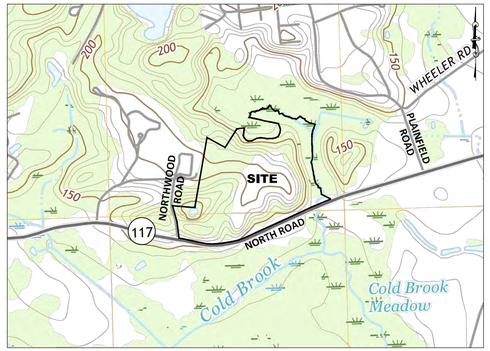
SITE PLAN

FOR

COLD BROOK CROSSING

NORTH ROAD RESIDENTIAL OVERLAY DISTRICT (NRROD)
& SMART GROWTH OVERLAY DISTRICT (SGOD)
NORTH ROAD
SUDBURY, MASSACHUSETTS

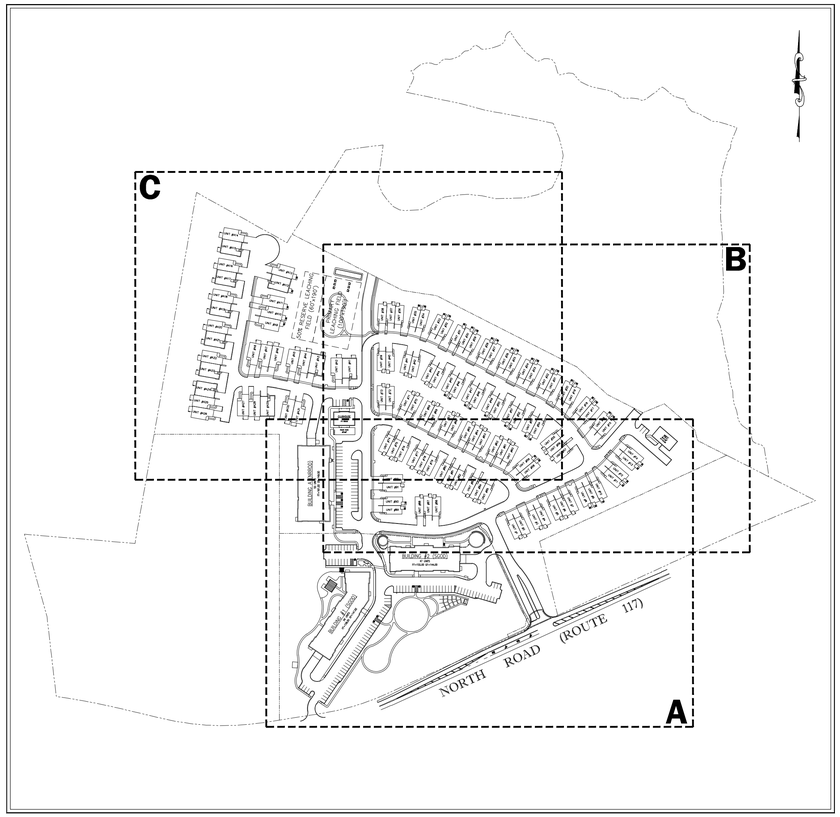
PLANNING BOARD:



LOCUS PLAN
SCALE: 1"=1000'±

DATE	DATE REVISED	SHEET NUMBER	SHEET DESCRIPTION
03/11/2020	07/08/2020	1	COVER SHEET
03/11/2020	07/08/2020	2	LEGEND & NOTES
05/14/2019	07/15/2019	3	EXISTING CONDITIONS PLAN
03/11/2020	07/08/2020	4	SITE CONTEXT PLAN
03/11/2020	07/08/2020	5	SITE PREPARATION & EROSION CONTROL PLAN
03/11/2020	07/08/2020	6	OVERALL LAYOUT PLAN
03/11/2020	07/08/2020	7	LAYOUT PLAN A
03/11/2020	07/08/2020	8	LAYOUT PLAN B
03/11/2020	07/08/2020	9	LAYOUT PLAN C
03/11/2020	07/08/2020	10	GRADING & DRAINAGE PLAN A
03/11/2020	07/08/2020	11	GRADING & DRAINAGE PLAN B
03/11/2020	07/08/2020	12	GRADING & DRAINAGE PLAN C
03/11/2020	07/08/2020	13	UTILITY PLAN A
03/11/2020	07/08/2020	14	UTILITY PLAN B
03/11/2020	07/08/2020	15	UTILITY PLAN C
03/11/2020	07/08/2020	16 ~ 24	PLAN & PROFILE SHEETS
03/11/2020	07/08/2020	25	CONSTRUCTION PHASING
03/11/2020	07/08/2020	26 ~ 32	CONSTRUCTION DETAILS
03/11/2020	06/10/2020	L-001 ~ L-015	LANDSCAPE, LIGHTING, & SIGNAGE PLANS/DETAILS
03/06/2020	-	2 SHEETS	LEACH FIELD PLANS *
03/11/2020	-	9 SHEETS	WASTE WATER TREATMENT FACILITY PLANS *
03/11/2020	-	A-1 ~ A-38	ARCHITECTURAL PLANS *

* BOUND SEPARATELY



OVERALL LAYOUT PLAN
SCALE: 1"=200'

PREPARED BY:

CIVIL DESIGN GROUP, LLC

21 HIGH STREET SUITE 207
NORTH ANDOVER, MA 01845
www.cdgengineering.com
p: 978-794-5400
f: 978-965-3971
CONTACT: MATTHEW LEIDNER, P.E.

PREPARED FOR:

QUARRY NORTH ROAD, LLC
2134 SEVILLA WAY
NAPLES, FL 34109

CONSULTANTS:

SURVEY:
SULLIVAN, CONNORS AND ASSOCIATES
121 BOSTON POST ROAD
SUDBURY, MA 01776
978-443-9566
CONTACT: VAROUJAN HAGOPIAN, P.L.S.

LANDSCAPE ARCHITECT:
BOHLER
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508-480-9900
CONTACT: MATTHEW MRVA, RLA

WASTE WATER TREATMENT FACILITY:
ONSITE ENGINEERING
279 EAST CENTRAL STREET
FRANKLIN, MA 02038
508-553-0616
CONTACT: RAY WILLIS

WETLANDS:
LEC ENVIRONMENTAL CONSULTANTS
380 LOWELL STREET, SUITE 101
WAKEFIELD, MA 01880
508-813-4129
CONTACT: RICHARD KIRBY

TRAFFIC:
MDM TRANSPORTATION CONSULTANTS, INC.
28 LORD ROAD, SUITE 280
MARLBOROUGH, MA 01752
508-303-0370
CONTACT: ROBERT MICHAUD, P.E.

WASTE WATER LEACH FIELD:
PROVENCHER ENGINEERING
6 WASSERMAN HEIGHTS
MERRIMACK, NH 03054
603-883-4444
CONTACT: DONALD PROVENCHER, P.E.

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

SHEET:

COVER SHEET

1

DATE: 07/08/2020

GENERAL NOTES

1. ZONING INFORMATION OBTAINED FROM THE TOWN OF SUDBURY ZONING MAP, DATED OCTOBER 15, 2007, THE TOWN OF SUDBURY ZONING BYLAWS, REVISED THROUGH MAY 6, 2019.
2. THE PROJECT IS SUBJECT TO APPROVAL(S) BY THE SUDBURY PLANNING BOARD. THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND ADHERE TO ALL CONSTRUCTION-RELATED REQUIREMENTS OF THE THESE APPROVALS.
3. THE CONTRACTOR SHALL GIVE TWENTY-FOUR (24) HOUR NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK IN THE FIELD.
4. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, SITE ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS, AND PLANT SPECIFICATIONS TO THE OWNER AND SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
6. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF THE CONSTRUCTION.

SITE & DEMOLITION NOTES

1. THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND STRUCTURES SHOWN ON THESE PLANS ARE BASED ON MEASUREMENTS TAKEN IN THE FIELD AND DISCOVERED RECORDS FROM VARIOUS UTILITY COMPANIES AND/OR FROM THE MUNICIPALITY. THIS INFORMATION SHALL NOT BE CONSIDERED EXACT AND THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY LOCATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL NOTIFY "DIG SAFE" (811) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXISTING UTILITY MARK OUT LOCATIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF EXISTING UTILITY LOCATIONS CONFLICT WITH THE PROPOSED DEVELOPMENT PROGRAM SO THAT A REMEDIAL ACTION CAN TAKE PLACE PRIOR TO ANY WORK. THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ALL EXISTING UTILITIES AS A RESULT OF THE PROPOSED DEVELOPMENT.
2. EXISTING BASE INFORMATION INCLUDING PROPERTY LINE, STRUCTURES, UTILITIES AND TOPOGRAPHY ARE TAKEN FROM PLAN ENTITLED "EXISTING CONDITIONS PLAN OF #16, 36, 0 NORTH STREET IN SUDBURY, MASS.," PREPARED BY SULLIVAN, CONNORS, AND ASSOCIATES, LAST UPDATED JULY 15, 2019, CONSISTING OF 1 SHEET.
3. ELEVATIONS SHOWN ARE BASED ON THE DATUM REFERENCED ON THE EXISTING CONDITIONS PLAN.
4. ALL WORK MUST BE INSPECTED PER TOWN REQUIREMENTS. CONTRACTOR SHALL CONTACT THE TOWN BUILDING DEPARTMENT PRIOR TO THE START OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING ALL CONSTRUCTION RELATED CONDITIONS OUTLINED IN THE APPROVALS IN ADDITION TO THE ITEMS OUTLINED IN THESE CONSTRUCTION DOCUMENTS.
6. THE LIMIT OF WORK FOR THIS PROJECT SHALL BE SHOWN ON THE PLANS AS SAWCUT LINES, EROSION CONTROL BARRIER LINES, AND/OR CONSTRUCTION DELINEATION FENCE LINES. LIMIT OF WORK LINES AND SHALL BE MARKED IN THE FIELD PRIOR TO CONSTRUCTION. EXISTING FEATURES OUTSIDE LIMIT OF WORK LINE ARE TO REMAIN UNLESS OTHERWISE SPECIFIED AND THE EXISTING FEATURES WITHIN LIMIT OF WORK LINE SHALL BE REMOVED UNLESS OTHERWISE SPECIFIED.
7. THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH THE ENGINEER AND MUNICIPAL OFFICIALS PRIOR TO THE START OF CONSTRUCTION.
8. ALL DISTURBED OFF-SITE AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
9. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED PER THE DETAIL WHEREVER CONSTRUCTION ACCESS EXISTS. PAVED AREAS SHALL BE KEPT CLEAN AT ALL TIMES.
10. PEDESTRIAN AND VEHICULAR ACCESS WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE KEPT CLEAN AND IN FUNCTIONAL CONDITION THROUGHOUT CONSTRUCTION.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS AND UTILITY CONNECTION/DISCONNECTION FEES RELATED TO THE PROJECT. CONTRACTOR SHALL NOTIFY AND COORDINATE ALL UTILITY WORK WITH THE APPLICABLE UTILITY COMPANIES AND/OR LOCAL DEPARTMENTS. ALL PERMITS SHALL BE KEPT WITHIN THE TRAILER AND CLEARLY VISIBLE.
12. THE OFFSITE DISPOSAL OF ALL DEMOLISHED MATERIALS SHALL COMPLY WITH THE APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES.
13. FILL MATERIAL(S) SHALL NOT CONTAIN HAZARDOUS MATERIALS.
14. CONSTRUCTION DUMPSTERS SHALL BE LOCATED ON A STABLE SURFACE, PROPERLY MAINTAINED, AND EMPTIED ON A REGULAR BASIS.
15. THE CONTRACTOR IS RESPONSIBLE FOR THE GENERAL UPKEEP OF THE SITE DURING THE CONSTRUCTION PROCESS.

SITE LAYOUT NOTES

1. ALL STATION LABELS PERTAIN TO CENTERLINE OF ROAD GEOMETRY.
2. NO BUILDINGS, BUILDING PROJECTIONS, OR APPURTENANT STRUCTURES SUCH AS DECKS AND STAIRS SHALL BE CONSTRUCTED IN THE REQUIRED BUILDING SETBACKS.
3. CURB WITHIN THE SITE LIMITS SHALL BE CAPE COD BERM (CCB), WITH VERTICAL GRANITE CURB (VGC) AT RAMPS WHERE CURB TRANSITIONS FROM REVEAL TO NO REVEAL.
4. PAVEMENT MARKINGS AND STRIPING SHALL PAINTED WITH 2 COATS OF WHITE PAINT PER FEDERAL SPECIFICATION TI-P-115 TYPE 1: ALKYD.
5. CROSSWALK MARKINGS SHALL MEET THE REQUIREMENTS OF SECTION 3B.17 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION (LATEST EDITION).
6. STOP LINE SHALL MEET THE REQUIREMENTS OF SECTION 3B.16 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION (LATEST EDITION).
7. ALL ON-SITE TRAFFIC ADVISORY SIGNS INCLUDING STOP SIGNS SHALL BE MOUNTED ON A 4"x4" PRESSURE-TREATED POST WITH WHITE PVC WRAP AND MANSARD CAP, AND SHALL BE 48" FROM GROUND TO BOTTOM OF SIGN. STOP SIGNS DIMENSIONS SHALL BE 18"x18".
8. ACCESSIBLE PARKING SPACES SHALL CONFORM TO THE LATEST EDITION OF THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE ARCHITECTURAL ACCESS BOARD (AAB) AS SHOWN ON THE SITE LAYOUT PLAN.
9. ACCESSIBLE SIGNAGE SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR COLOR AND SIZE.

