	STRUCTURE DETAILS
PDMH 1	RIM = 198.27 INV IN = 193.67 (PCB 1A) INV IN = 193.67 (PCB 1B) INV OUT = 193.57 (PFES 1)
PDMH 2	RIM = 189.18 INV IN = 185.60 (PCB 2A) INV IN = 185.60 (PCB 2B) INV OUT = 184.60 (PDMH 3)
PDMH 3	RIM = 184.66 INV IN = 179.81 (PDMH 2) INV OUT = 179.00 (PDMH 4)
PDMH 4	RIM = 180.50 INV IN = 176.50 (PDMH 3) INV IN = 176.50 (PCB 4B) INV IN = 176.50 (PCB 4A) INV OUT = 176.40 (PDMH 5)
PDMH 5	RIM = 180.84 INV IN = 175.61 (PDCB 5A) INV IN = 175.93 (PDMH 4) INV OUT = 175.36 (PDMH 6)
PDMH 6	RIM = 179.68 INV IN = 175.20 (PCB 6A) INV IN = 174.48 (PDMH 5) INV OUT = 174.23 (PDMH 7)
PDMH 7	RIM = 179.78 INV IN = 174.20 (PDMH 6) INV OUT = 173.02 (PDMH 8) INV OUT = 172.52 (PINF A)
PDMH 8	RIM = 180.11 INV IN = 173.02 (PDMH 7) INV OUT = 172.52 (PINF B)
PDMH 9	RIM = 179.35 INV IN = 175.25 (PCB 9B) INV IN = 175.25 (PDCB 9A) INV OUT = 175.00 (PDMH 10)
PDMH 10	RIM = 179.95 INV IN = 174.76 (GAR A) INV IN = 174.51 (PDMH 9) INV OUT = 174.41 (PDMH 11)
PDMH 11	RIM = 178.36 INV IN = 174.12 (PDCB 11A) INV IN = 173.87 (PDMH 10) INV OUT = 173.62 (PDMH 12)
PDMH 12	RIM = 178.91 INV IN = 173.03 (PDMH 13) INV IN = 173.20 (PDMH 11) INV OUT = 172.53 (PINF H)
PDMH 13	RIM = 179.51 INV IN = 176.03 (BLDG 1) INV OUT = 173.03 (PDMH 12) INV OUT = 172.53 (PINF G)
PDMH 14	RIM = 178.38 INV IN = 174.04 (PCB 14A) INV OUT = 172.54 (PINF I) INV OUT = 172.54 (PINF J)
PDMH 15	RIM = 179.57 INV OUT = 173.03 (PDMH 18) INV OUT = 172.51 (PINF U) INV OUT = 172.53 (PINF K) INV OUT = 173.03 (PDMH 16)

STRUCTURE	STRUCTURE DETAILS
PDMH 16	RIM = 180.49 INV IN = 173.03 (PDMH 15) INV OUT = 172.53 (PINF E) INV OUT = 172.53 (PINF F)
PDMH 17	RIM = 179.69 INV IN = 175.00 (PCB 17A) INV OUT = 172.54 (PINF C) INV OUT = 172.54 (PINF D)
PDMH 18	RIM = 179.90 INV IN = 173.03 (PDMH 15) INV IN = 176.12 (GAR B) INV OUT = 172.53 (PINF L) INV OUT = 172.53 (PINF M)
PDMH 19	RIM = 179.74 INV IN = 174.37 (PCB 19A) INV IN = 174.37 (PCB 19B) INV OUT = 174.12 (PDMH 20)
PDMH 20	RIM = 179.77 INV IN = 174.05 (PDMH 19) INV OUT = 173.95 (PDMH 21)
PDMH 21	RIM = 179.32 INV IN = 173.84 (PDMH 20) INV IN = 175.00 (GAR C) INV OUT = 172.53 (PINF N) INV OUT = 173.03 (PDMH 22)
PDMH 22	RIM = 180.62 INV IN = 173.03 (PDMH 21) INV OUT = 173.03 (PDMH 23) INV OUT = 172.53 (PINF O)
PDMH 23	RIM = 181.27 INV IN = 173.03 (PDMH 22) INV OUT = 172.53 (PINF P)
PDMH 24	RIM = 178.59 INV IN = 175.00 (PCB 24A) INV IN = 175.00 (PCB 24B) INV OUT = 174.75 (PDMH 25)
PDMH 25	RIM = 178.91 INV IN = 174.23 (PDMH 24) INV OUT = 174.13 (PDMH 26)
PDMH 26	RIM = 178.68 INV IN = 173.95 (PDMH 25) INV IN = 174.20 (PCB 26A) INV OUT = 173.70 (PDMH 27)
PDMH 27	RIM = 179.29 INV IN = 173.11 (PDMH 26) INV IN = 174.26 (BLDG 2) INV OUT = 173.03 (PDMH 28) INV OUT = 172.53 (PINF T)
PDMH 28	RIM = 179.96 INV IN = 173.03 (PDMH 27) INV IN = 175.00 (GAR D) INV OUT = 172.53 (PINF S)
PDMH 29	RIM = 179.31 INV IN = 172.51 (PINF R) INV IN = 172.51 (PINF Q) INV OUT = 172.51 (PFES 2)

PIPE SEGMENT	SIZE	LENGTH	SLOPE	MATERIAL
BLDG 1 - PDMH 13	12"	15.80'	3.00%	HDPE
BLDG 2 - PDMH 27	12"	37.08'	2.00%	HDPE
GAR A - PDMH 10	12"	56.96'	1.00%	HDPE
GAR B - PDMH 18	12"	38.21'	1.00%	HDPE
GAR C - PDMH 21	12"	15.42'	2.00%	HDPE
GAR D - PDMH 28	12"	58.14'	1.00%	HDPE
PCB 1A - PDMH 1	12"	22.02'	0.50%	HDPE
PCB 1B - PDMH 1	12"	7.71'	1.00%	HDPE
PCB 2A - PDMH 2	12"	30.54'	2.75%	HDPE
PCB 2B - PDMH 2	12"	23.44'	3.00%	HDPE
PCB 4A - PDMH 4	12"	19.78'	1.00%	HDPE
PCB 4B - PDMH 4	12"	3.44'	1.00%	HDPE
PCB 6A - PDMH 6	12"	2.64'	2.00%	HDPE
PCB 9B - PDMH 9	12"	6.63'	1.00%	HDPE
PCB 14A - PDMH 14	12"	1.52'	4.00%	HDPE
PCB 17A - PDMH 17	12"	4.88'	2.00%	HDPE
PCB 19A - PDMH 19	12"	75.64'	0.50%	HDPE
PCB 19B - PDMH 19	12"	40.26'	1.00%	HDPE
PCB 24A - PDMH 24	12"	12.12'	1.00%	HDPE
PCB 24B - PDMH 24	12"	4.30'	2.33%	HDPE
PCB 26A - PDMH 26	12"	4.48'	2.00%	HDPE
PDCB 5A - PDMH 5	12"	69.82'	0.70%	HDPE
PDCB 9A - PDMH 9	12"	110.74'	1.00%	HDPE

PIPE SEGMENT	SIZE	LENGTH	SLOPE	MATERIAL
PDCB 11A - PDMH 11	12"	4.09'	2.00%	HDPE
PDMH 1 - PFES 1	12"	64.54'	1.00%	HDPE
PDMH 2 - PDMH 3	12"	95.85'	5.00%	HDPE
PDMH 3 - PDMH 4	12"	102.10'	2.45%	HDPE
PDMH 4 - PDMH 5	12"	11.65'	4.00%	HDPE
PDMH 5 - PDMH 6	15"	109.86'	0.80%	HDPE
PDMH 6 - PDMH 7	18"	3.45'	1.00%	HDPE
PDMH 7 - PDMH 8	18"	10.25'	0.00%	HDPE
PDMH 7 - PINF A	24"	2.30'	0.50%	HDPE
PDMH 8 - PINF B	24"	2.30'	0.50%	HDPE
PDMH 9 - PDMH 10	15"	81.27'	0.60%	HDPE
PDMH 10 - PDMH 11	15"	72.70'	0.75%	HDPE
PDMH 11 - PDMH 12	18"	69.69'	0.60%	HDPE
PDMH 12 - PINF H	24"	3.44'	0.50%	HDPE
PDMH 13 - PDMH 12	18"	29.25'	0.00%	HDPE
PDMH 13 - PINF G	24"	3.44'	0.50%	HDPE
PDMH 14 - PINF I	24"	5.40'	0.50%	HDPE
PDMH 14 - PINF J	24"	4.84'	0.56%	HDPE
PDMH 15 - PDMH 16	18"	29.25'	0.00%	HDPE
PDMH 15 - PDMH 18	18"	22.19'	0.00%	HDPE
PDMH 15 - PINF K	24"	3.44'	0.50%	HDPE
PDMH 15 - PINF U	24"	28.05'	0.00%	HDPE
PDMH 16 - PINF E	24"	8.95'	0.19%	HDPE

PIPE SEGMENT	SIZE	LENGTH	SLOPE	MATERIAL
PDMH 16 - PINF F	24"	10.56'	0.16%	HDPE
PDMH 17 - PINF C	24"	5.12'	0.51%	HDPE
PDMH 17 - PINF D	24"	5.12'	0.50%	HDPE
PDMH 18 - PINF L	24"	2.67'	0.64%	HDPE
PDMH 18 - PINF M	24"	24.57'	0.07%	HDPE
PDMH 19 - PDMH 20	15"	14.09'	0.50%	HDPE
PDMH 20 - PDMH 21	15"	22.40'	0.50%	HDPE
PDMH 21 - PDMH 22	18"	42.20'	0.00%	HDPE
PDMH 21 - PINF N	24"	3.00'	0.50%	HDPE
PDMH 22 - PDMH 23	18"	28.86'	0.00%	HDPE
PDMH 22 - PINF O	24"	4.90'	0.35%	HDPE
PDMH 23 - PINF P	24"	5.40'	0.31%	HDPE
PDMH 24 - PDMH 25	15"	103.50'	0.50%	HDPE
PDMH 25 - PDMH 26	15"	36.75'	0.50%	HDPE
PDMH 26 - PDMH 27	18"	118.05'	0.50%	HDPE
PDMH 27 - PDMH 28	18"	29.25'	0.00%	HDPE
PDMH 27 - PINF T	24"	3.44'	0.50%	HDPE
PDMH 28 - PINF S	24"	3.44'	0.50%	HDPE
PDMH 29 - PFES 2	24"	38.32'	0.03%	HDPE
PINF Q - PDMH 29	24"	5.12'	0.00%	HDPE
PINF R - PDMH 29	24"	5.12'	0.00%	HDPE

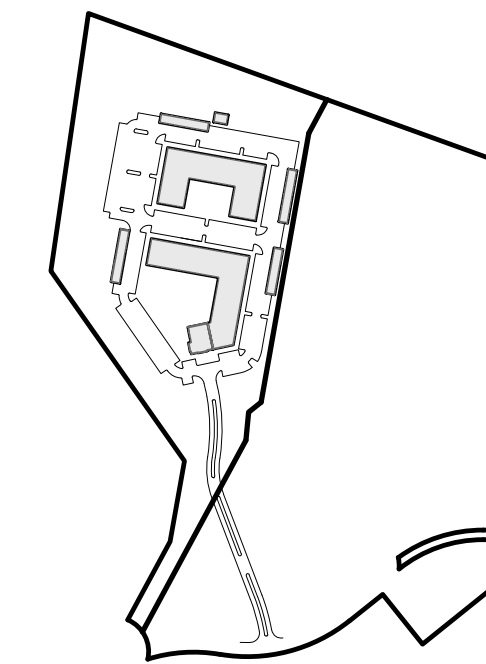
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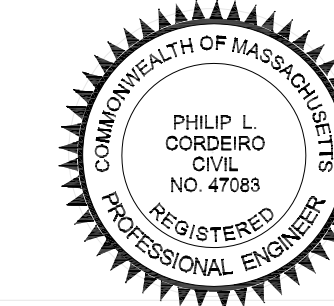


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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:

THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:

THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO. 1670-24 DATE: 12/20/2023

SCALE: 1" = 50' DWG. NAME: C-1670-24

DESIGNED BY: PGM CHECKED BY: PLC

PREPARED BY:

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www.allenmajor.com
10 MAIN STREET
LAKEVILLE, MA 02347
TEL: (508) 923-1010
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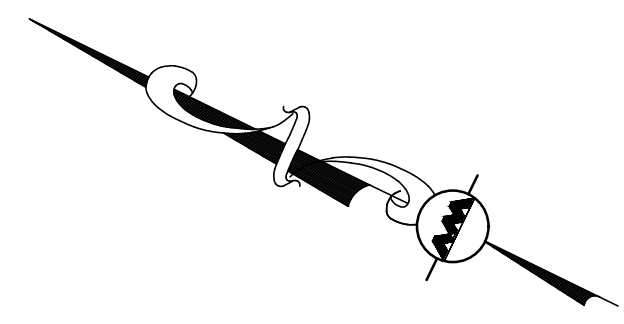
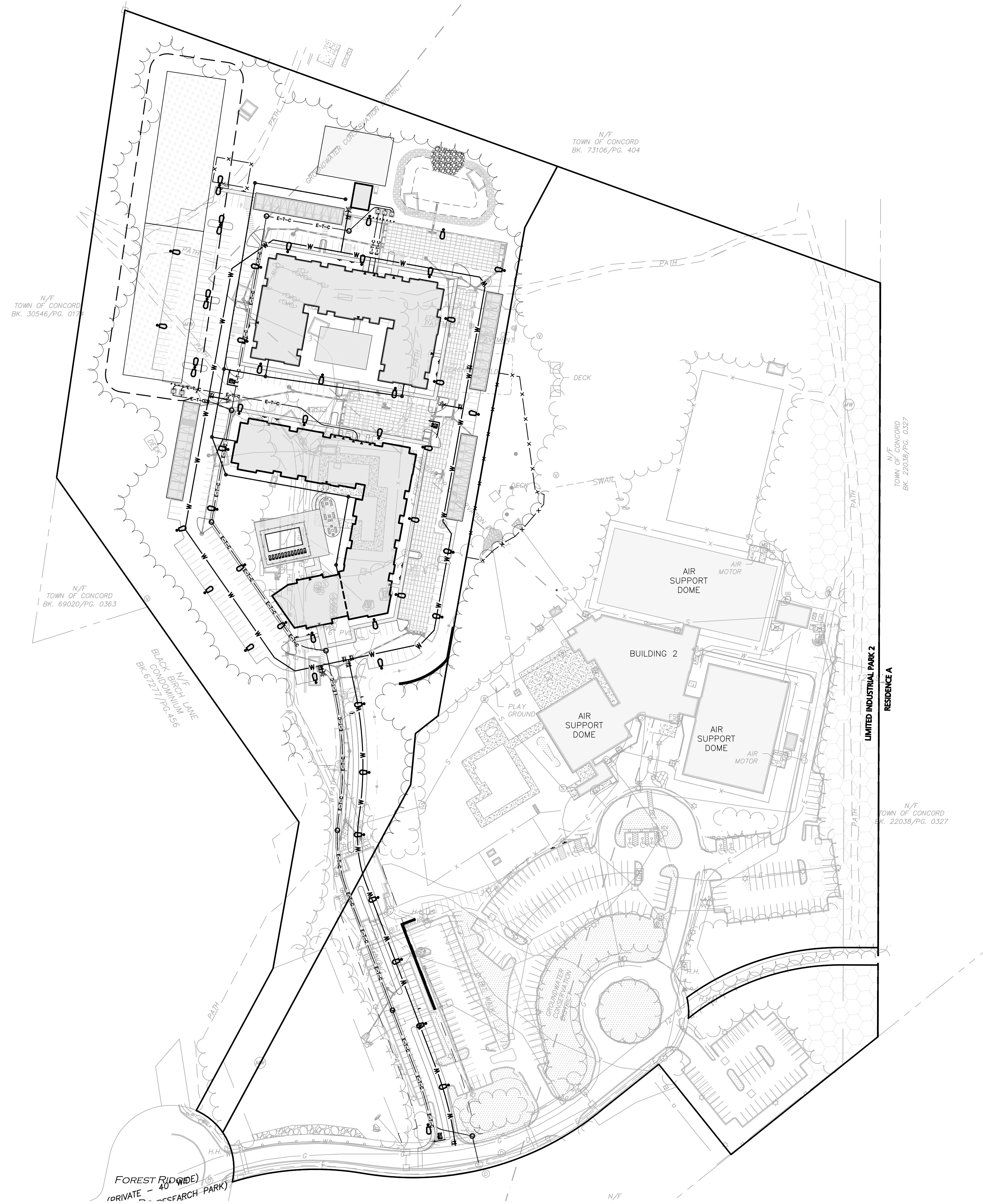
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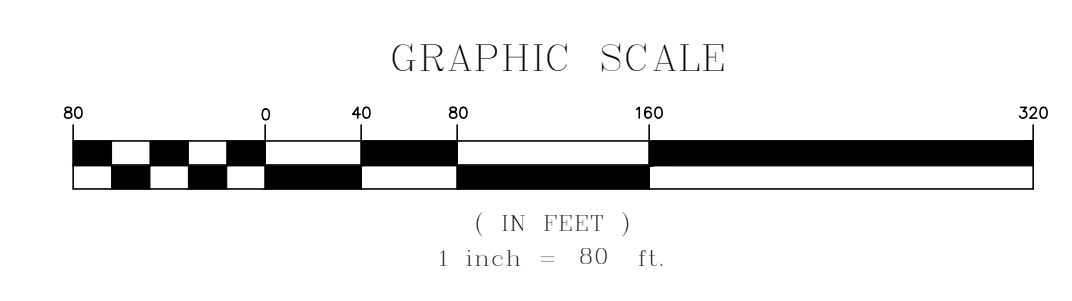
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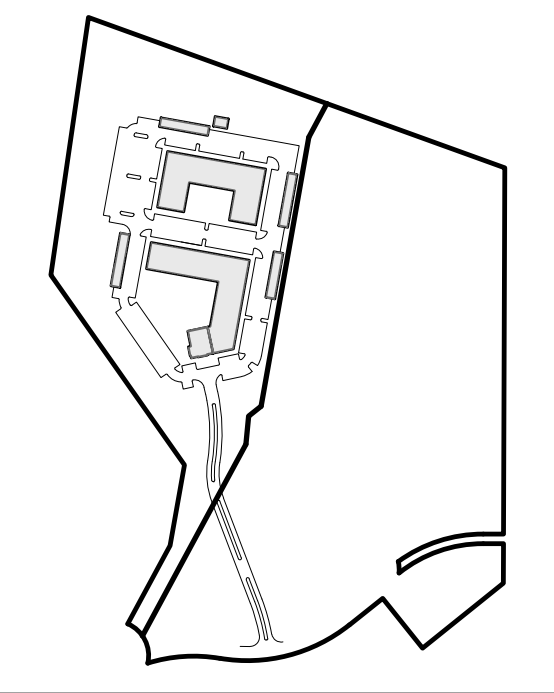


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01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
 THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
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DESIGNED BY:		CHECKED BY:	PLC

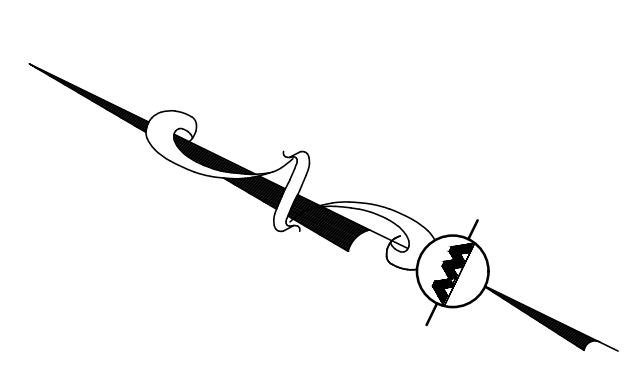
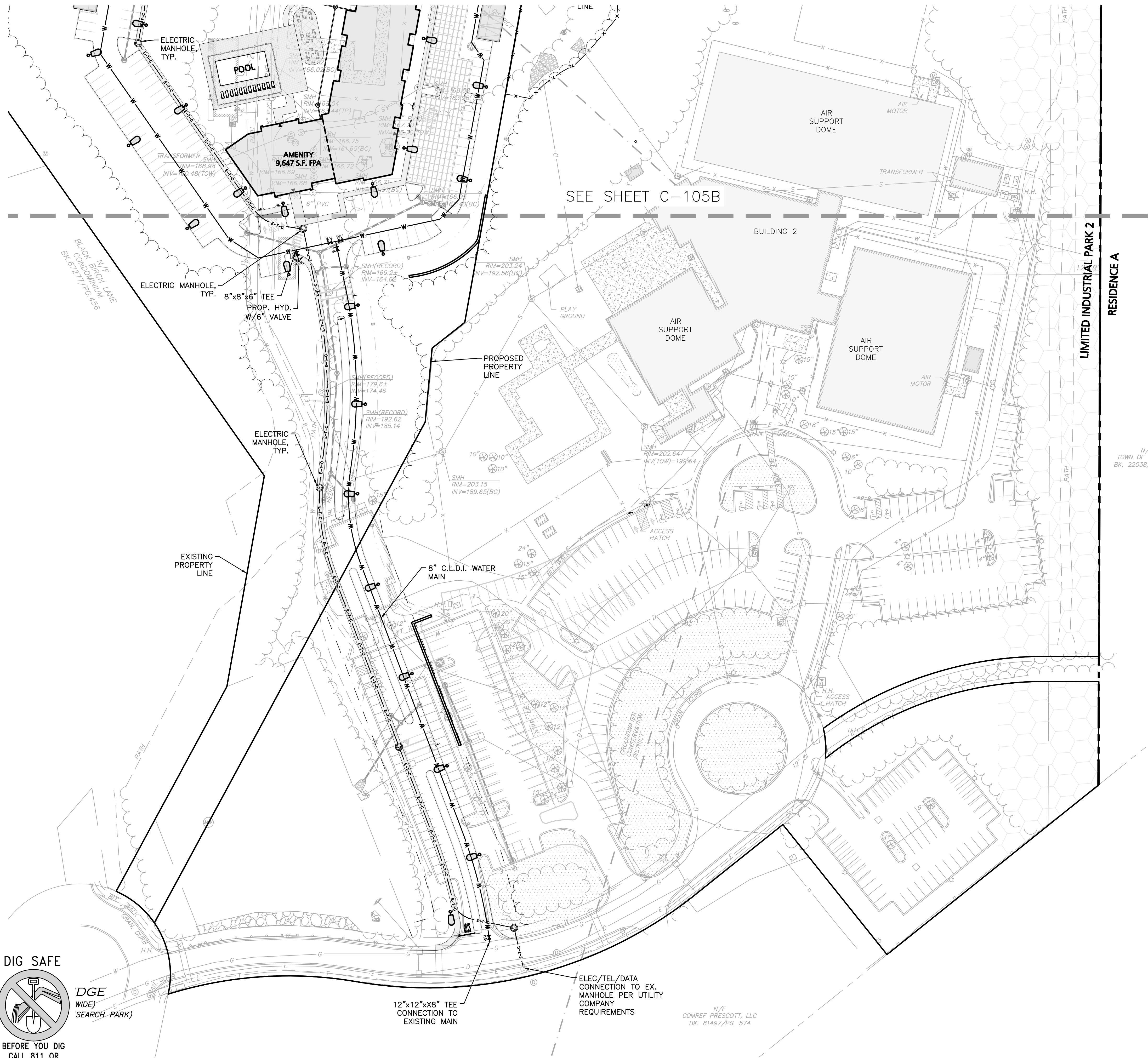
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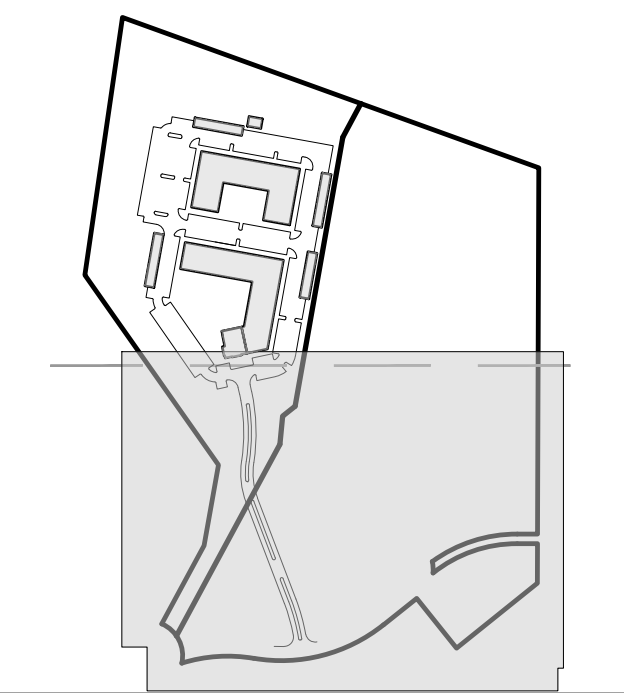
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APPLICANT/OWNER:
 THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

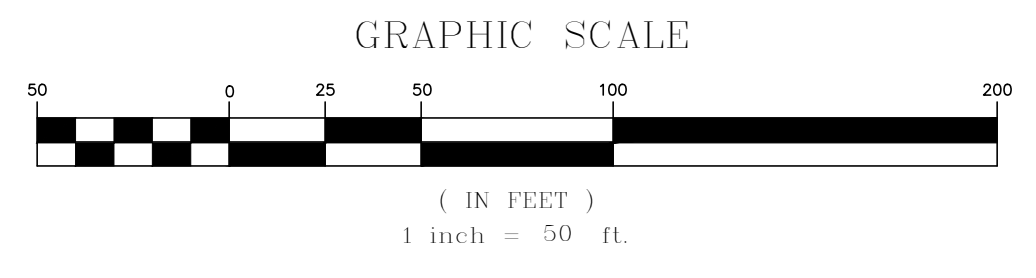
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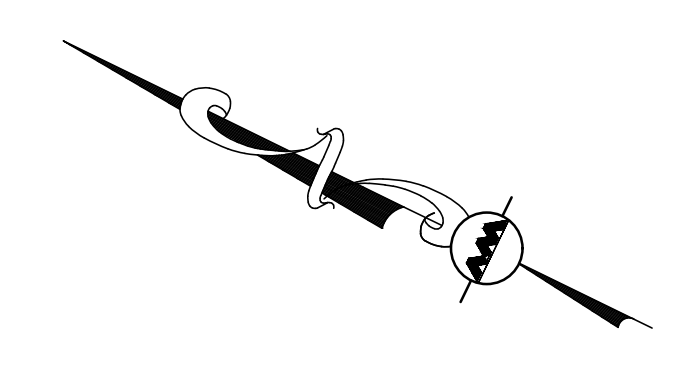
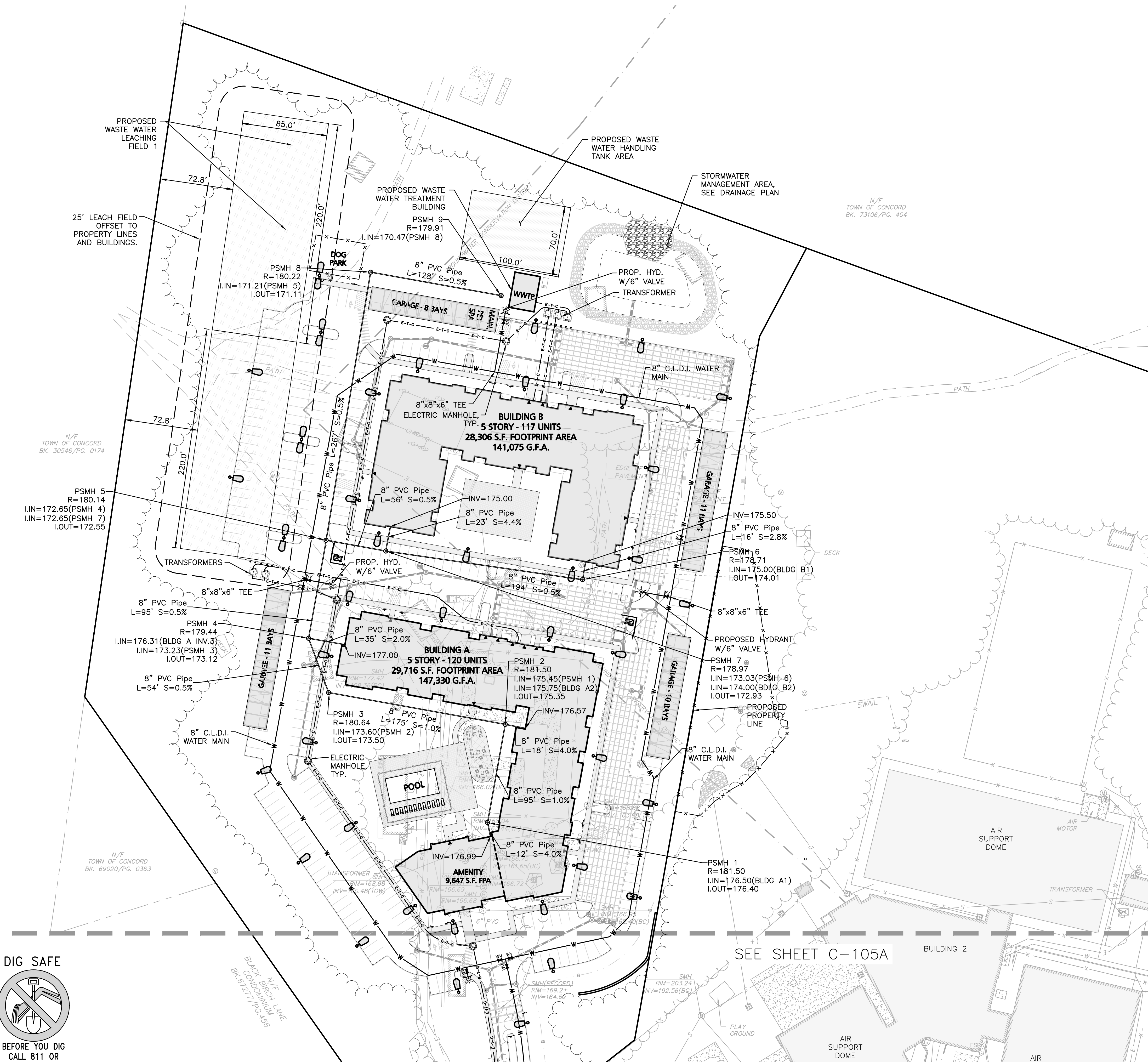
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ELEC/TEL/DATA CONNECTION TO EX. MANHOLE PER UTILITY COMPANY REQUIREMENTS

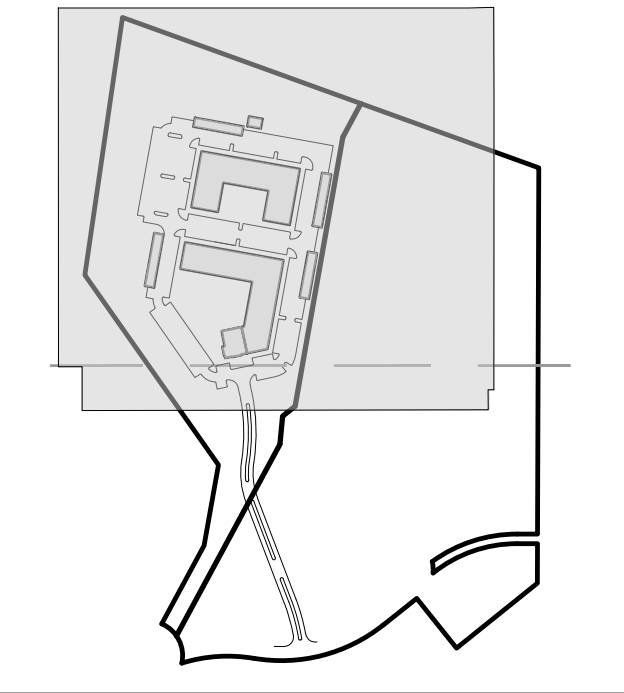
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CONCORD, MA 01742

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CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
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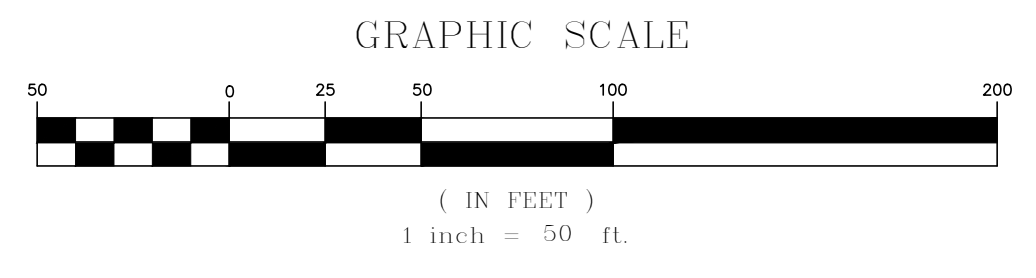
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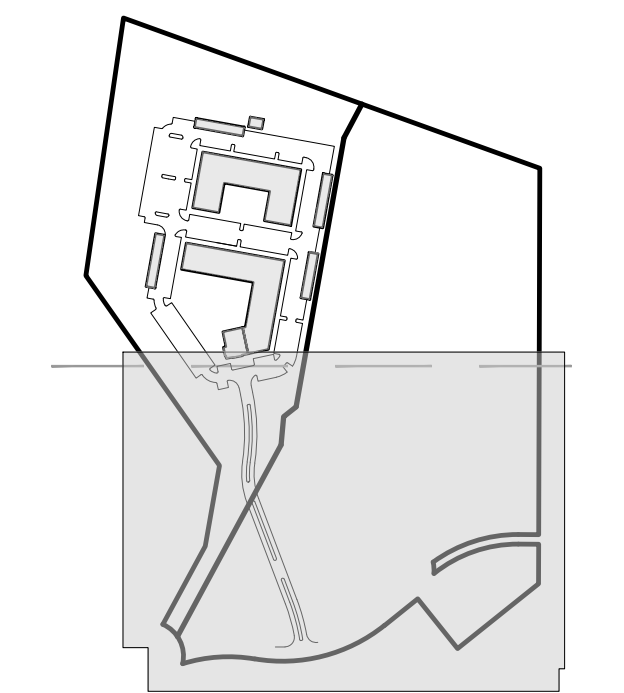


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LEGEND

SNOW STORAGE AREA

- NOTES:**
- SNOW SHALL NOT BE PLOWED TOWARDS ANY AREA PROTECTED BY THE MASSACHUSETTS WETLANDS PROTECTION ACT. ADDITIONALLY, IT IS PROHIBITED TO DUMP SNOW IN STORMWATER PONDS.
 - SNOW SHALL BE STOCKPILED ON SITE IN LOCATIONS SHOWN UNTIL THE ACCUMULATED SNOW BECOMES A HAZARD TO THE DAILY OPERATIONS OF THE SITE. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO PROPERLY DISPOSE OF TRANSPORTED SNOW ACCORDING TO MASSDEP DISPOSAL GUIDELINES.



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PROFESSIONAL ENGINEER FOR
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 CONCORD, MA 01742

PROJECT:
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 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

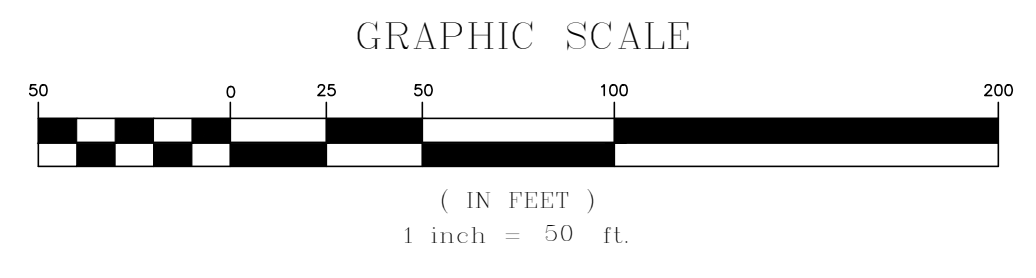
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DRAWING TITLE: SNOW STORAGE PLAN SHEET No. C-106A



M:\PROJECTS\1670-24\CIVIL\DRAWINGS\CURRENT\C-1670-24 - SNOW STORAGE.DWG

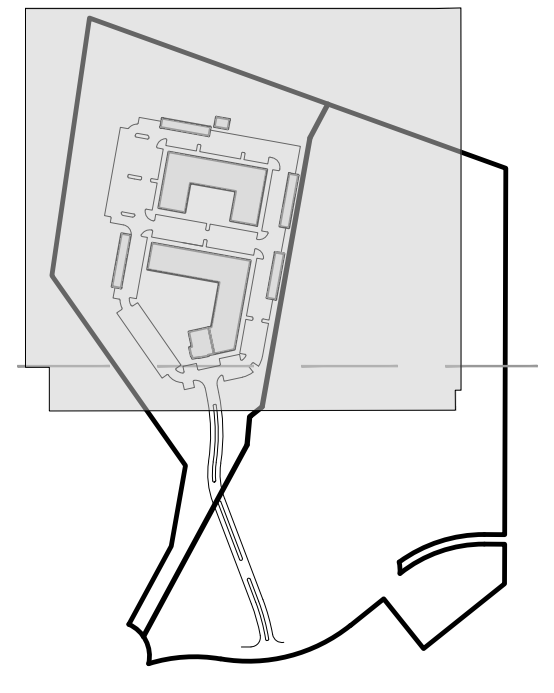
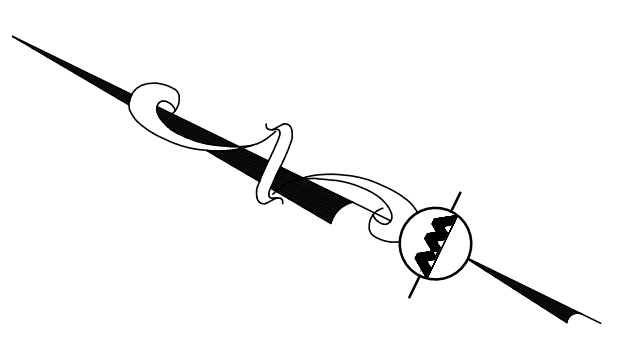
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 1-888-344-7233

N/F
 COMREF PRESCOTT, LLC
 BK. 81497/PG. 574

N/F
 TOWN OF CONC
 BK. 22038/PG.