GRADING & DRAINAGE NOTES

1. THE ELEVATIONS SHOWN ON THIS PLAN ARE BASED ON THE DATUM REFERENCE USED ON THE EXISTING CONDITIONS SURVEY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND ELEVATION BENCHMARKS THROUGHOUT CONSTRUCTION.
3. EXTERIOR ELEVATIONS ALONG EACH BUILDING SIDE MAY VARY IN ORDER TO ACHIEVE GRADE IN CERTAIN AREAS. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM THE PROPOSED BUILDING. FOR GARDEN BUILDINGS, THE FINISHED GRADE ALONG THE BUILDING SHALL BE A MINIMUM OF 13" BELOW FIRST FLOOR ELEVATION EXCEPT AT DOORWAYS.
4. NEW SIDEWALKS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.0%. FURTHERMORE, ACCESSIBLE PARKING SPACES AND PROXIMATE ACCESS AISLES SHALL BE SLOPED AT A MAXIMUM OF 2.0% IN ALL DIRECTIONS. SHOULD ANY DISCREPANCIES WITH THESE REQUIREMENTS ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT AN ACCEPTABLE SOLUTION CAN BE DETERMINED.
5. CONTRACTOR SHALL NOTIFY ENGINEER IF THE ILLUSTRATED GRADES CANNOT BE ACHIEVED WITHIN ACCESSIBLE AREAS, INCLUDING PARKING SPACES.
6. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF THE CONSTRUCTION.
7. PROPOSED BOTTOM OF CURB ELEVATIONS ALONG EXISTING STREETS ARE BASED ON EXISTING CONDITIONS INFORMATION AND SHALL BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL MATCH EXISTING EDGE OF PAVEMENT GRADE.
8. EXISTING DRAINAGE AND UTILITY RIM ELEVATIONS LOCATED WITHIN THE LIMIT OF WORK TO REMAIN SHALL BE ADJUSTED BY THE CONTRACTOR TO MATCH NEW FINISHED GRADE.
9. ALL DISTURBED AREAS OUTSIDE THE LIMIT OF WORK SHALL BE RESTORED IN KIND.
10. PROPOSED CATCH BASINS SHALL INCLUDE ELIMINATOR HOODS AS SPECIFIED IN THE DETAILS.
11. UNLESS OTHERWISE SPECIFIED, ALL NEW DRAINAGE PIPE SHALL BE DUAL WALL CORRUGATED HDPE (ADS N-12 OR APPROVED EQUAL), RATED FOR H-20 LOADING, MINIMUM 12" COVER (UNLESS GREATER COVER IS REQUIRED BY THE MANUFACTURER), AND LAID AT A MINIMUM SLOPE OF 0.005'/'. PIPE SIZES SHALL BE AS FOLLOWS:
    - 11.1. DRAINAGE PIPES CONNECTING CATCH BASINS TO MANHOLES AND MANHOLES TO MANHOLES: SIZE VARIES, REFER TO GRADING AND PROFILE SHEETS FOR SIZES.
    - 11.2. GARAGE TRENCH DRAIN OUTLET PIPES: 8"
    - 11.3. ROOF DRAIN PIPES: 12" IF LAID AT >=0.01'/'; 15" IF LAID BETWEEN 0.005'/' AND 0.01'/'.
    - 11.4. FOUNDATION DRAIN PIPES: 6" FOR LOW-RISE BUILDINGS; 4" FOR EACH TOWNHOME BUILDING.
12. ROOF DRAINS:
    - 12.1. ALL BUILDING ROOFTOPS SHALL BE GUTTERED. GUTTER DOWNSPOUTS SHALL TIE INTO A ROOF DRAIN PIPE AS SHOWN.
    - 12.2. EACH BUILDING SHALL HAVE A MINIMUM OF ONE GUTTER DOWNSPOUT OVERFLOW ON EACH INDEPENDENT PIPE NETWORK. THE OVERFLOW SHALL BE INSTALLED ON THE DOWNSPOUT LOCATED AT THE LOWEST GROUND ELEVATION ALONG THE BUILDING WITHIN EACH PIPE NETWORK.
    - 12.3. PROPOSED ROOF DRAIN PIPES SHALL HAVE "NYLOPLAST" MANHOLES INSTALLED AS SHOWN ON THE GRADING & DRAINAGE PLANS.
    - 12.4. THE LOWEST GROUND ELEVATION AT THE GUTTER DOWNSPOUTS SHALL BE ABOVE THE 100-YEAR STORM PEAK WATER ELEVATION FOR THE STORMWATER MANAGEMENT SYSTEM INTO WHICH IT FLOWS.
13. FOUNDATION DRAINS:
    - 13.1. PROPOSED FOUNDATION DRAIN PIPES SHALL HAVE CLEANOUTS INSTALLED AT INTERSECTIONS AND ANGULAR BENDS. NOT REQUIRED AT RADIAL BENDS.
14. SEE DETAIL SHEETS AND PROFILES FOR WATER QUALITY UNITS MANUFACTURER AND MODELS.
15. GALVANIZED STEEL TRASH RACKS SHALL BE INSTALLED ON OPEN ENDS OF ALL INLET AND DISCHARGE DRAIN PIPES 12" OR LARGER IN DIAMETER. TRASH RACKS SHALL BE SIZED TO FIT THE SPECIFIC PIPE FOR WHICH THEY WILL BE USED AND SHALL BE REMOVABLE FOR SERVICING THE PIPE.
16. TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON GRADING & DRAINAGE PLANS REPRESENT THE EXPOSED PORTION OF THE WALL. ALL WALLS GREATER THAN 4 FEET EXPOSED HEIGHT SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.
17. ELEVATION OF LANDSCAPED AREAS ARE GIVEN AT PLANTED GRADE.
18. ALL RETAINING WALLS GREATER THAN 4' IN EXPOSED HEIGHT SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.

UTILITY NOTES

1. ALL UTILITIES ARE TO BE LOCATED UNDERGROUND UNLESS OTHERWISE NOTED.
2. ALL UTILITIES, PIPE MATERIALS, STRUCTURES, INSTALLATION METHODS, AND TESTING SHALL CONFORM TO MUNICIPALITY STANDARDS AND REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE INSPECTIONS BY THE MUNICIPALITY WHEN REQUIRED.
3. WATER WILL BE SUPPLIED TO THE PROJECT VIA AN EXISTING WATER MAIN IN NORTH ROAD.
4. ON-SITE WATER MAIN SHALL BE 8" CLASS 52 CLDI WITH A MINIMUM OF 5' OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE.
5. EACH LOW-RISE BUILDING SHALL BE SERVICED BY ONE 4" CLASS 52 DUCTILE IRON DOMESTIC WATER SERVICE AND A SEPARATE 6" CLASS 52 DUCTILE IRON FIRE SERVICE.
6. WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM 5' OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE.
7. NO WATER SERVICE PIPES SHALL BE LAID IN THE SAME TRENCH WITH GAS PIPES, SEWER PIPE OR ANY OTHER FACILITY OF A PUBLIC SERVICE COMPANY, OR WITHIN THREE FEET OF ANY OPEN EXCAVATION OR VAULT.
8. EACH LOR-RISE BUILDING SHALL BE SERVICED BY ONE 8" DOMESTIC SEWER LATERAL AND A SEPARATE 4" LATERAL FROM THE GARAGE FLOOR DRAINS. THE GARAGE FLOOR DRAIN LATERAL SHALL BE ROUTED THROUGH A GAS TRAP BEFORE COMBINING WITH THE SANITARY SEWER.
9. WASTEWATER FROM THE PROJECT WILL BE DIRECTED VIA GRAVITY TO AN ON-SITE WASTE WATER TREATMENT FACILITY AND DISCHARGED TO THE LEACH FIELD VIA A FORCE MAIN. REFER TO WASTE WATER TREATMENT FACILITY DESIGN BY ONSITE ENGINEERING AND THE LEACHING FIELD DESIGN BY PROVENCHER ENGINEERING FOR ADDITIONAL INFORMATION ON THESE TWO SYSTEMS.
10. SEWER PIPE SIZES AND MATERIALS SHALL BE AS FOLLOWS:
    - 10.1. PVC GRAVITY SEWER PIPES WITH A BURY DEPTH OF >10' SHALL BE SDR-26. FOR SHALLOWER INSTALLATIONS SDR-35 IS ACCEPTABLE.
    - 10.2. PVC FORCE MAIN SHALL BE SDR-21 UNLESS OTHERWISE SPECIFIED BY THE WASTE WATER TREATMENT FACILITY DESIGNER. REFER TO PUMP STATION DESIGN PLANS FOR SIZE.
    - 10.3. SEWER MAIN: 8" PVC LAID AT A MINIMUM SLOPE OF 0.004'/'.
    - 10.4. DOMESTIC SEWER SERVICE BETWEEN BUILDING AND "WYE" MANHOLE: 8" PVC LAID AT A MINIMUM SLOPE OF 0.02'/'.
    - 10.5. GARAGE FLOOR DRAIN SERVICE BETWEEN BUILDING AND GAS TRAP: 4" CAST IRON LAID AT A MINIMUM SLOPE OF 0.02'/'.
    - 10.6. GARAGE FLOOR DRAIN SERVICE BETWEEN GAS TRAP AND "WYE" MANHOLE: 4" PVC LAID AT A MINIMUM SLOPE OF 0.02'/'.
    - 10.7. "WYE" MANHOLE TO SMH: 8" PVC LAID AT A MINIMUM SLOPE OF 0.004'/'.
11. SEWER SHALL BE ENCASED IN CONCRETE IF THE SEWER IS PLACED WITHIN 10' (HORIZONTALLY) OF A WATER LINE AND THE SEWER IS EITHER ABOVE OR WITHIN 18" BELOW THE WATER LINE.
12. THE CONTRACTOR, ON BEHALF OF THE DEVELOPER, SHALL SUBMIT UTILITY AS-BUILT PLANS IN PAPER AND PDF FORMAT INCLUDING SWING TIES FOR SEWER AND WATER TO THE TOWN ENGINEERING DEPARTMENT.
13. THE CONTRACTOR SHALL COORDINATE ALL PROPOSED GAS, ELECTRIC, TELEPHONE, AND CABLE UTILITY WORK WITH THE RESPECTIVE UTILITY COMPANIES THE PROPOSED CONNECTION LOCATIONS AND DETAILS PROVIDED HEREIN ARE FOR REPRESENTATION PURPOSES ONLY. FINAL CONNECTION POINTS AND DETAILS SHALL BE AS DETERMINED AND REQUIRED BY THE UTILITY COMPANIES.
14. TRANSFORMERS AND ASSOCIATED PROTECTIVE BOLLARDS SHALL BE PAINTED DARK GREEN IN COLOR. PAD SIZE AS DETERMINED BY UTILITY COMPANY.
15. GAS MAIN AND SERVICE SIZING SHALL BE AS DETERMINED BY THE UTILITY COMPANY.
16. DUE TO THE SCALE OF THE SITE WORK DRAWINGS, THE EXACT LOCATION OF UTILITY SERVICES TO THE BUILDING SHALL BE VERIFIED WITH THE BUILDING DRAWINGS.
17. SUITABLE, TEMPORARY PLUGS SHALL BE INSTALLED IN THE OPEN ENDS OF UTILITY SERVICES TO THE BUILDING PRIOR TO BACKFILLING. STUB LOCATIONS SHALL BE MARKED IN THE FIELD SO THAT THEY MAY BE EASILY LOCATED.
18. EXISTING DRAINAGE AND UTILITY RIM ELEVATIONS LOCATED WITHIN THE LIMIT OF WORK TO REMAIN SHALL BE ADJUSTED BY THE CONTRACTOR TO MATCH NEW FINISHED GRADE.
19. GUY WIRES SHALL BE INSTALLED AS REQUIRED/DESIGNED BY THE UTILITY COMPANY.
20. PIPE MATERIALS SHOWN ON THIS PLAN ARE SUBJECT TO SUBSTITUTION AT THE TIME OF CONSTRUCTION. ANY ALTERNATIVE PIPE MATERIAL SHALL CONFORM TO MUNICIPAL AND INDUSTRY STANDARDS FOR THE SELECTED APPLICATION.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. THIS SITE IS SUBJECT TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY. SITE OPERATORS SHALL CONFORM TO MEET THE CRITERIA FOR A NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES.
2. ADAPTATION TO ACTUAL FIELD CONDITIONS MAY WARRANT VARIATIONS FROM WHAT IS SHOWN ON THESE PLANS FOR EROSION CONTROLS IN ORDER TO MAXIMIZE THE EFFECTIVENESS OF THE CONTROLS.
3. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING ALL CONSTRUCTION RELATED CONDITIONS OUTLINED IN THE APPROVALS IN ADDITION TO THE ITEMS OUTLINED IN THESE CONSTRUCTION DOCUMENTS. THE SEQUENCING PLANS INCLUDED HEREIN ARE PROVIDED AS A GUIDANCE DOCUMENT TO ASSIST IN THE IMPLEMENTATION OF EROSION/SEDIMENTATION CONTROLS AND STABILIZATION OF THE SITE. ADAPTATION TO ACTUAL FIELD CONDITIONS MAY WARRANT VARIATIONS FROM WHAT IS SHOWN ON THESE PLANS TO MAXIMIZE THE EFFECTIVENESS OF THE CONTROLS.
4. THE CONTRACTOR SHALL ADHERE TO PROCEDURES OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE EPA NPDES CONSTRUCTION GENERAL PERMIT REQUIREMENTS.
5. IN ACCORDANCE WITH THE NPDES CONSTRUCTION GENERAL PERMIT AND ASSOCIATED STORMWATER POLLUTION PREVENTION PLAN (SWPPP), EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST EVERY 14 DAYS AND WITHIN 24 HOURS OF A 0.25" STORM. REPORTS DOCUMENTING THE RESULTS OF EACH INSPECTION AND ANY CORRECTIVE ACTIONS SHALL BE KEPT ON-FILE WITH THE SWPPP.
6. PROPOSED EROSION AND SEDIMENTATION CONTROL MEASURES WILL INCLUDE SILTATION FENCES, HAY BALES, CRUSHED STONE, RIPRAP, LOAM/SEED, HYDROSEEDING, MULCHING, EROSION CONTROL MATTING, DIVERSION BERMS, AND SEDIMENTATION BASINS AS FURTHER DESCRIBED HEREIN.
7. SILTATION FENCES AND WATTLES WILL BE USED FOR THE PERIMETER EROSION CONTROL BARRIER AS SHOWN ON THIS PLAN AND ELSEWHERE AS CONDITIONS WARRANT. HAY BALES WILL BE USED TO PROTECT OFFLINE CATCH BASINS (PRIOR TO BINDER) AND ELSEWHERE AS CONDITIONS WARRANT. THE CONTRACTOR WILL BE REQUIRED TO KEEP A REASONABLE STOCK OF SILTATION FENCE, WATTLES, AND HAY BALES ON SITE TO BE ABLE TO SUPPLEMENT OR MAKE REPAIRS AS NECESSARY.
8. LOAMING AND SEEDING OR HYDROSEEDING WILL BE USED AS A PERMANENT STABILIZATION MEASURE FOR ALL REVEGETATED AREAS OF THE SITE.
9. ALL PROPOSED SLOPES 3:1 AND STEEPER SHALL BE STABILIZED WITH AN EROSION CONTROL MATTING AND SHALL BE HYDROSEEDED.
10. MULCHING MAY BE USED TO REINFORCE SEEDED AREAS WHERE EROSION CONTROL MATTING IS NOT REQUIRED OR WARRANTED, BUT WHERE SOME PROTECTION IS WARRANTED. MULCHING MAY ALSO BE USED TO STABILIZE AREAS WHERE CONSTRUCTION ACTIVITIES WILL TEMPORARILY CEASE FOR MORE THAN 14 DAYS.
11. SEDIMENTATION BASINS SHALL BE USED THROUGHOUT THE SITE TO TREAT RUNOFF. DIVERSION BERMS SHALL BE UTILIZED TO DIVERT UNTREATED STORMWATER TO THE SEDIMENTATION BASINS. SEDIMENTATION BASINS AND DIVERSION BERMS SHALL BE ADDED, REMOVED, AND ADJUSTED AS THE SITE EVOLVES THROUGHOUT THE CONSTRUCTION PROCESS.
12. UPON CONVERTING ANY TEMPORARY SEDIMENTATION BASINS TO PERMANENT DETENTION/INFILTRATION BASINS, THE BASINS SHALL BE CLEANED OF ALL ACCUMULATED SEDIMENT TO ENSURE THAT THE VOLUMETRIC AND INFILTRATION DESIGN CAPACITIES ARE MAINTAINED.
13. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, IN ACCORDANCE WITH THE NPDES CONSTRUCTION GENERAL PERMIT. STABILIZATION MEASURES SHALL BE IMPLEMENTED NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS IN WHICH CASE STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
14. EROSION AND SEDIMENTATION CONTROLS WILL BE REQUIRED TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT TO ENSURE THAT THEY FUNCTION AS INTENDED. DEFICIENCIES WILL BE CORRECTED BY CLEANING, REPAIRING, OR REPLACING THE AFFECTED CONTROL(S) OR PORTION(S) THEREOF TO REESTABLISH PROPER FUNCTIONING AS QUICKLY AS POSSIBLE. SEDIMENTATION CONTROLS WILL BE REQUIRED TO BE CLEANED OR REPLACED WHEN THE ACCUMULATED SEDIMENT EXCEEDS 50 PERCENT OF THE DESIGN CAPACITY OF THE CONTROL. ANY OFF-SITE ACCUMULATIONS OF SEDIMENT WILL BE REQUIRED TO BE REMOVED AS QUICKLY AS POSSIBLE IN A MANNER THAT MINIMIZES ADDITIONAL DISTURBANCE.
15. EROSION CONTROL BARRIER (WHERE SHOWN) REPRESENTS THE LIMIT OF WORK. WHERE NO EROSION CONTROL BARRIER IS REQUIRED (SUCH AS UPSLOPE AREAS), A LIMIT OF WORK LINE HAS BEEN SHOWN. WHERE NO EROSION CONTROL BARRIER IS REQUIRED, THE LIMIT OF WORK SHALL BE DELINEATED IN THE FIELD BY A VISUAL BARRIER SUCH AS TEMPORARY CONSTRUCTION FENCING IN ORDER TO KEEP CONSTRUCTION ACTIVITIES OUT OF THOSE AREAS.
16. THE PROPOSED ONSITE DRAINAGE SYSTEM SHALL BE INSTALLED AS SOON AS PRACTICABLE. ALL EXISTING AND PROPOSED CATCH BASIN INLETS SHALL BE PROTECTED WITH A SILT SACK (SEE DETAIL).
17. DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT BASIN OR OTHER SETTLING AREA TO ALLOW FOR SUFFICIENT SETTLING PRIOR TO DISCHARGE.
18. DUST SHALL BE CONTROLLED BY AN APPROVED METHOD ACCORDING TO LOCAL, STATE AND FEDERAL STANDARDS.
19. ABUTTING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS FROM THIS PROJECT AT ALL TIMES. WORK ON ABUTTING PROPERTY SHALL REQUIRE WRITTEN AUTHORIZATION FROM THE OWNER PRIOR TO ANY LAND DISTURBANCE.
20. THE EROSION CONTROL MEASURES ILLUSTRATED IN THIS PLAN SET SHALL BE THE MINIMUM REQUIRED CONTROLS IMPLEMENTED.
21. STOCKPILING LOCATIONS SHALL BE FIELD DETERMINED AND SHALL NOT LIE WITHIN THE 100-FOOT WETLAND BUFFER. DIVERSION BERMS AND EROSION CONTROL BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES IN ACCORDANCE WITH THE PLAN AND DETAILS.
22. ESTIMATED STABILIZED AREA AS SHOWN ON THE SEQUENCING PLANS PROVIDED HEREIN REPRESENTS THE APPROXIMATE AREA THAT WILL BE STABILIZED (EITHER TEMPORARILY OR PERMANENTLY) BY THE END OF THE CONSTRUCTION SEQUENCE.
23. CRUSHED STONE AND/OR RIPRAP SHALL BE USED TO CONSTRUCT THE TRACKING PAD, CUT SLOPE TREATMENT AREAS, CHECK DAMS, SEDIMENTATION BASIN OUTLET PROTECTION, AND ELSEWHERE AS CONDITIONS WARRANT. THE CONTRACTOR WILL BE REQUIRED TO KEEP A REASONABLE STOCK OF CRUSHED STONE AND RIPRAP ON SITE TO BE ABLE TO SUPPLEMENT OR MAKE REPAIRS AS NECESSARY.