M:\PROJECTS\1670-24\CIVIL\DRAWINGS\CURRENT\C-1670-24 - SNOW STORAGE.DWG



KEYSHEET

LEGEND

SNOW STORAGE AREA

ISSUED FOR REVIEW
 DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

NOTES:

1. SNOW SHALL NOT BE PLOWED TOWARDS ANY AREA PROTECTED BY THE MASSACHUSETTS WETLANDS PROTECTION ACT. ADDITIONALLY, IT IS PROHIBITED TO DUMP SNOW IN STORMWATER PONDS.
2. SNOW SHALL BE STOCKPILED ON SITE IN LOCATIONS SHOWN UNTIL THE ACCUMULATED SNOW BECOMES A HAZARD TO THE DAILY OPERATIONS OF THE SITE. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO PROPERLY DISPOSE OF TRANSPORTED SNOW ACCORDING TO MASSDEP DISPOSAL GUIDELINES.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

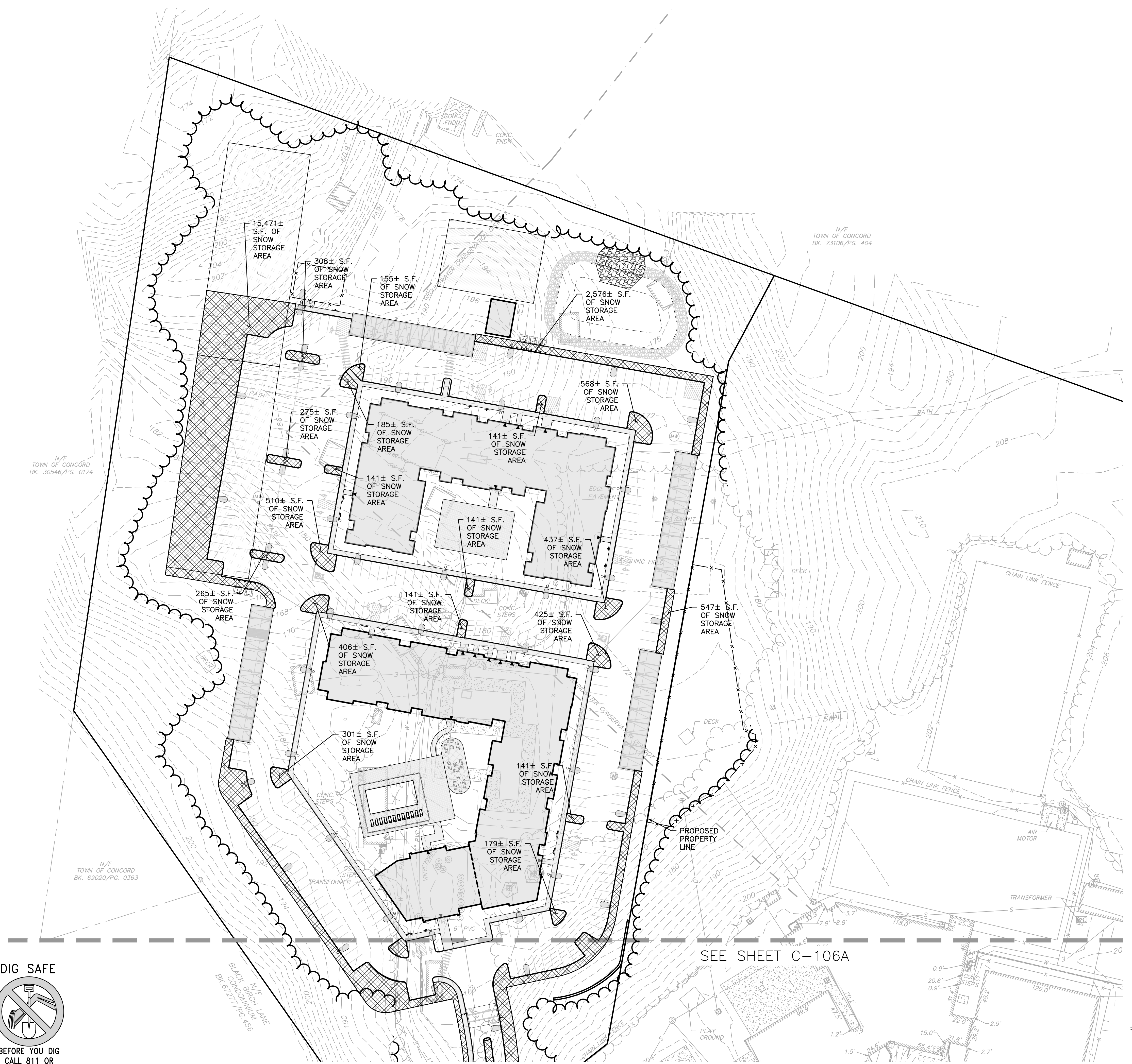
ALLEN & MAJOR ASSOCIATES, INC.
 civil engineering • land surveying
 environmental consulting • landscape architecture
 www.allenmajor.com
 10 MAIN STREET
 LAKEVILLE, MA 02347
 TEL: (508) 923-1010
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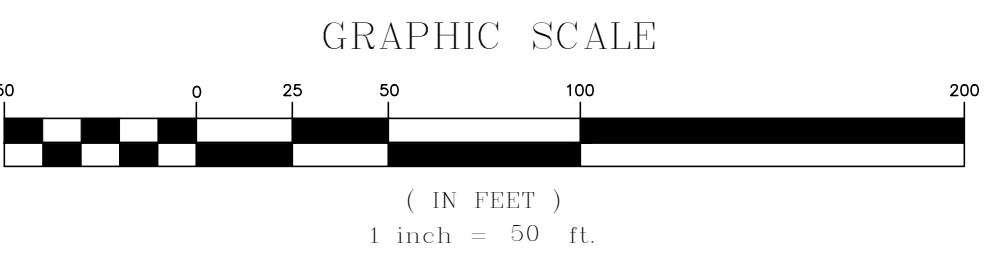
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DRAWING TITLE: **SNOW STORAGE PLAN** SHEET No. **C-106B**

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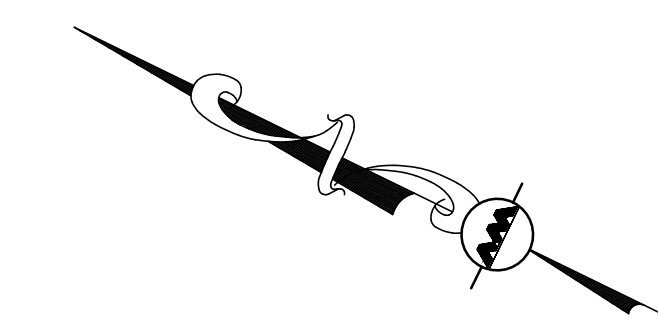
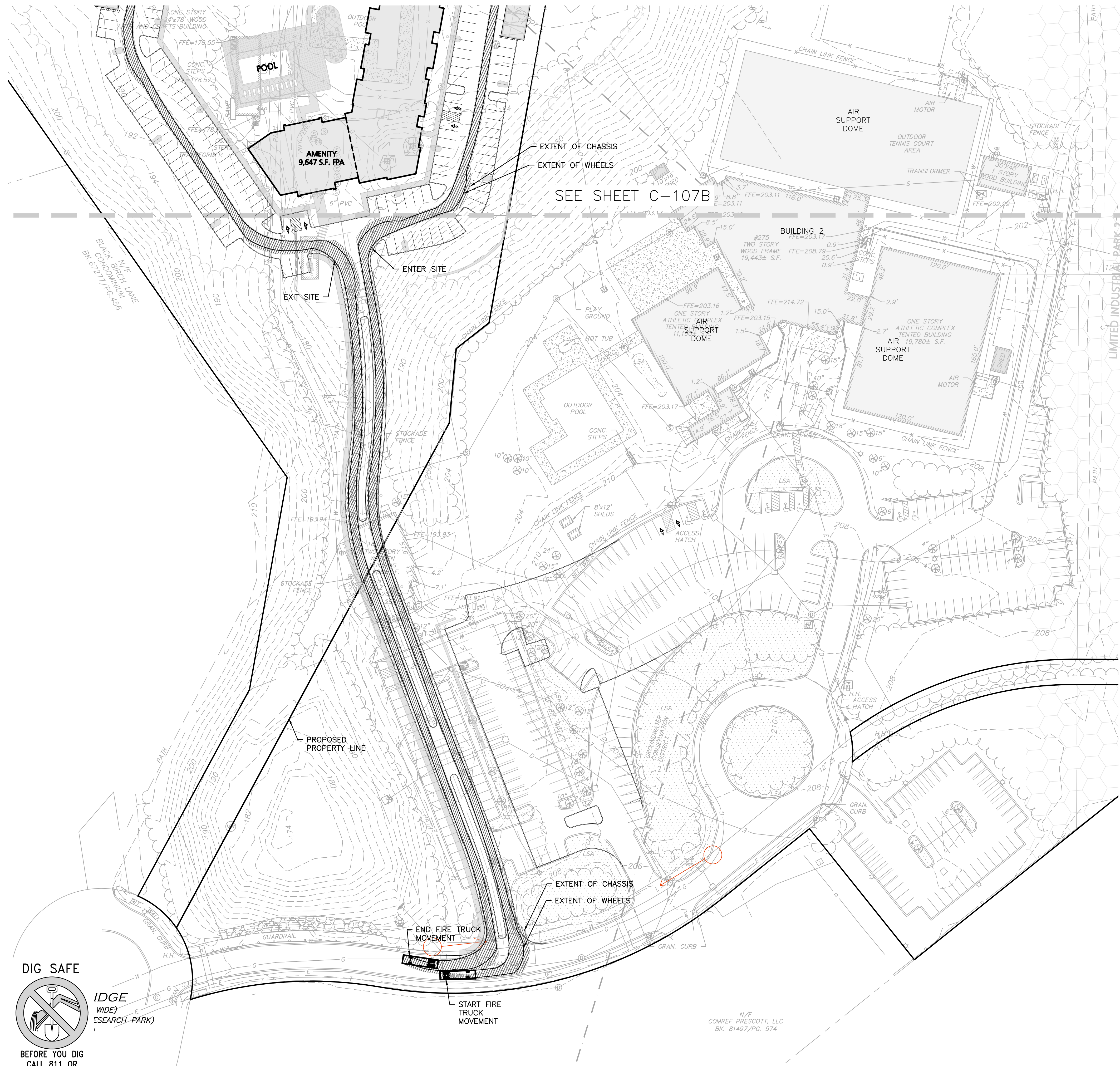
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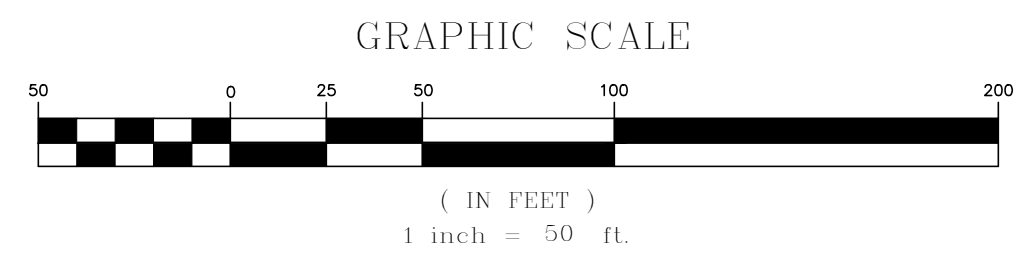


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BK. 22038/PG. 0327

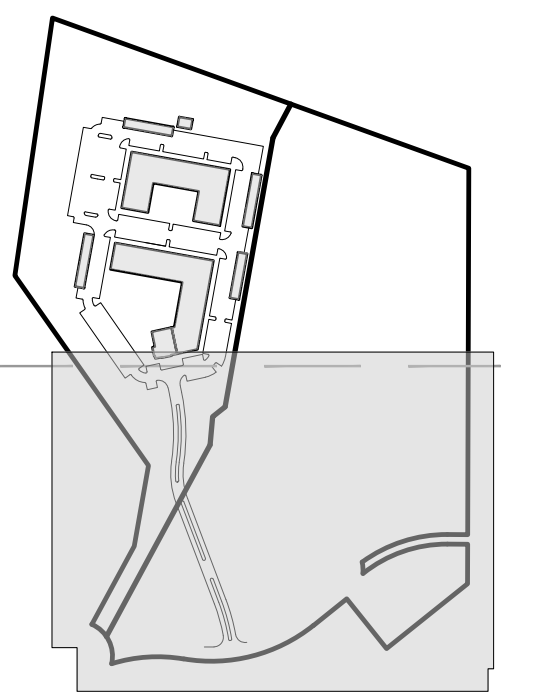
N/F
COMREF PRESCOTT, LLC
BK. 81497/PG. 574

Concord Fire Truck
 Overall Length 34.870ft
 Overall Width 8.330ft
 Overall Body Height 10.225ft
 Min Body Ground Clearance 0.656ft
 Track Width 6.820ft
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 32.600ft



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EDGE WIDE RESEARCH PARK



ISSUED FOR REVIEW
 DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
 ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT/OWNER:
 THOREAU RESIDENCES, LLC
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

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10 MAIN STREET
 LAKEVILLE, MA 02347
 TEL: (508) 923-1010
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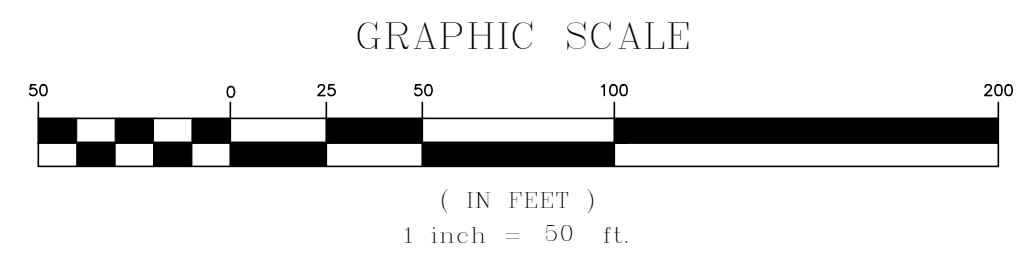
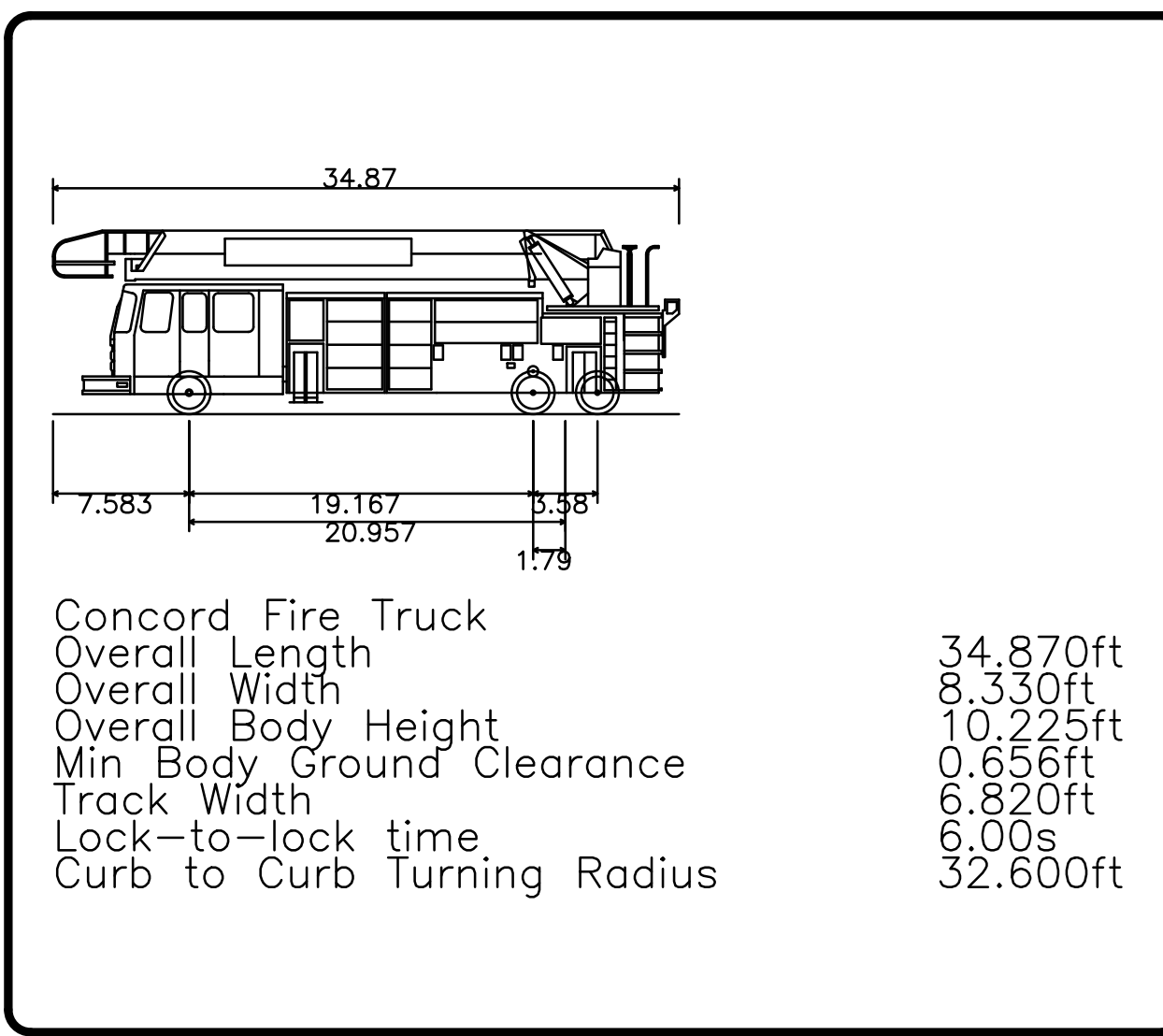
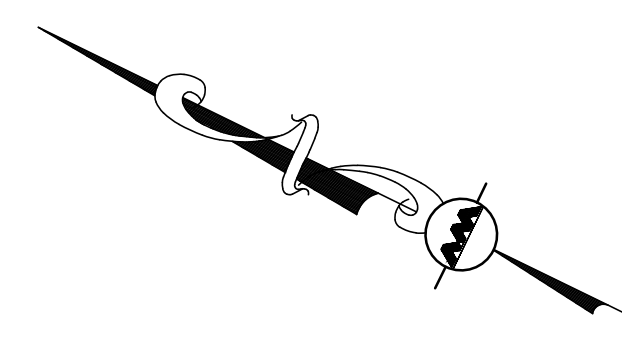
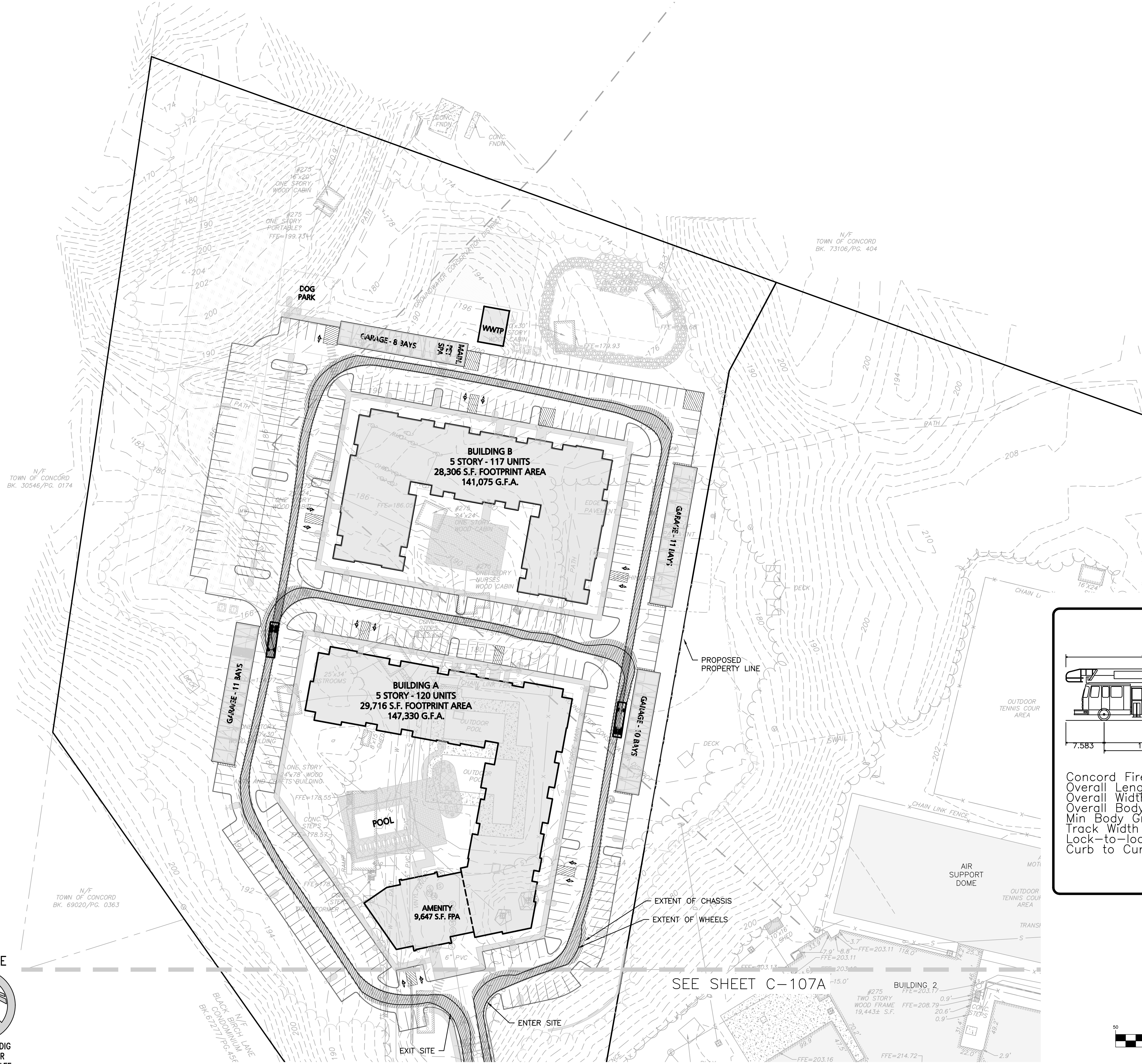
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DRAWING TITLE: **VEHICLE MOVEMENT PLAN** SHEET No. **C-107A**

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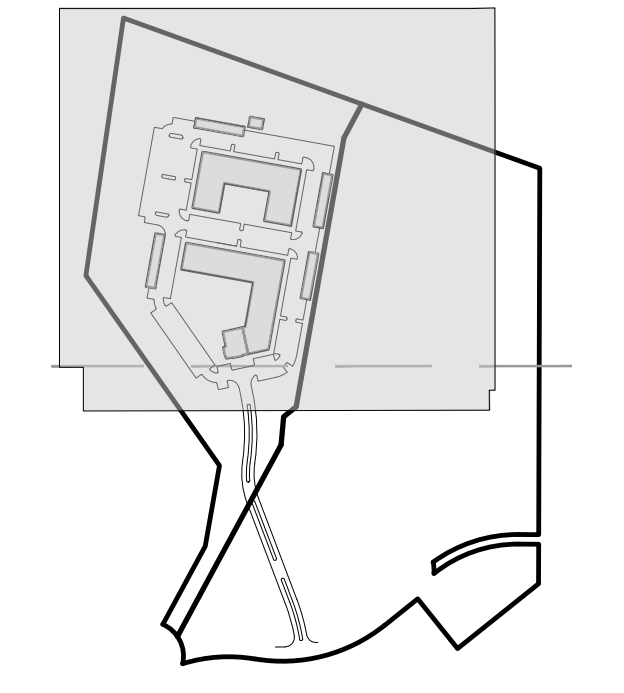
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PROFESSIONAL ENGINEER FOR
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01	02/23/24	ZBA RESUBMISSION

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 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
 275 FOREST RIDGE ROAD
 CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

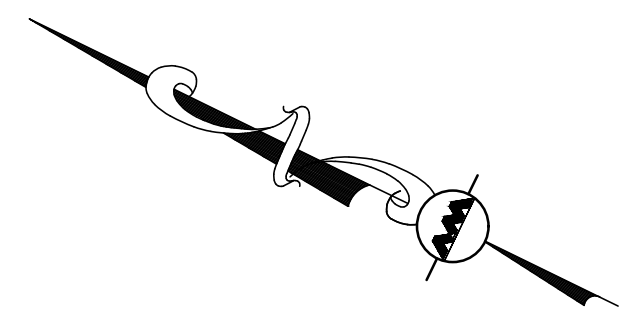
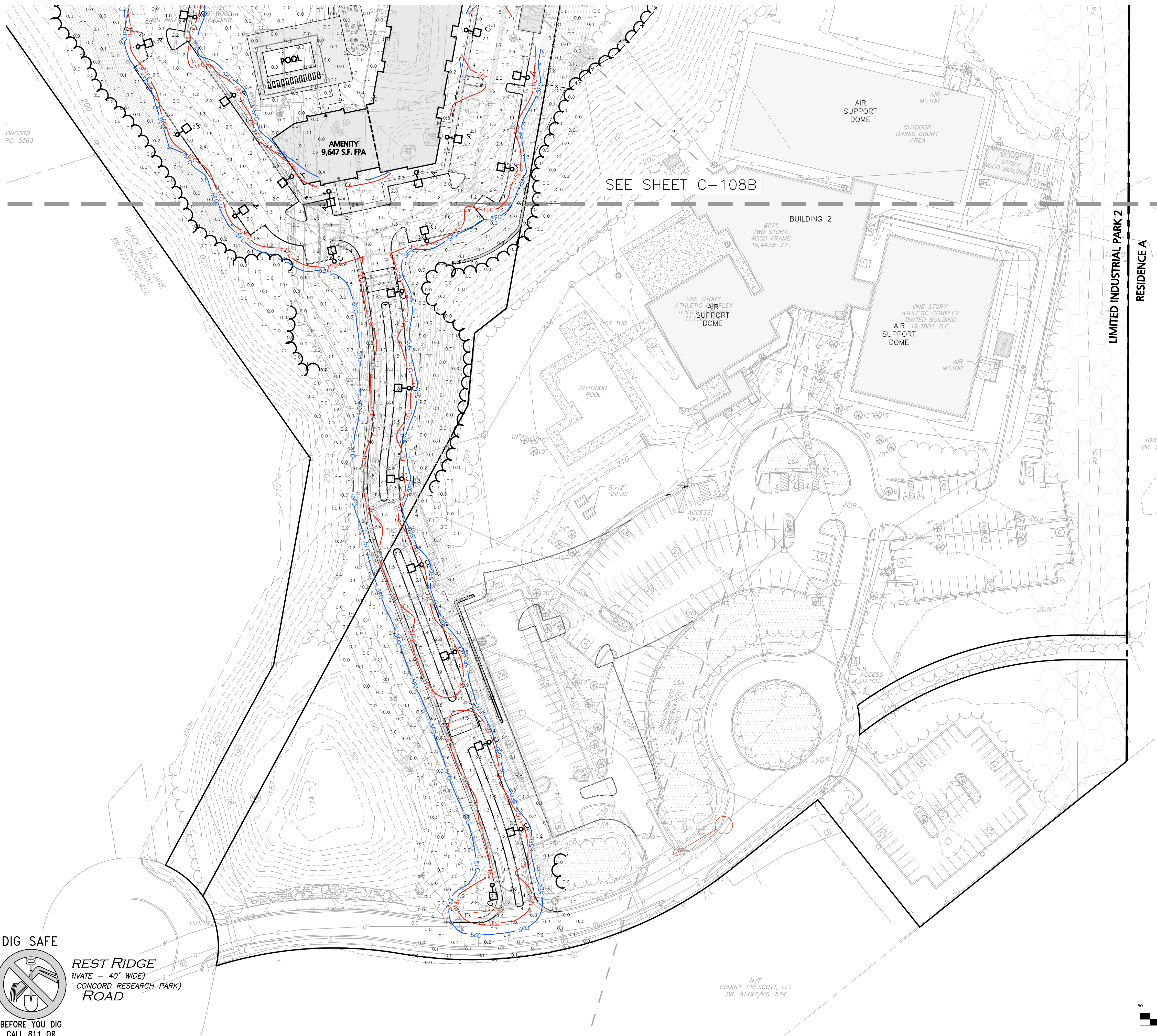
PREPARED BY:

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DRAWING TITLE: **VEHICLE MOVEMENT PLAN** SHEET No. **C-107B**

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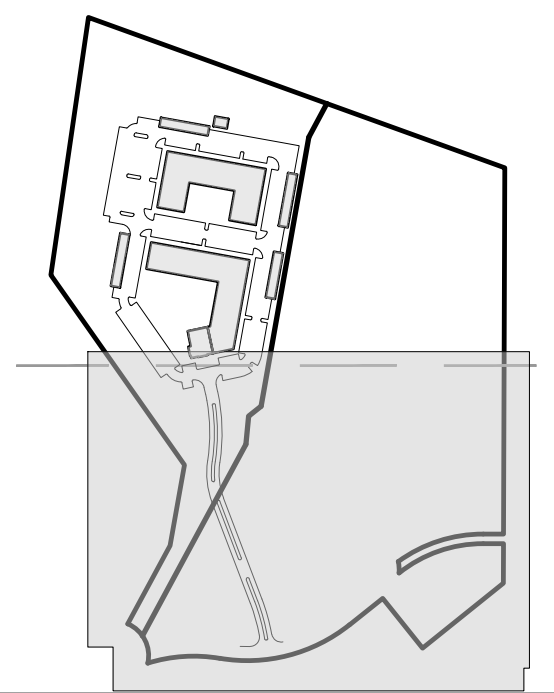
LEGEND	
DOUBLE POLE LIGHT	
SINGLE POLE LIGHT	
1 FOOTCANDLE CONTOUR	
.5 FOOTCANDLE CONTOUR	
LIGHTING LEVELS GIVEN IN FOOT-CANDLES	0.1 0.2 0.4 0.6

- NOTES:
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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 - FOOT CANDLE VALUES SHOWN ON THE PLAN ARE PRODUCED UTILIZING DESIGN MASTER PHOTOMETRICS SOFTWARE AND ASSOCIATED IES FILES BY THE MANUFACTURER FOR THE PROPOSED LIGHT FIXTURE.
 - ALL PHOTOMETRIC DATA REFERS TO UNITS IN FOOT CANDLES (FC). THE LIMIT OF 1.0 FC ILLUMINATION IS SHOWN IN A RED SOLID LINE AND THE LIMIT OF THE 0.5 FOOT CANDLE (FC) ILLUMINATION IS SHOWN IN BLUE.
 - QUANTITY SHOWN IN LUMINARE SCHEDULE TABLE DENOTES NUMBER OF FIXTURE HEADS. REFER TO PLAN FOR POLES WITH DOUBLE FIXTURES.
 - ALL ILLUMINATION ON PARKING LOTS MUST BE SHIELDED SO AS NOT TO SHINE UPON ADJACENT PROPERTIES.
 - SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL LIGHTING INFORMATION.
 - ALL PROPOSED LIGHTING FIXTURES SHALL BE DARK SKY COMPLIANT.
 - LIGHT POLES ADJACENT TO PARKING SHALL HAVE THE 3'-0" REVEAL FOOTING. LIGHT POLES ADJACENT TO SIDEWALKS SHALL HAVE FOOTING IN A FLUSH CONDITION.

TOWN C BK. 220

LIMITED INDUSTRIAL PARK 2 RESIDENCE A

N/F COMREF PRESCOTT, LLC BK. 81497/Pg. 574



ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

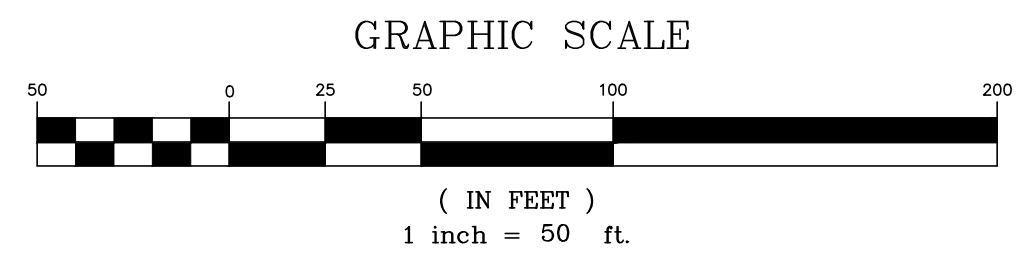
PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:		CHECKED BY:	PLC

PREPARED BY:

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www.allenmajor.com
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LAKEVILLE, MA 02347
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DRAWING TITLE: **LIGHTING PLAN** SHEET No. **C-108A**

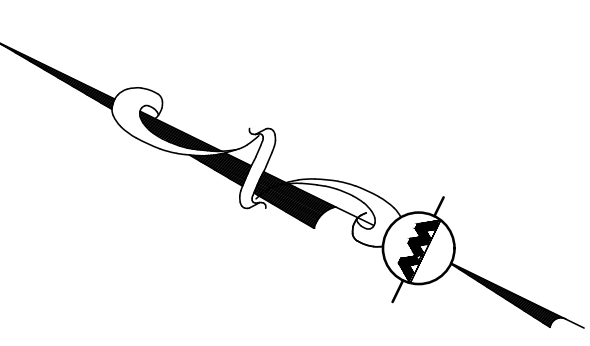
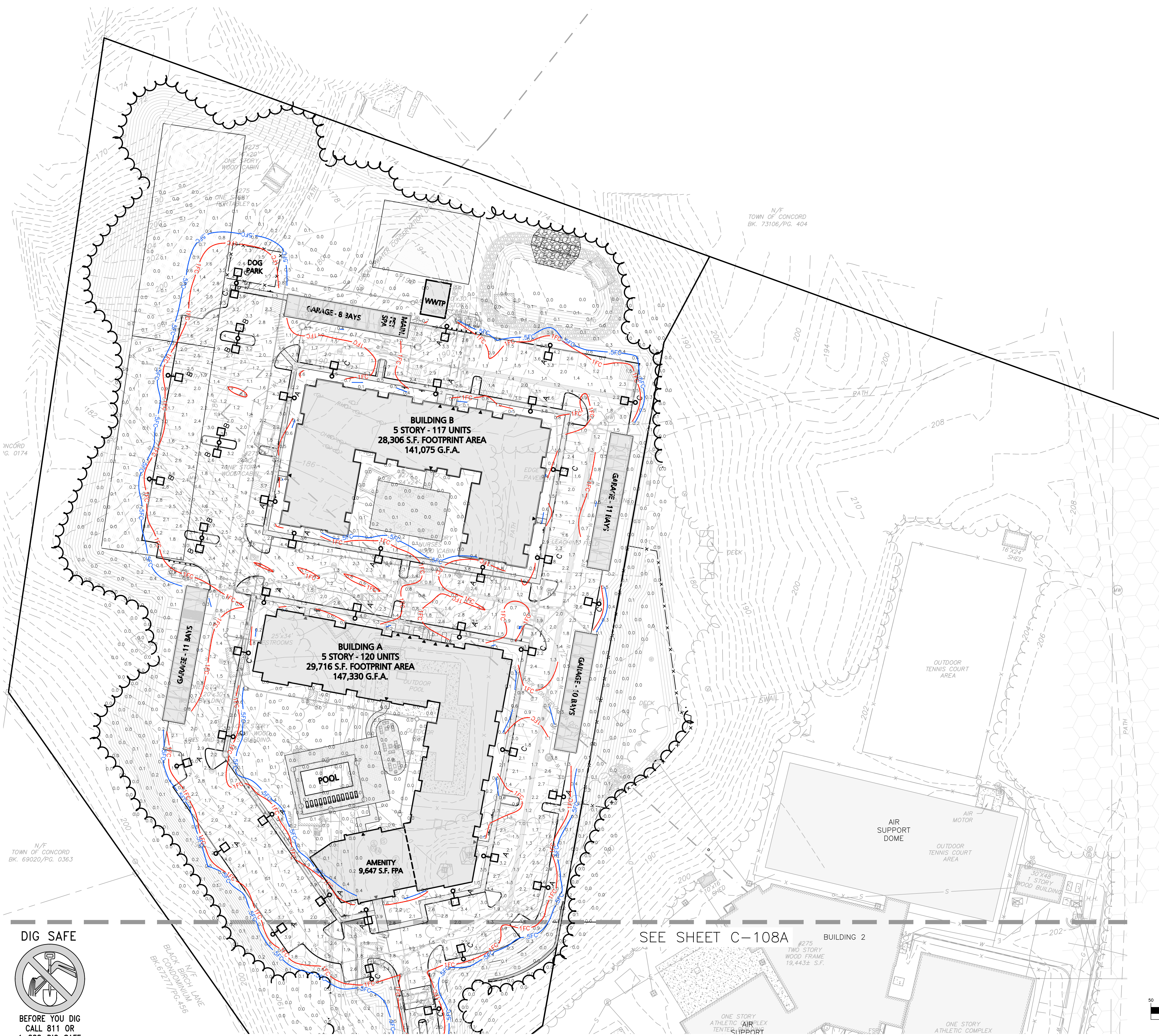


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LEGEND	
DOUBLE POLE LIGHT	
SINGLE POLE LIGHT	
1 FOOTCANDLE CONTOUR	
.5 FOOTCANDLE CONTOUR	
LIGHTING LEVELS GIVEN IN FOOT-CANDLES	1.0 0.1 0.2 0.4 0.6

- NOTES:
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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02	10/18/24	ZBA RESUBMISSION
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APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	1" = 50'	DWG. NAME:	C-1670-24
DESIGNED BY:		CHECKED BY:	PLC

PREPARED BY:

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environmental consulting • landscape architecture
www.allenmajor.com
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LAKEVILLE, MA 02347
TEL: (508) 923-1010
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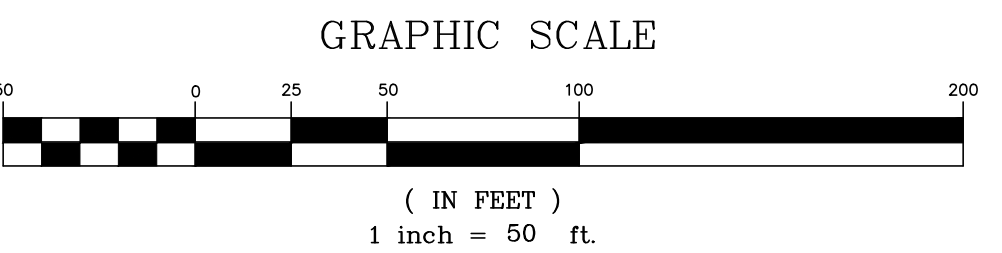
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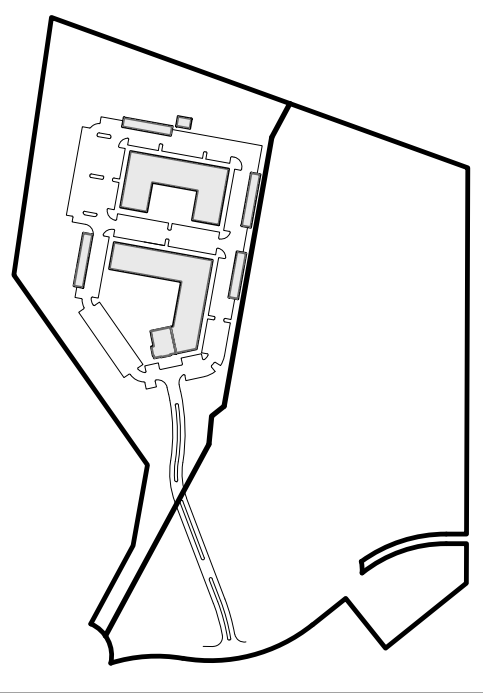
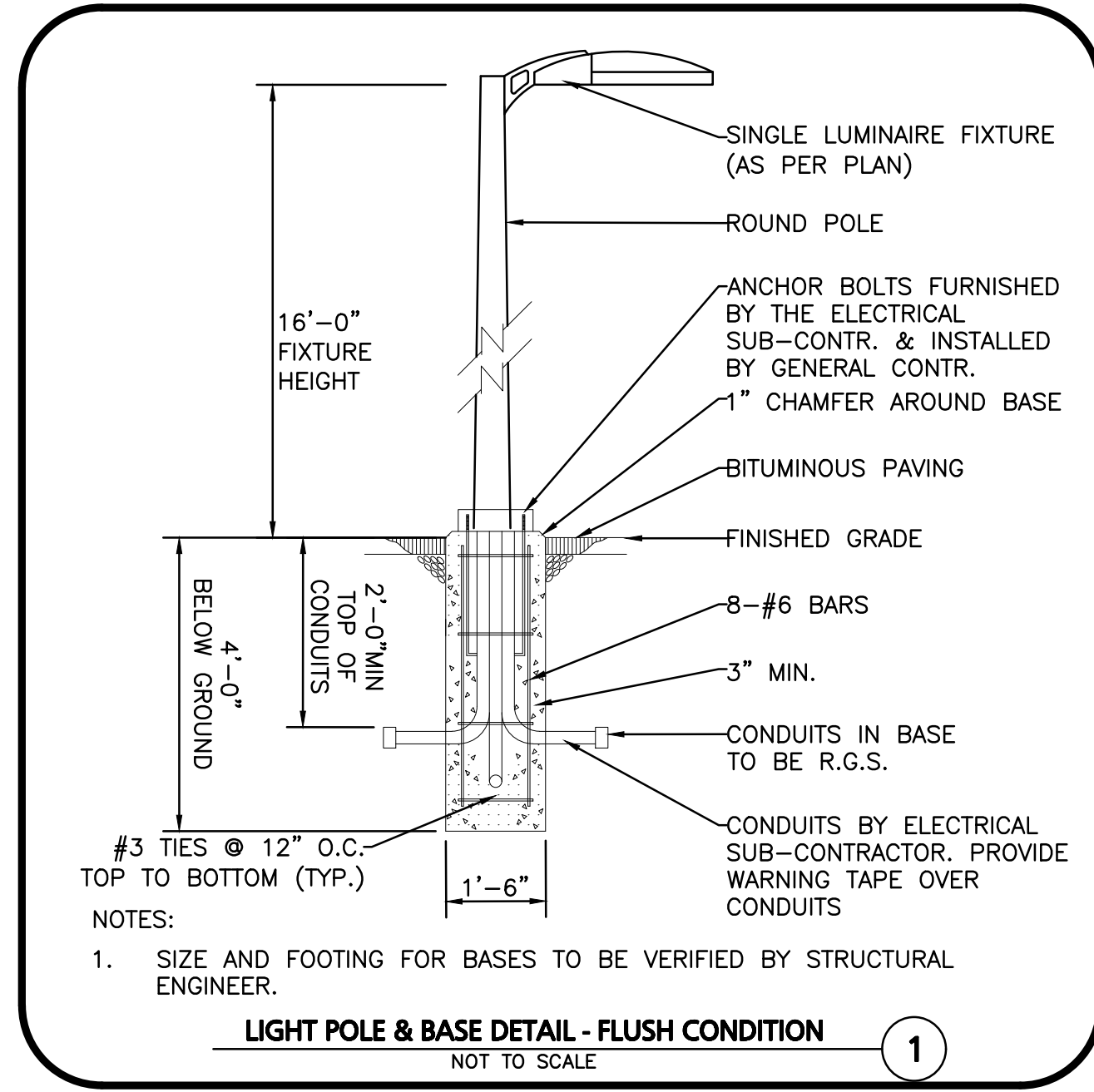
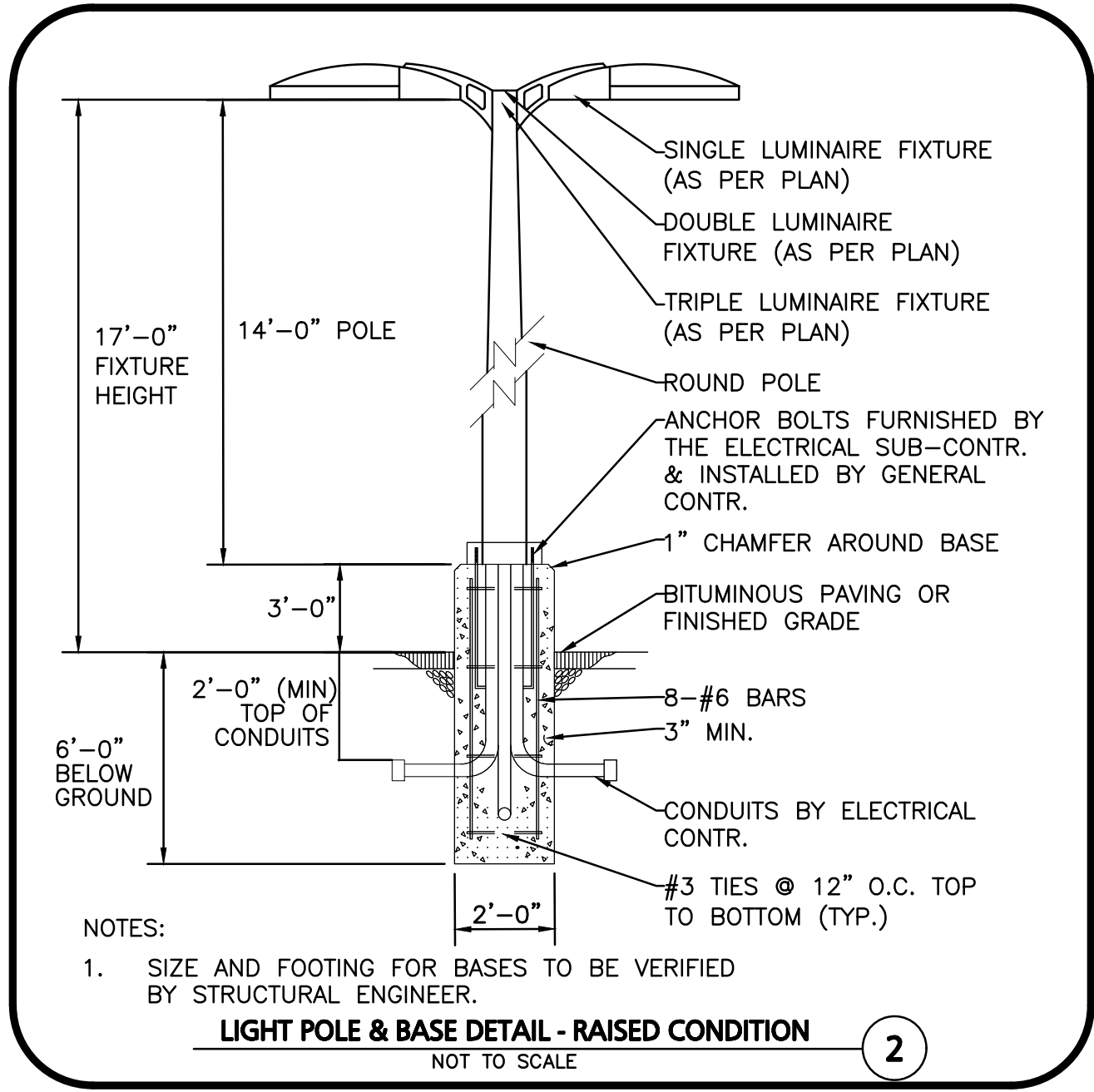
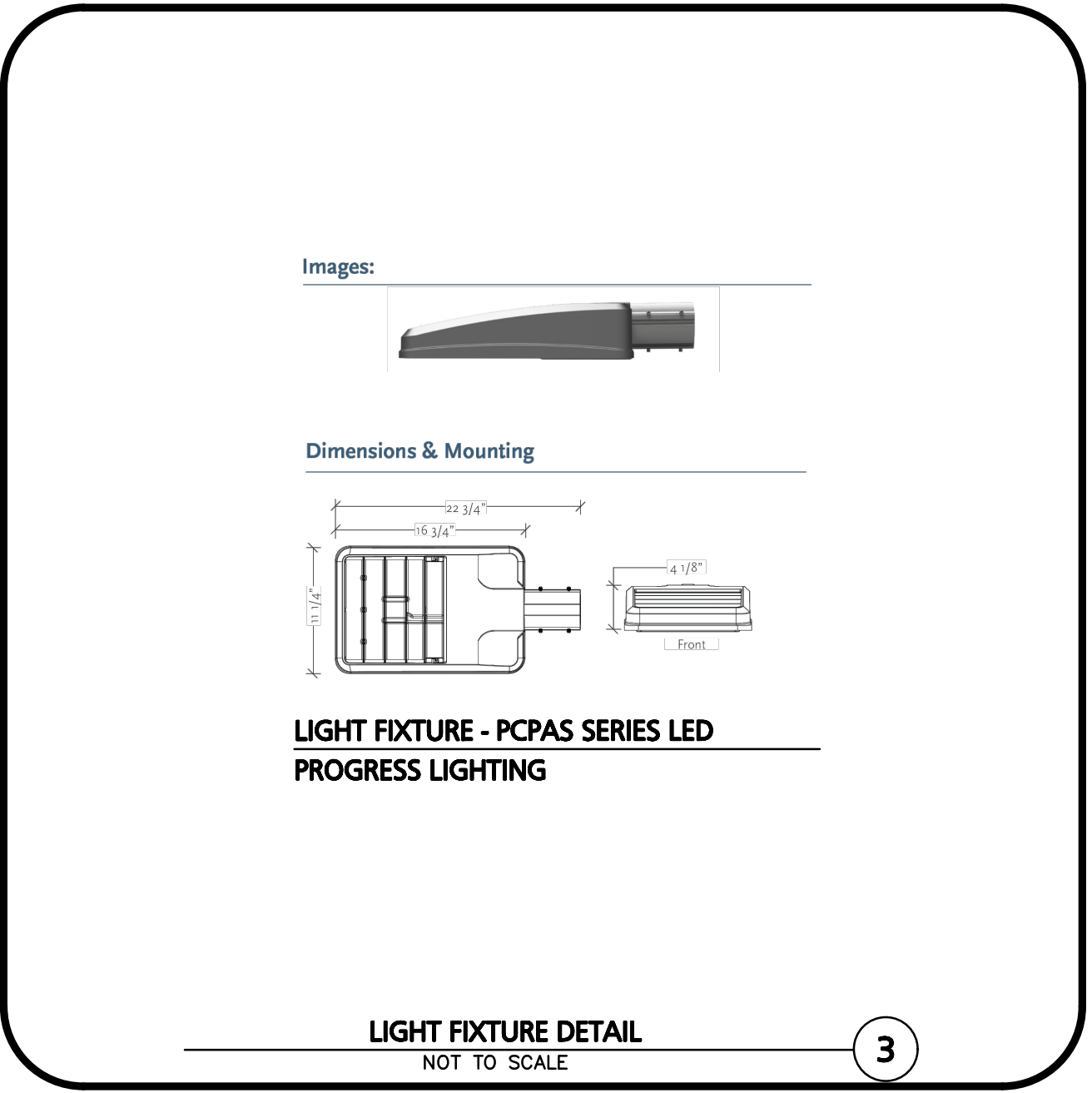
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CALL 811 OR
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1-888-344-7233

**GENERAL
PHOTOMETRIC
SCHEDULE**

AVERAGE FOOT-CANDLES	0.93
MAXIMUM FOOT-CANDLES	6.1
MINIMUM FOOT-CANDLES	0.0

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	QTY	DESCRIPTION	MOUNTING	MOUNTING HT.	TOTAL LUMENS	LAMP DEPRECIATION
A		22	PROGRESS LIGHTING COMMERCIAL, PCPAS-80LED-3K-3	POLE	16'-0"	8238	0.9
B		8	PROGRESS LIGHTING COMMERCIAL, PCPAS-80LED-3K-4W ON 3' BASE	POLE	17'-0"	7908	0.9
C		21	PROGRESS LIGHTING COMMERCIAL, PCPAS-80LED-3K-4W	POLE	16'-0"	7908	0.9



KEYSHEET

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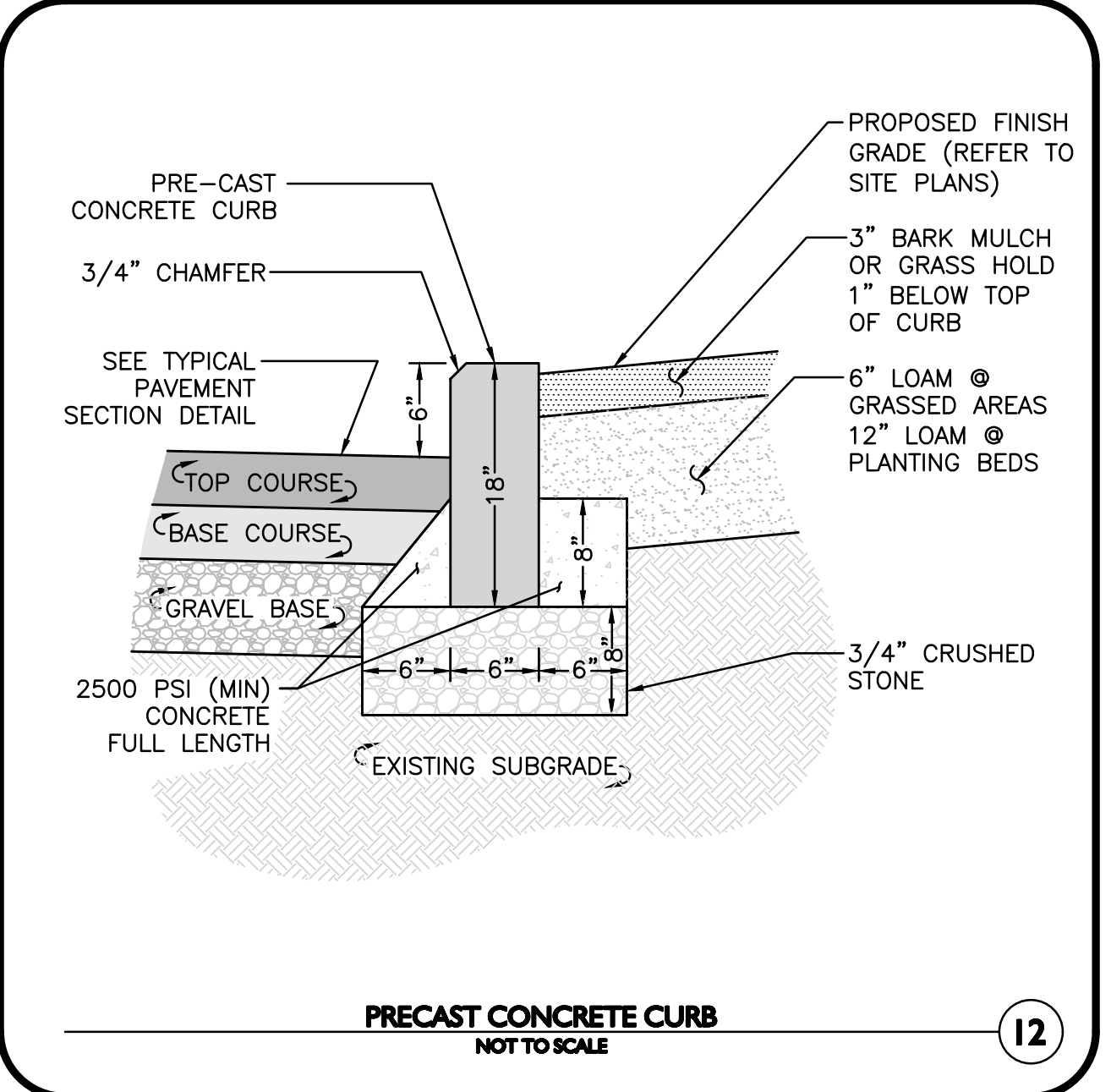
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DRAWING TITLE:	SHEET No.
LIGHTING PLAN	C-108C

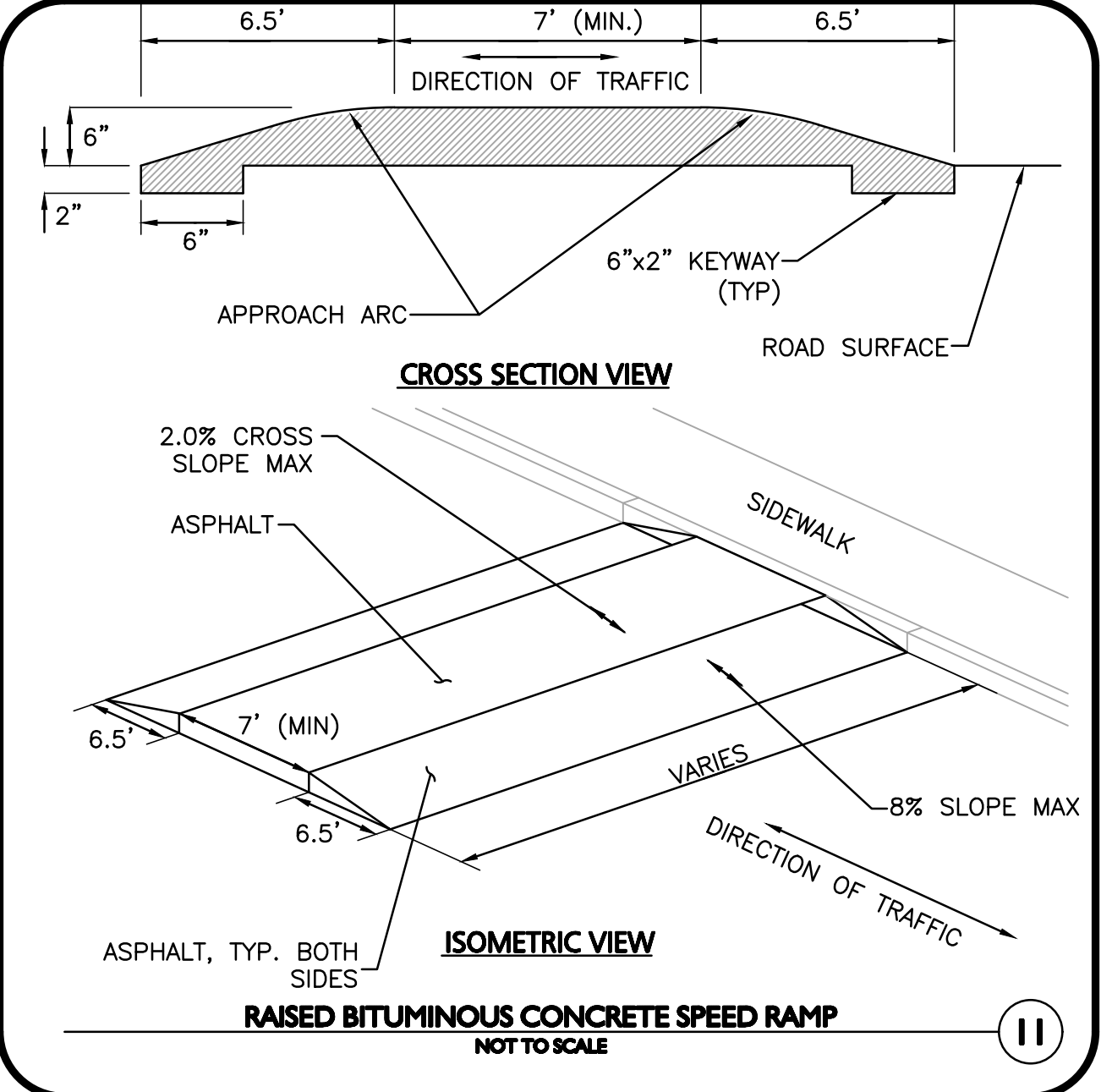
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M:\PROJECTS\1670-24\CIVIL\DRAWINGS\CURRENT\C-1670-24 - DETAILS.DWG



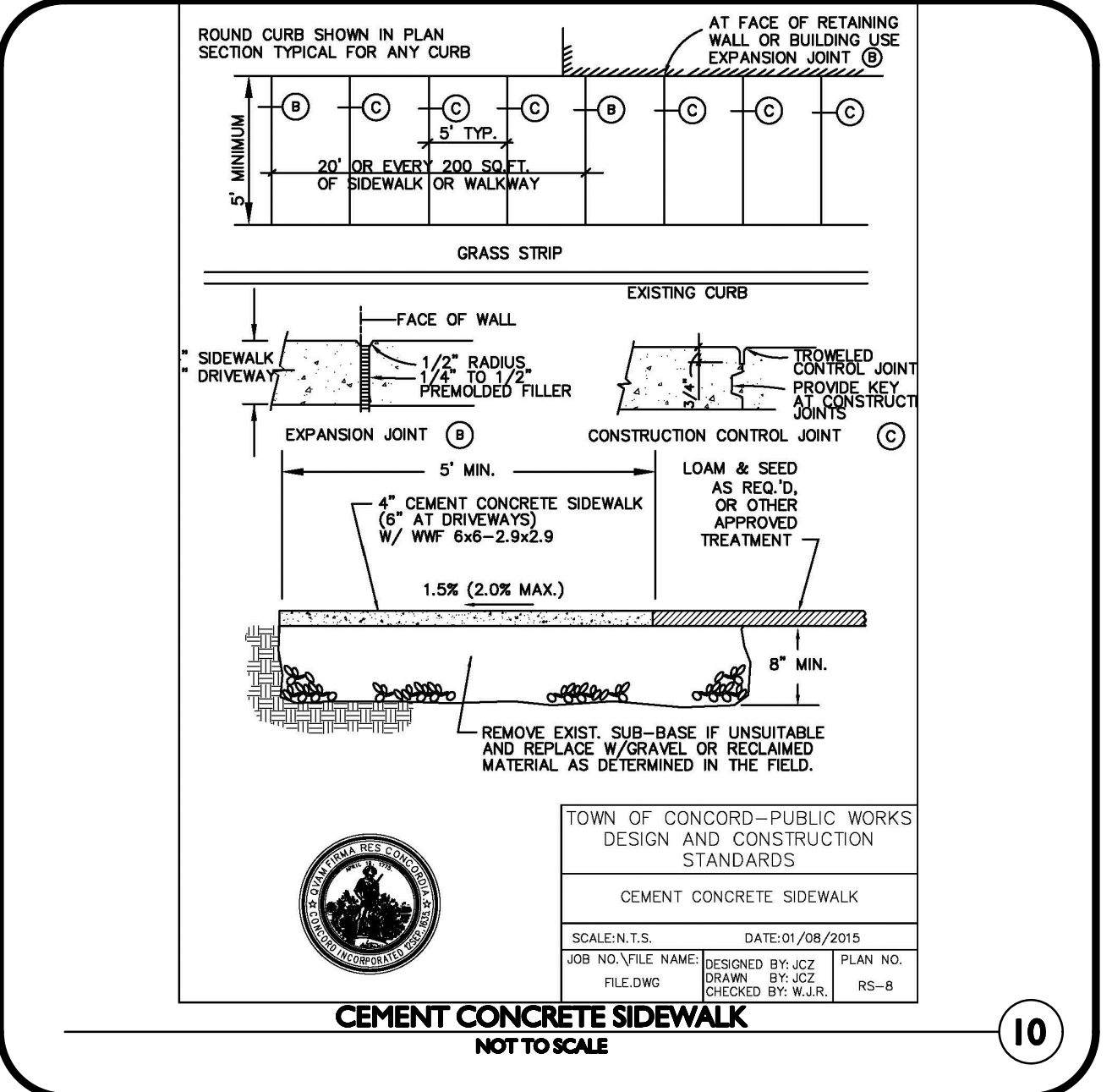
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12



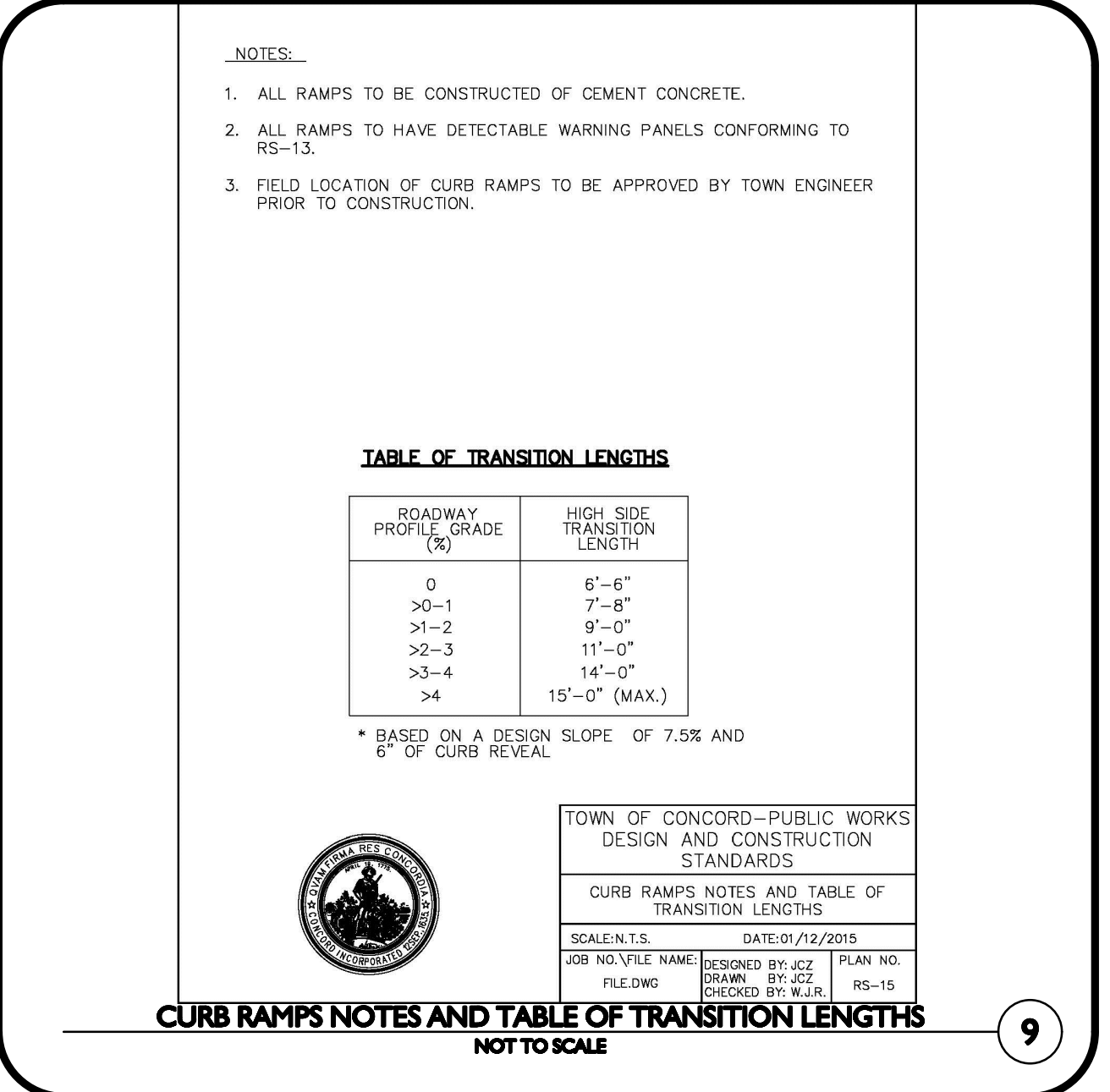
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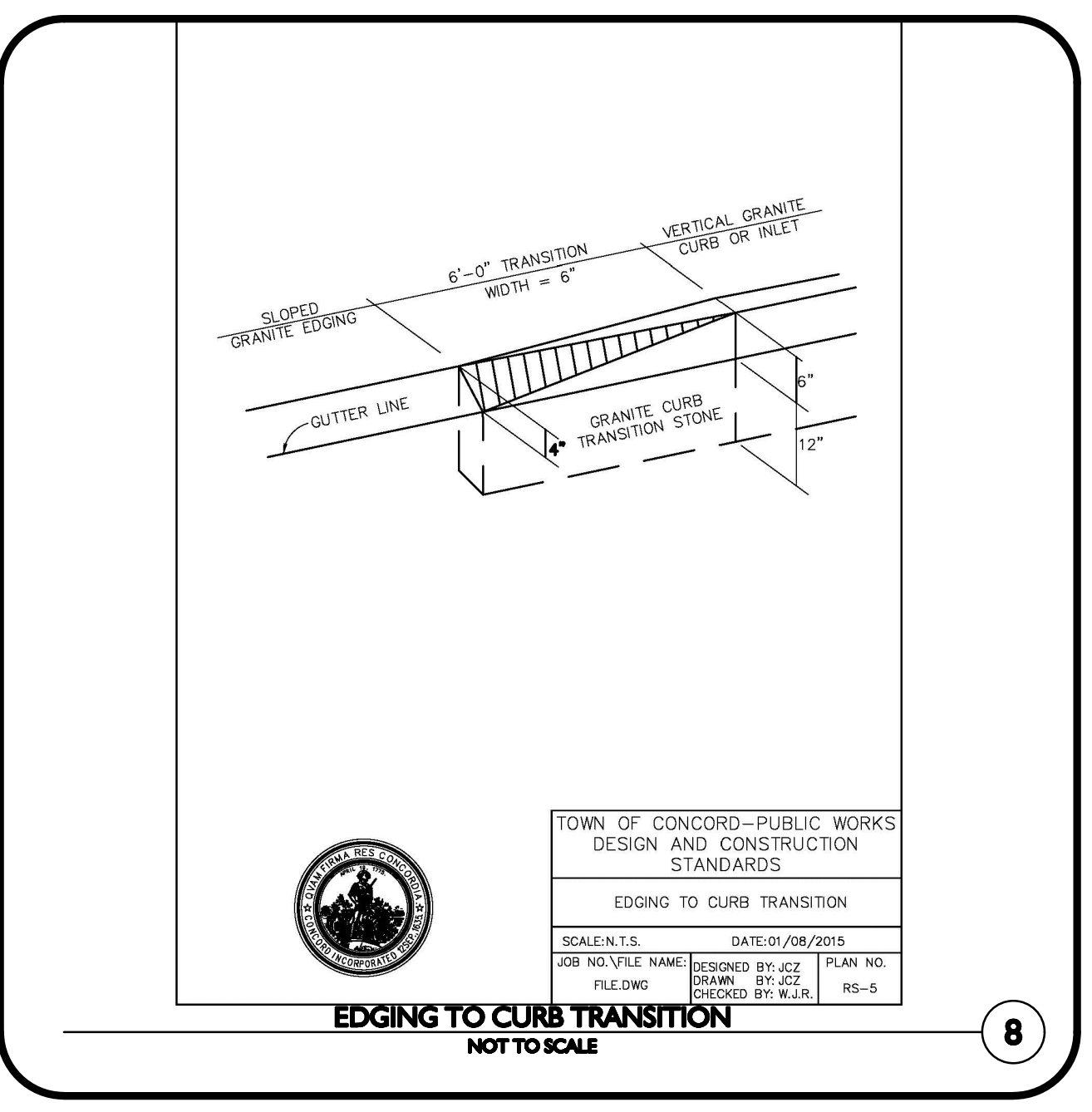
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10



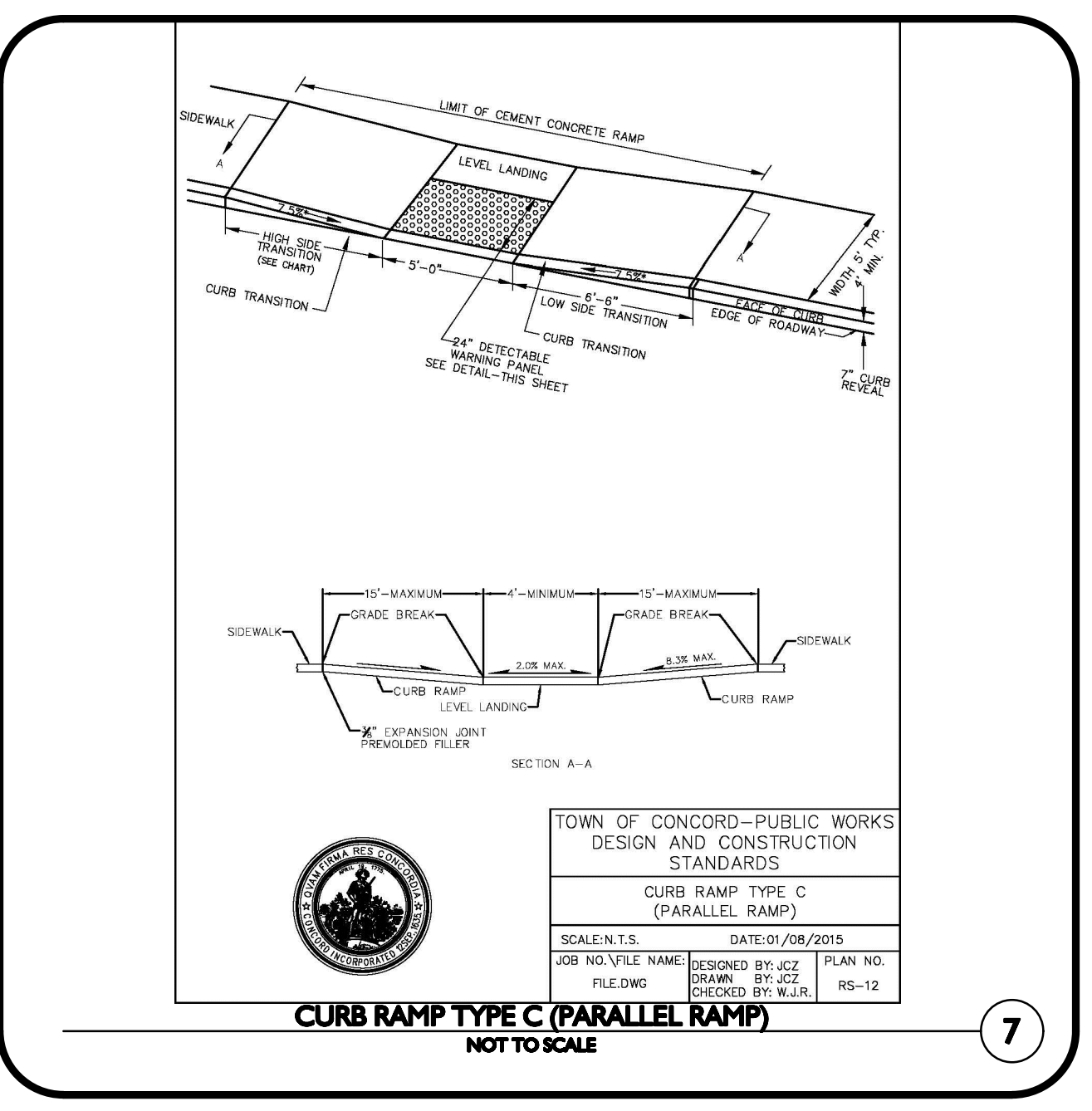
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9