811 DigSafe MA-ME-NH-RI-VT

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
	SINGLE GRATE / DOUBLE GRATE	CATCH BASIN
		DRAIN MANHOLE
		SEWER MANHOLE
D	D	DRAIN PIPE
GM G	G	GAS LINE
OHW	OH	OVERHEAD WIRES
ET&C	ET&C	UNDERGROUND WIRES
S		SEWER LINE
WS W		WATER LINE
FM		FORCE MAIN
	FD	FOUNDATION DRAIN
	RD	ROOF DRAIN
498	498	MINOR CONTOUR
500	500	INDEX CONTOUR
X	X	FENCE
	X	CONSTRUCTION FENCE
		GUIDERAIL
		STONE WALL
		ECON: WATTLES + SILT FENCE
		ECON: WATTLES ONLY
		TREELINE
		BUILDING
		CRUSHED STONE
		RIPRAP
		CONSTRUCTION ENTRANCE
		MILL & OVERLAY
		HYDRANT
		SIGN
		SITE/STREET LIGHT
		BOLLARD LIGHT
		UTILITY POLE
		OUTLET CONTROL STRUCTURE
		FLARED END SECTION
TP-1		TEST PIT LOCATION
	TC 459.00 BC 458.00	TOP/BOTTOM CURB ELEVATION
300.5x		SPOT ELEVATION
	X	NUMBER OF PARKING SPACES
	X'R	CURB RADIUS
		ACCESSIBLE MARKINGS

GENERAL ABBREVIATIONS

ASSESSORS PARCEL	A.P.
BOTTOM OF CURB	BC
BITUMUNOUS CONCRETE	BIT. CONC
BEST MANAGEMENT PRACTICE	BMP
BORDERING VEGETATED WETLAND	BVW
CATCH BASIN	CB
CAPE COD BERM	CCB
CELLAR FLOOR	CF
CENTERLINE	CL
CLEANOUT	CO
CONCRETE SURFACE	CONC.
DRAIN MANHOLE	DMH
DIRECTION SIGN	DS
EMERGENCY SPILLWAY	ES
FLARED END SECTION	FES
FOOTING DRAIN	FD
GAS TRAP	GT
HIGH DENSITY POLYETHYLENE	HDPE
HIGH POINT	HP
INVERT ELEVATION	I=
IRON PIPE/PIN	IP
LINEAL FEET	LF
LOW POINT	LP
LIMIT OF WORK	LOW
MATCH EXISTING	ME
NOW OR FORMERLY	N/F
NYLOPLAST DRAINAGE STRUCTURE	NP
OUTLET CONTROL STRUCTURE	OCS
PRECAST CONCRETE CURB	PCC
RADIUS	X'R
RIM ELEVATION	R=
ROOF DRAIN	RD
REMOVE	REM
SLOPED GRANITE CURB	SGC
SPEED LIMIT	SL
SUBSURFACE INFILTRATION SYSTEM	SIS
TOP OF CURB	TC
TOP OF FOUNDATION	TF
TYPICAL	TYP.
UNDERDRAIN	UD
UTILITY POLE	UP
WATER QUALITY UNIT	WQU
VERTICAL GRANITE CURB	VGC

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COMMONWEALTH OF MASSACHUSETTS
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REGISTERED PROFESSIONAL ENGINEER

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2134 SEVILLA WAY
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PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

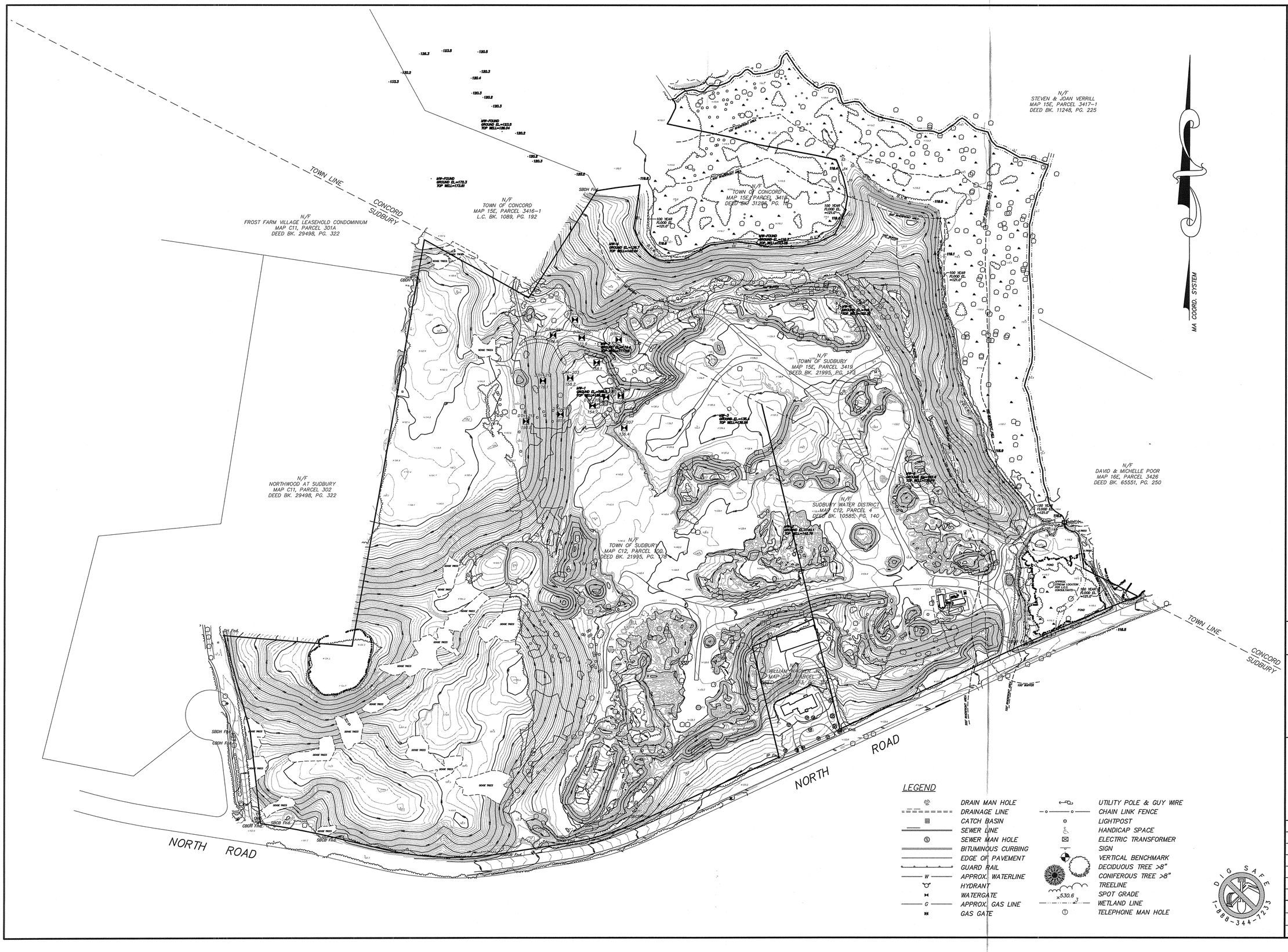
SCALE:

SHEET:

LEGEND & NOTES

2

DATE: 03/11/2020



LEGEND

DRAIN MAN HOLE	UTILITY POLE & GUY WIRE
DRAINAGE LINE	CHAIN LINK FENCE
CATCH BASIN	LIGHTPOST
SEWER LINE	HANDICAP SPACE
SEWER MAN HOLE	ELECTRIC TRANSFORMER
BITUMINOUS CURBING	SIGN
EDGE OF PAVEMENT	VERTICAL BENCHMARK
GUARD RAIL	DECIDUOUS TREE >8"
W — APPROX. WATERLINE	CONIFEROUS TREE >8"
HYDRANT	TREELINE
WATERGATE	530.6 SPOT GRADE
G — APPROX. GAS LINE	WETLAND LINE
GAS GATE	TELEPHONE MAN HOLE

DIG SAFE 1-888-344-7233

GENERAL NOTES:

1. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF SUDBURY AND TOWN OF CONCORD ASSESSORS RECORDS.