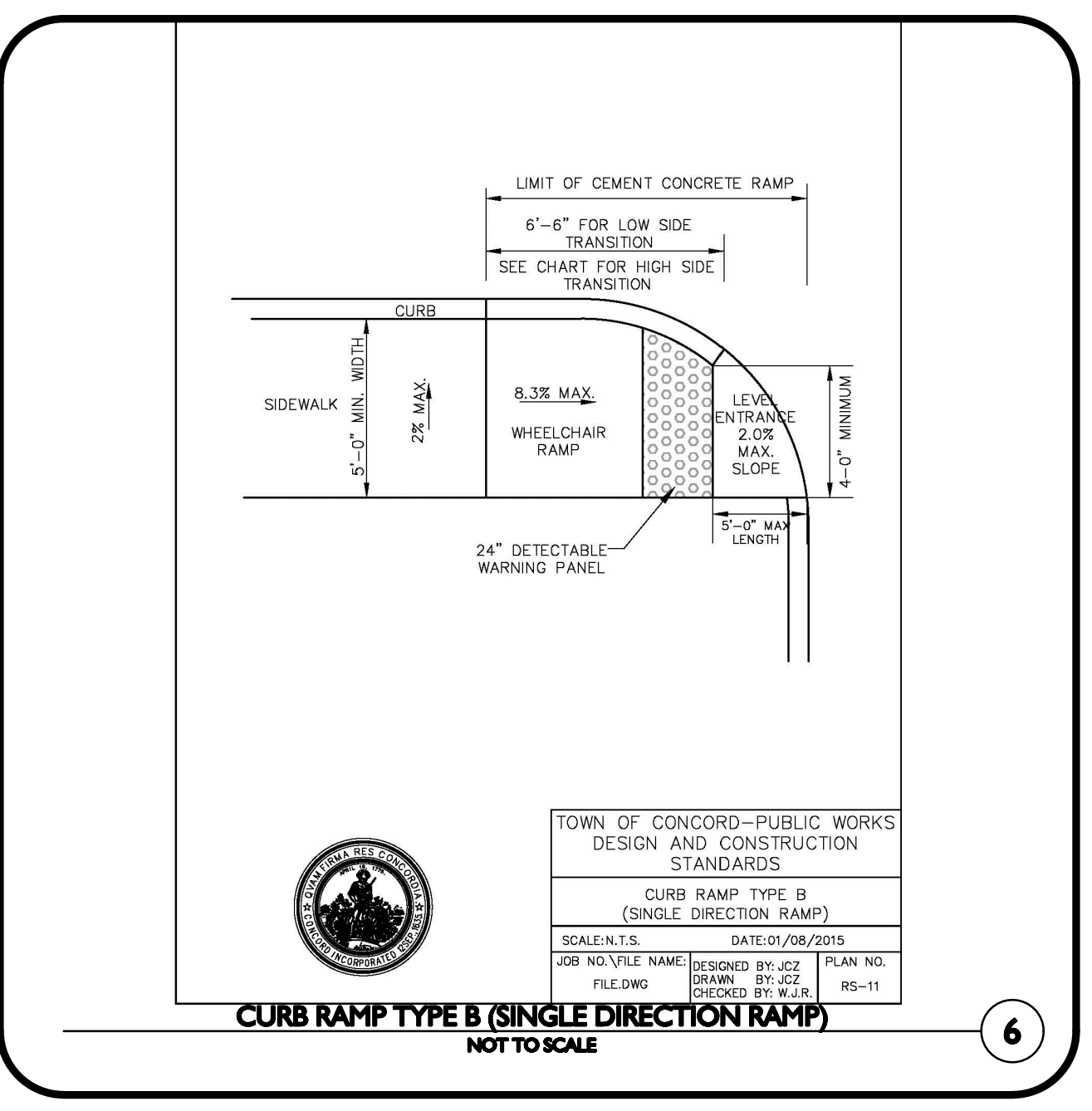
EDGING TO CURB TRANSITION
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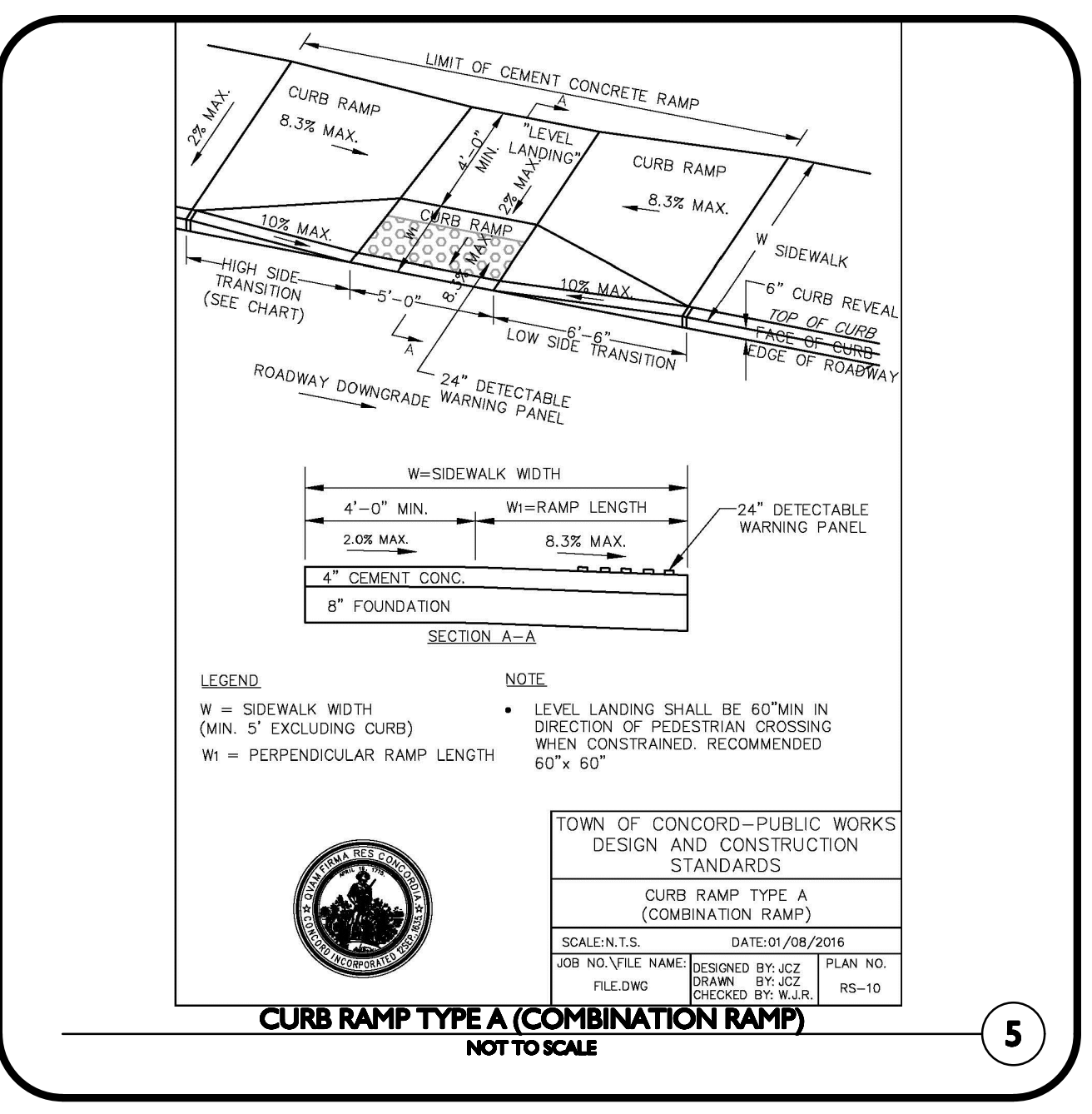
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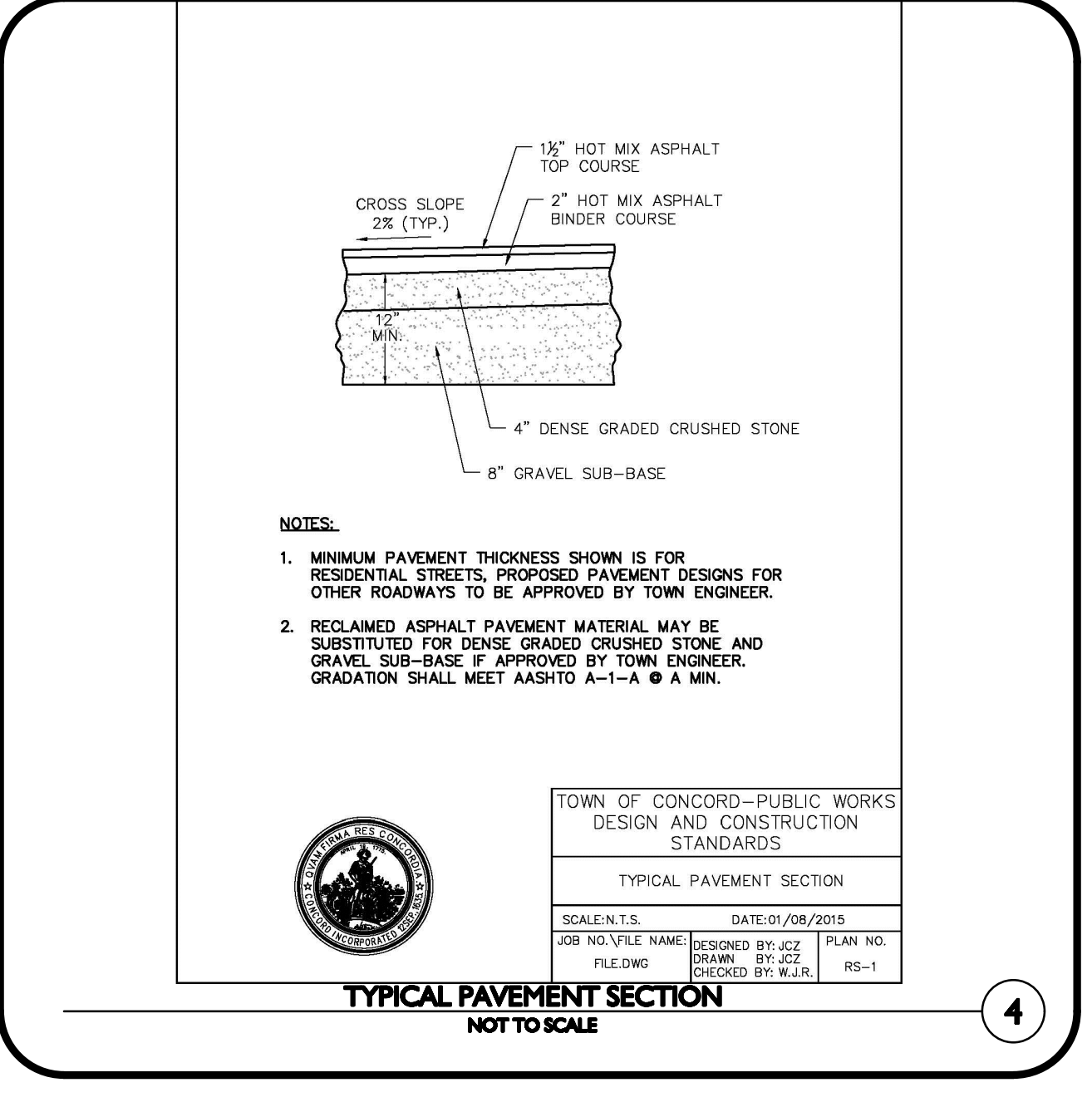
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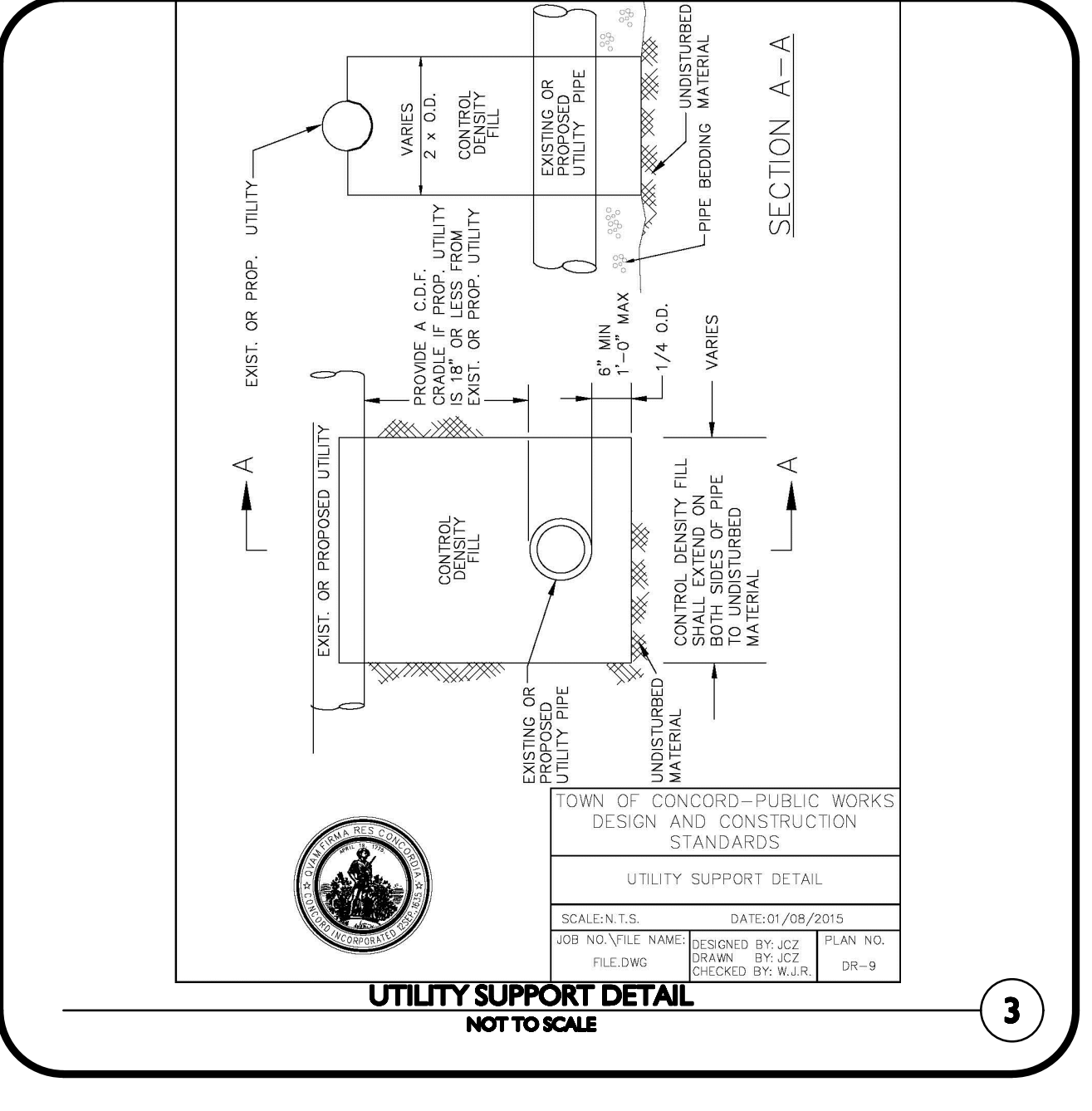
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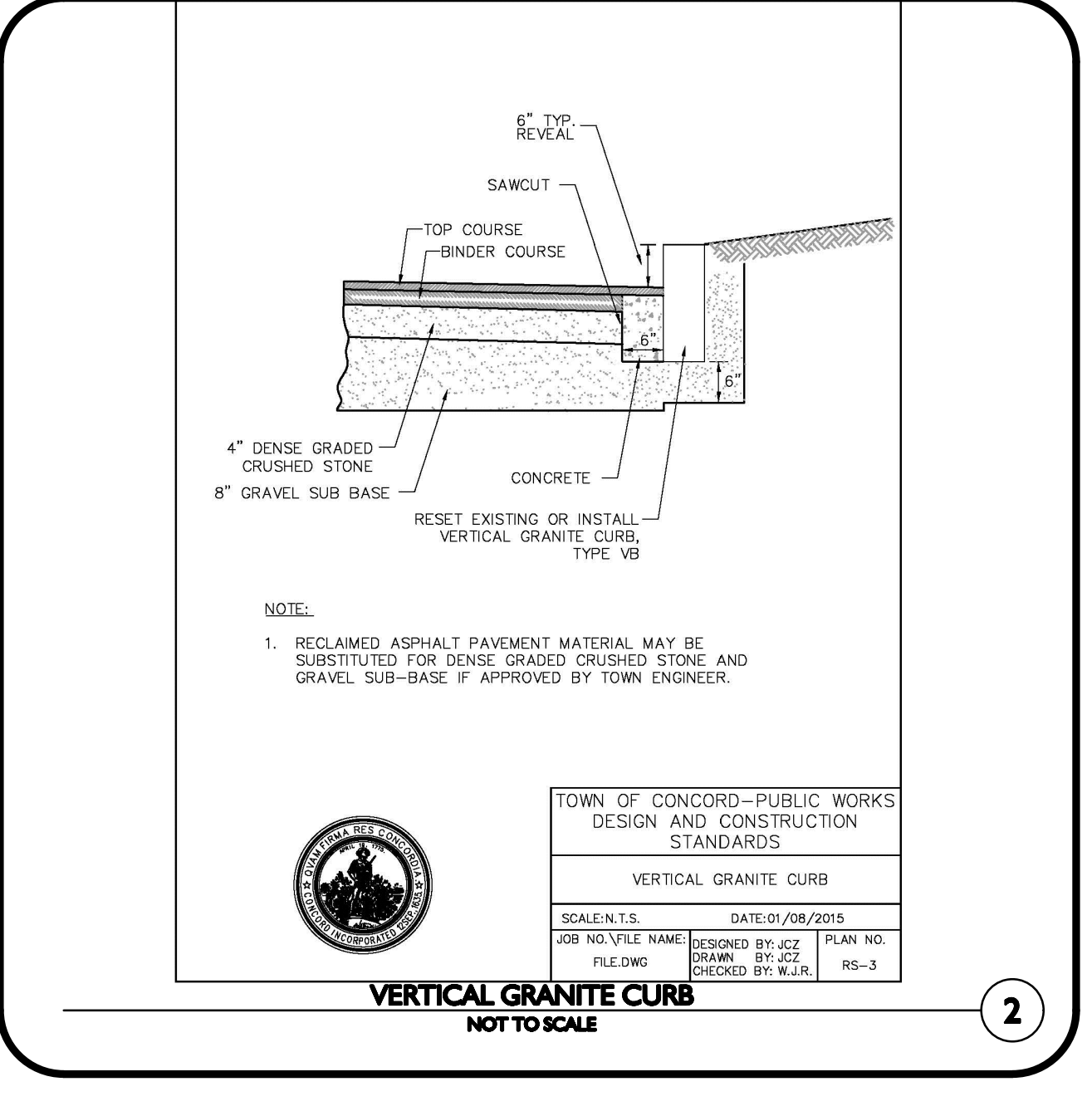
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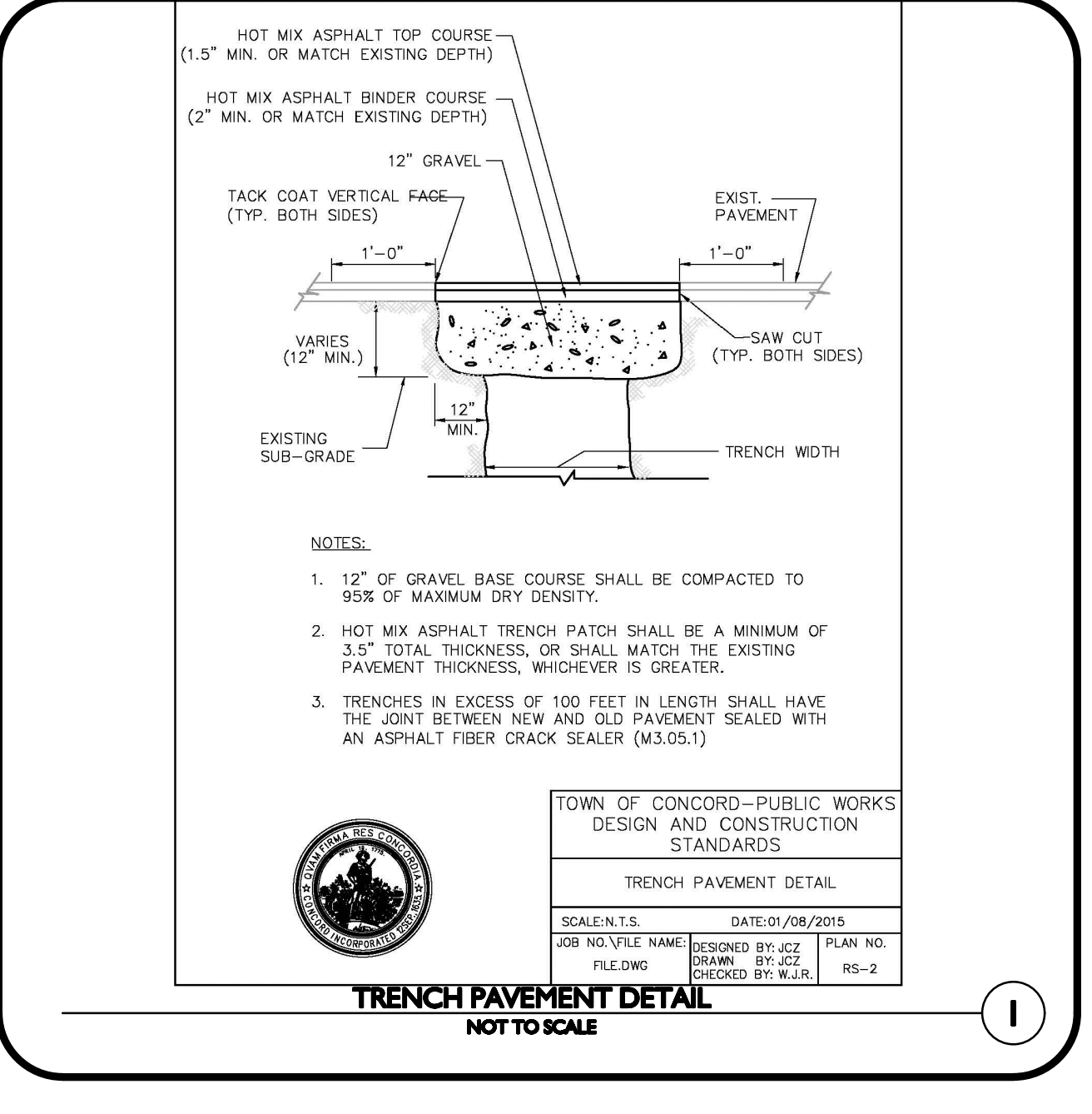
UTILITY SUPPORT DETAIL
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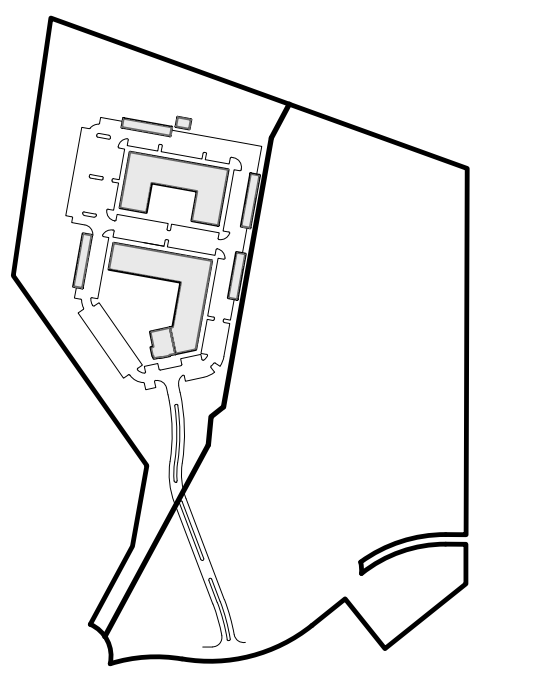
VERTICAL GRANITE CURB
NOT TO SCALE

2



TRENCH PAVEMENT DETAIL