2. THIS PLAN IS BASED ON AN ON-THE-GROUND SURVEY BY CONNORSTONE ENGINEERING INC. PERFORMED IN OCTOBER 2018, AND APRIL 2019.

3. TOPOGRAPHIC INFORMATION SHOWN HEREON HAS BEEN PLOTTED FROM A COMBINATION OF AERIAL PHOTOGRAMMETRY PROVIDED BY BLUESKY GEOSPATIAL AND ON-THE-GROUND TOPOGRAPHY PERFORMED BY SULLIVAN CONNORS AND ASSOCIATES.

4. ELEVATIONS SHOWN HEREON REFER TO THE NAVD 1988 DATUM.

5. WETLAND FLAGS SHOWN HEREON WERE FLAGGED BY LEC ENVIRONMENTAL CONSULTANTS INC. AND LOCATED ON-THE-GROUND BY SULLIVAN CONNORS AND ASSOCIATES.

6. PERENNIAL STREAM LOCATIONS ARE PLOTTED FROM AERIAL PHOTOGRAMMETRY PROVIDED BY BLUESKY GEOSPATIAL. PER LEC ENVIRONMENTAL CONSULTANTS INC. A 12 FOOT WIDE CHANNEL WAS ASSIGNED TO THE STREAMS BASED ON THE USGS STREAMSTATS WATERSHED DATA. THE RIVERFRONT AREA BOUNDARIES DEPICTED HEREON EXTEND FROM THE WESTERN AND SOUTHERN EDGE OF THE 12 FOOT WIDE STREAM CHANNELS.

STREAM LOCATION IN POND HAS BEEN PLOTTED BASED ON A SKETCH PLAN PROVIDED BY LEC ENVIRONMENTAL CONSULTANTS INC.

6. A PORTION OF THE LOCUS SHOWN HEREON IS LOCATED WITHIN THE 100 YEAR FEDERAL FLOOD HAZARD AREA AS SHOWN ON THE FLOOD INSURANCE RATE MAPS FOR THE TOWN OF SUDBURY, MAP NUMBER 25017C0367F, DATED JULY 7, 2014.

COMMONWEALTH OF MASSACHUSETTS
VAROUJAN H. HAGOPIAN
No. 49665
PROFESSIONAL LAND SURVEYOR

5/14/19

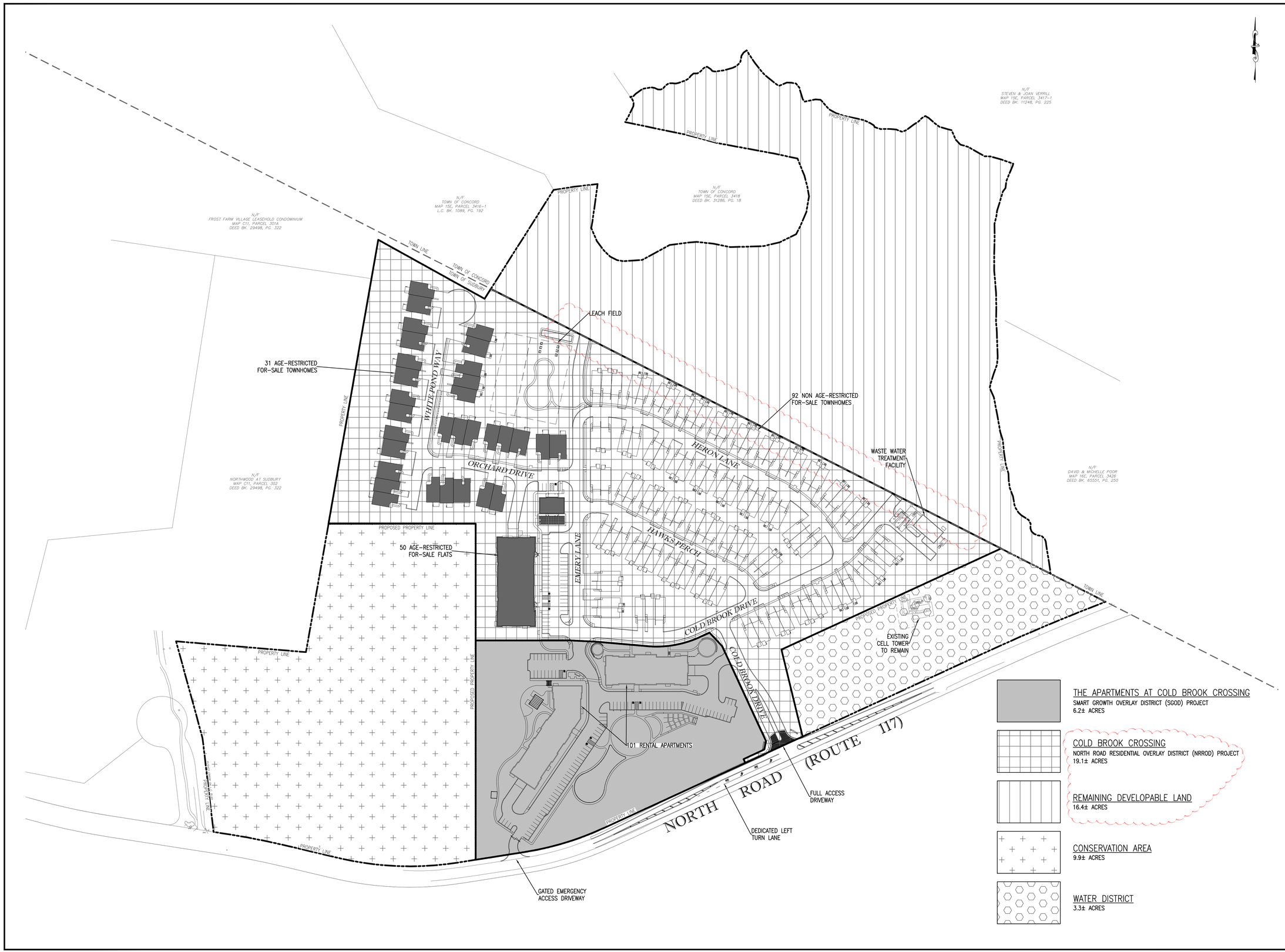
PREPARED FOR:

CHRIS CLAUSSEN

SULLIVAN, CONNORS AND ASSOCIATES
LAND SURVEYING AND CIVIL ENGINEERING
121 BOSTON POST ROAD
SUDBURY, MASSACHUSETTS 01776
PHONE: 978-443-9566 FAX: 978-443-8915

EXISTING CONDITIONS PLAN OF #16, 36, 0 NORTH STREET IN SUDBURY, MASS.

7-15-19	TESTING LOCATIONS, STREAM SHOTS
REVISED:	DESCRIPTION:
DRAWN BY: VHH	CHECK BY: REM
DATE: MAY 14, 2019	
SCALE: 1"=100'	SHEET 3



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PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

100 0 50 100 200

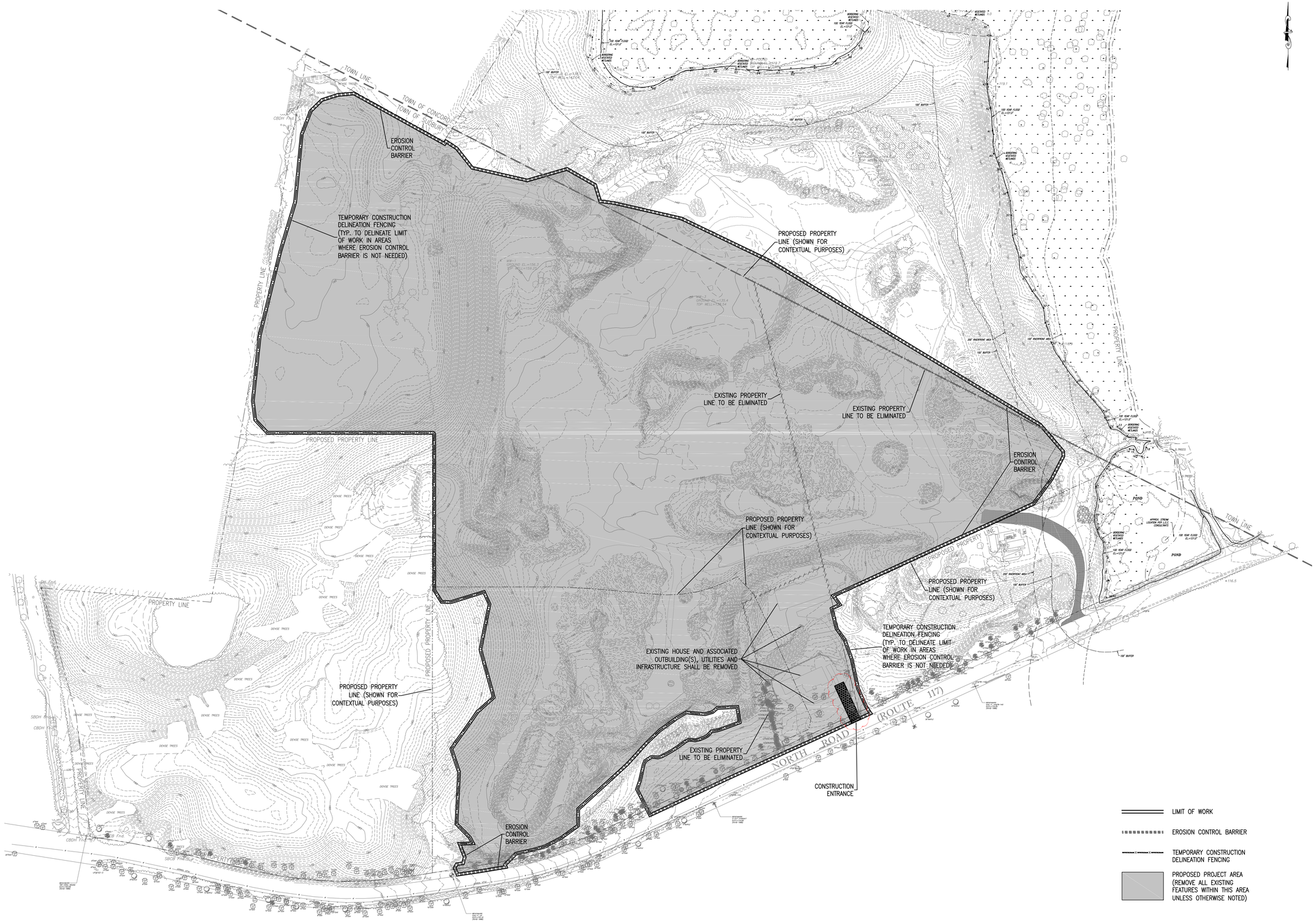
GRAPHIC SCALE IN FEET

SHEET:

SITE CONTEXT PLAN

4

DATE: 03/11/2020



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80 0 40 80 160

GRAPHIC SCALE IN FEET

SHEET:

SITE PREPARATION & EROSION CONTROL PLAN

5

DATE: 03/11/2020

SGOD ZONING SUMMARY

UNDERLYING DISTRICT(S): RESEARCH DISTRICT NO. 1 (RD1)
OVERLAY DISTRICT(S): SMART GROWTH OVERLAY DISTRICT (SGOD)
WATER RESOURCE PROTECTION OVERLAY DISTRICT (WRPOD)

	REQUIRED	PROVIDED
DENSITY	20 UNITS PER ACRE (MAXIMUM OF 101 UNITS)	20 UNITS PER ACRE (101 TOTAL UNITS SGOD AREA LESS SETBACK=5.05 AC.)
MIN. DEVELOPMENT LOT AREA	NONE	6.2± ACRES
MIN. FRONT YARD SETBACK	NONE	141± FEET
MIN. SIDE YARD SETBACK	NONE	74± FEET
MIN. REAR YARD SETBACK	NONE	19± FEET
MAX. BUILDING HEIGHT	4 STORIES/60 FEET	4 STORIES OVER PARKING <60 FEET
NUMBER OF PRINCIPAL BUILDINGS ALLOWED ON A DEVELOPMENT LOT	>=1	2
MAX. RESIDENTIAL DEVELOPMENT	101 UNITS	101 UNITS
MIN. NUMBER OF PARKING SPACES	150 SPACES (52 1-BED UNITS @ 1/UNIT; 49 2 & 3-BED UNITS @ 2/UNIT)	177 SPACES (99 SURFACE + 78 GARAGE)
MAX. NUMBER OF PARKING SPACES	177 SPACES (1.75 SPACES/UNIT; 101 UNITS)	

NRROD ZONING SUMMARY

UNDERLYING DISTRICT(S): RESEARCH DISTRICT NO. 1 (RD1)
OVERLAY DISTRICT(S): NORTH ROAD RESIDENTIAL OVERLAY DISTRICT (NRROD)
WATER RESOURCE PROTECTION OVERLAY DISTRICT (WRPOD)

	REQUIRED	PROVIDED
MAX. BUILDING HEIGHT (WITHIN 500' OF ROUTE 117)	3 STORIES/45 FEET (50' FOR PITCHED ROOFS)	<3 STORIES/45 FEET
MAX. BUILDING HEIGHT (> THAN 500' FROM ROUTE 117)	4 STORIES/60 FEET	4 STORIES OVER PARKING <60 FEET
MAX. BUILDING COVERAGE	35% OF PROJECT AREA	24% (TOTAL ROOF AREA = 4.5 AC. NRROD AREA = 19.1 AC.)
MIN. FRONT YARD SETBACK	100 FEET	231± FEET (TOWNHOMES) 502± FEET (BUILDING A)
MIN. SIDE YARD SETBACK	20 FEET	22± FEET (TOWNHOMES) 31± FEET (BUILDING A)
MIN. REAR YARD SETBACK	30 FEET	32± FEET (TOWNHOMES) 477± FEET (BUILDING A)
MIN. NUMBER OF PARKING SPACES	346 SPACES (173 DWELLINGS @ 2/DWELLING)	589 SPACES (293 SURFACE + 296 GARAGE)

SUMMARY OF PARKING PROVIDED

		SURFACE	GARAGE	TOTAL
SGOD	BUILDING 1	52	42	94
	BUILDING 2	47	36	83
			SGOD TOTAL:	177
NRROD	TOWNHOMES	246	246	492
	BUILDING A	40	50	90
	CLUBHOUSE	4	0	4
	WWTF	3	0	3
			NRROD TOTAL:	589

EARTHWORK SUMMARY

	SGOD	NRROD	TOTAL SITE
CY x 1000	18± FILL	57± CUT/EXCESS	39± CUT/EXCESS

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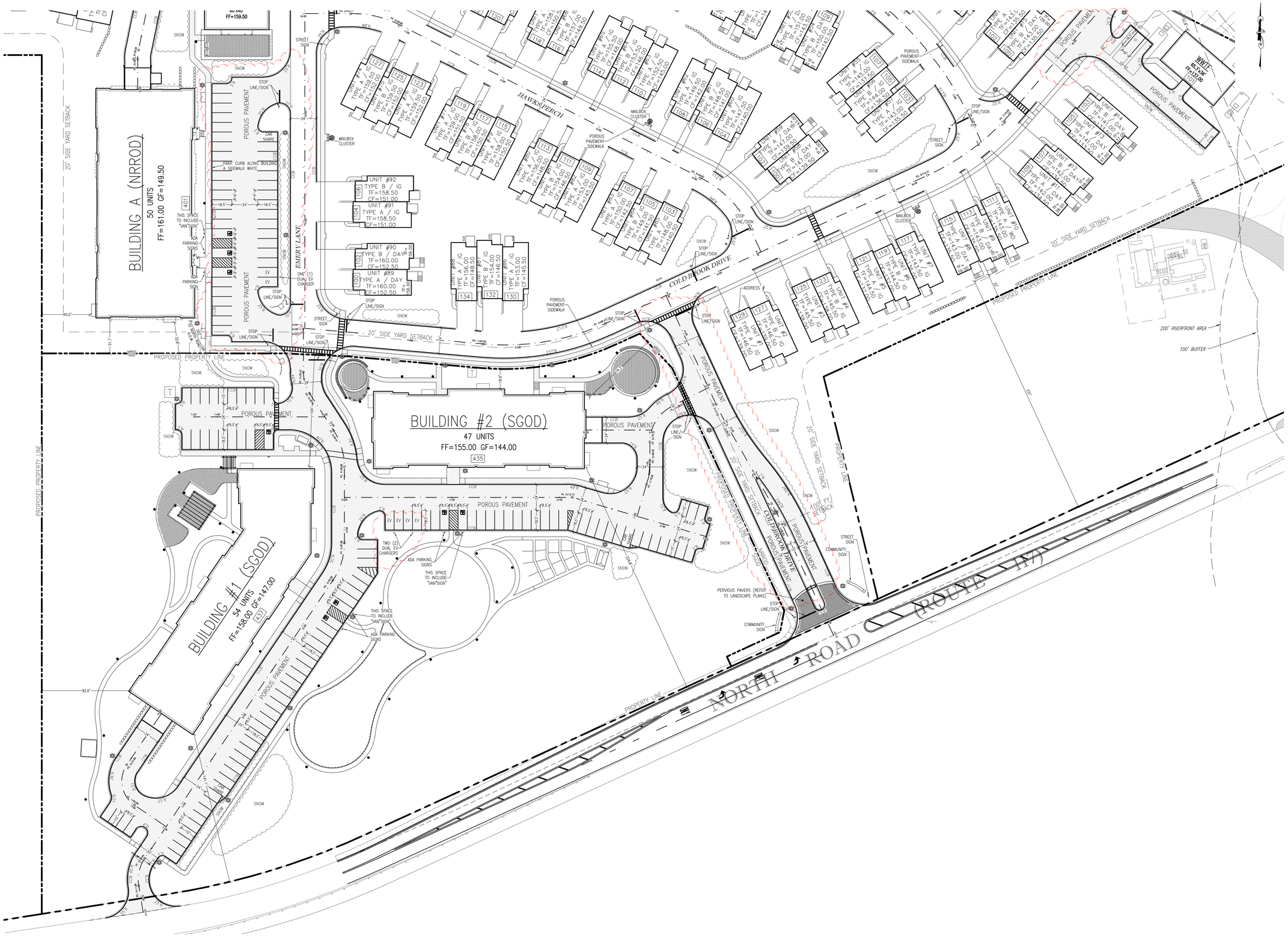
SCALE: 80 0 40 80 160
GRAPHIC SCALE IN FEET

SHEET:

OVERALL LAYOUT PLAN

6

DATE: 03/11/2020



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40 0 20 40 80
GRAPHIC SCALE IN FEET

SHEET:

LAYOUT PLAN
A

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LAYOUT PLAN
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LAYOUT PLAN
C

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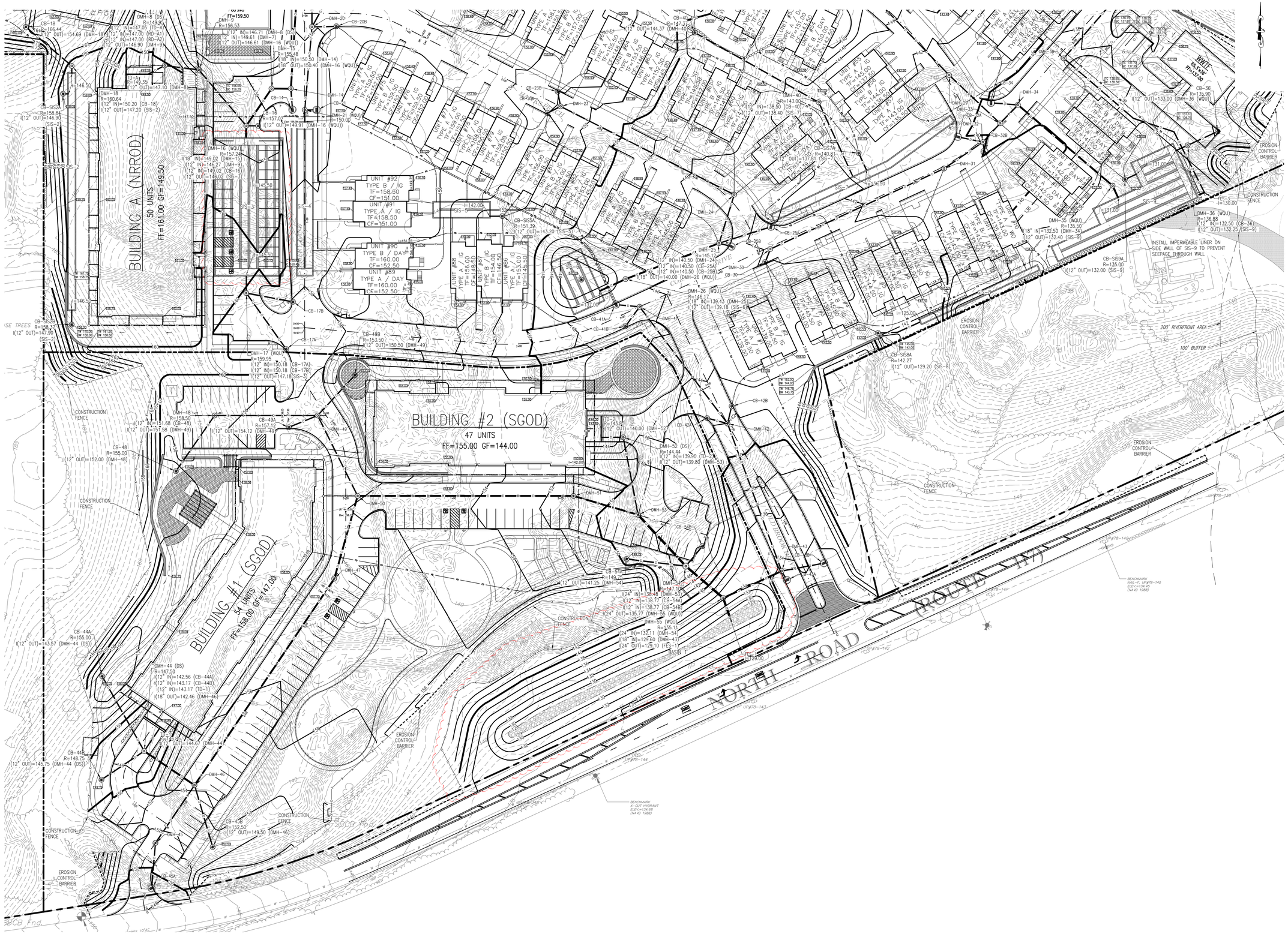

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GRADING & DRAINAGE PLAN A

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GRADING & DRAINAGE PLAN C

12

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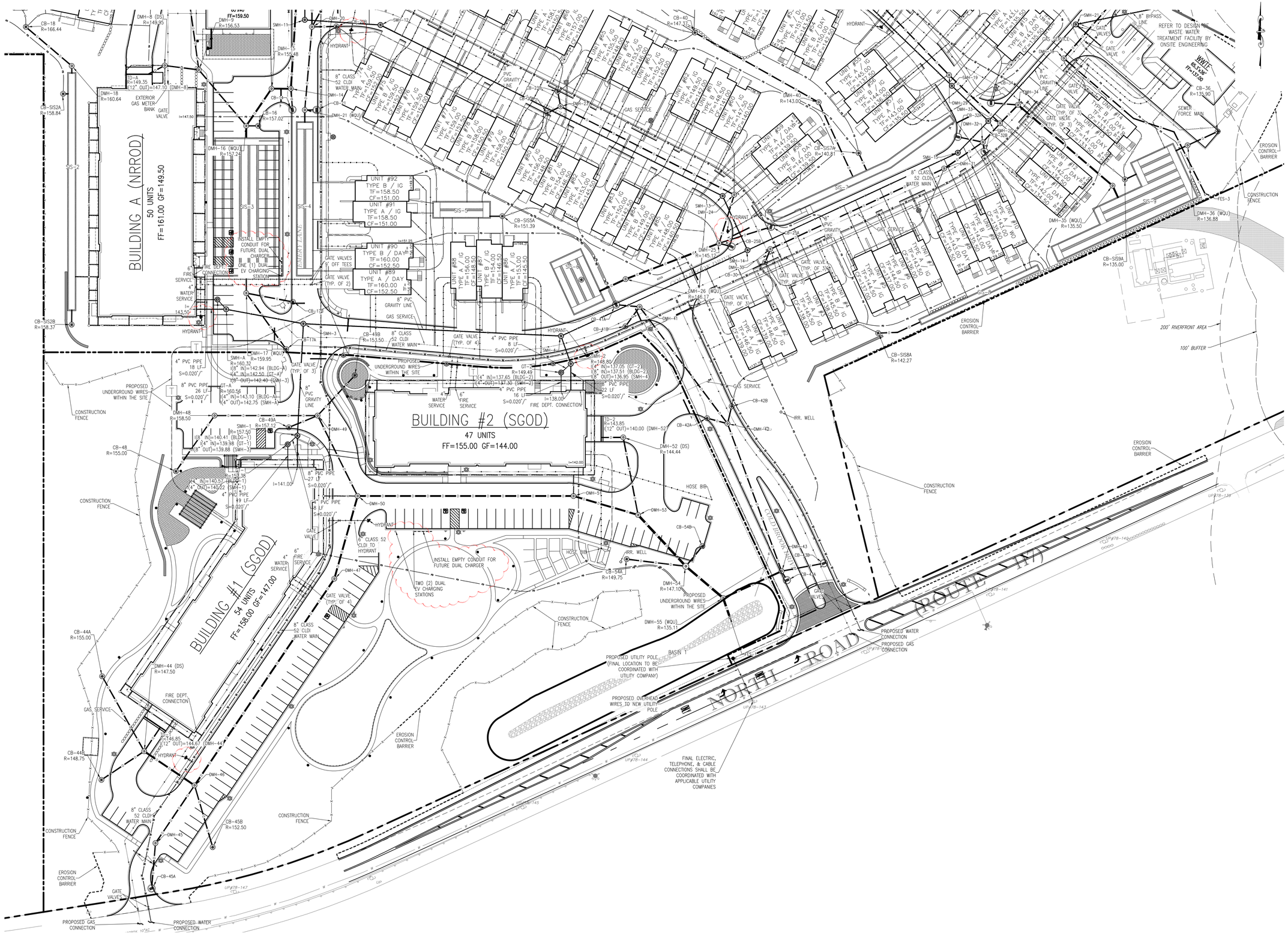

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2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE: 40 0 20 40 80
GRAPHIC SCALE IN FEET

SHEET:

UTILITY PLAN
A

13

DATE: 03/11/2020

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

REVISIONS:

REV	DATE	COMMENT
1	07/08/20	UPDATED PER PLANNING BOARD COMMENTS
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PLANNING BOARD:

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

PREPARED BY:

CIVIL DESIGN GROUP, LLC

21 HIGH STREET, SUITE 207
NORTH ANDOVER, MA 01845
www.cdgengineering.com
p: 978-794-5400 f: 978-965-3971

PREPARED FOR:

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2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

40 0 20 40 80

GRAPHIC SCALE IN FEET

SHEET:

UTILITY PLAN
B

14

DATE: 03/11/2020

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NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