NOT TO SCALE

1



KEYSHEET

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PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

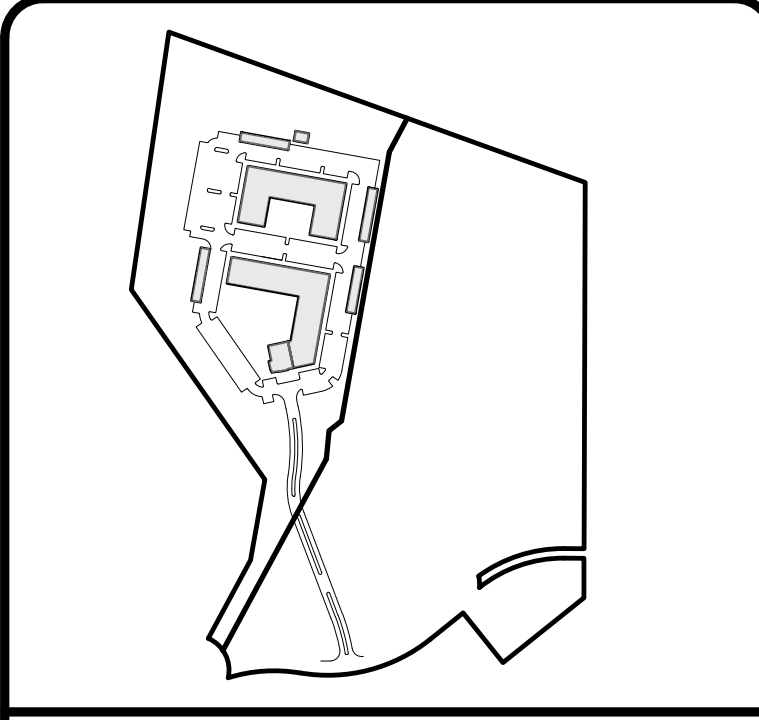
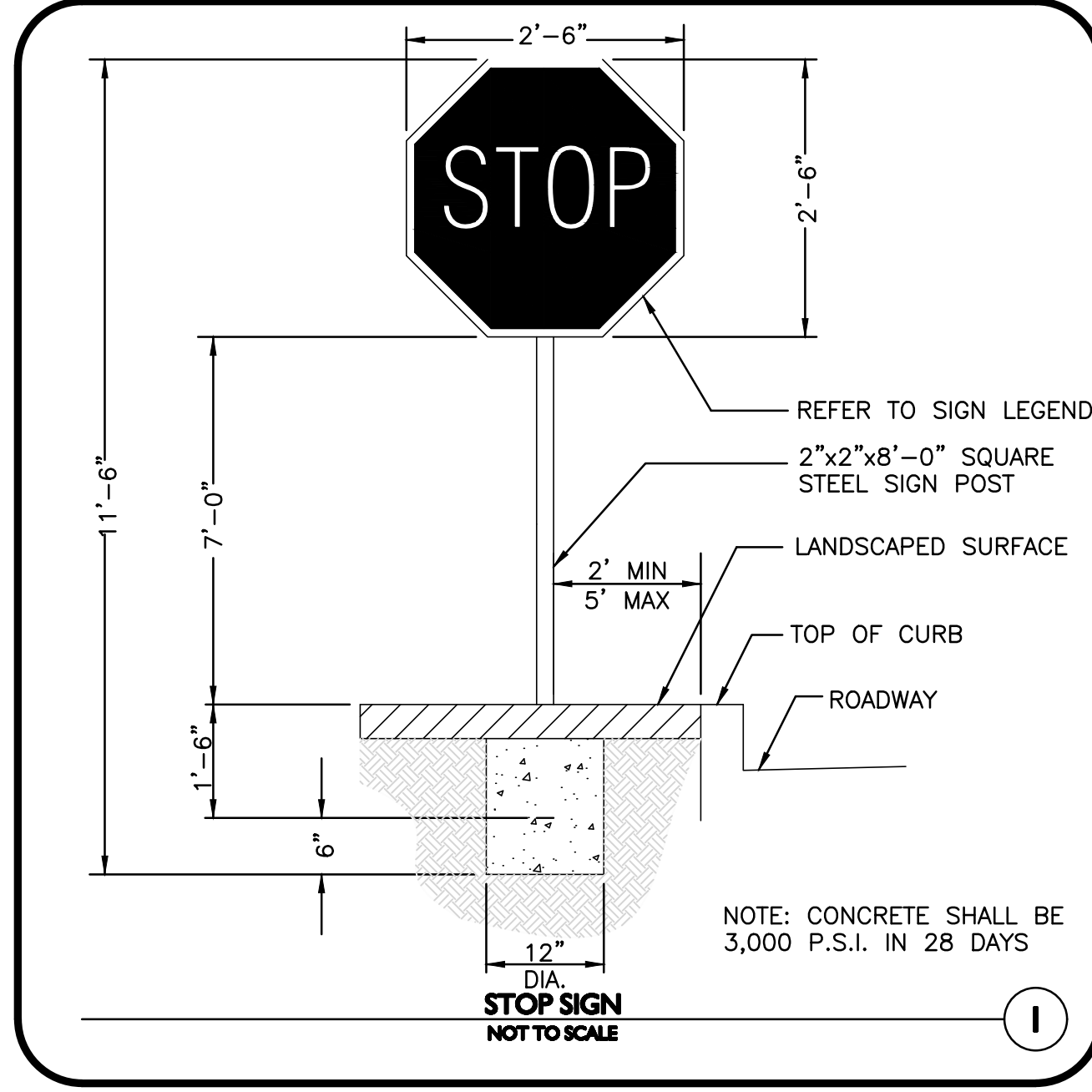
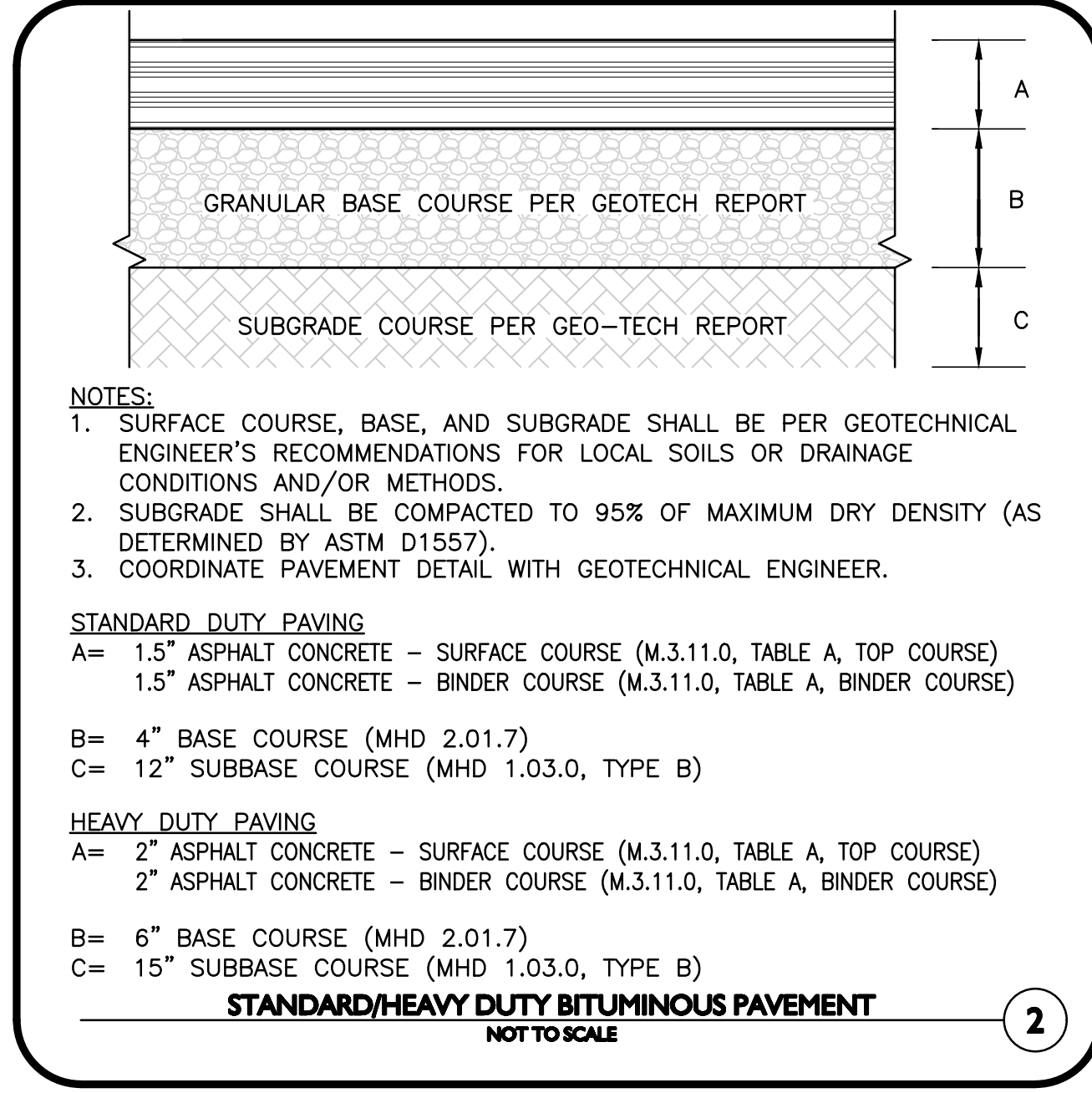
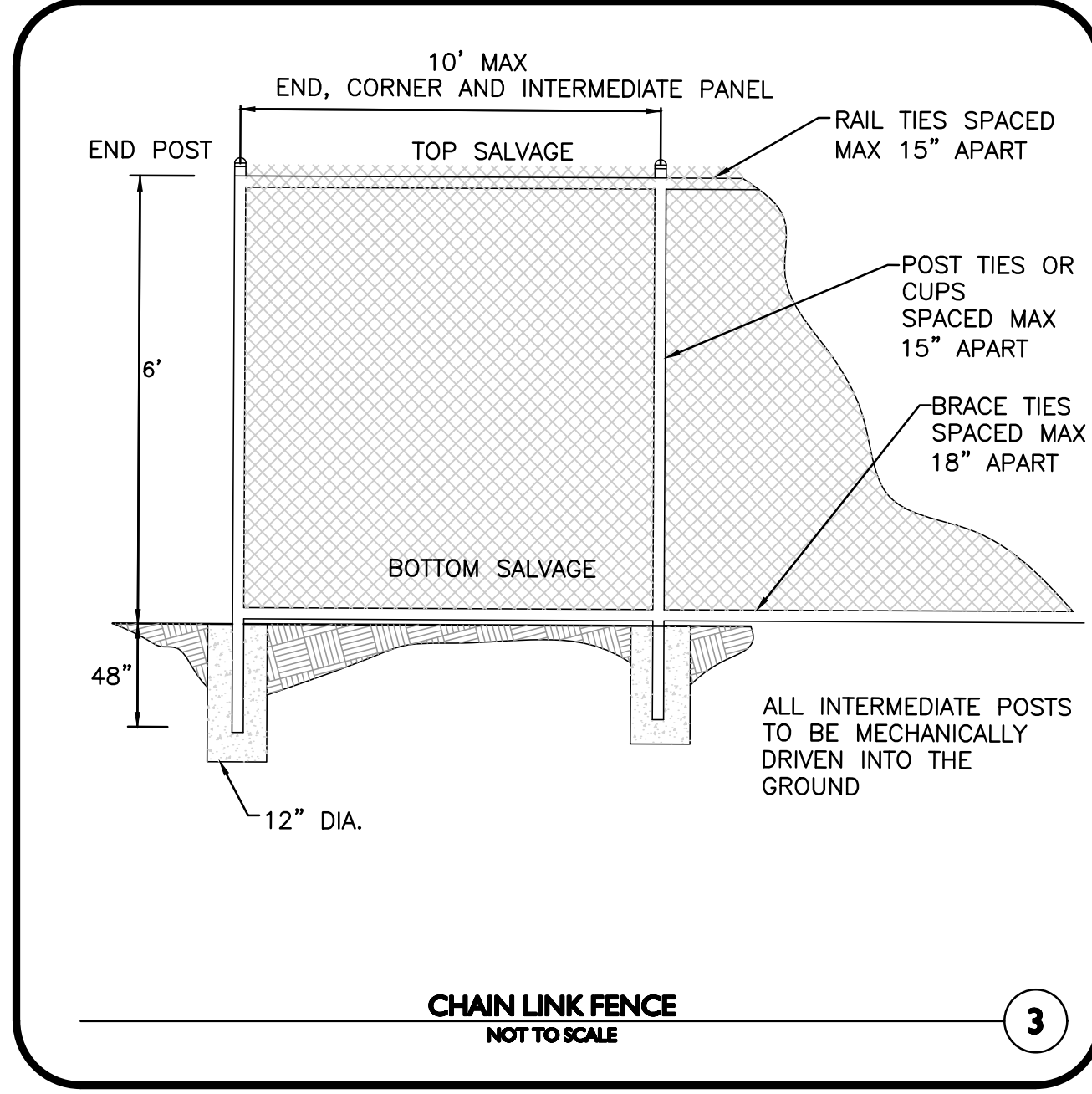
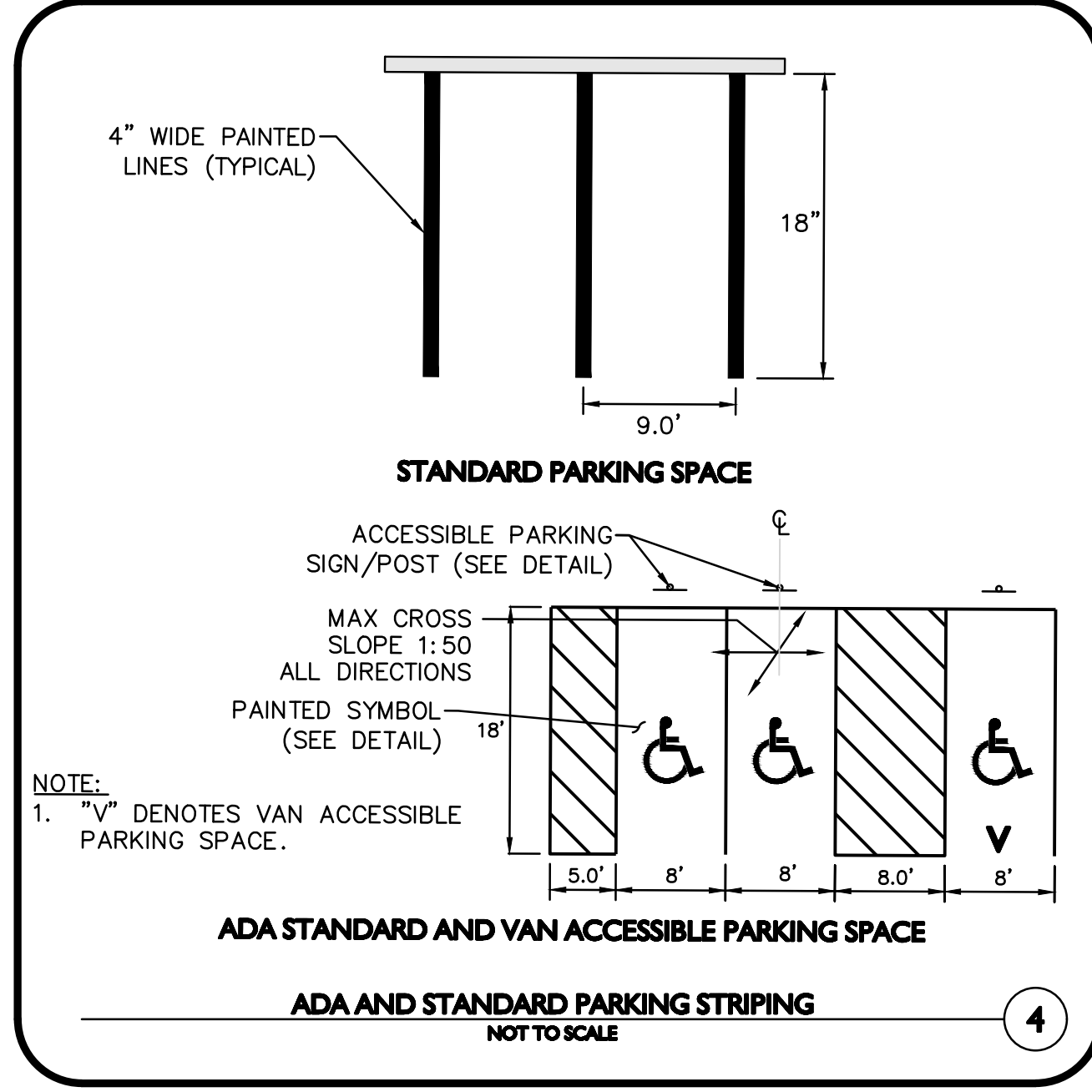
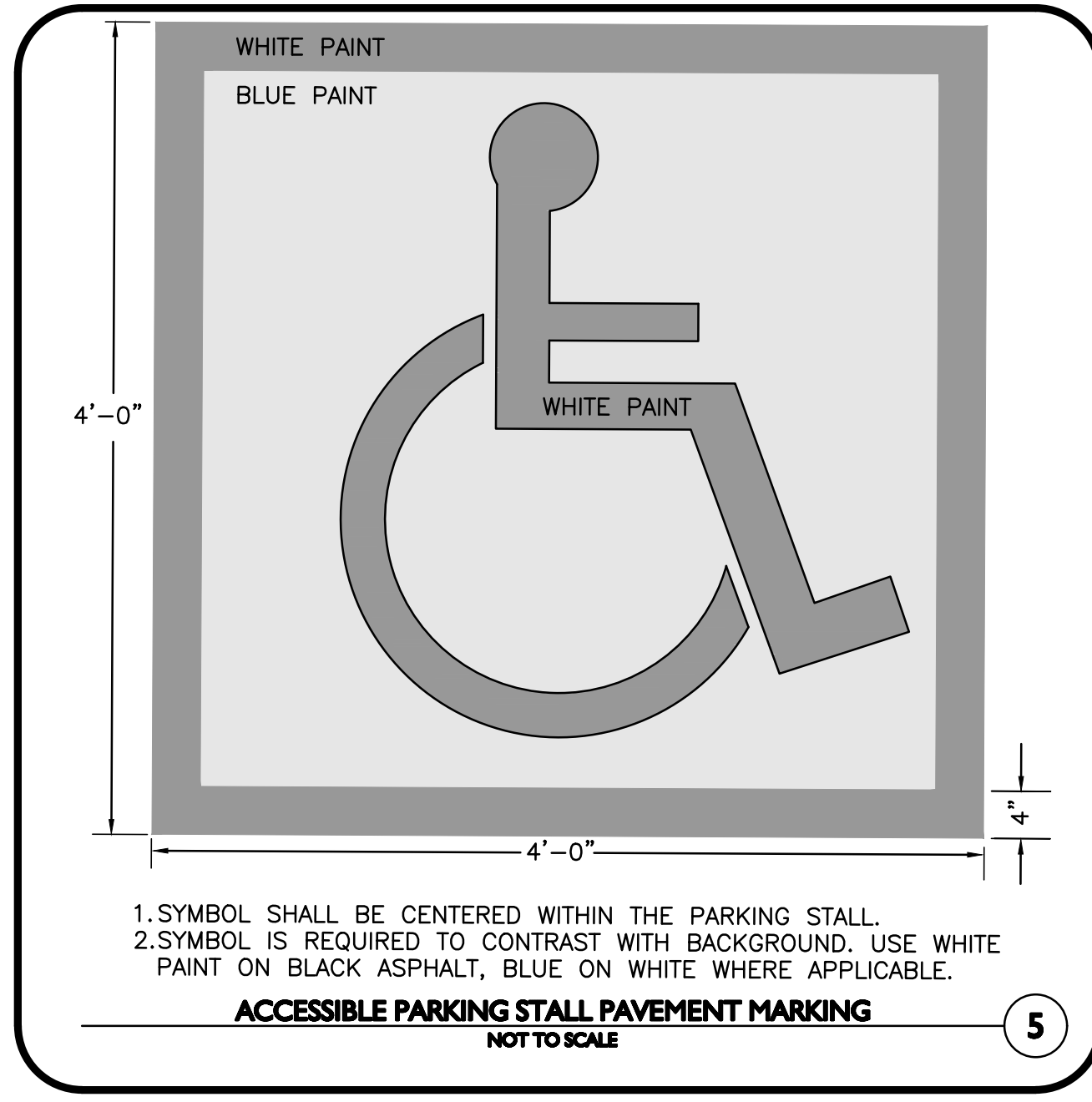
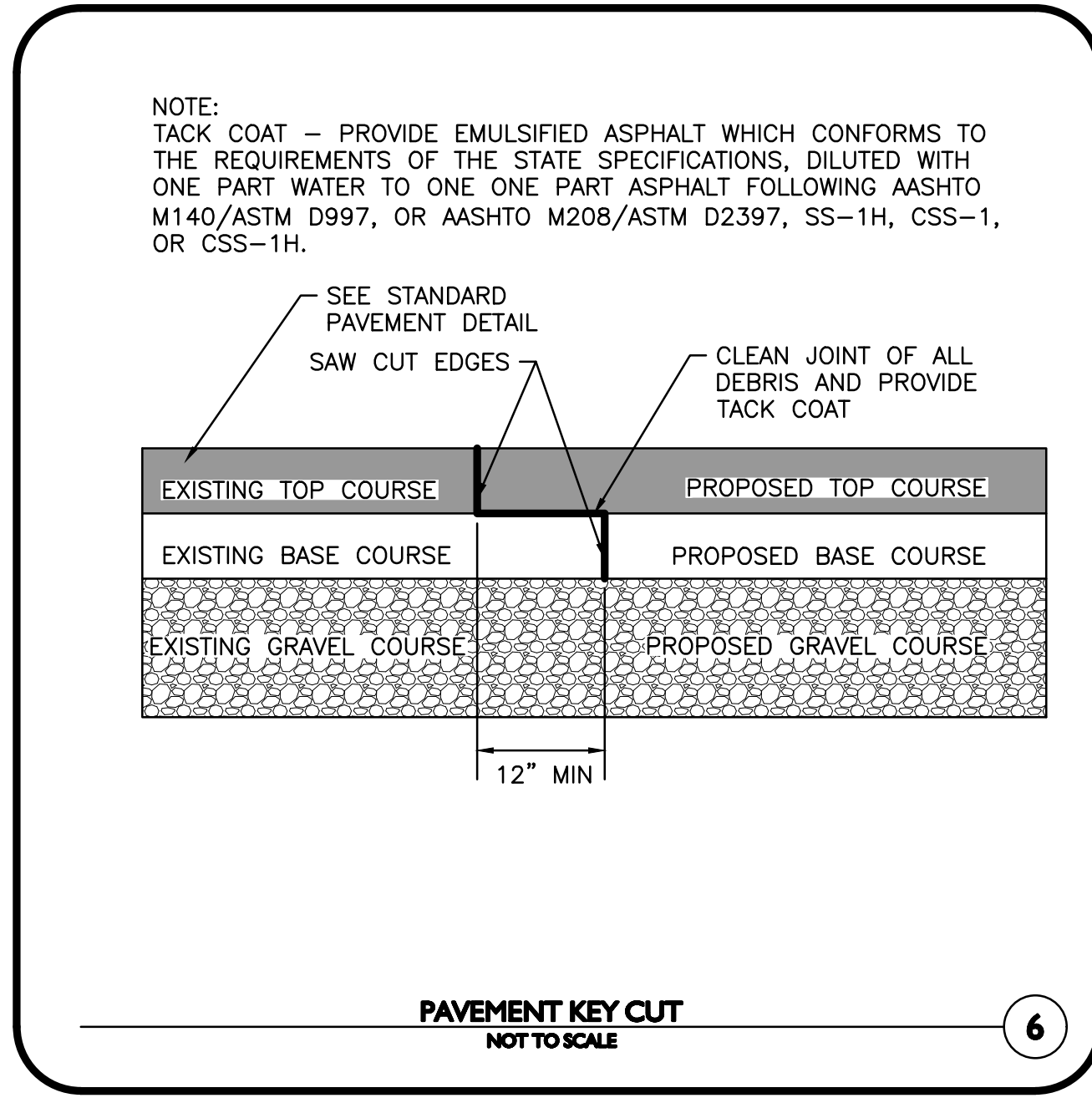
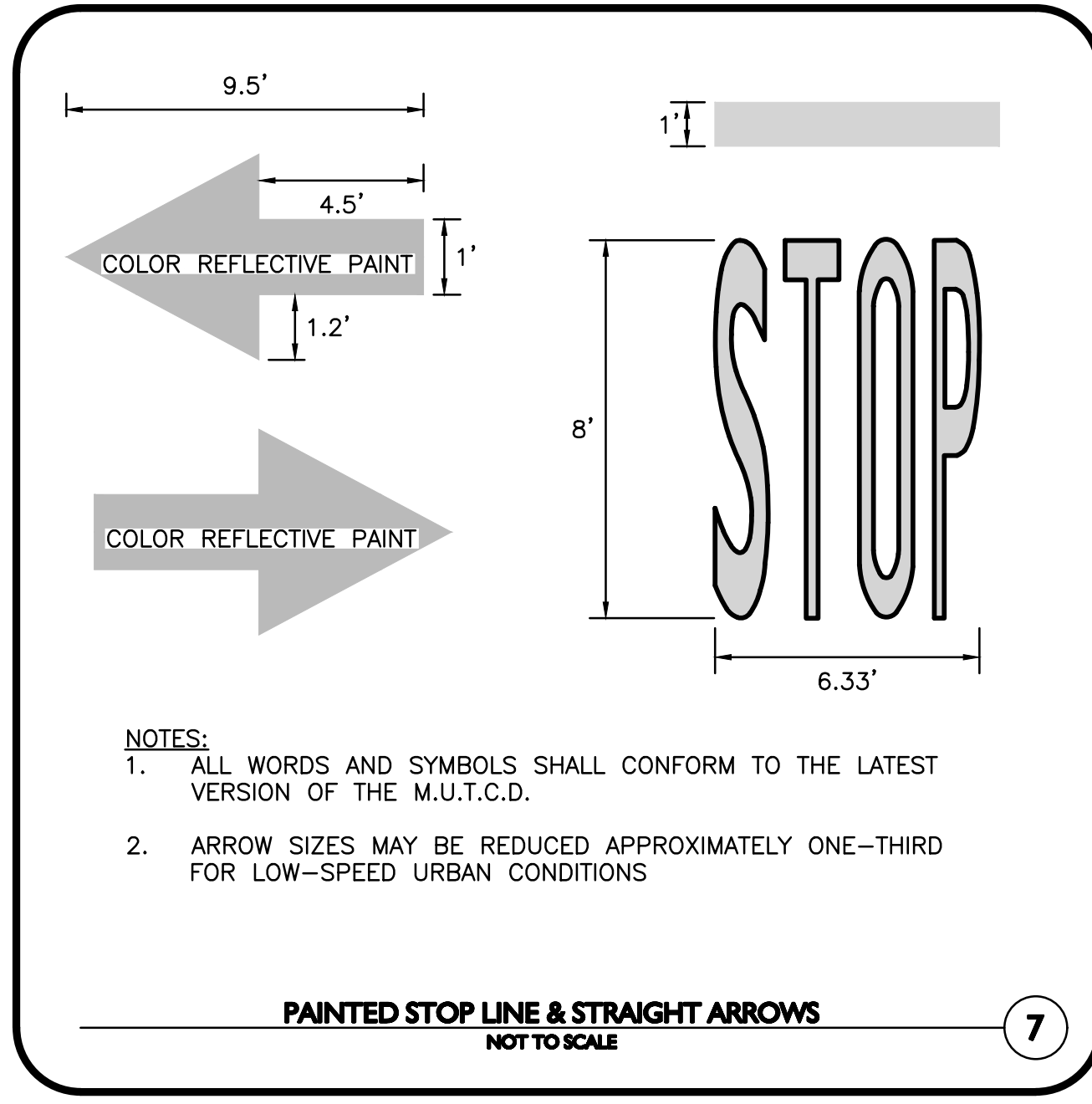
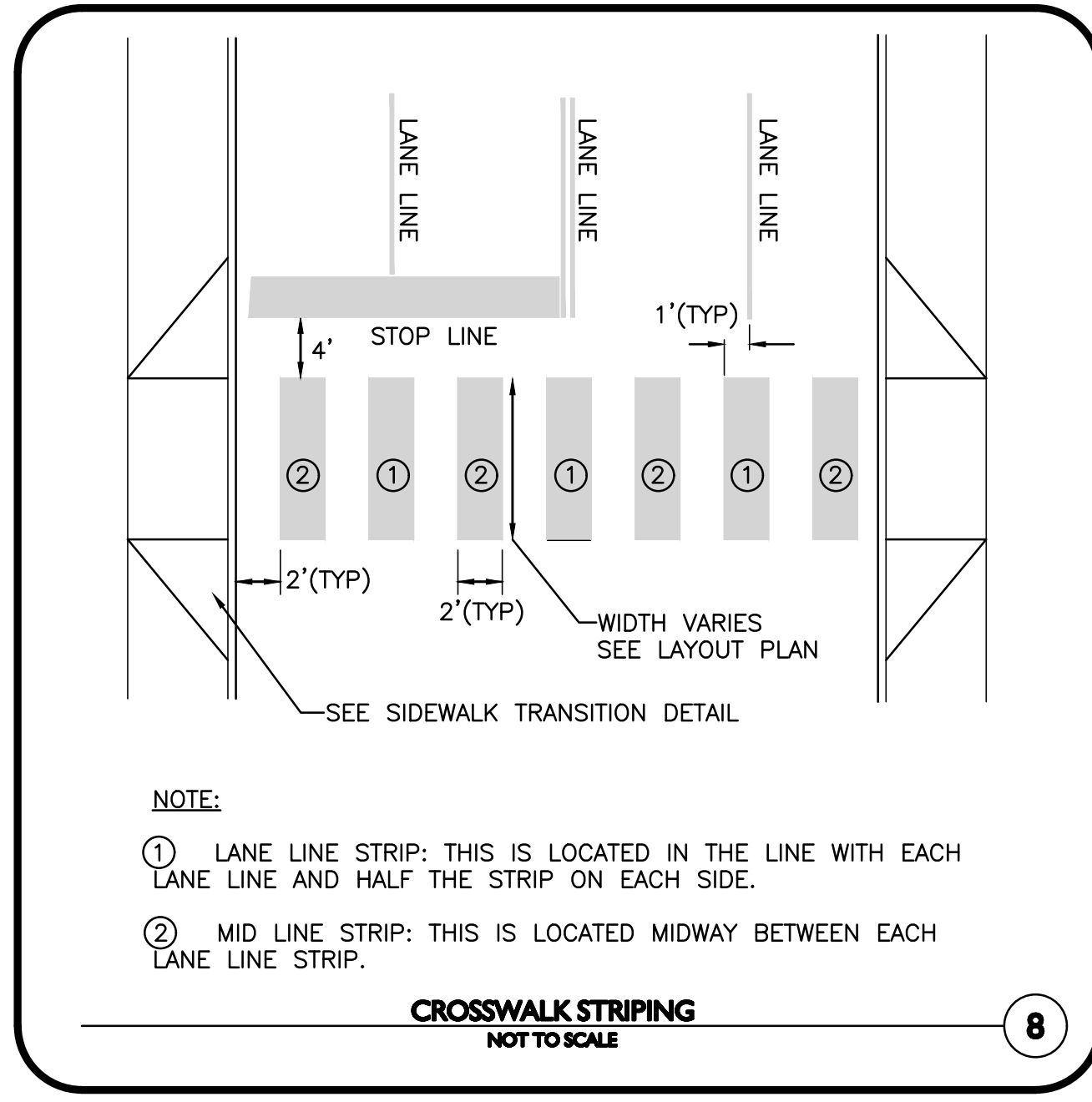
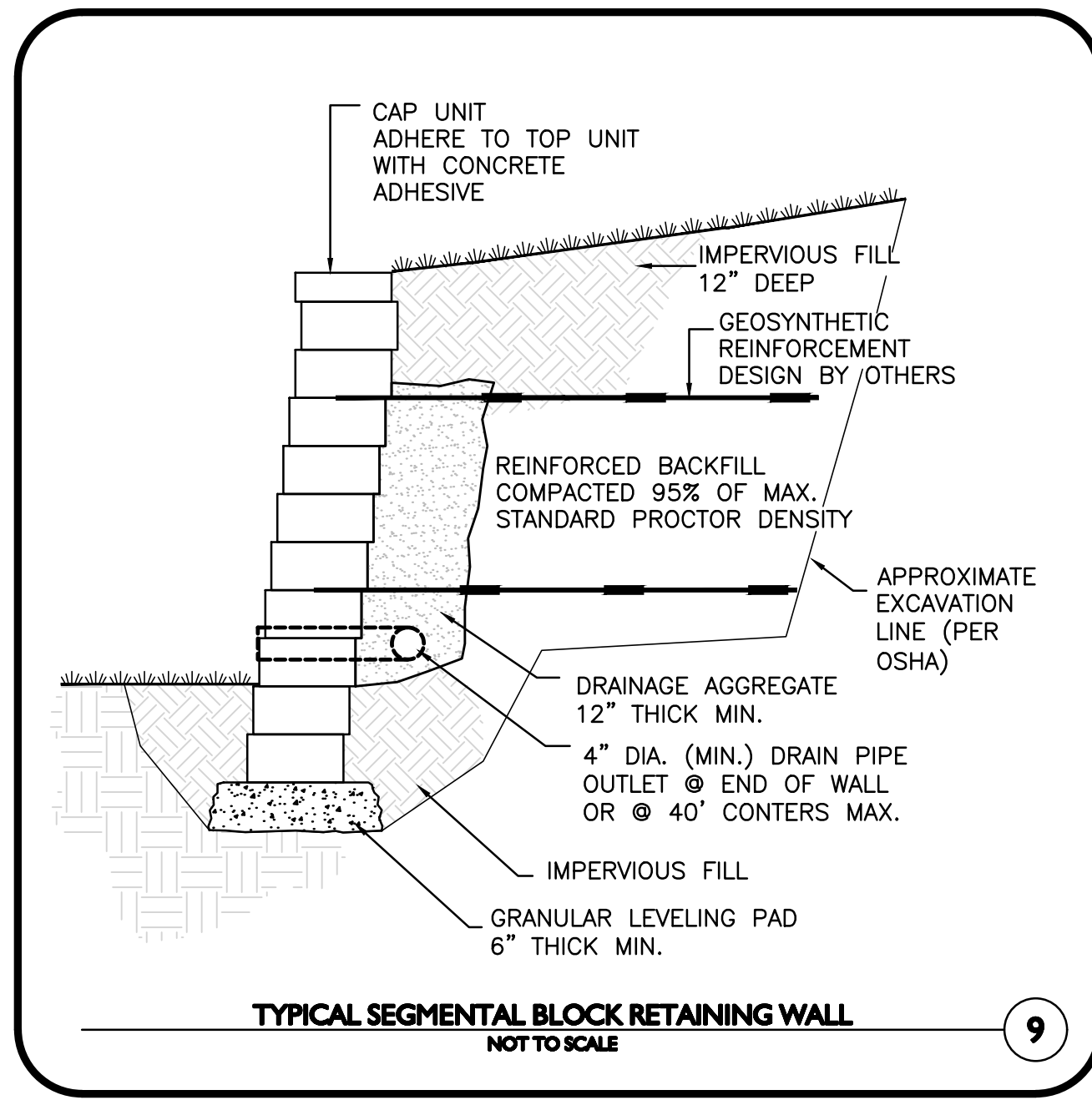
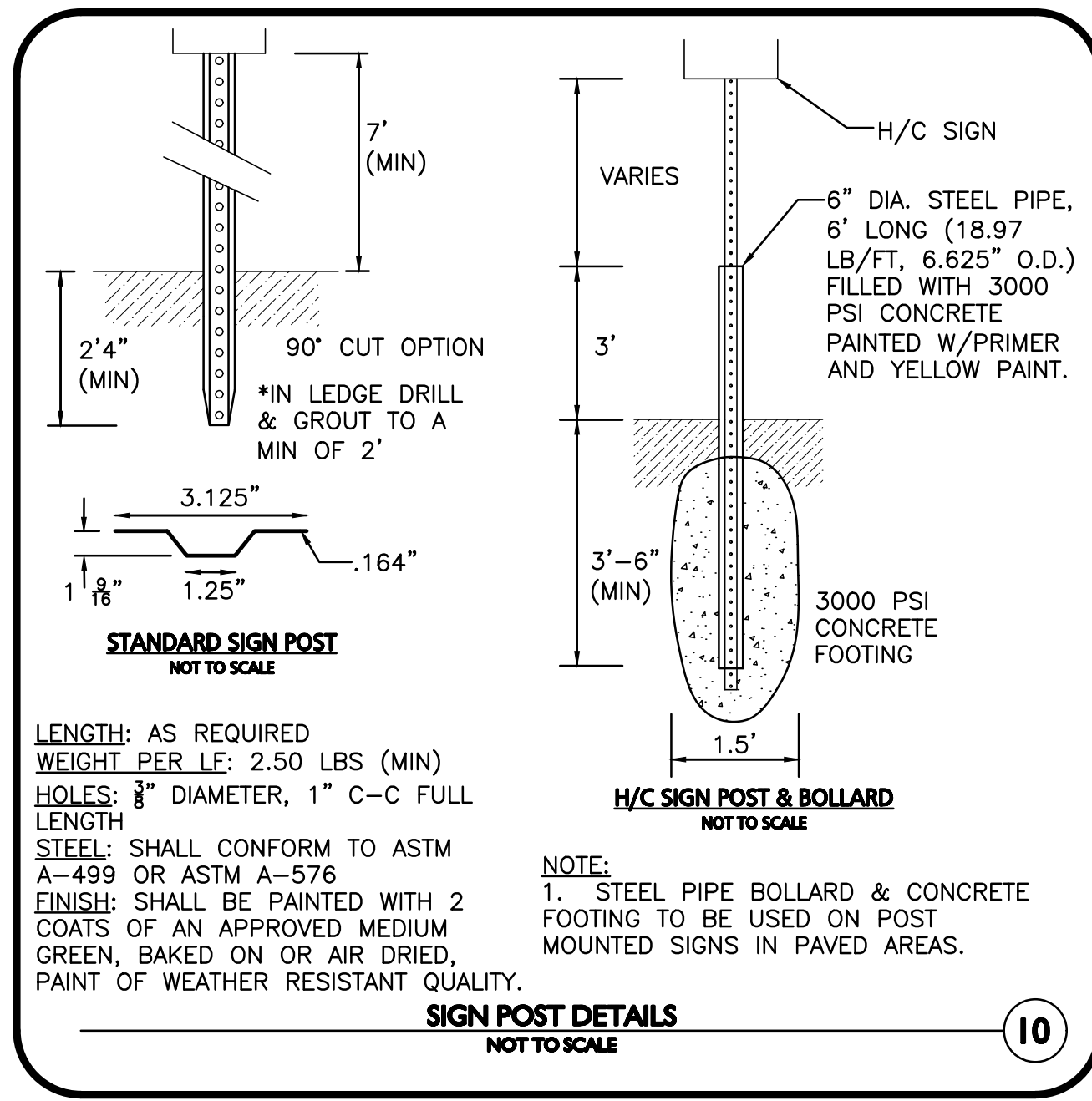
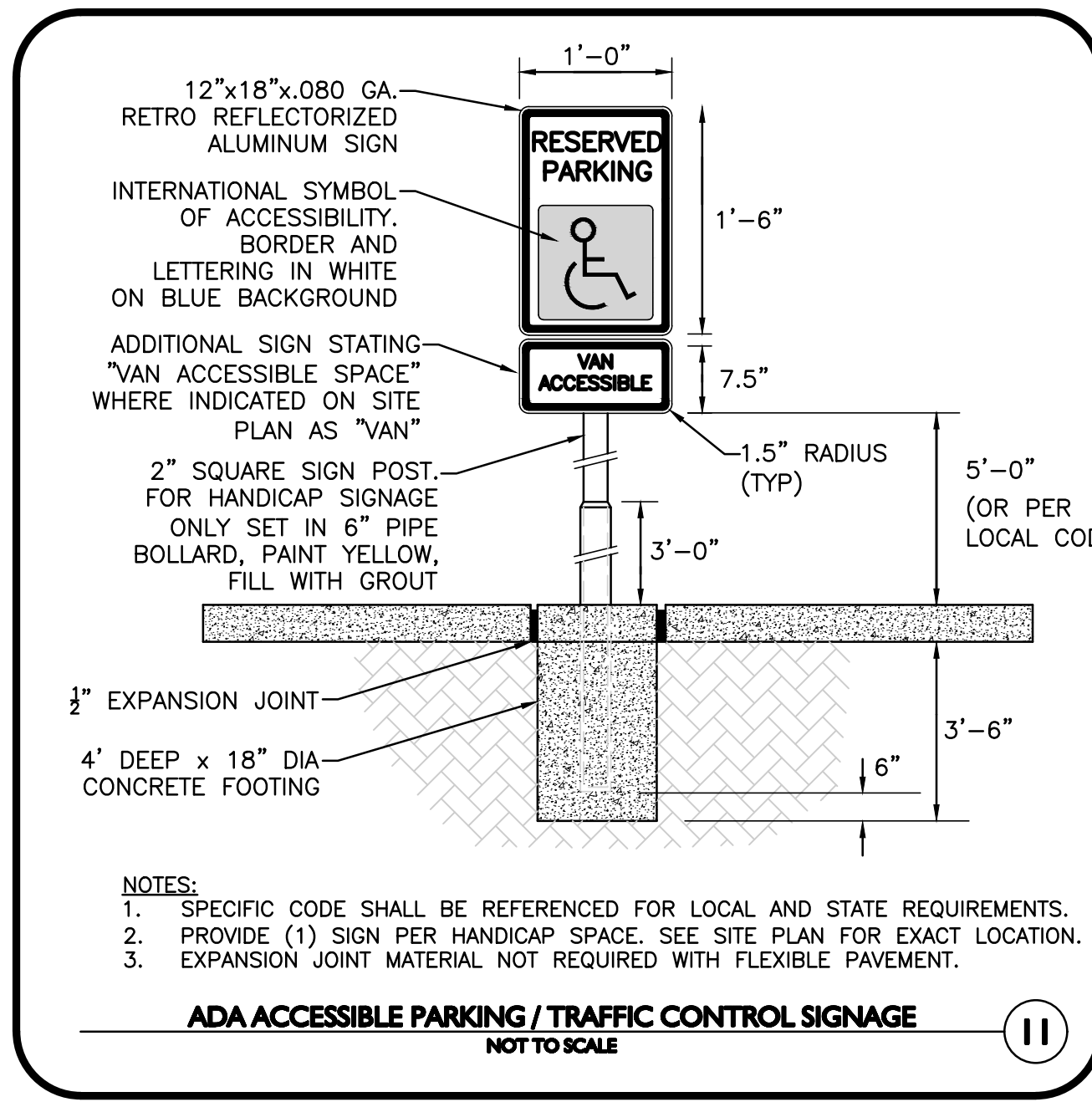
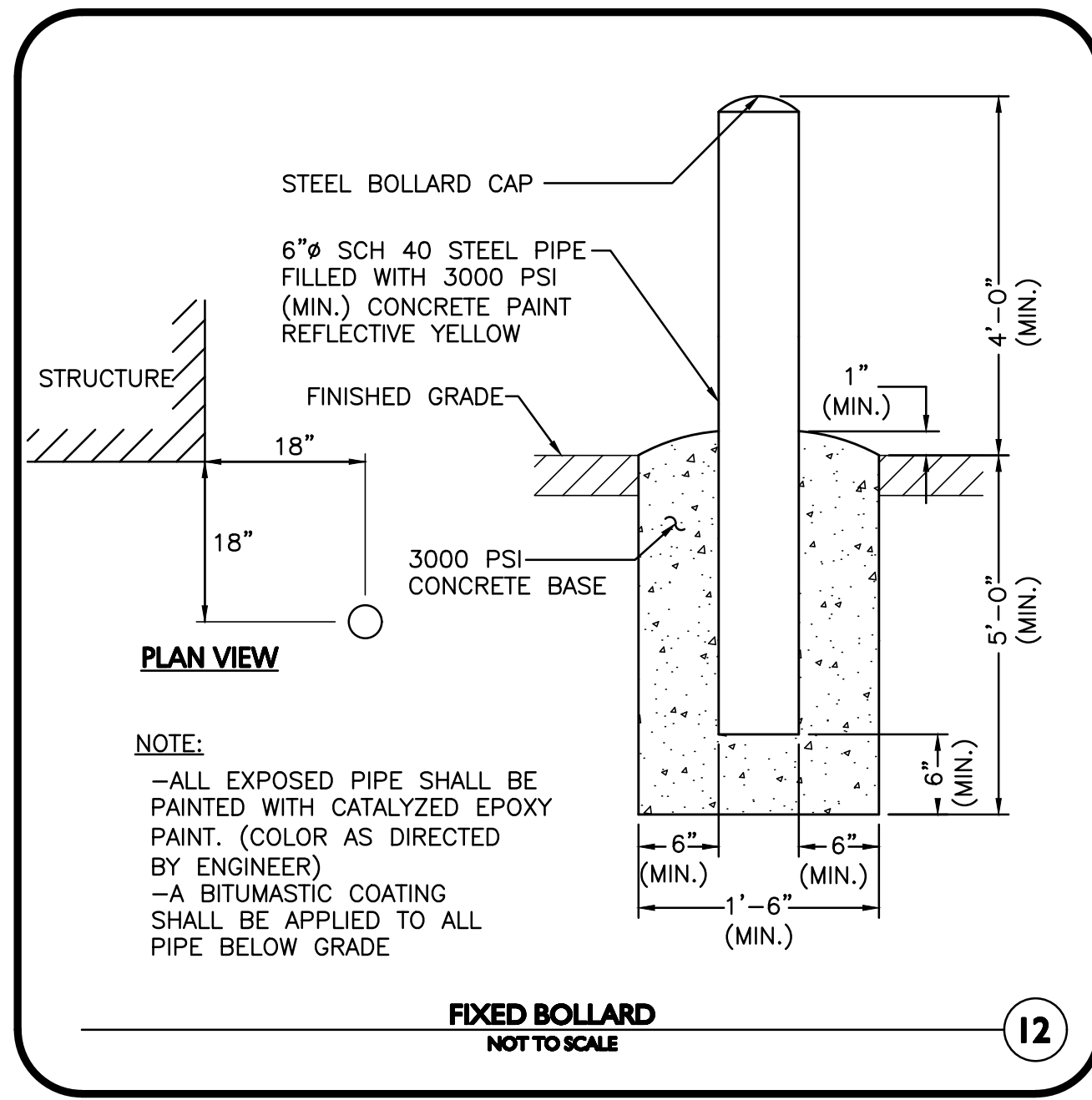
PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