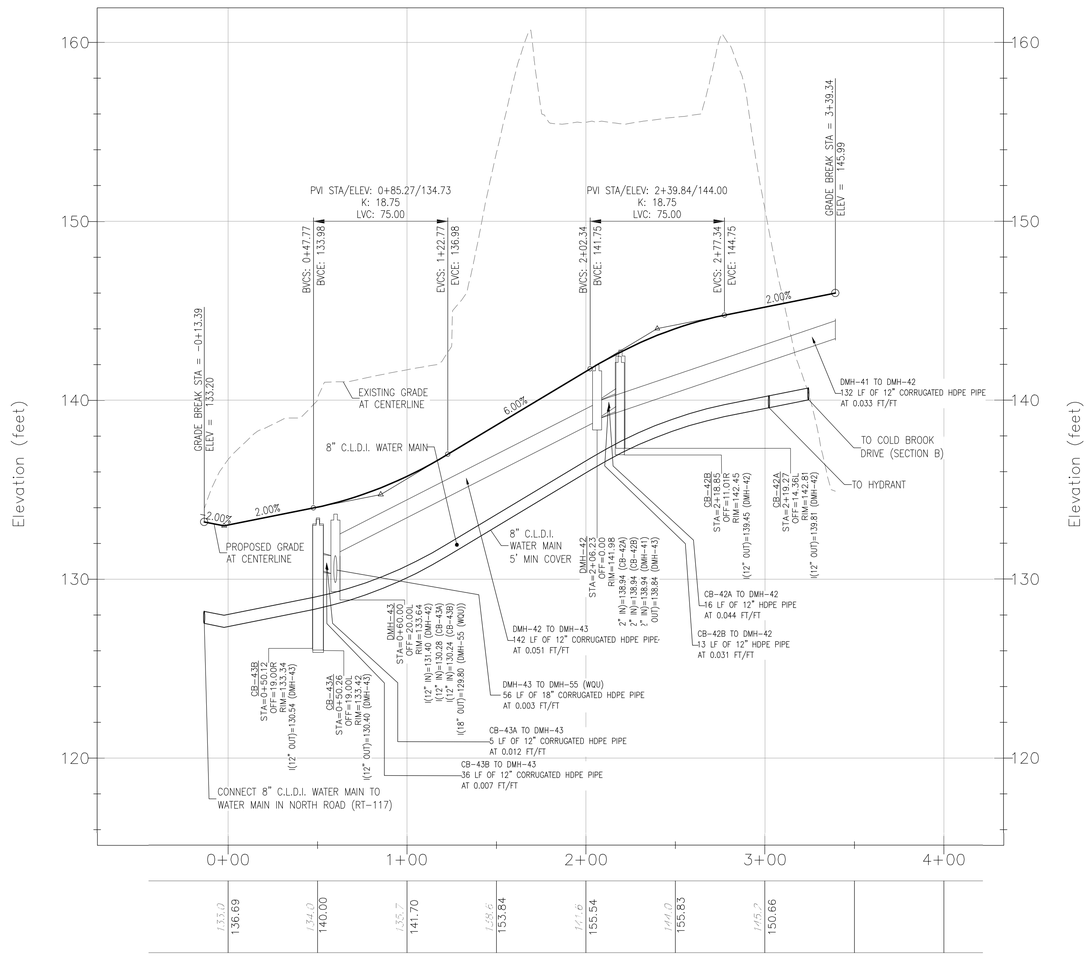
40 0 20 40 80
GRAPHIC SCALE IN FEET

SHEET:

UTILITY PLAN
C

15

DATE: 03/11/2020



PROFILE: COLD BROOK DRIVE
SECTION A: STA 0+00 THROUGH 3+39.34

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

REVISIONS:

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NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING
NORTH ROAD
SUDBURY, MASSACHUSETTS

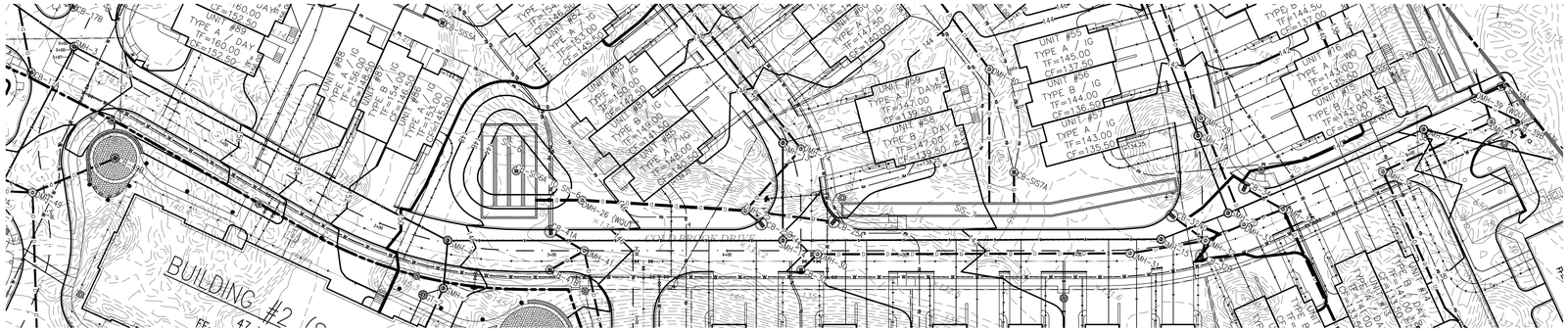
SCALE: 40 0 20 40 80
GRAPHIC SCALE IN FEET

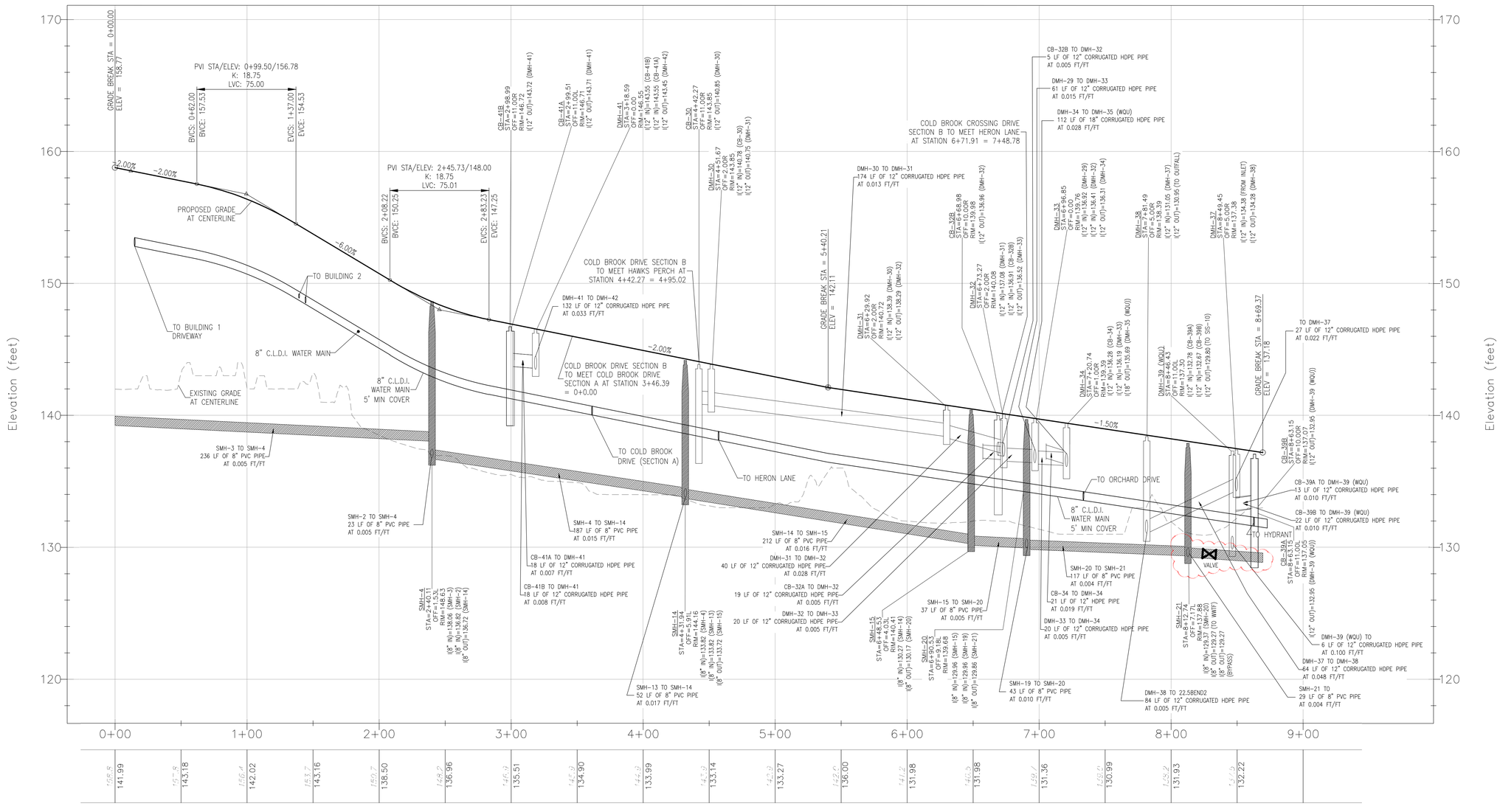
SHEET:

PLAN & PROFILE

16

DATE: 03/11/2020





PROFILE: COLD BROOK DRIVE
SECTION B: STA 0+00 THROUGH 8+69.37

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

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PREPARED FOR:

QUARRY NORTH ROAD LLC
2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING
NORTH ROAD
SUDBURY, MASSACHUSETTS

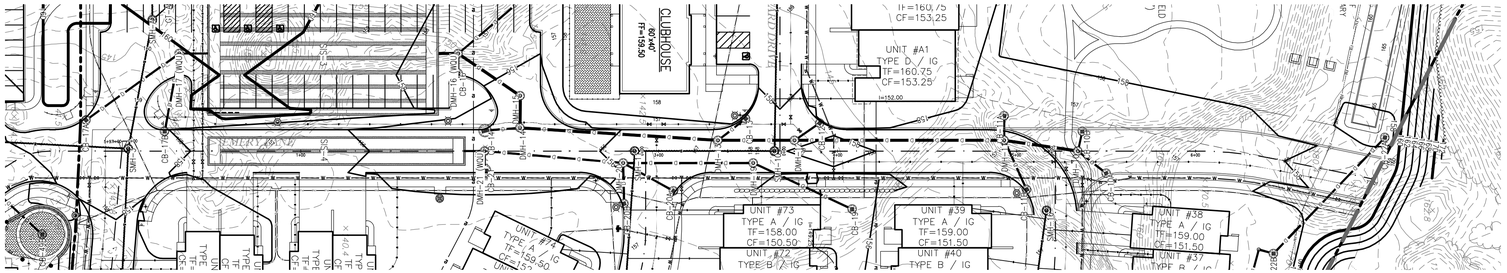
SCALE: 40 0 20 40 80
GRAPHIC SCALE IN FEET

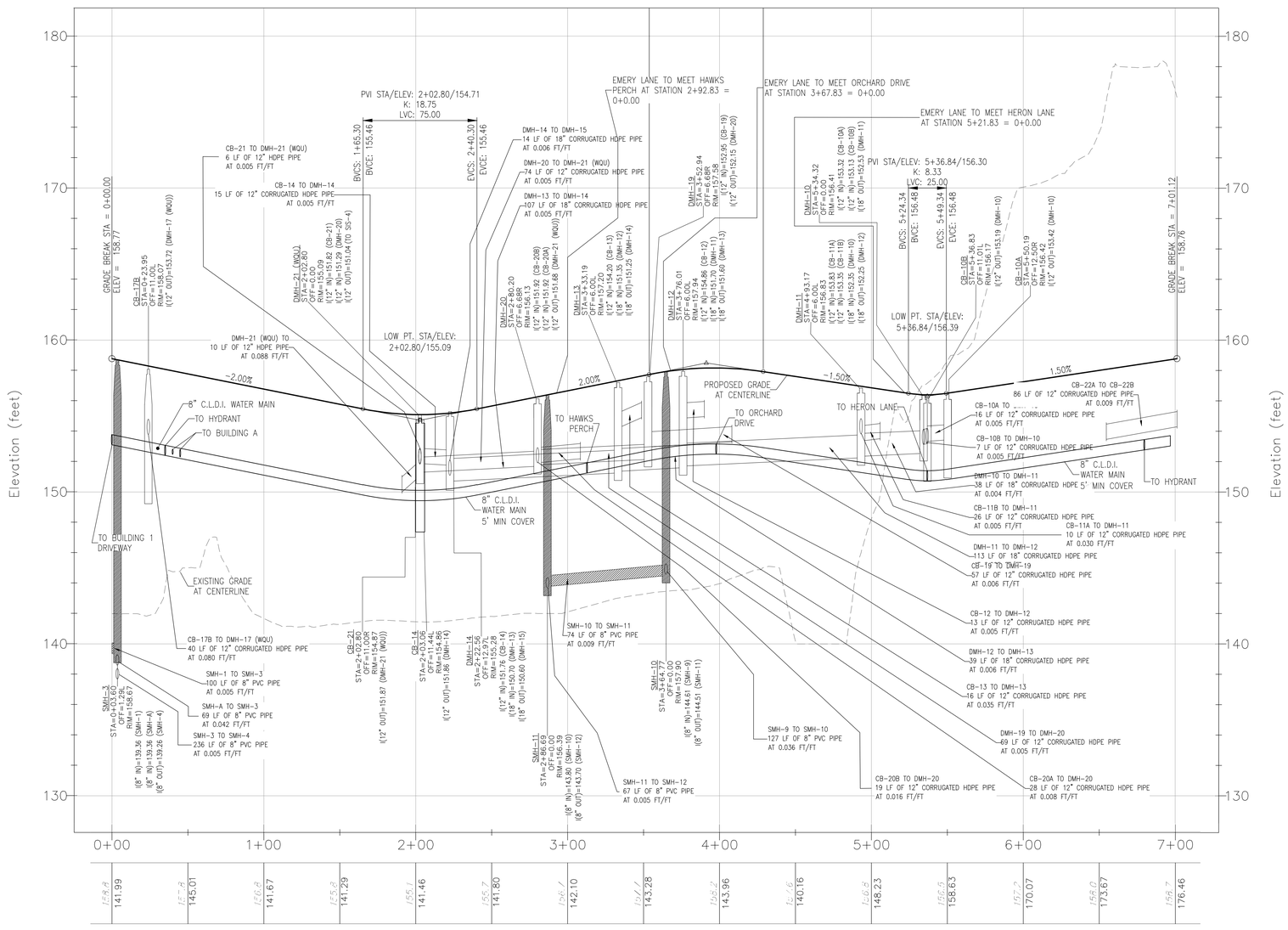
SHEET:

PLAN & PROFILE

17

DATE: 03/11/2020





PROFILE: EMERY LANE:
STA 0+00 THROUGH 7+01.12

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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PREPARED FOR:

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2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

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NORTH ROAD
SUDBURY, MASSACHUSETTS

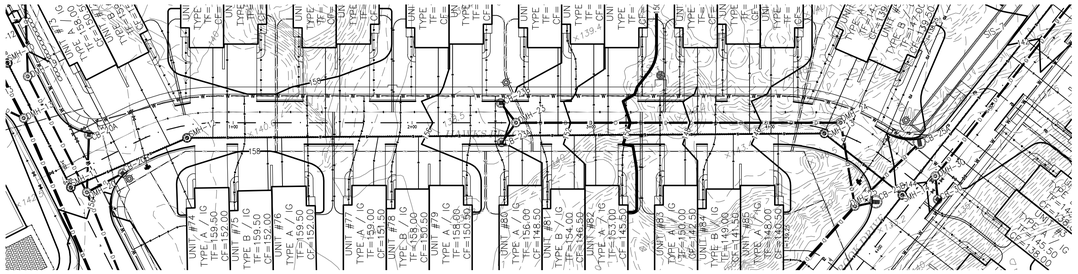
SCALE:
40 0 20 40 80
GRAPHIC SCALE IN FEET

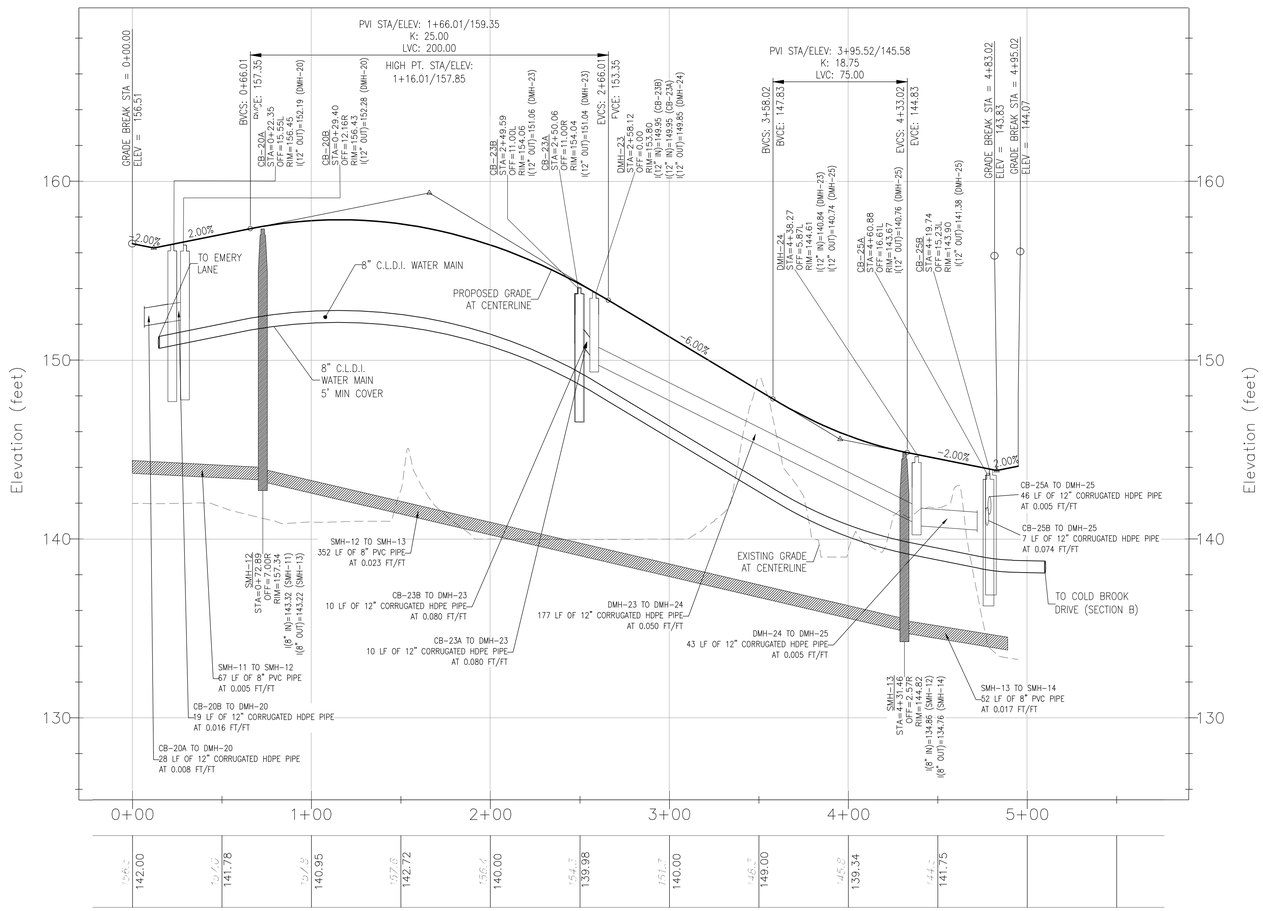
SHEET:

PLAN & PROFILE

18

DATE: 03/11/2020





PROFILE: HAWKS PERCH
STA 0+00 THROUGH 4+95.02

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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PREPARED FOR:

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NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

40 0 20 40 80

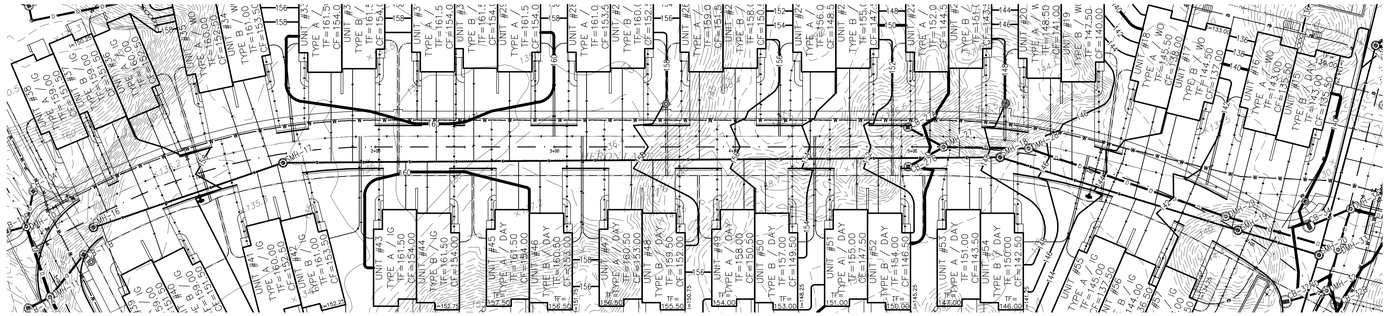
GRAPHIC SCALE IN FEET

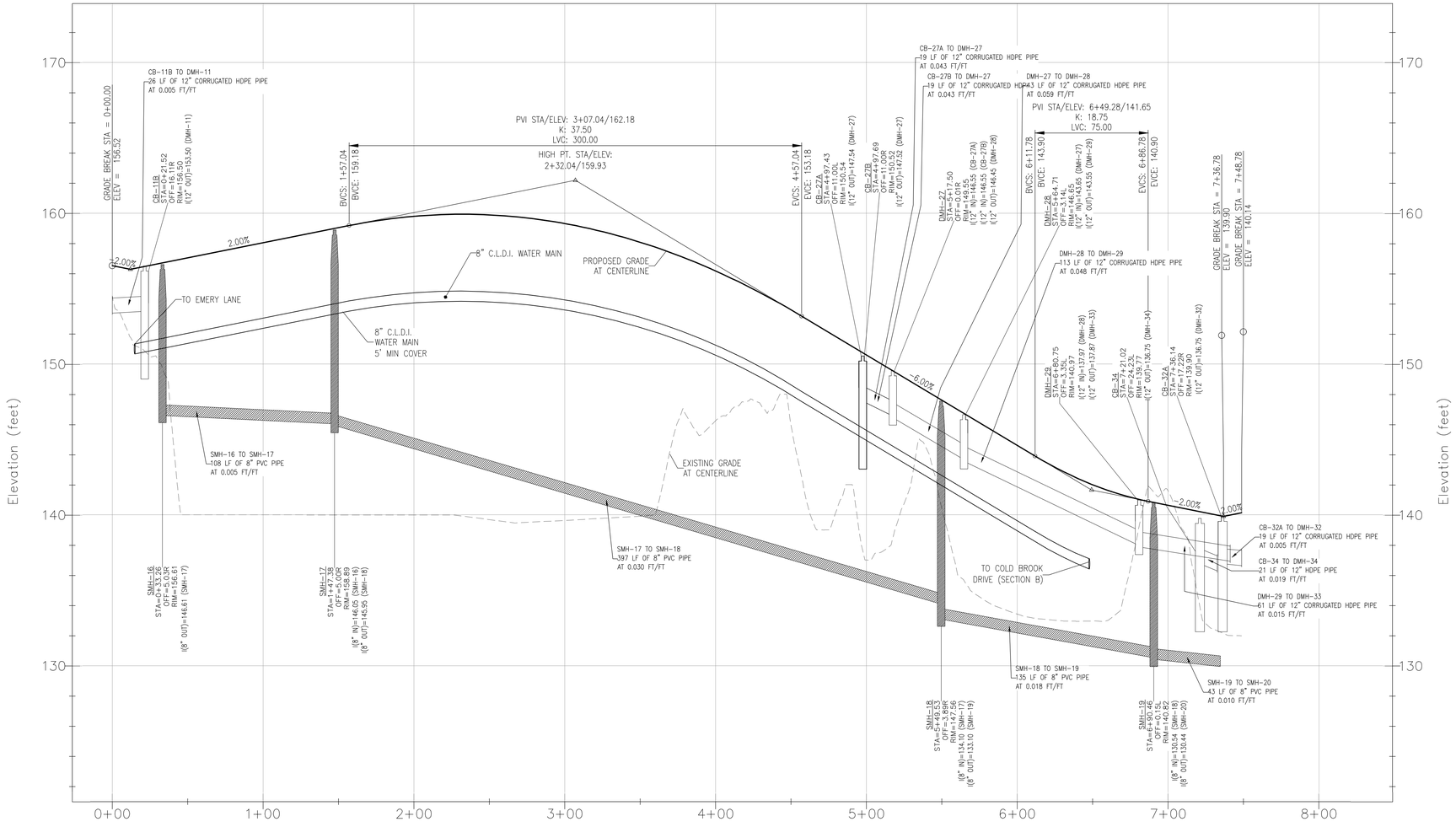
SHEET:

PLAN & PROFILE

19

DATE: 03/11/2020





PROFILE: HERON LANE
STA 0+00 THROUGH 7+48.78

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

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NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