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APPLICANT/OWNER:
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275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

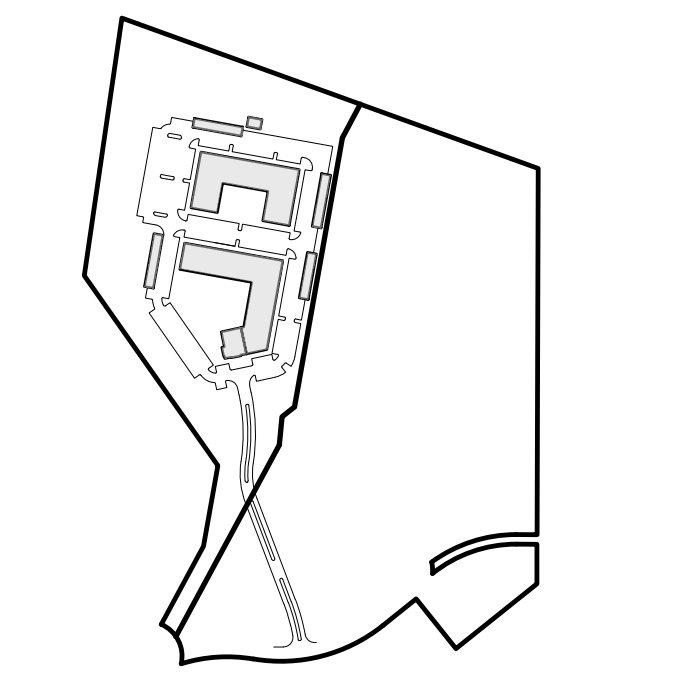
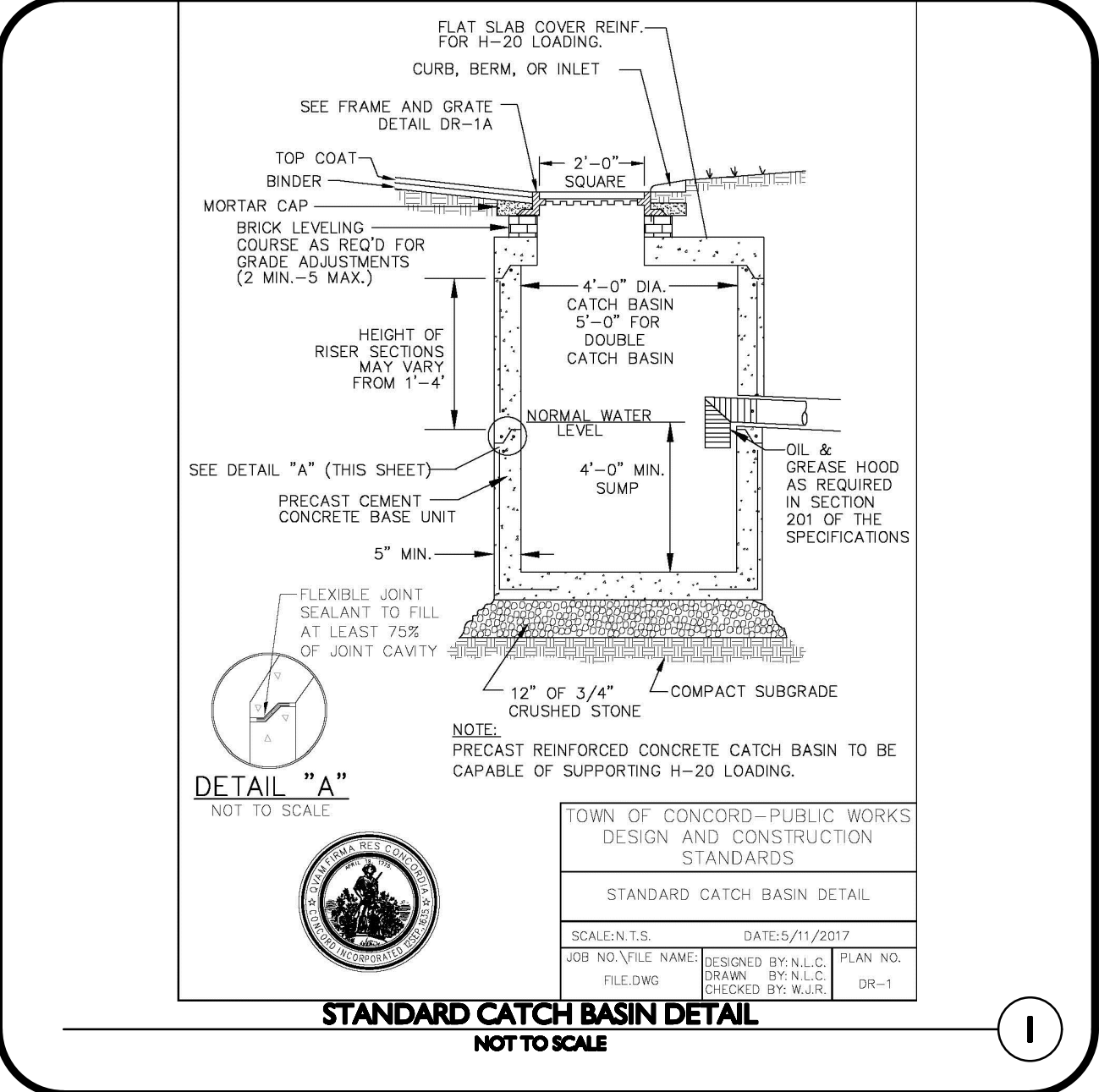
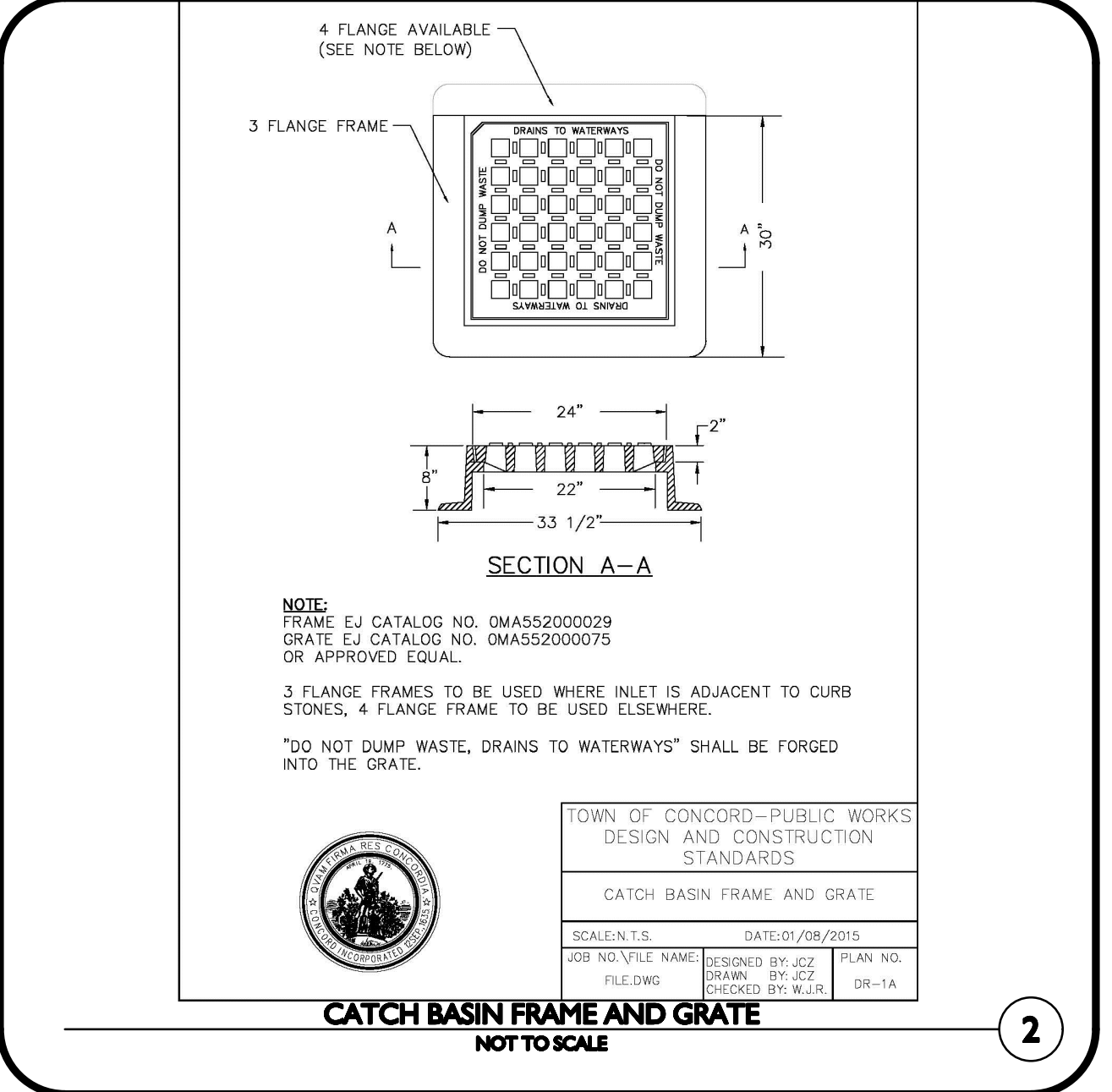
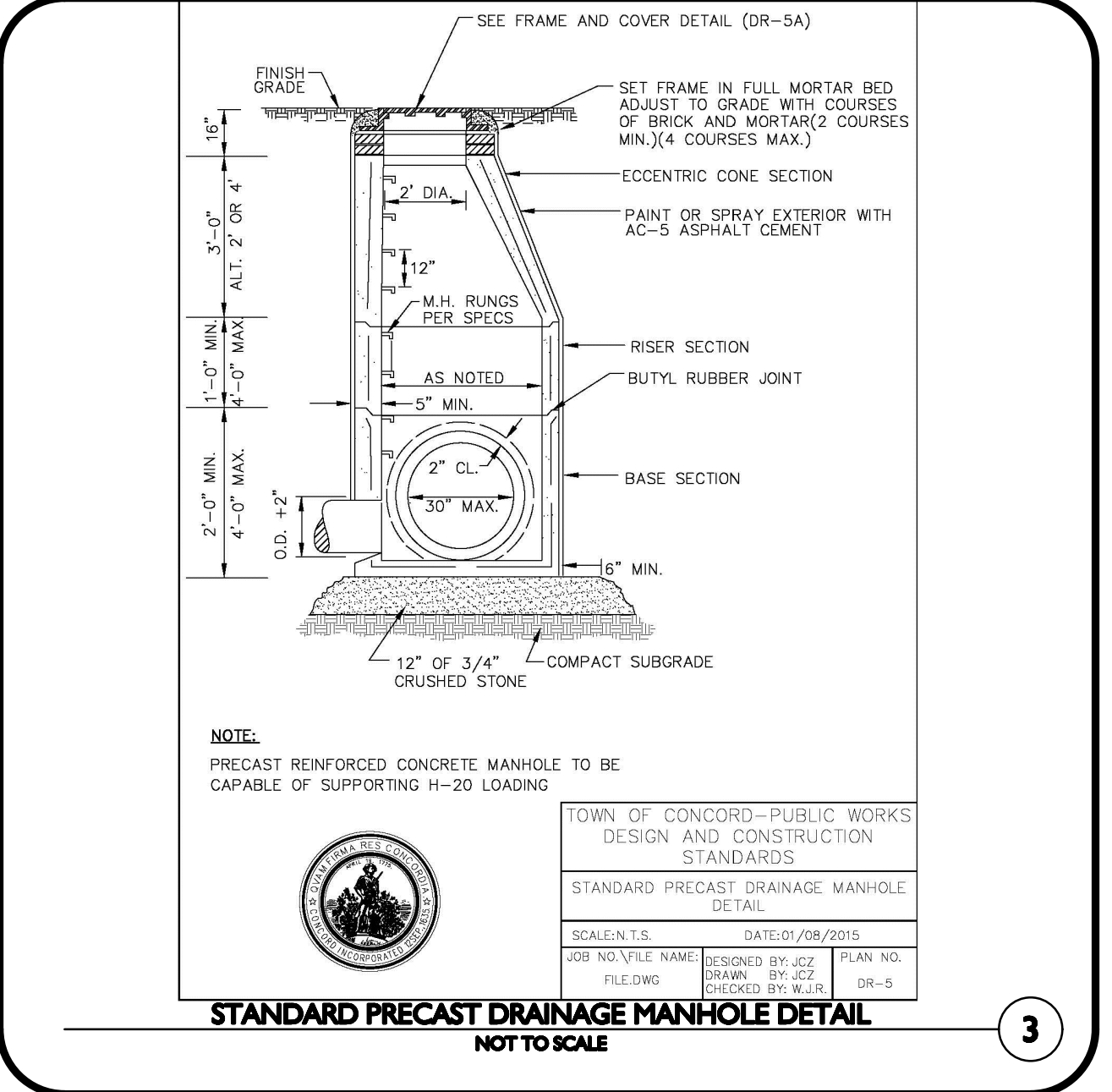
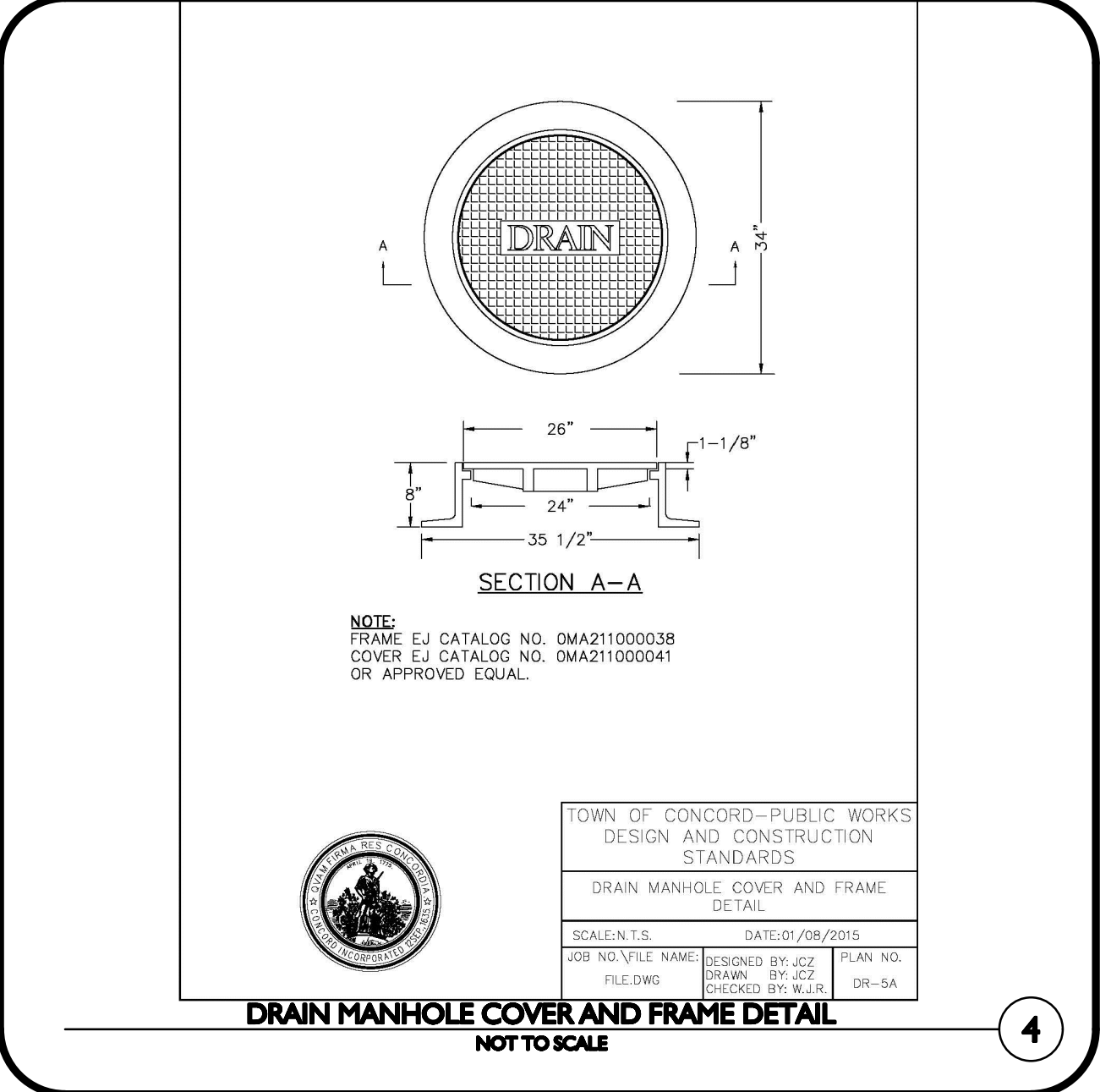
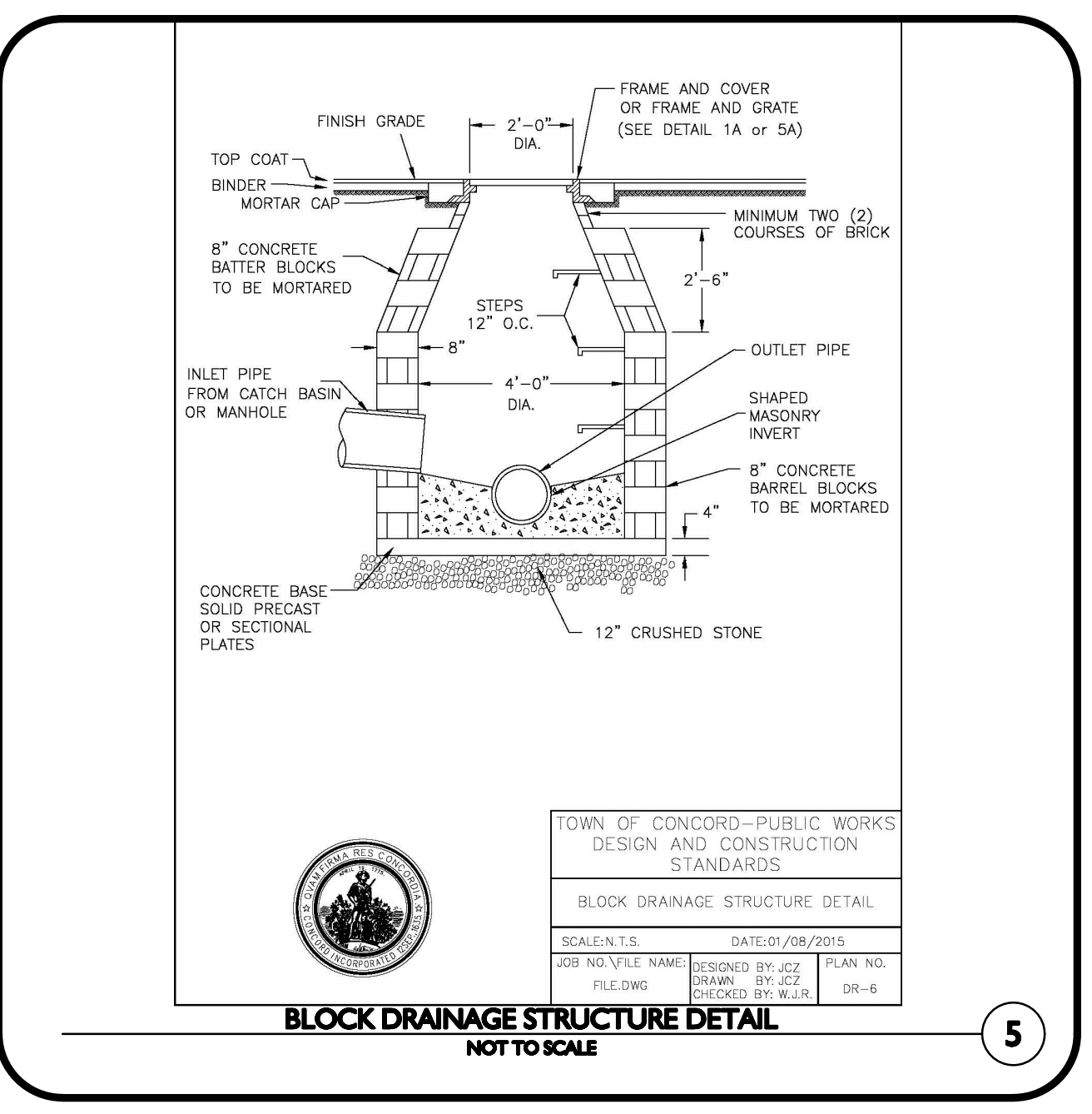
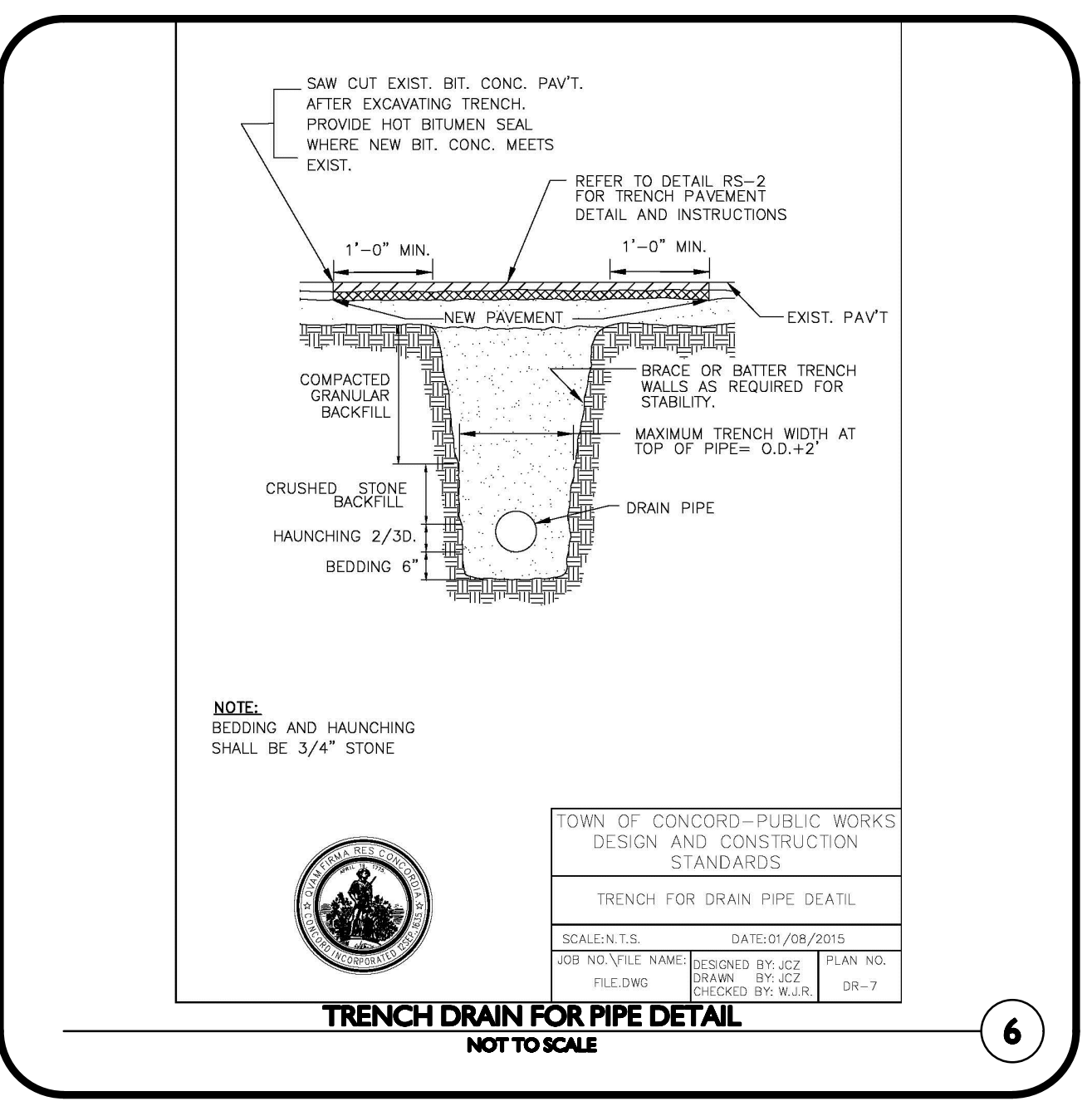
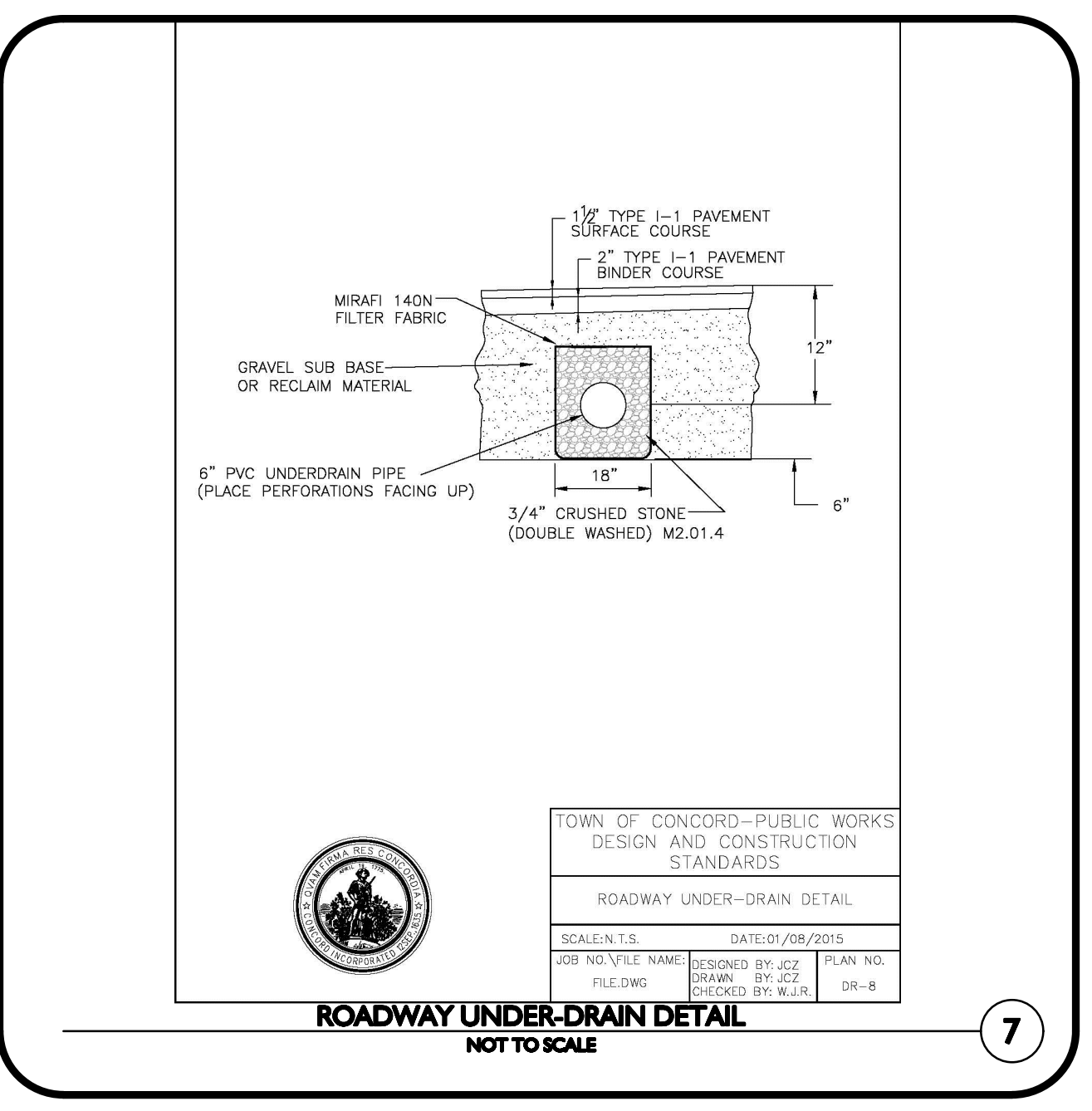
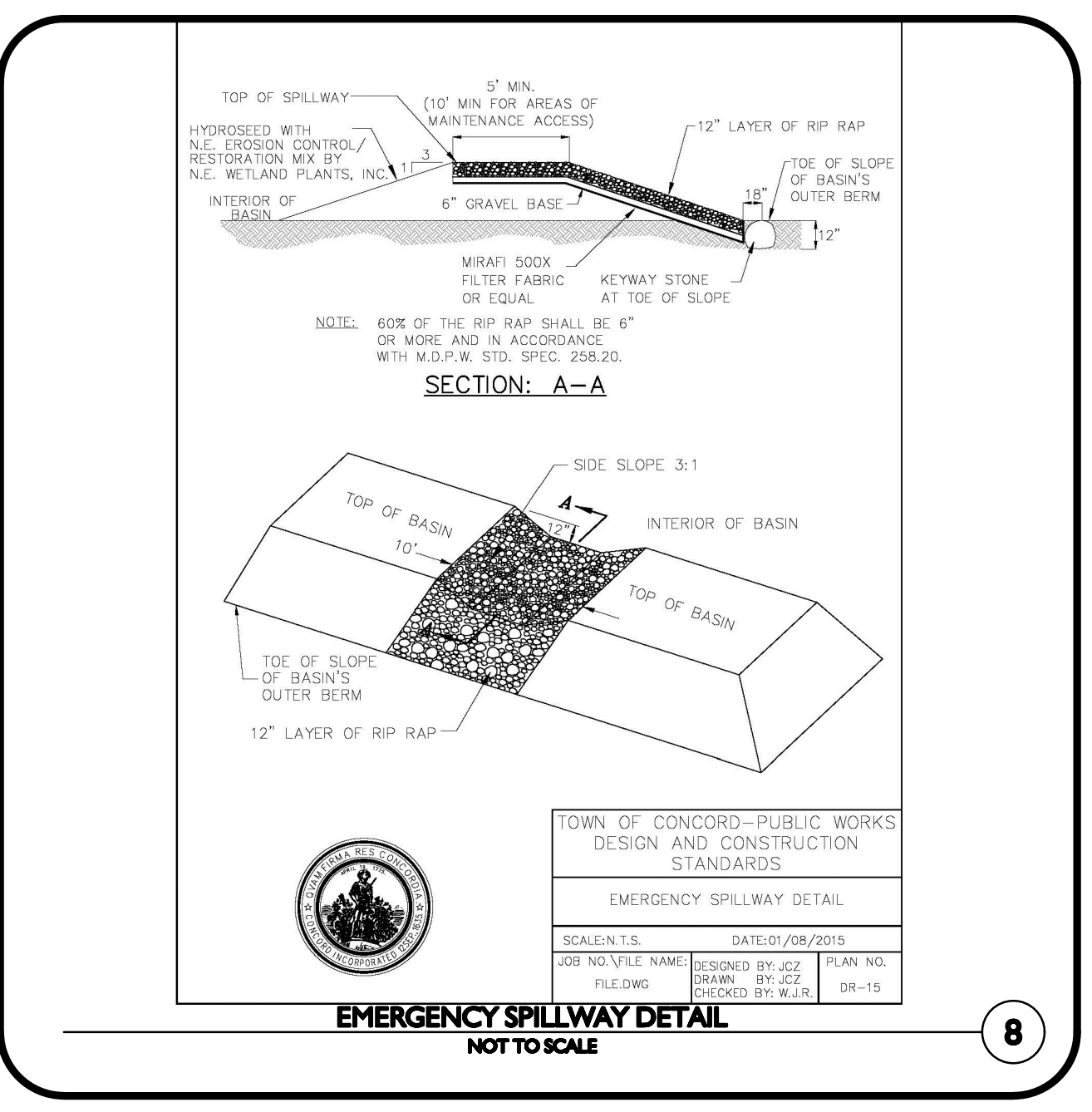
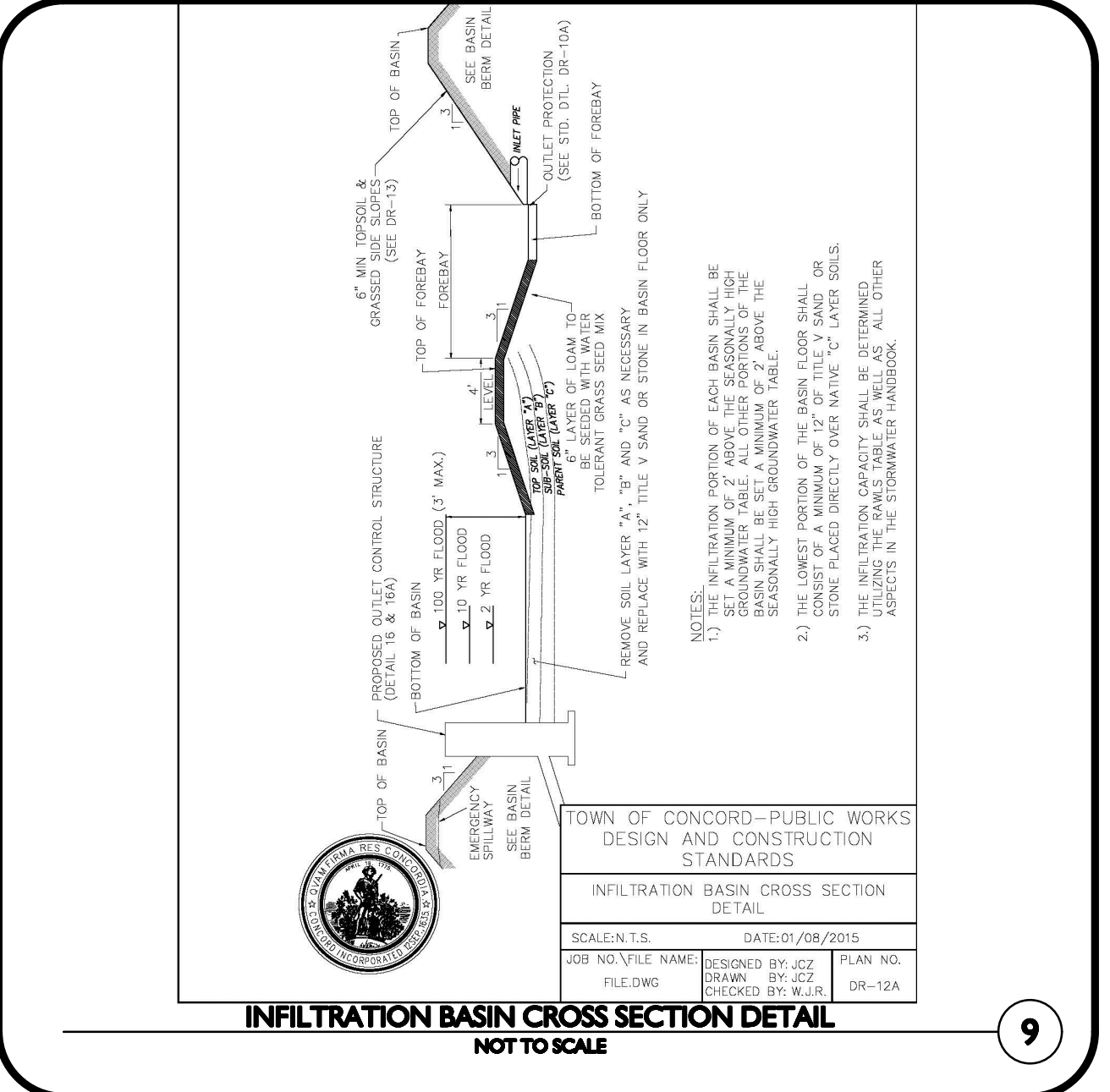
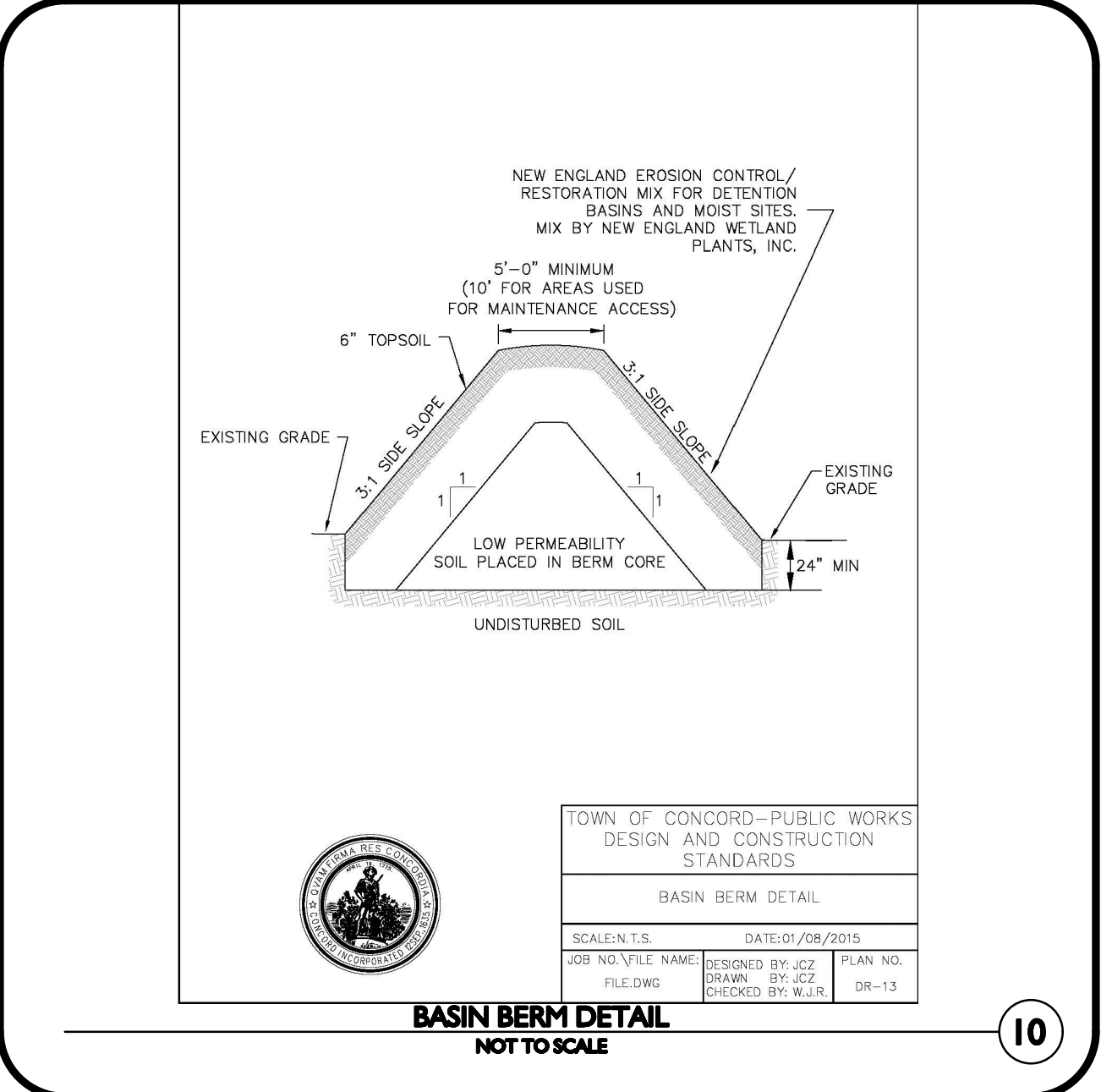
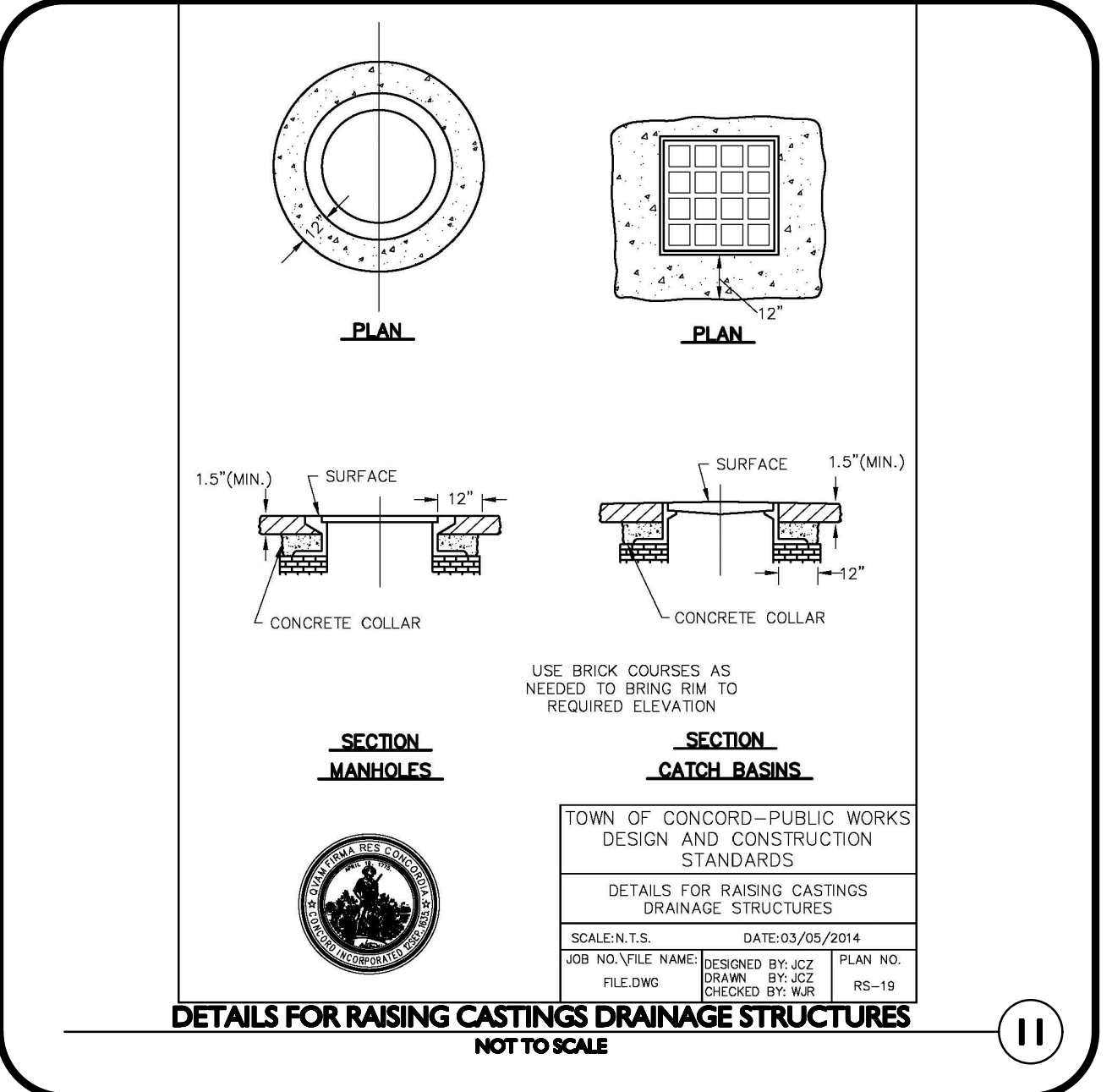
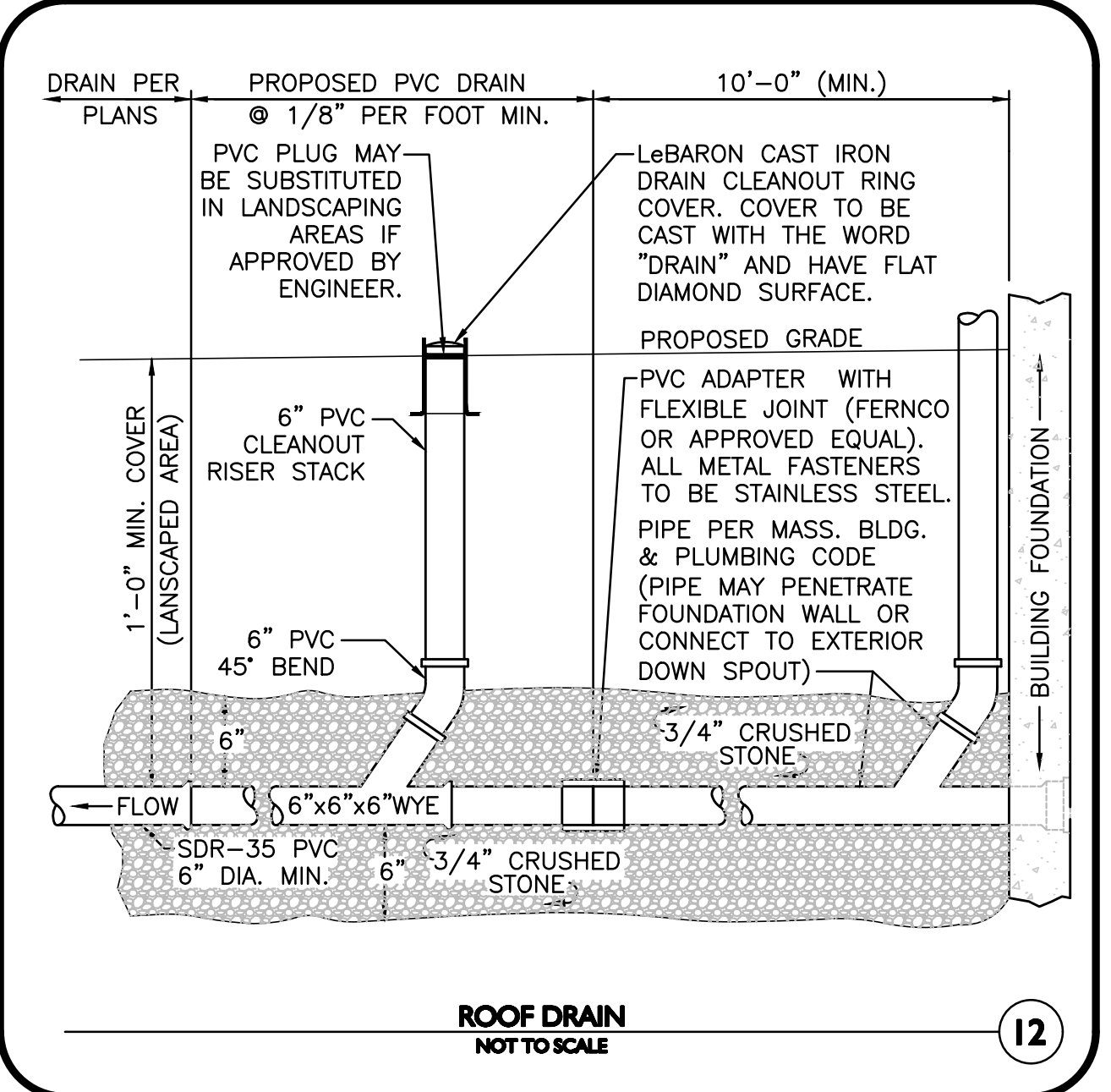
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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:

THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

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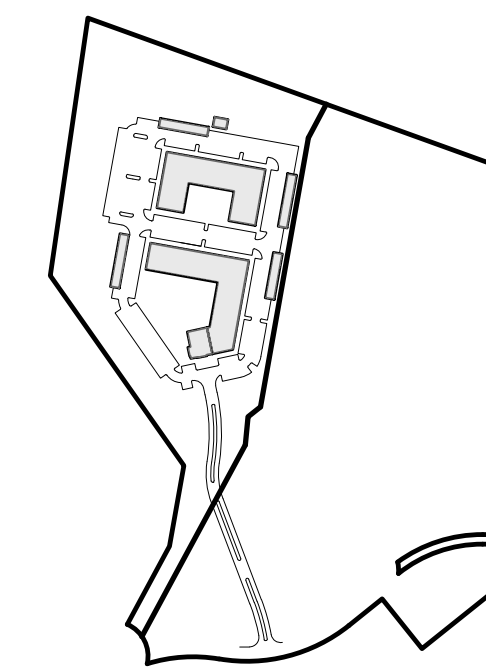
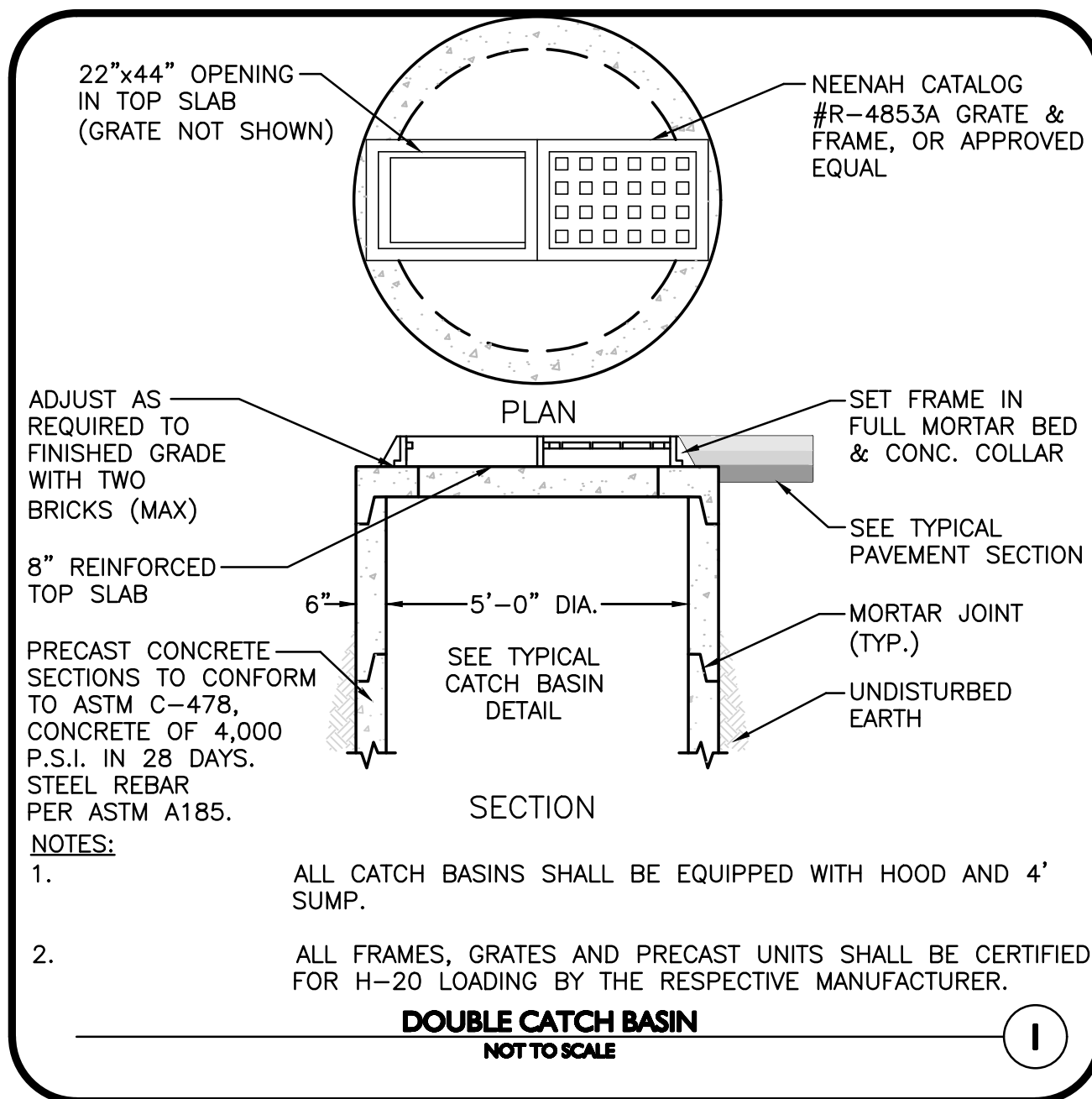
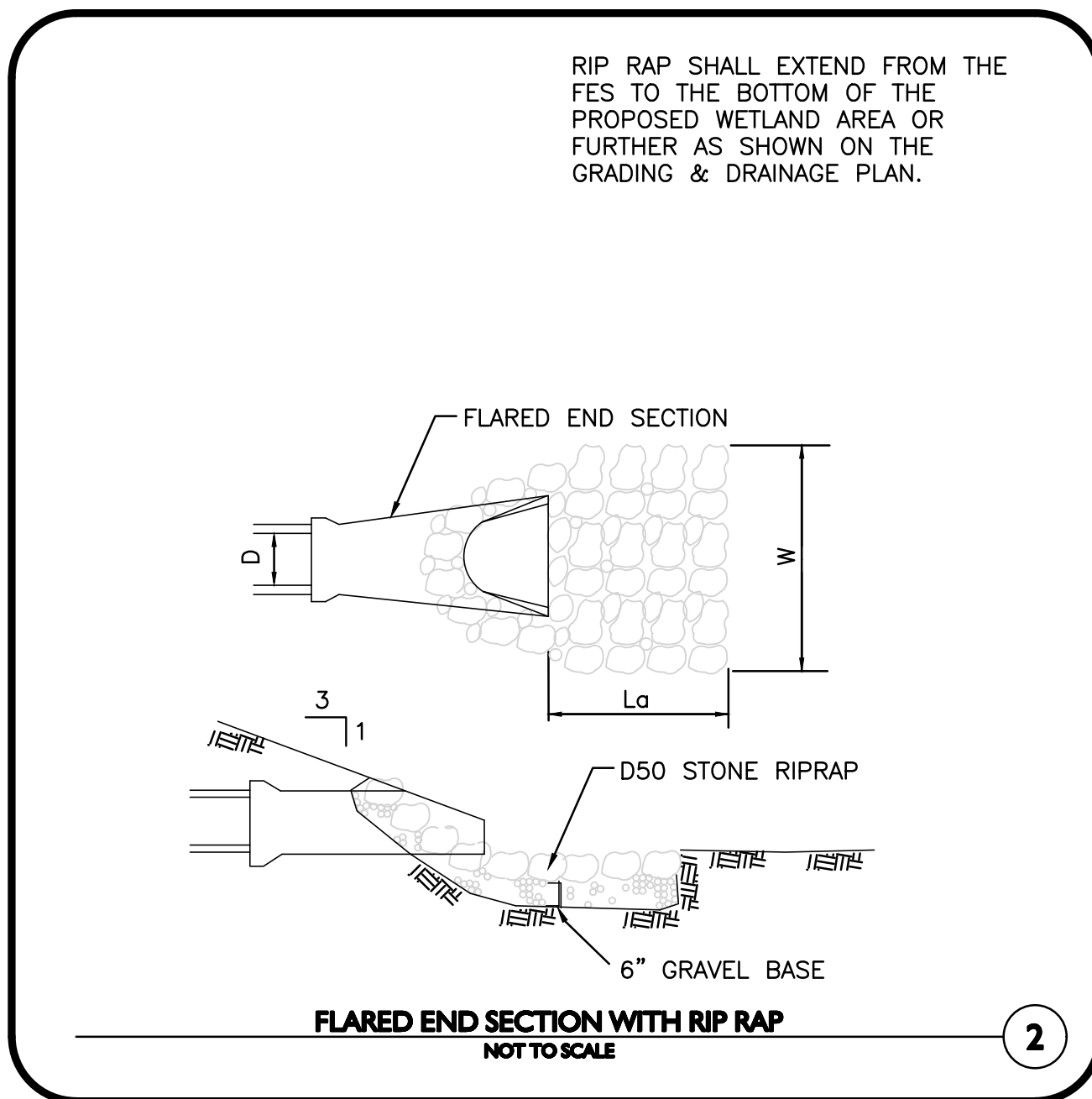
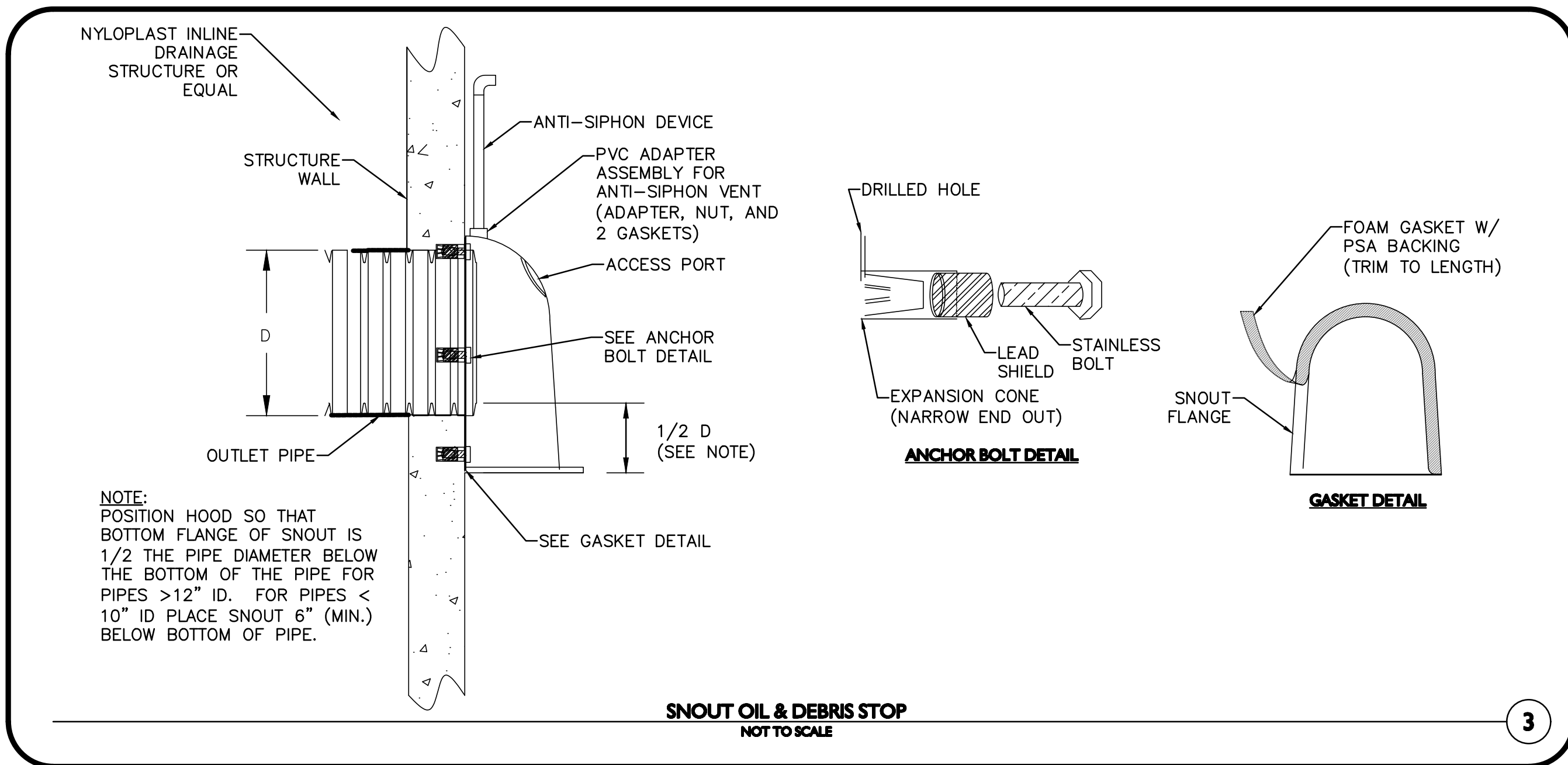
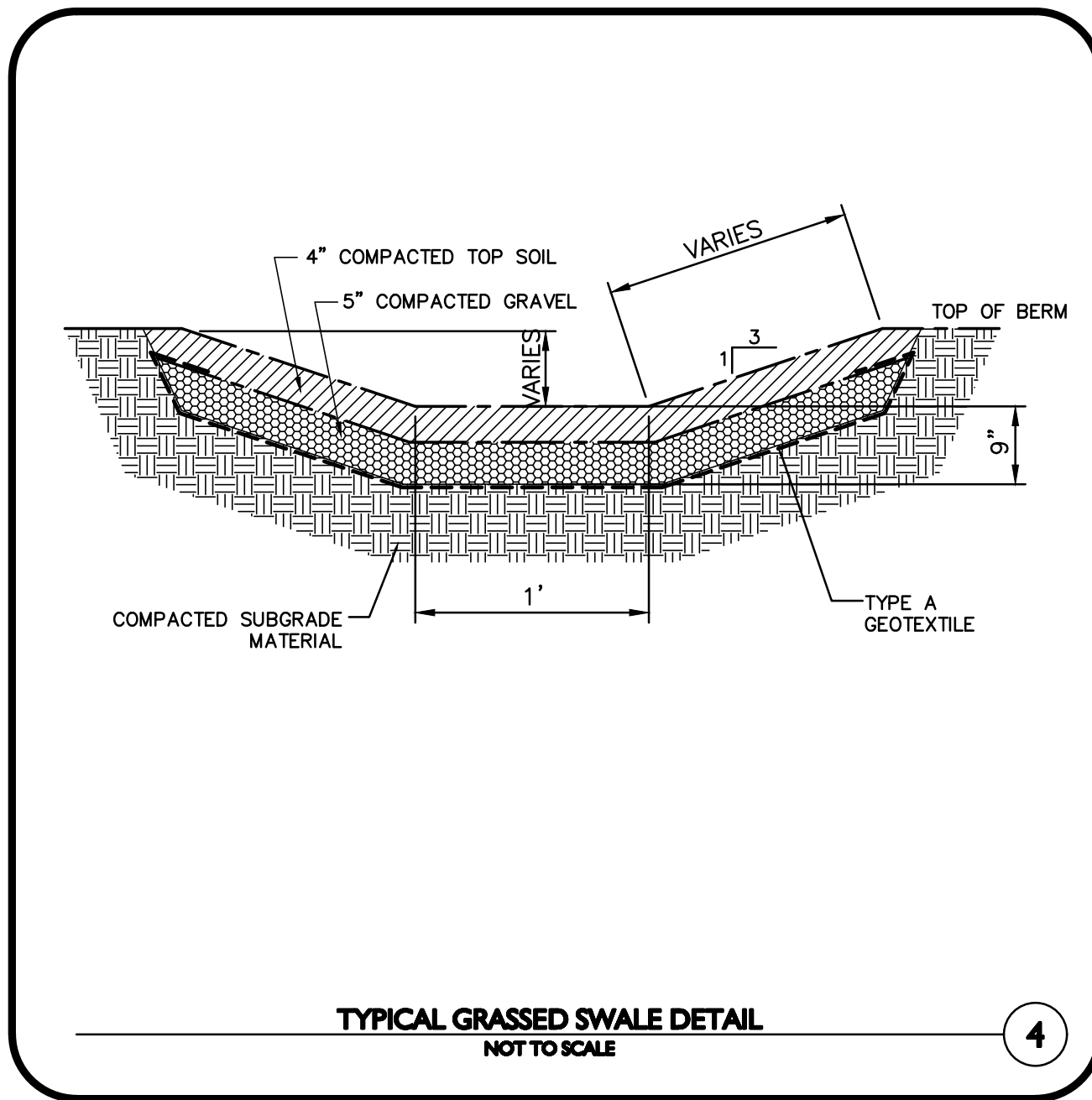
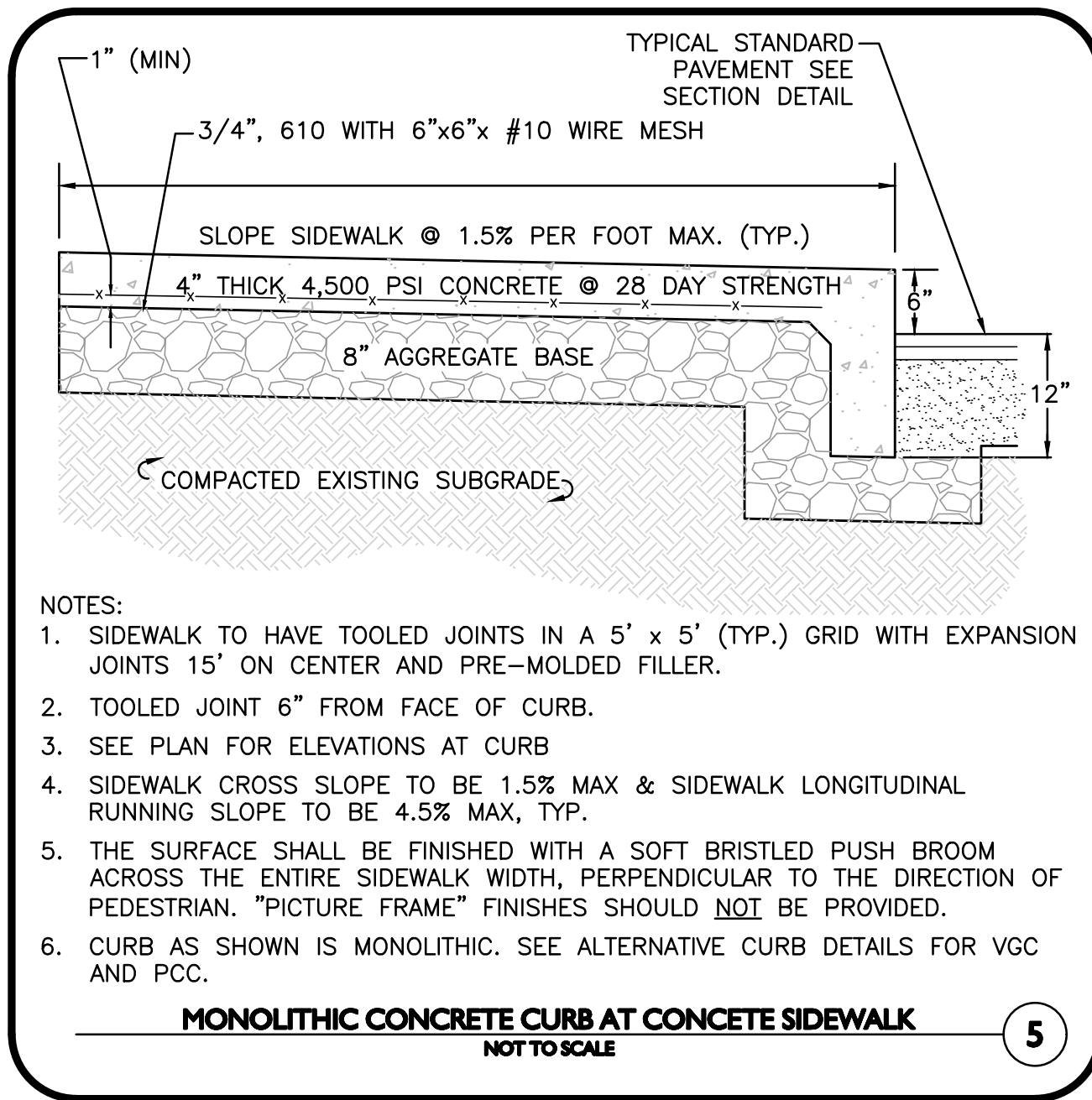
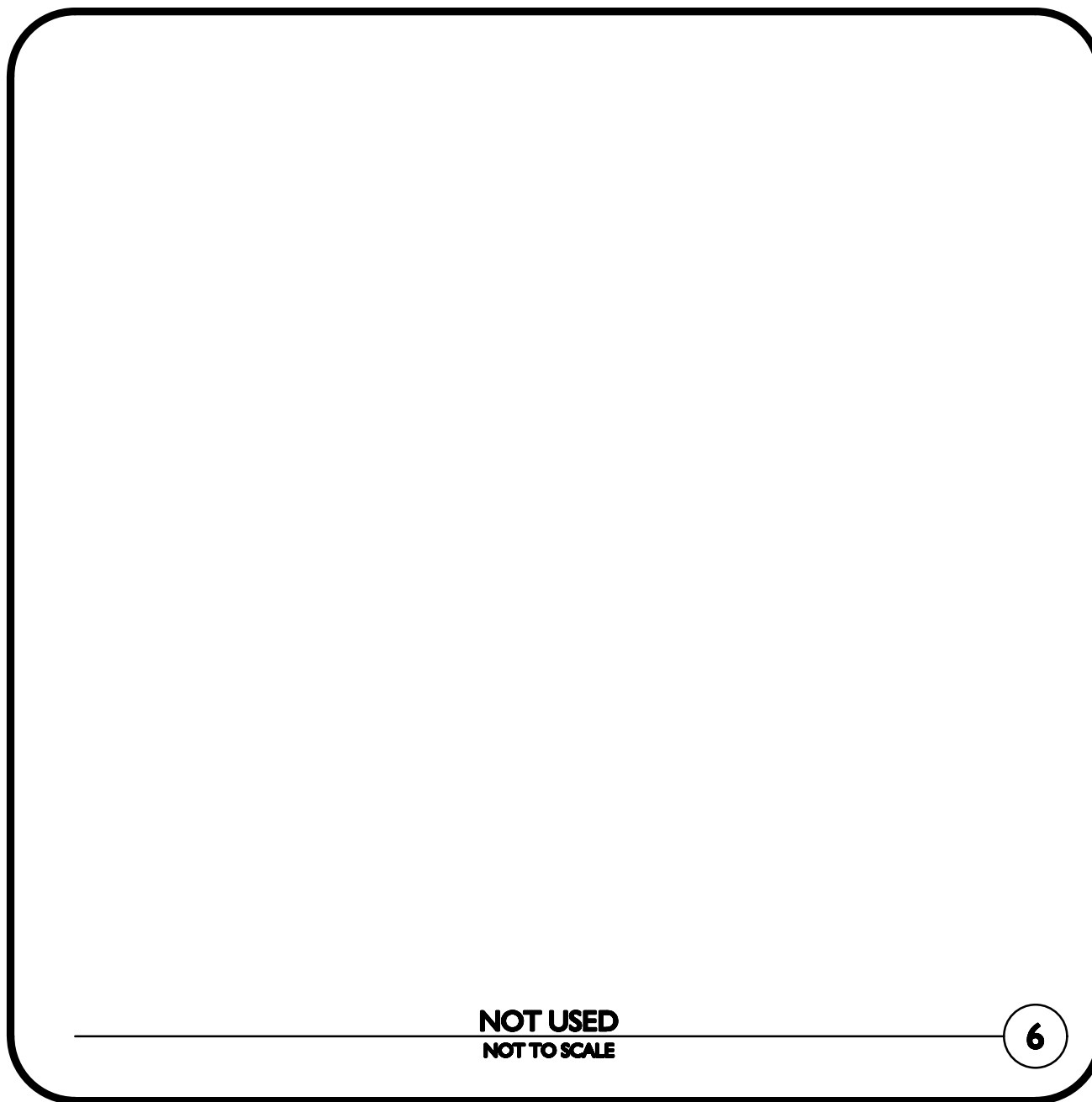
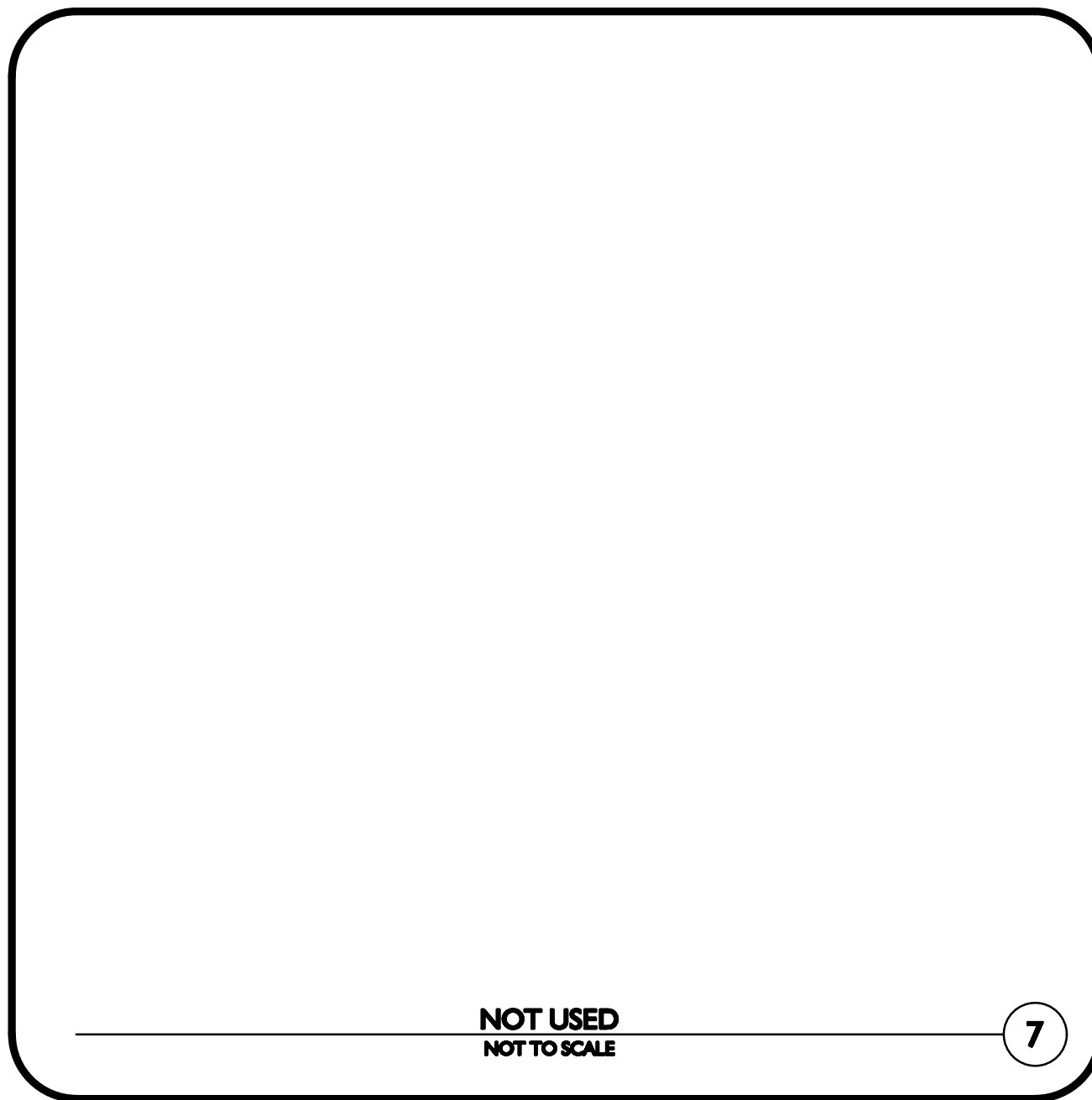
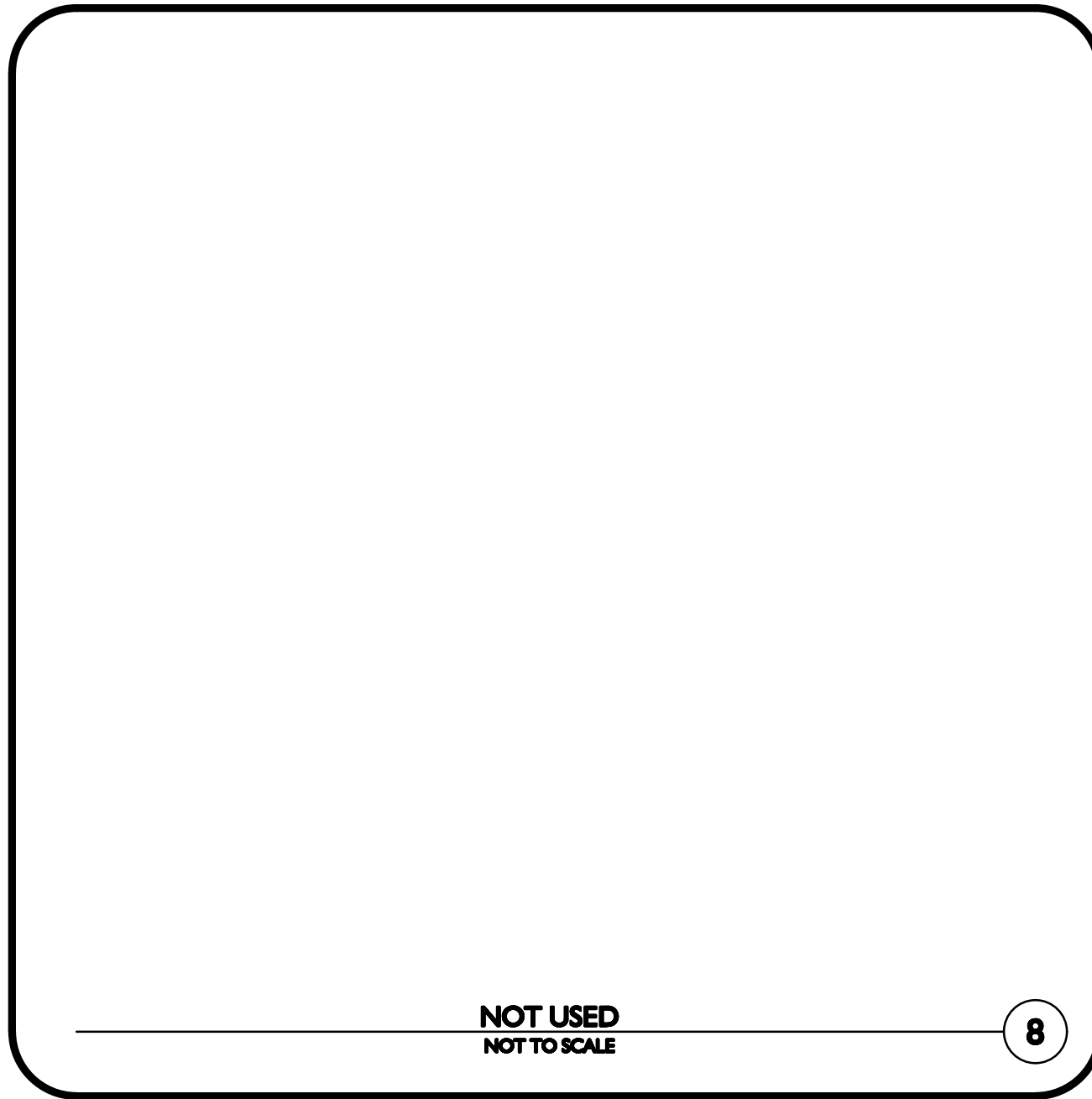
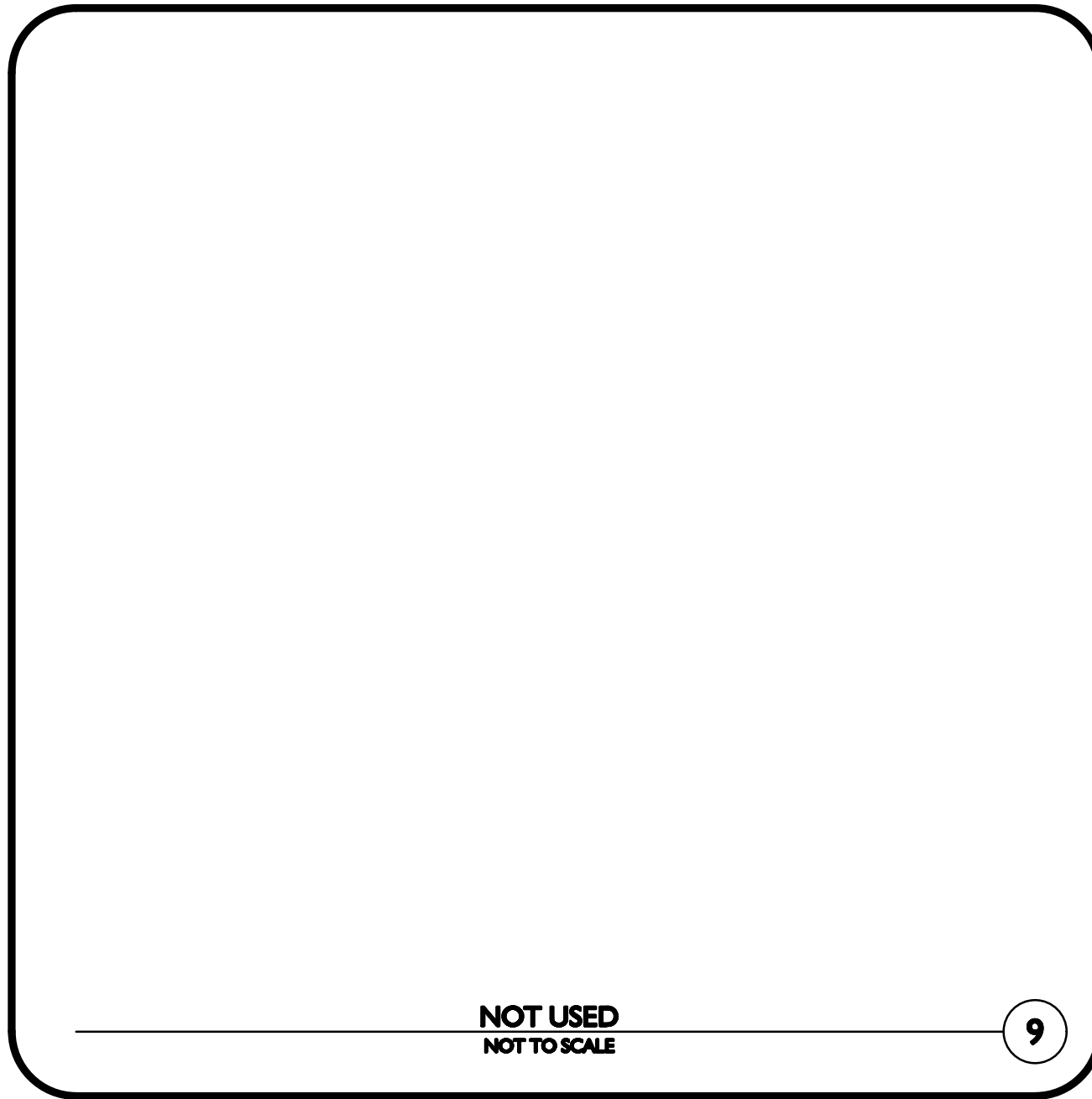
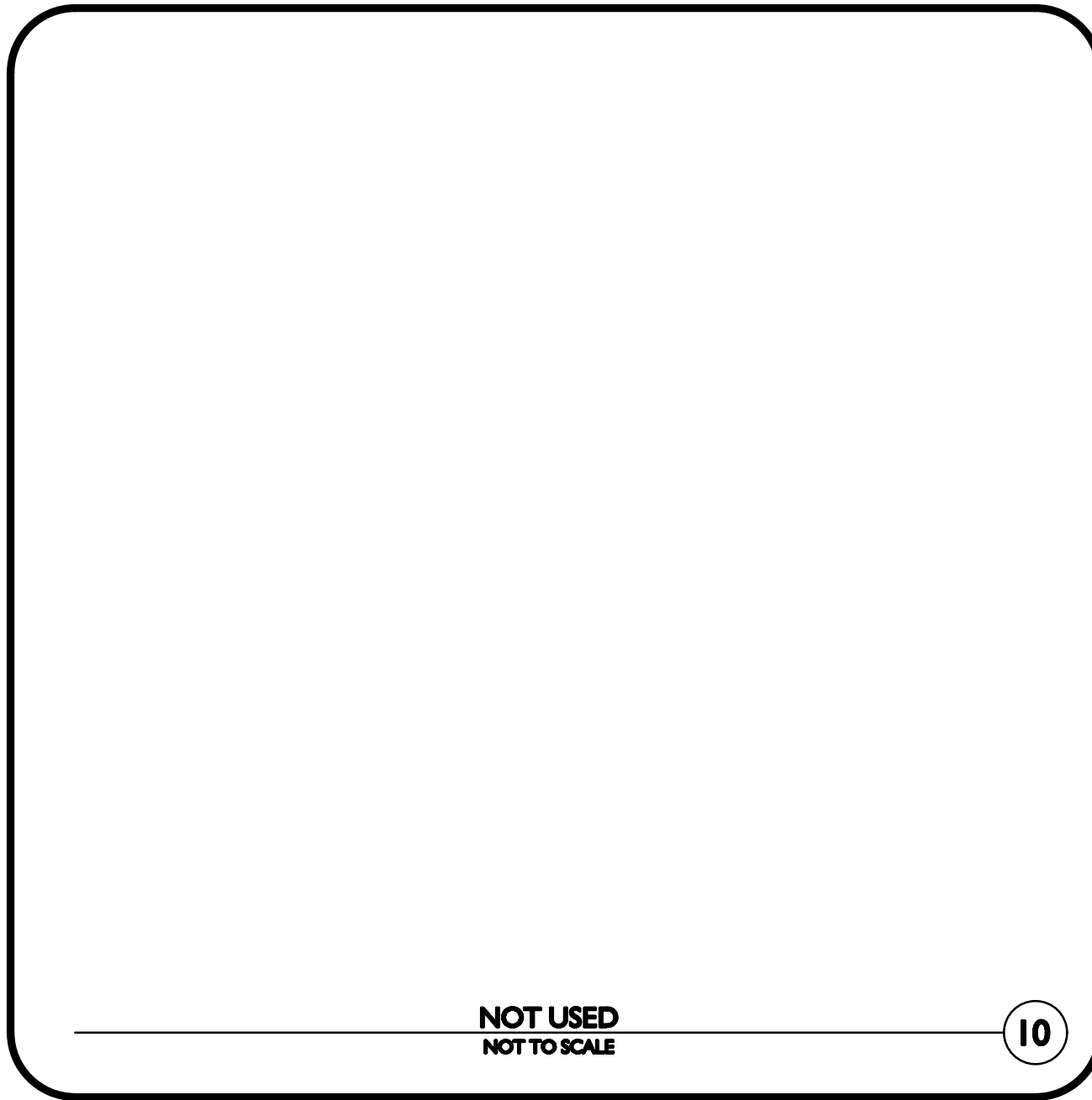
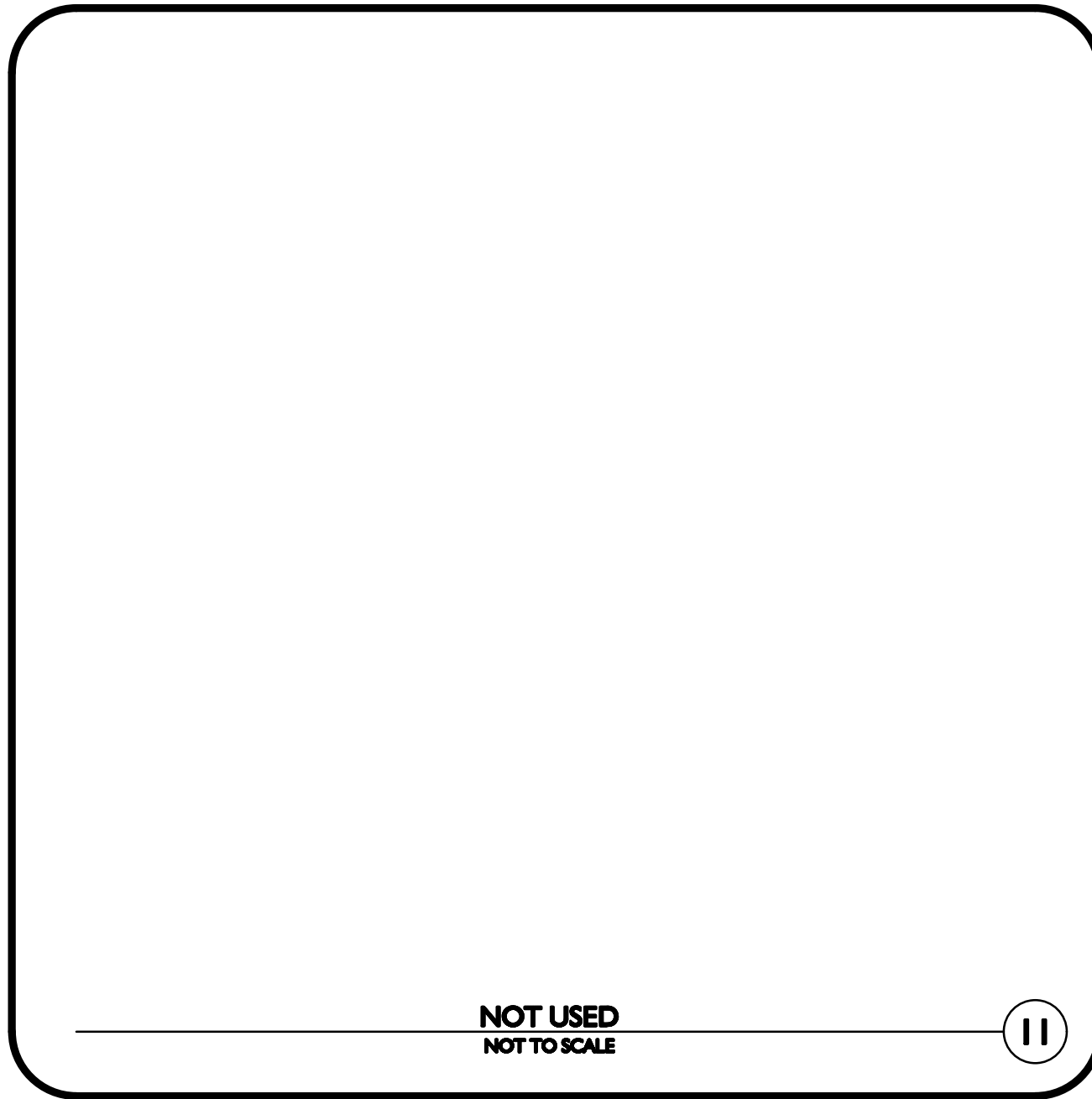
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PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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CONCORD, MA 01742

PROJECT:
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CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

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DRAWING TITLE:	SHEET No.
DETAILS	C-505

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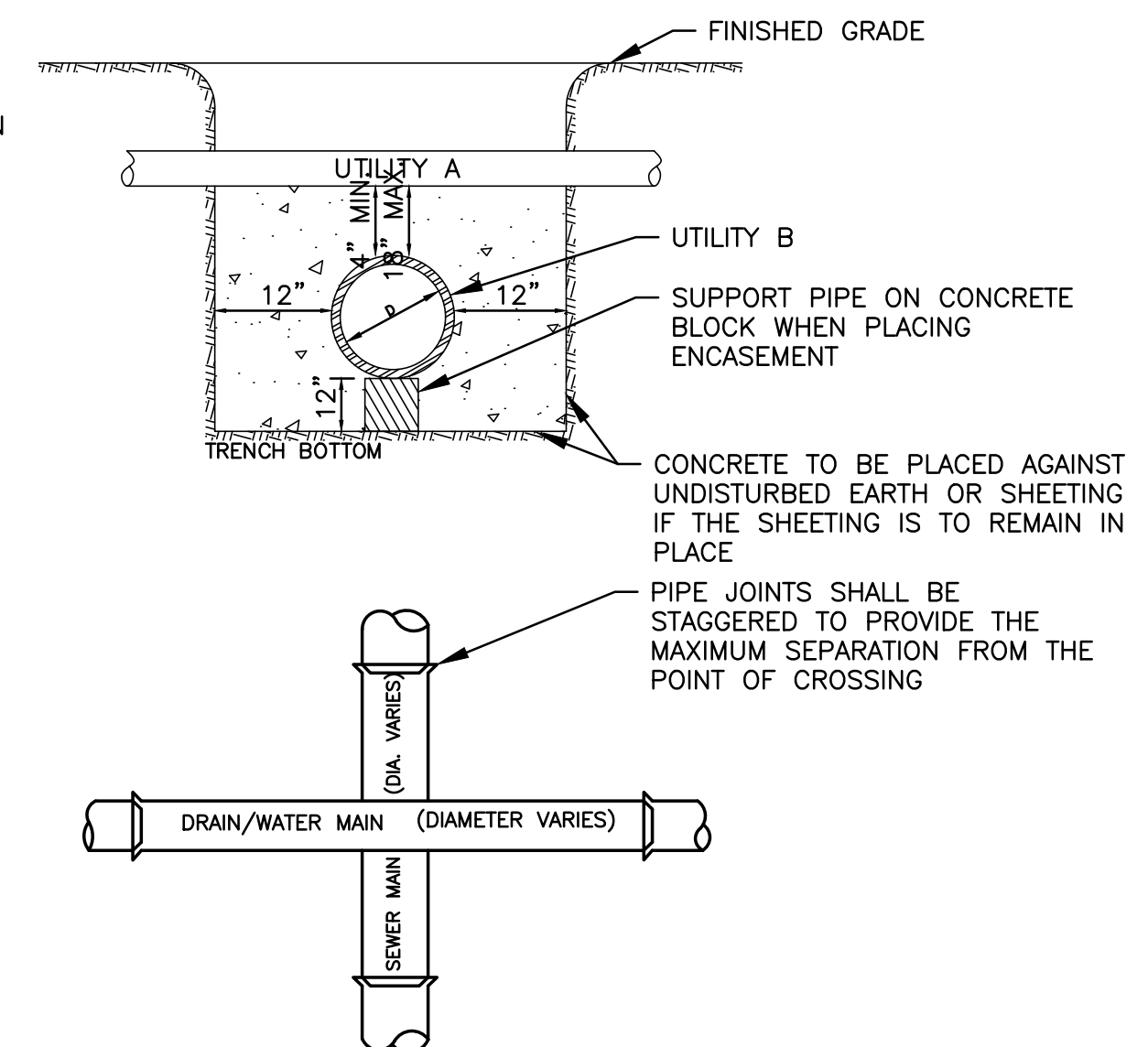
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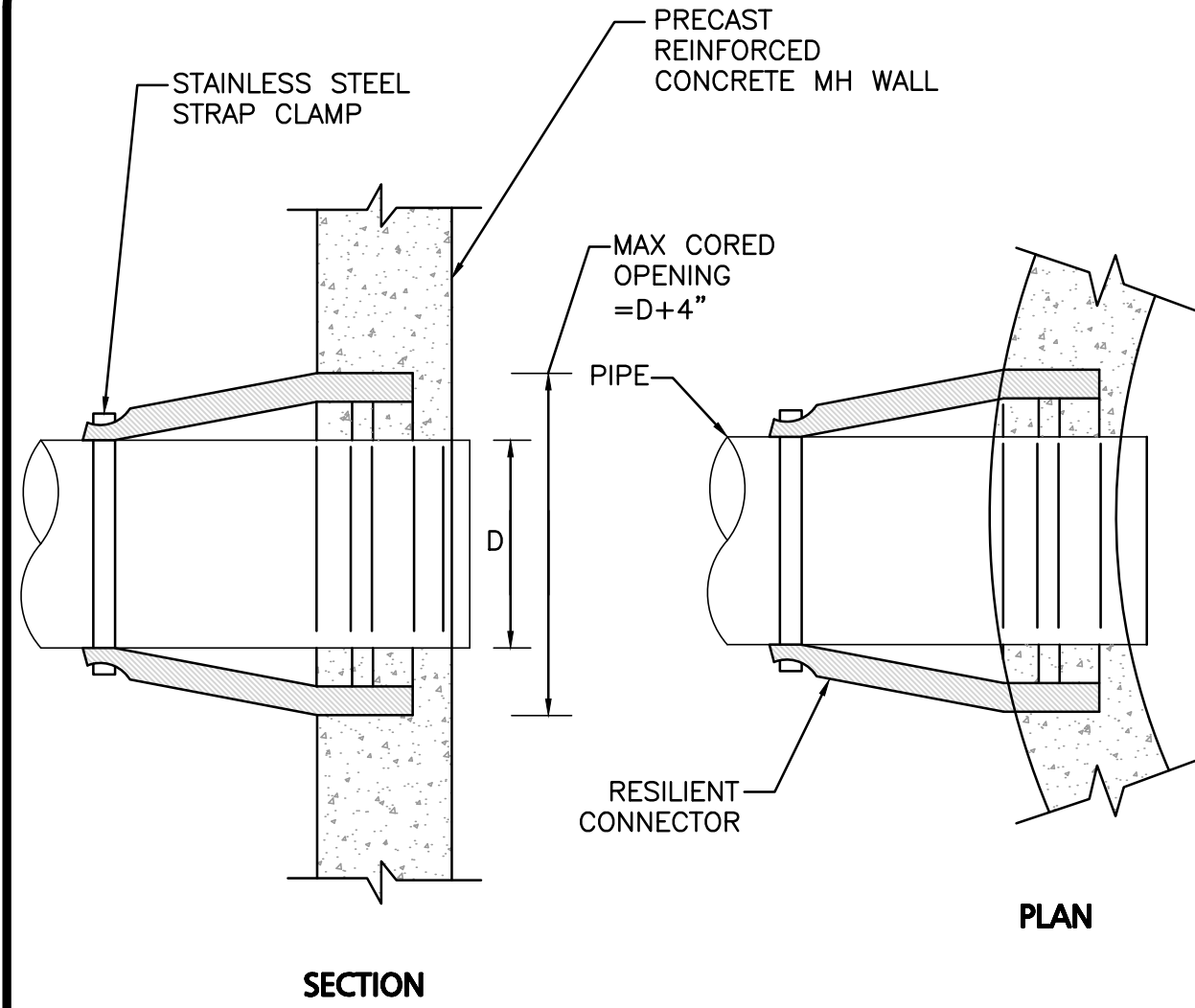
WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET BETWEEN A SEWER MAIN AND A WATER/RAIN MAIN:

1. THE WATER/DRAIN MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER/DRAIN MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. THE PIPE CROSSING SHALL OCCUR AS CLOSE TO 90° AS PRACTICABLE.
3. THE PIPE JOINTS SHALL BE STAGGERED TO PROVIDE THE MAXIMUM SEPARATION FROM THE POINT OF CROSSING.
4. THE CROSSING SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 10 LINEAR FEET CENTERED ON THE CROSSING.
5. UTILITIES A AND B CAN BE EITHER NEW OR EXISTING.
6. WHEN ONE UTILITY IS A SANITARY SEWER, IT IS PREFERABLE TO BE POSITIONED AS SHOWN FOR UTILITY B.
7. ENCASEMENT EXTENDS 10'-0" ON EACH SIDE OF THE CENTERLINE OF UTILITY A.
8. PIPE MUST BE BRACED VERTICALLY AND HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE.



SEWER, WATER / DRAIN CROSSING DETAIL
NOT TO SCALE

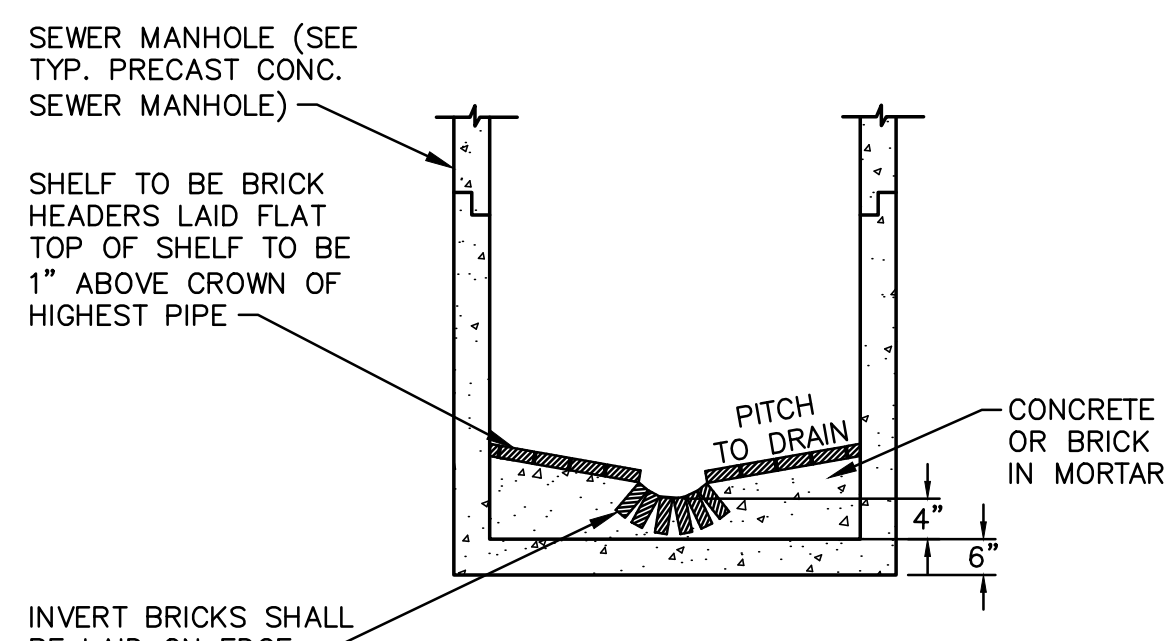
9



WATERTIGHT RESILIENT CONNECTION TO SMH
NOT TO SCALE

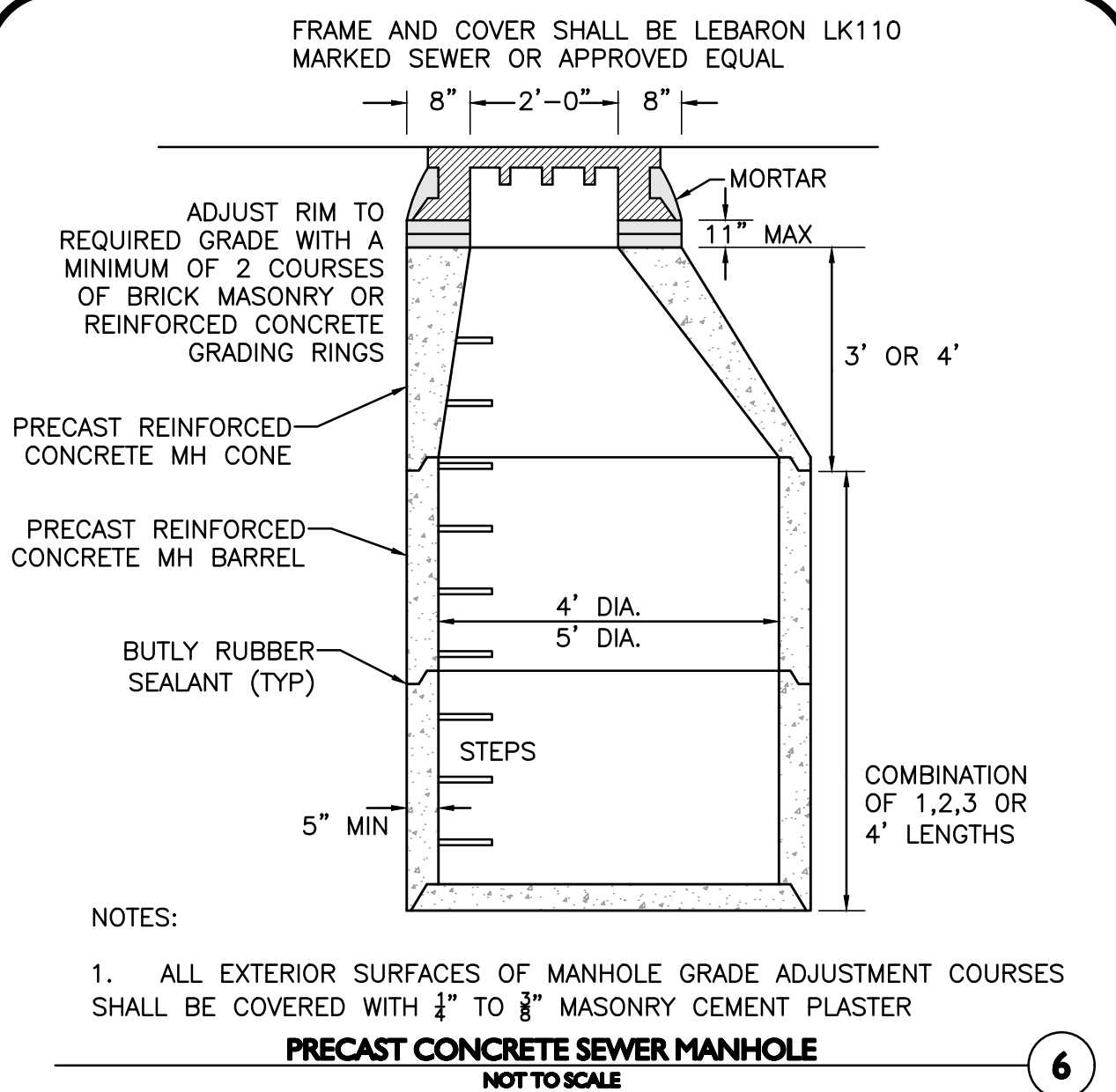
8

MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOW THROUGH CHANNEL.



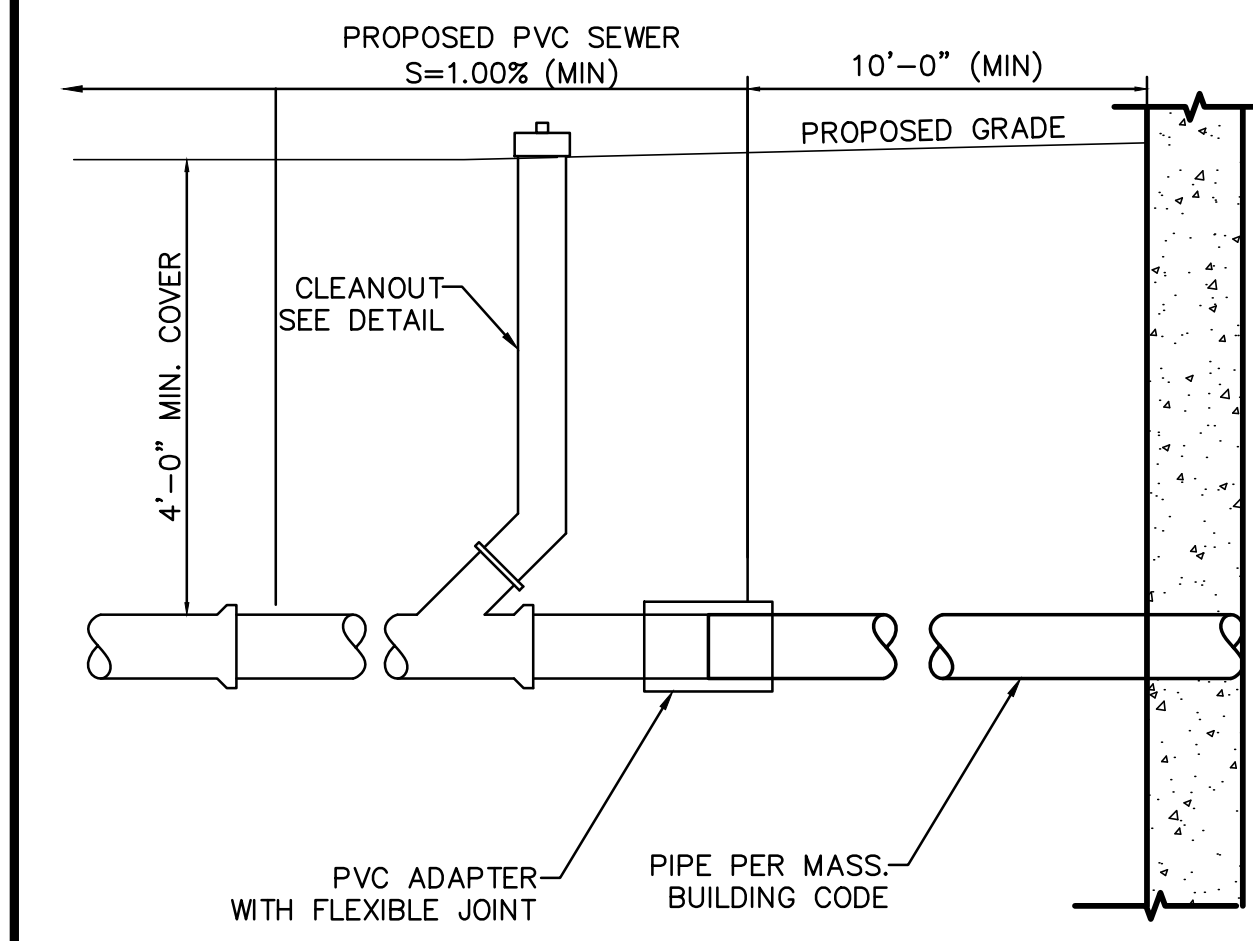
TYPICAL BRICK INVERT SECTION FOR SEWER MANHOLES
NOT TO SCALE

7



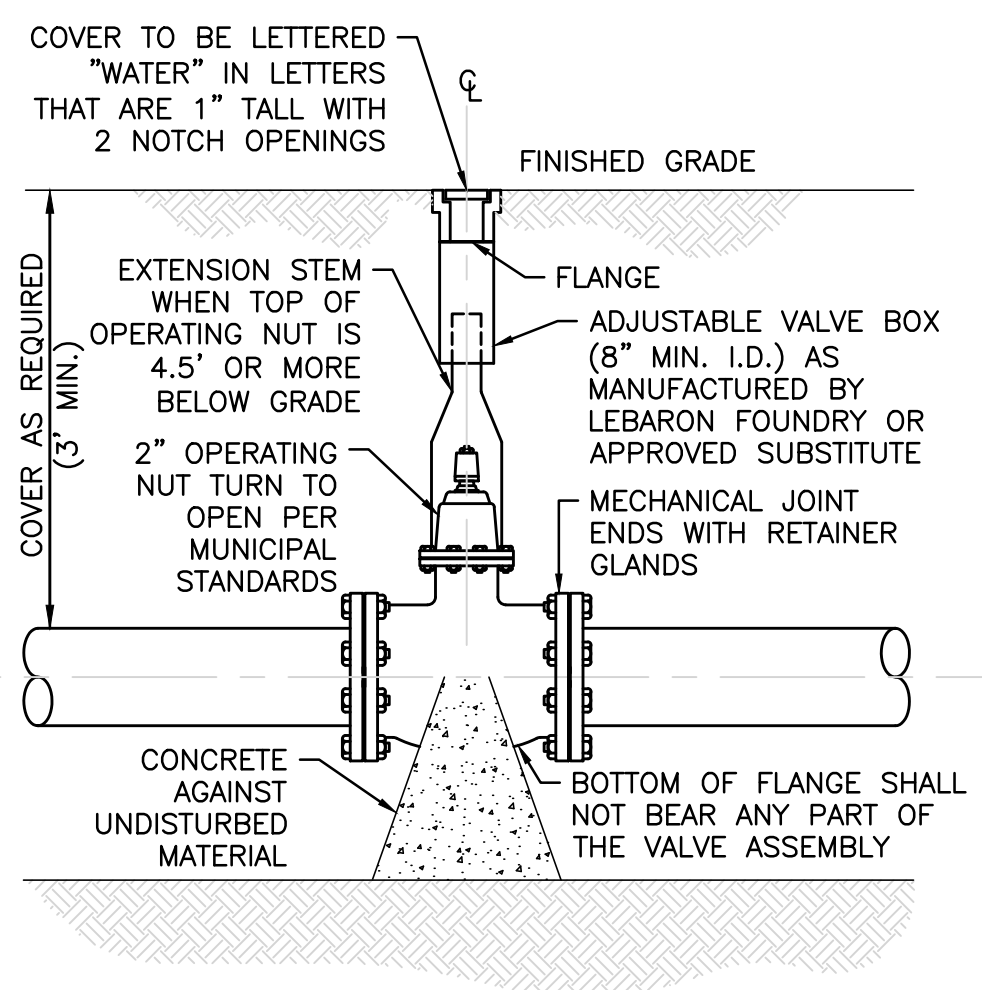
PRECAST CONCRETE SEWER MANHOLE
NOT TO SCALE

6



BUILDING SEWER SERVICE
NOT TO SCALE

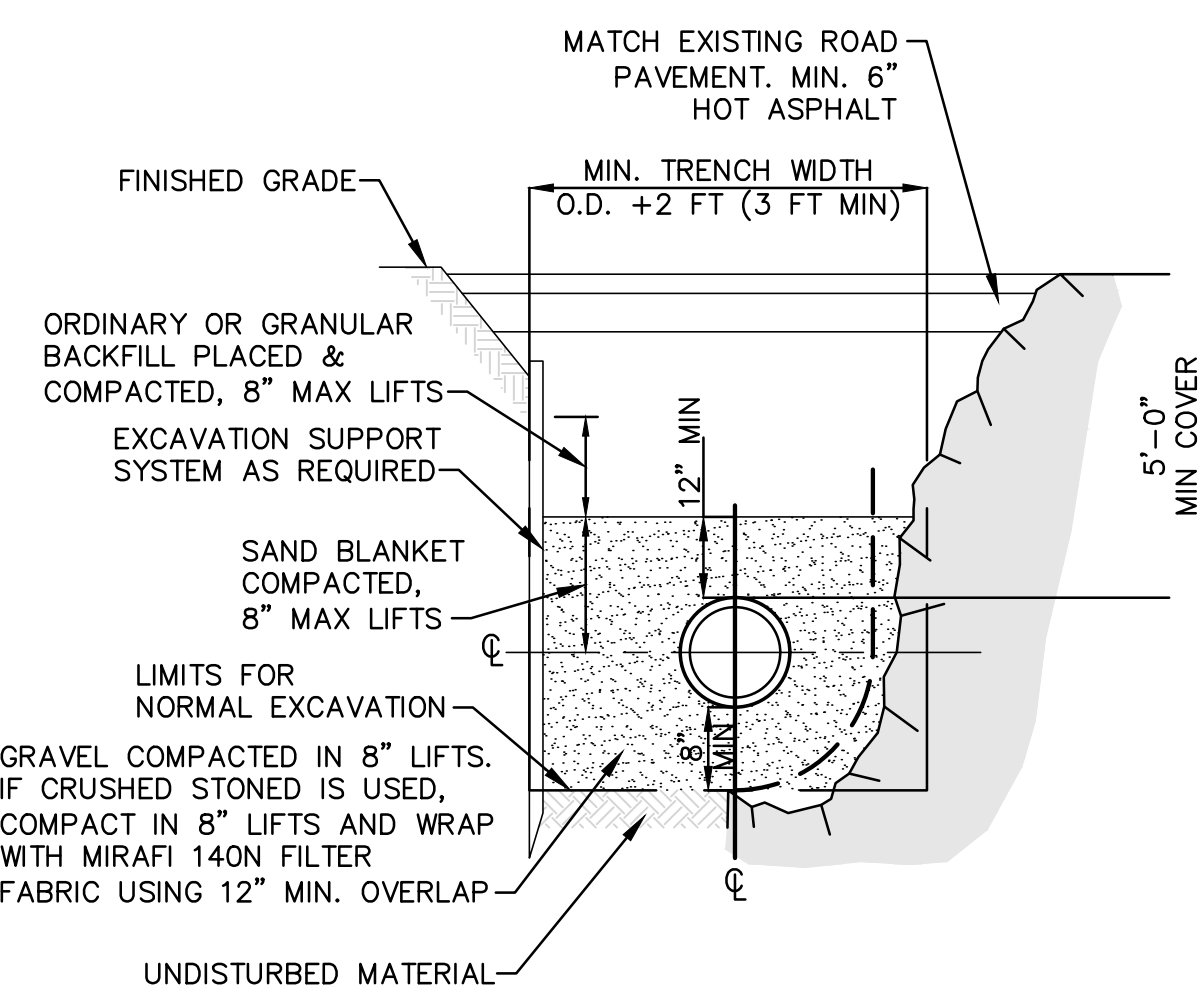
5



- NOTE:
1. CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
 2. HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

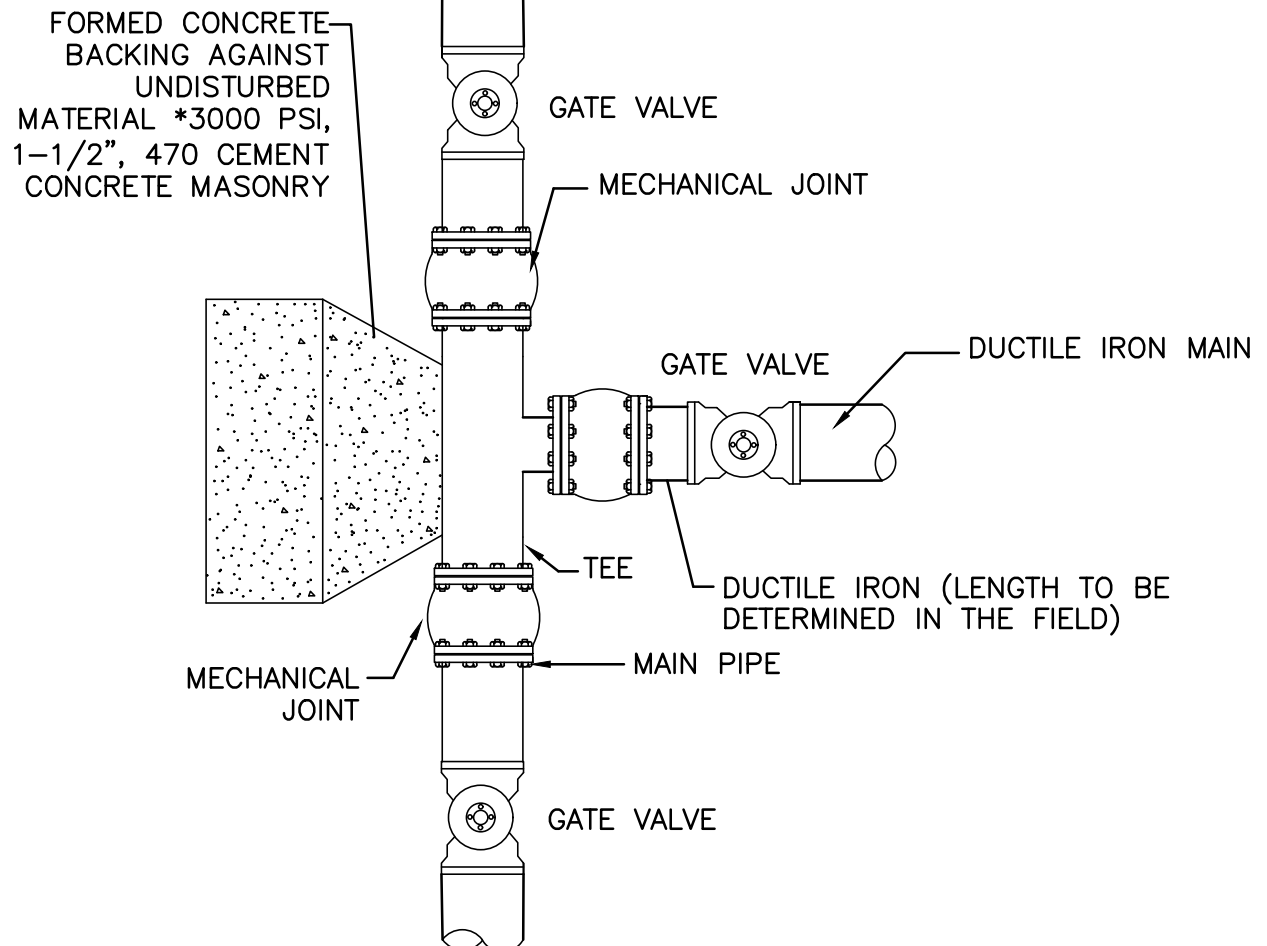
GATE VALVE
NOT TO SCALE

4



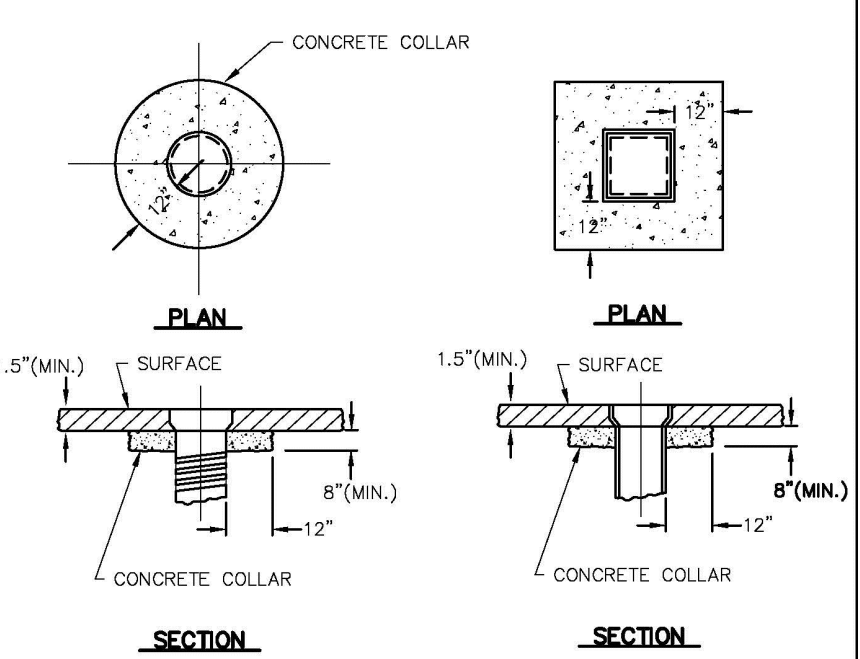
WATER TRENCH SECTION
NOT TO SCALE

3



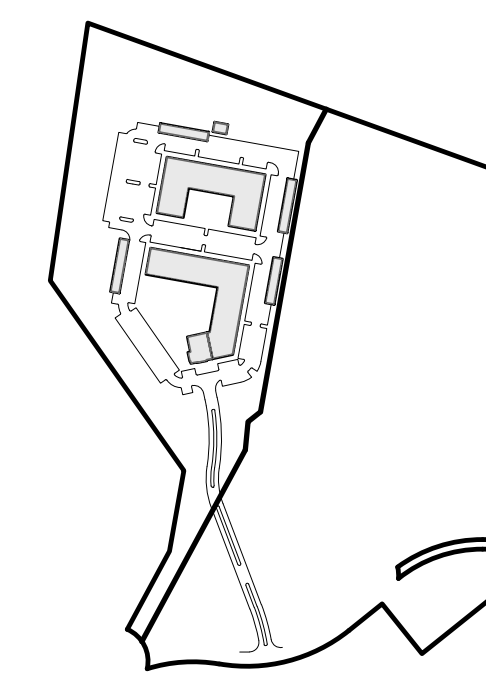
TYPICAL 3-WAY GATE WATER CONNECTION WITH MECHANICAL JOINTS
NOT TO SCALE

2



DETAILS FOR RAISING CASTINGS WATER SERVICE BOXES
NOT TO SCALE

1



KEYSHEET

ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:

THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO. 1670-24 DATE: 12/20/2023

SCALE: AS SHOWN DWG. NAME: C-1670-24

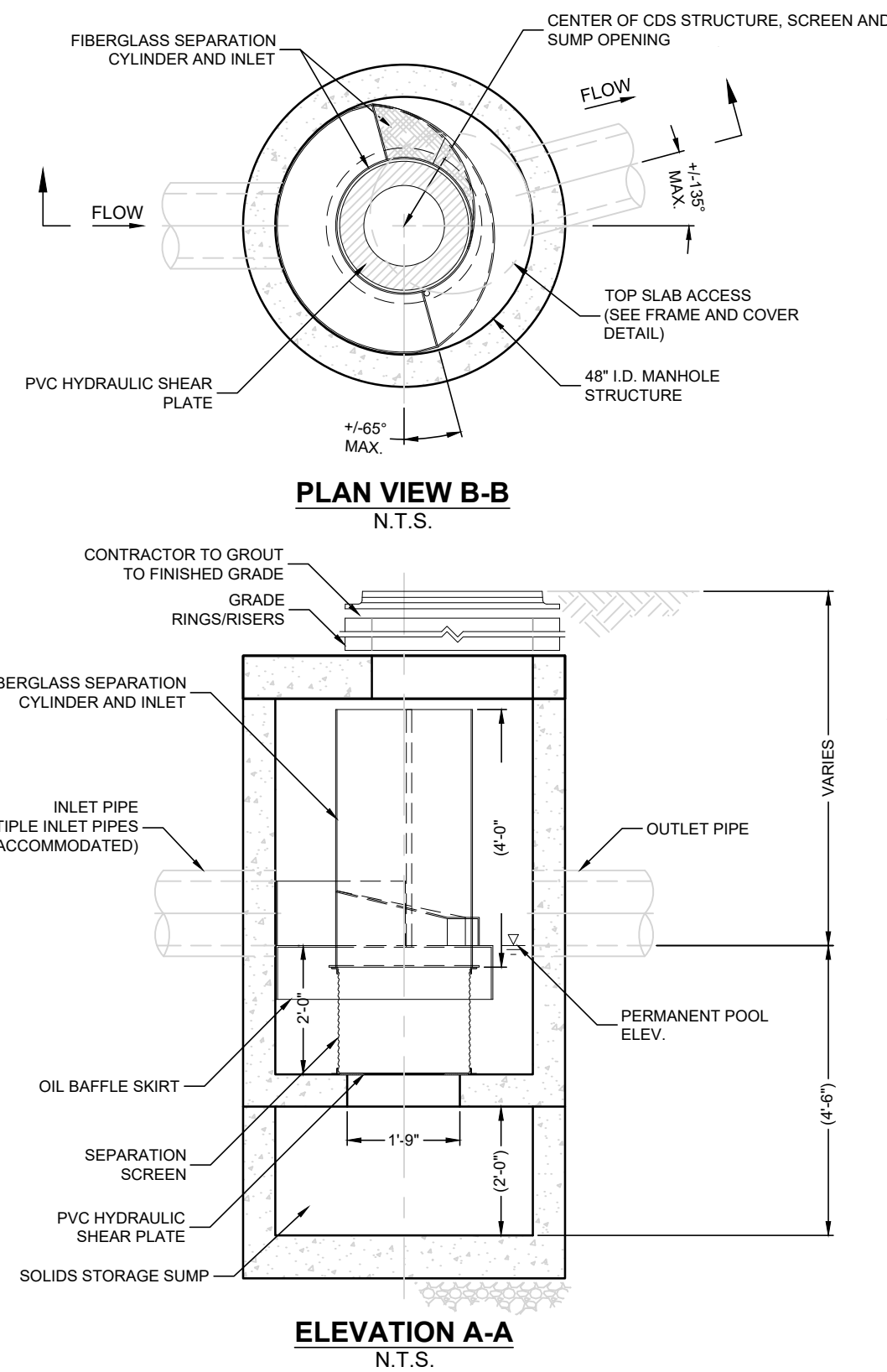
DESIGNED BY: BDP CHECKED BY: PLC

PREPARED BY:

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DRAWING TITLE: DETAILS SHEET No. C-506

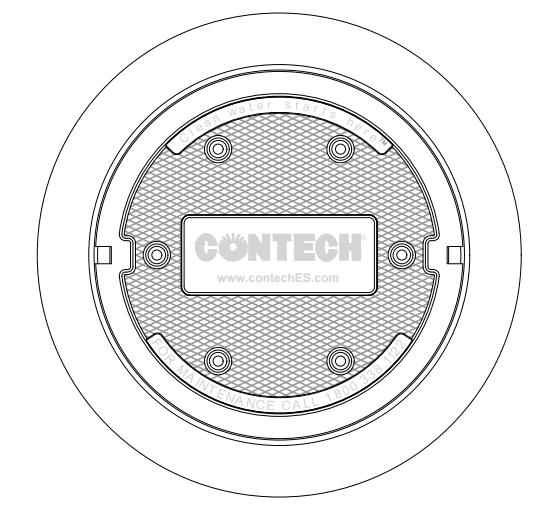


CDS 2015-4 DESIGN NOTES

THE STANDARD 2015-4 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 PIPES)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



GENERAL NOTES

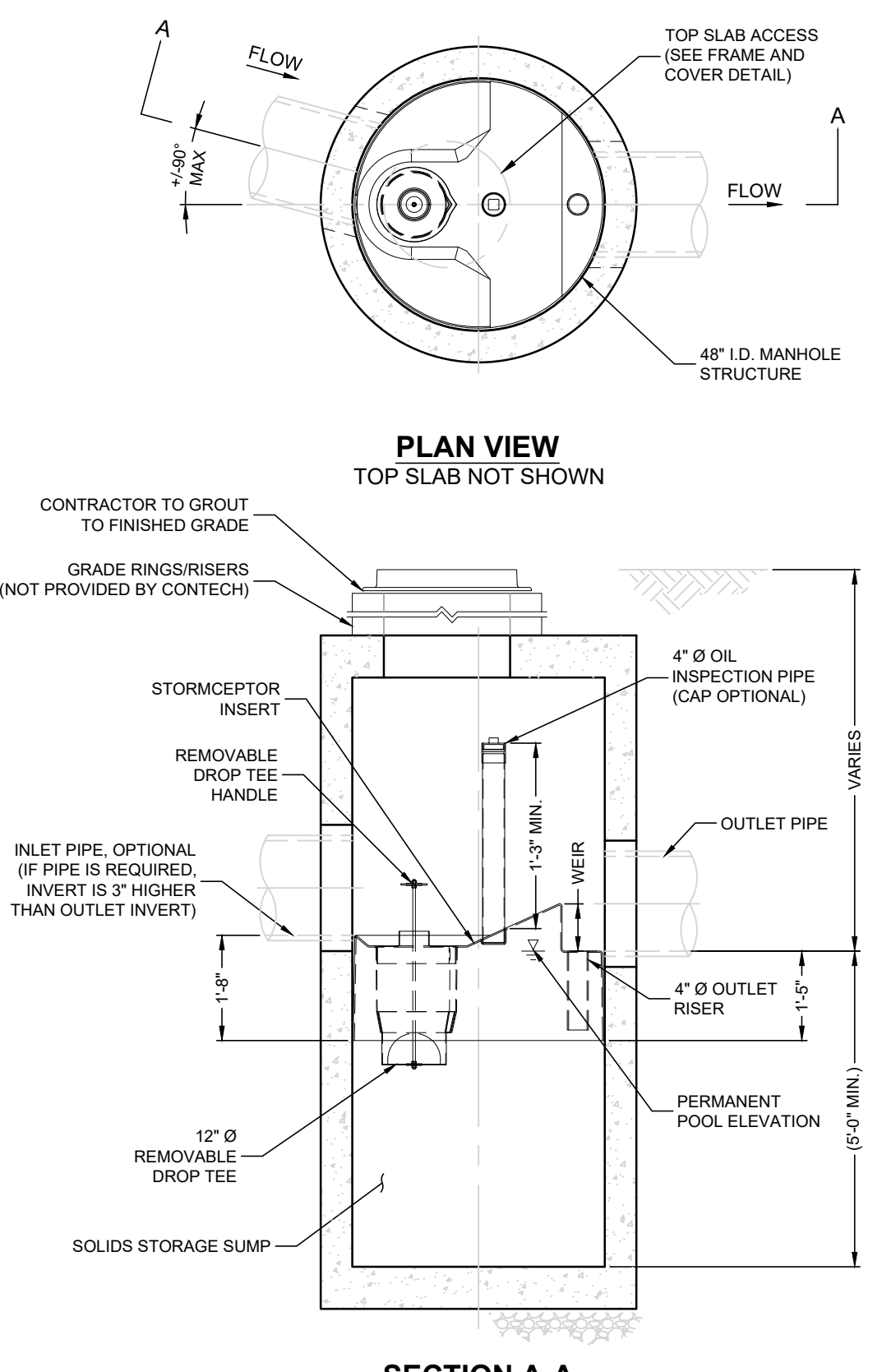
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH (1) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

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

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
1000 Greenwood Plaza, Suite 200, Westborough, MA 01581
508-336-1122 513-445-7000 513-445-7993 FAX

CDS 2015-4
INLINE CDS
STANDARD DETAIL

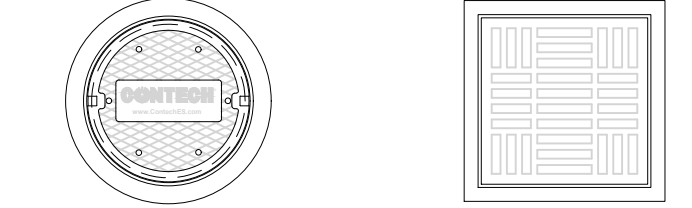


STORMCEPTOR DESIGN NOTES

THE STANDARD 450i 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.

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



FRAME AND COVER (MAY VARY) NOT TO SCALE

FRAME AND GRATE (MAY VARY) NOT TO SCALE

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 CONFORM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STORMCEPTOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 2' (610) AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 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 SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE 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.

CONTECH ENGINEERED SOLUTIONS LLC
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1000 Greenwood Plaza, Suite 200, Westborough, MA 01581
508-336-1122 513-445-7000 513-445-7993 FAX

STC 450i
STORMCEPTOR
STANDARD DETAIL

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PDMH 1 (WQS)	
WATER QUALITY FLOW RATE (cfs)	0.22	
PEAK FLOW RATE (cfs)	1.62	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	198.27	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	193.67	HDPE 12"
INLET PIPE 2	193.67	HDPE 12"
OUTLET PIPE	193.67	HDPE 12"

NOTES / SPECIAL REQUIREMENTS: CDS 2015-4

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PDMH 6 (WQS)	
WATER QUALITY FLOW RATE (cfs)	1.10	
PEAK FLOW RATE (cfs)	8.04	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	179.68	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	175.20	HDPE 12"
INLET PIPE 2	174.48	HDPE 15"
OUTLET PIPE	174.23	HDPE 18"

NOTES / SPECIAL REQUIREMENTS: CDS 2015-4

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PDMH 11 (WQS)	
WATER QUALITY FLOW RATE (cfs)	1.10	
PEAK FLOW RATE (cfs)	8.28	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	178.36	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	174.12	HDPE 12"
INLET PIPE 2	173.87	HDPE 15"
OUTLET PIPE	173.62	HDPE 18"

NOTES / SPECIAL REQUIREMENTS: CDS 2015-4

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PDMH 20 (WQS)	
WATER QUALITY FLOW RATE (cfs)	0.65	
PEAK FLOW RATE (cfs)	4.03	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	179.77	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	174.05	HDPE 15"
INLET PIPE 2	-	-
OUTLET PIPE	173.95	HDPE 15"

NOTES / SPECIAL REQUIREMENTS: CDS 2015-4

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PDMH 26 (WQS)	
WATER QUALITY FLOW RATE (cfs)	1.04	
PEAK FLOW RATE (cfs)	7.12	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	178.68	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	174.20	HDPE 12"
INLET PIPE 2	173.95	HDPE 15"
OUTLET PIPE	173.70	HDPE 18"

NOTES / SPECIAL REQUIREMENTS: CDS 2015-4

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PCB 14A (WQS)	
WATER QUALITY FLOW RATE (cfs)	0.34	
PEAK FLOW RATE (cfs)	2.29	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	178.23	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	-	-
INLET PIPE 2	174.10	HDPE 12"

NOTES / SPECIAL REQUIREMENTS: STORMCEPTOR 450i WITH GRATE INLET

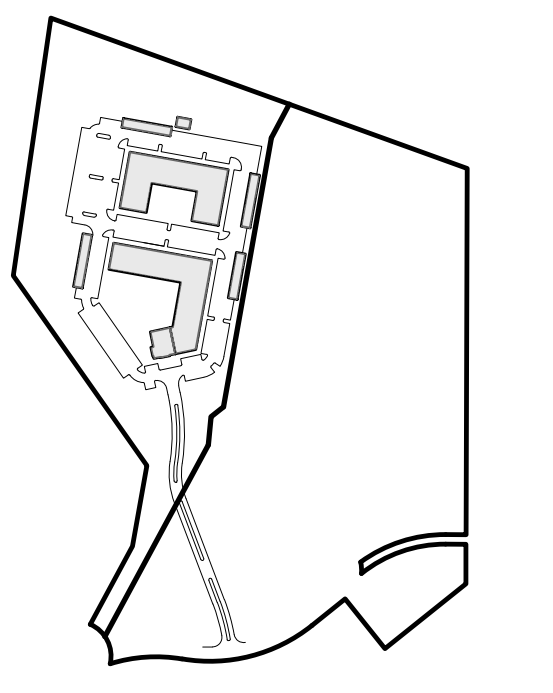
SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	PCB 17A (WQS)	
WATER QUALITY FLOW RATE (cfs)	0.27	
PEAK FLOW RATE (cfs)	1.85	
RETURN PERIOD OF PEAK FLOW (yrs)	100	
RIM ELEVATION	178.40	
PIPE DATA:		
INVERT	MATERIAL	DIAMETER
INLET PIPE 1	-	-
INLET PIPE 2	-	-
OUTLET PIPE	178.10	HDPE 12"

NOTES / SPECIAL REQUIREMENTS: STORMCEPTOR 450i WITH GRATE INLET

NOTE:
1. REFER TO SHEET C-104 - C-104C FOR LOCATION, SIZES AND INVERT ELEVATIONS.
2. DRAWINGS PROVIDED BY CONTECH.

CONTECH WATER QUALITY STRUCTURES
NOT TO SCALE



ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

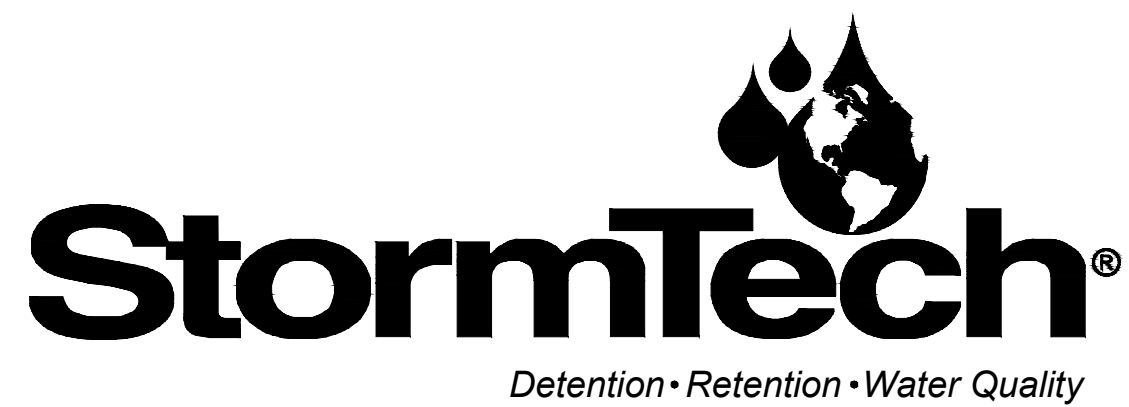
ALLEN & MAJOR ASSOCIATES, INC.
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DRAWING TITLE: **DETAILS** SHEET No. **C-507**

M:\PROJECTS\1670-24\CIVIL\DRAWINGS\CURRENT\C-1670-24 - DETAILS.DWG



70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

GENERAL NOTES
NOT TO SCALE

2

STORMWATER CHAMBER SPECIFICATIONS

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

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

- STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.

- STORMTECH RECOMMENDS 3 BACKFILL METHODS:
- STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUB-GRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
 - JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
 - MAINTAIN MINIMUM - 6" SPACING BETWEEN THE CHAMBER ROWS. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2".
 - THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
 - ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

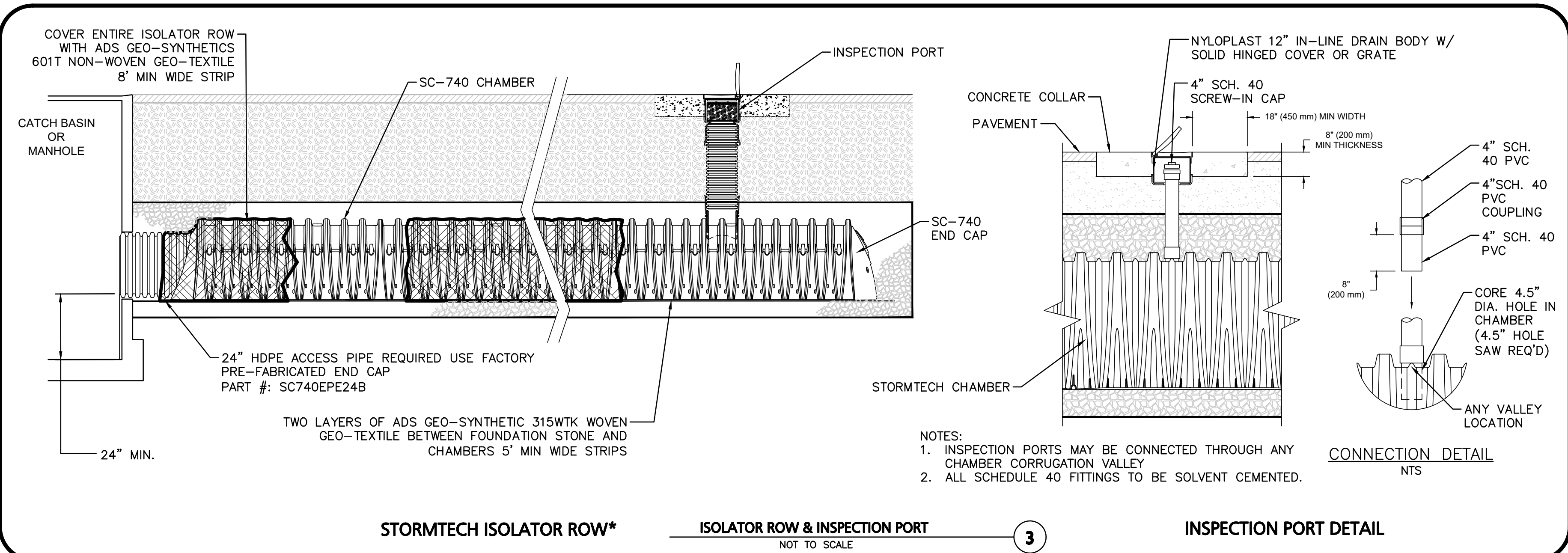
- STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED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

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

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

GENERAL NOTES
NOT TO SCALE

2



STORMTECH ISOLATOR ROW* NOT TO SCALE

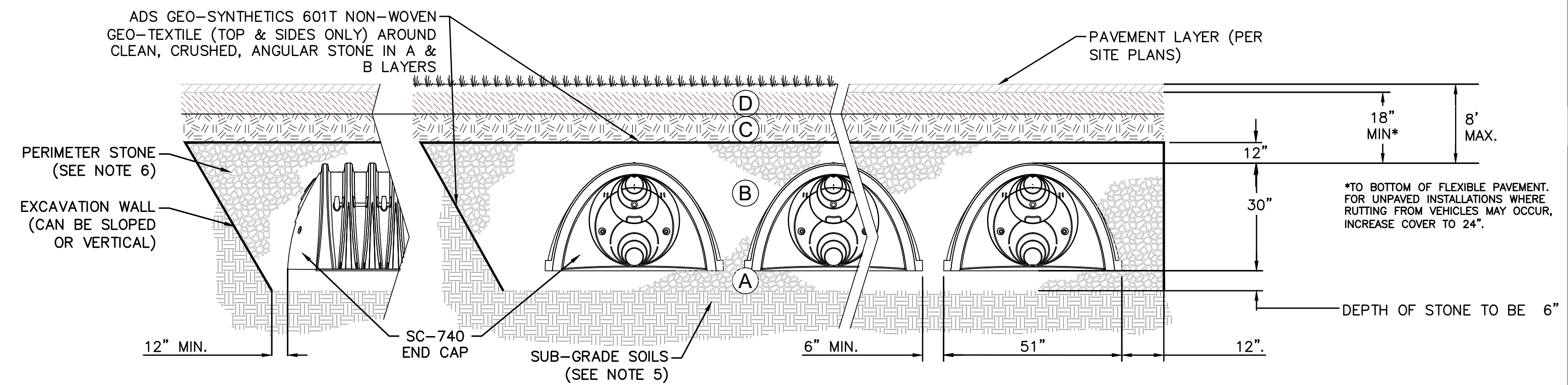
ISOLATOR ROW & INSPECTION PORT NOT TO SCALE

INSPECTION PORT DETAIL NOT TO SCALE

- NOTES:
- INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
 - ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

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

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

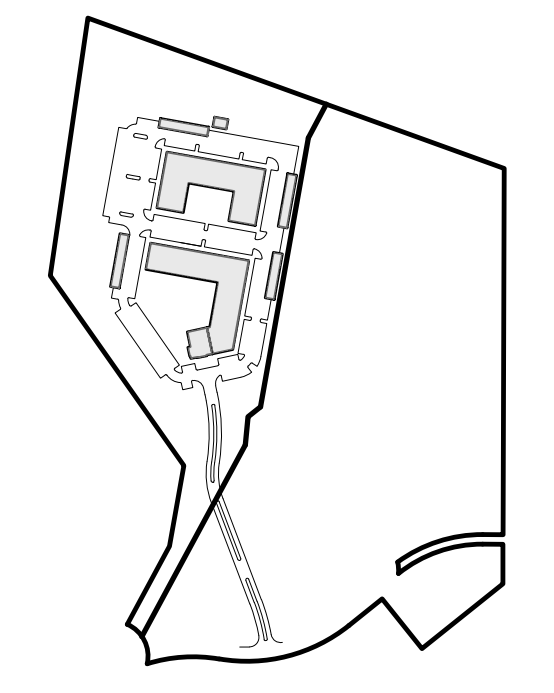


NOTES:

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

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS
NOT TO SCALE

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ISSUED FOR REVIEW
DEC. 20, 2023 REV OCT. 18, 2024



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
02	10/18/24	ZBA RESUBMISSION
01	02/23/24	ZBA RESUBMISSION

APPLICANT/OWNER:
THOREAU RESIDENCES, LLC
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT:
THE RESIDENCES AT THOREAU
275 FOREST RIDGE ROAD
CONCORD, MA 01742

PROJECT NO.	1670-24	DATE:	12/20/2023
SCALE:	AS SHOWN	DWG. NAME:	C-1670-24
DESIGNED BY:	BDP	CHECKED BY:	PLC

PREPARED BY:

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