40 0 20 40 80

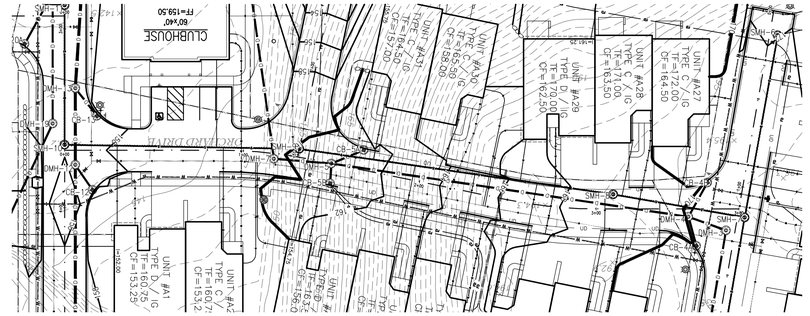
GRAPHIC SCALE IN FEET

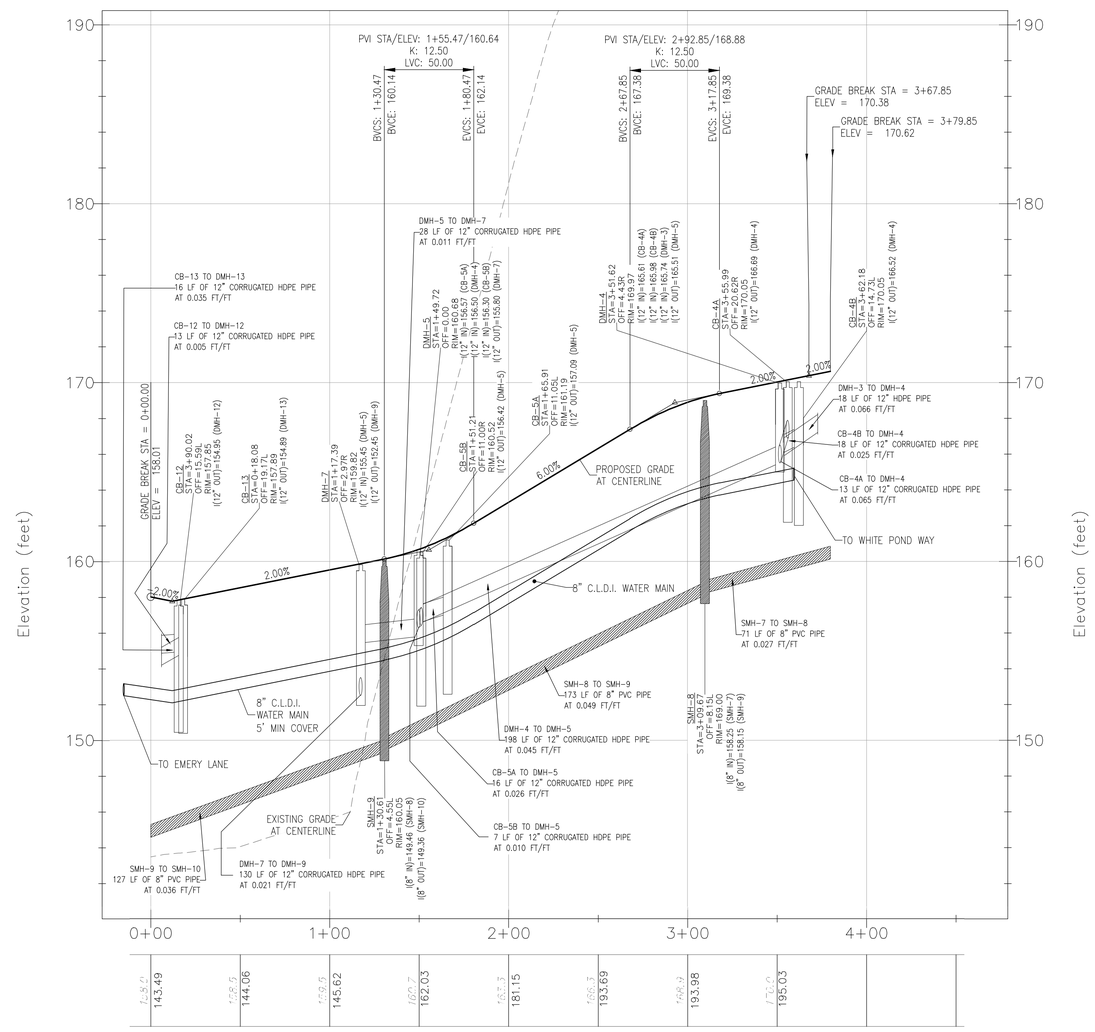
SHEET:

PLAN & PROFILE

20

DATE: 03/11/2020





PROFILE: ORCHARD DRIVE: STA 0+00 THROUGH 3+79.85

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING
NORTH ROAD
SUDBURY, MASSACHUSETTS

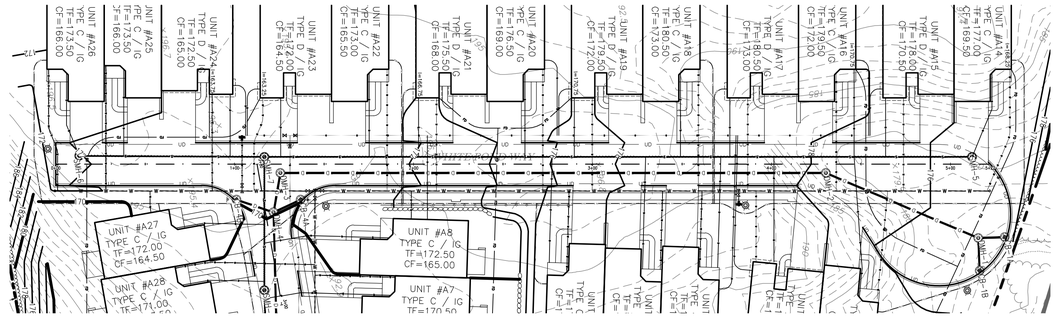
SCALE: 40 0 20 40 80
GRAPHIC SCALE IN FEET

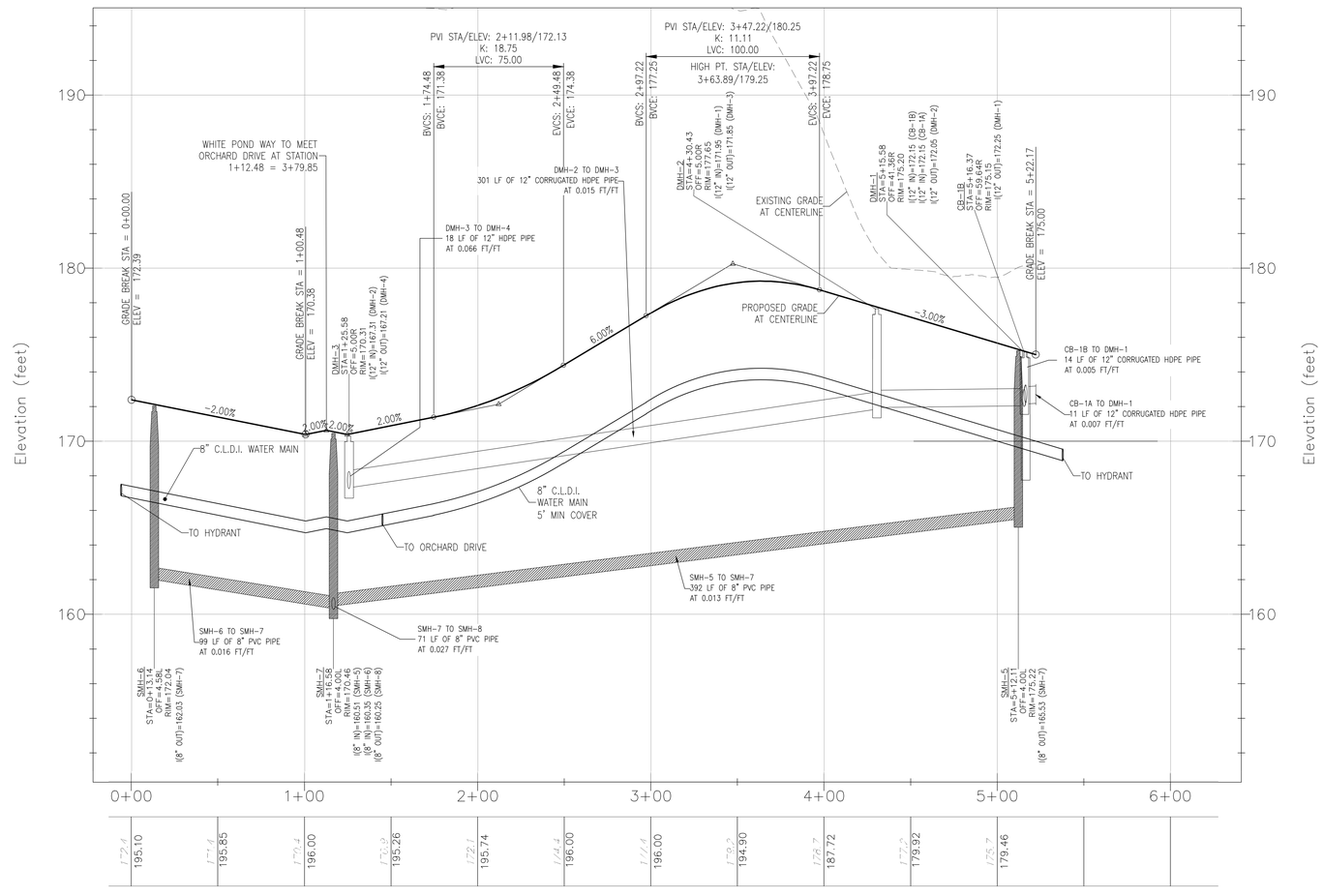
SHEET:

PLAN & PROFILE

21

DATE: 03/11/2020





PROFILE: WHITE POND WAY:
STA 0+00 THROUGH 5+22.17

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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SCALE:
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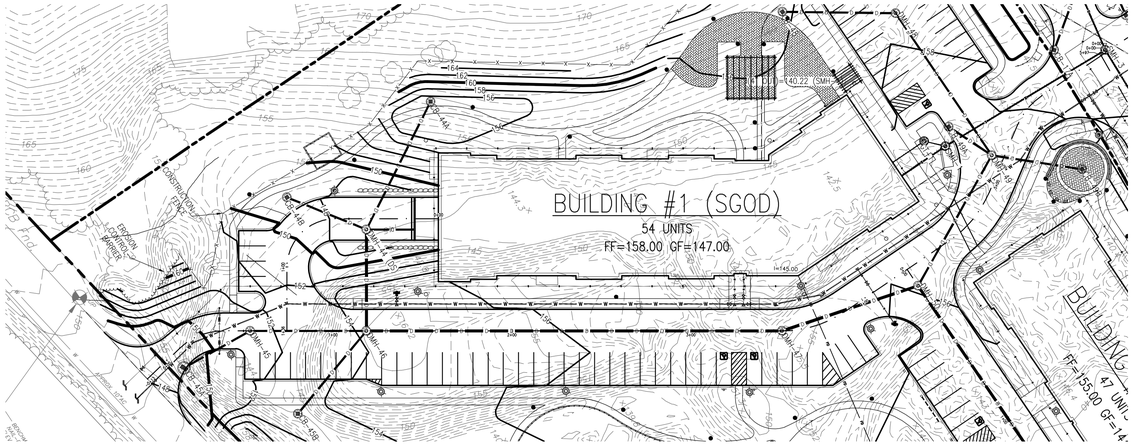
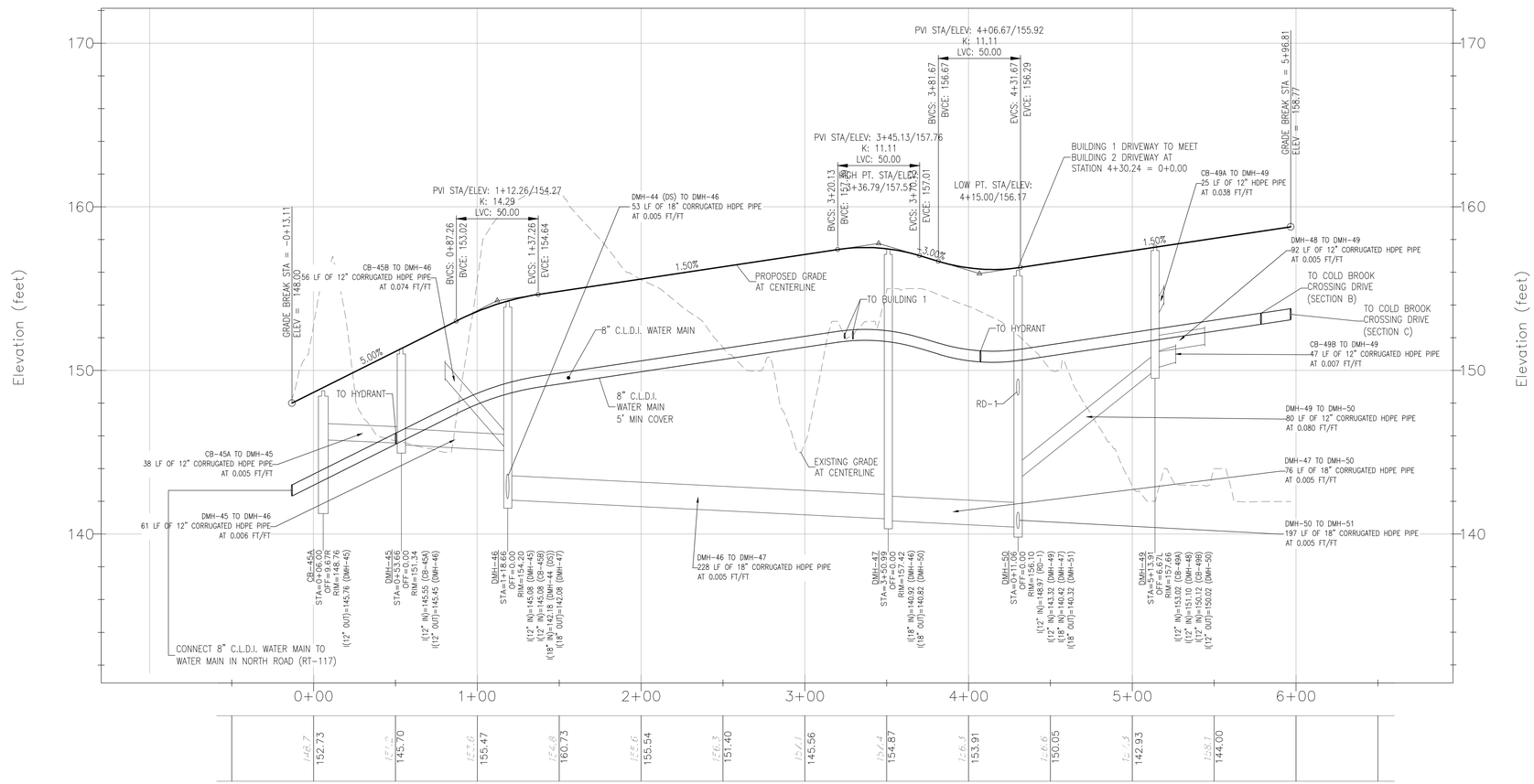
22

DATE: 03/11/2020





PROFILE: BUILDING 1 PARKING LOT

STA 0+00 THROUGH 5+96.81

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

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CDG PROJECT #: 19044 & 19045

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NORTH ROAD
SUDBURY, MASSACHUSETTS

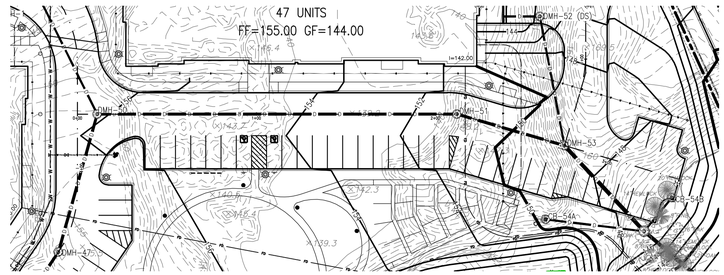
SCALE: 40 0 20 40 80
GRAPHIC SCALE IN FEET

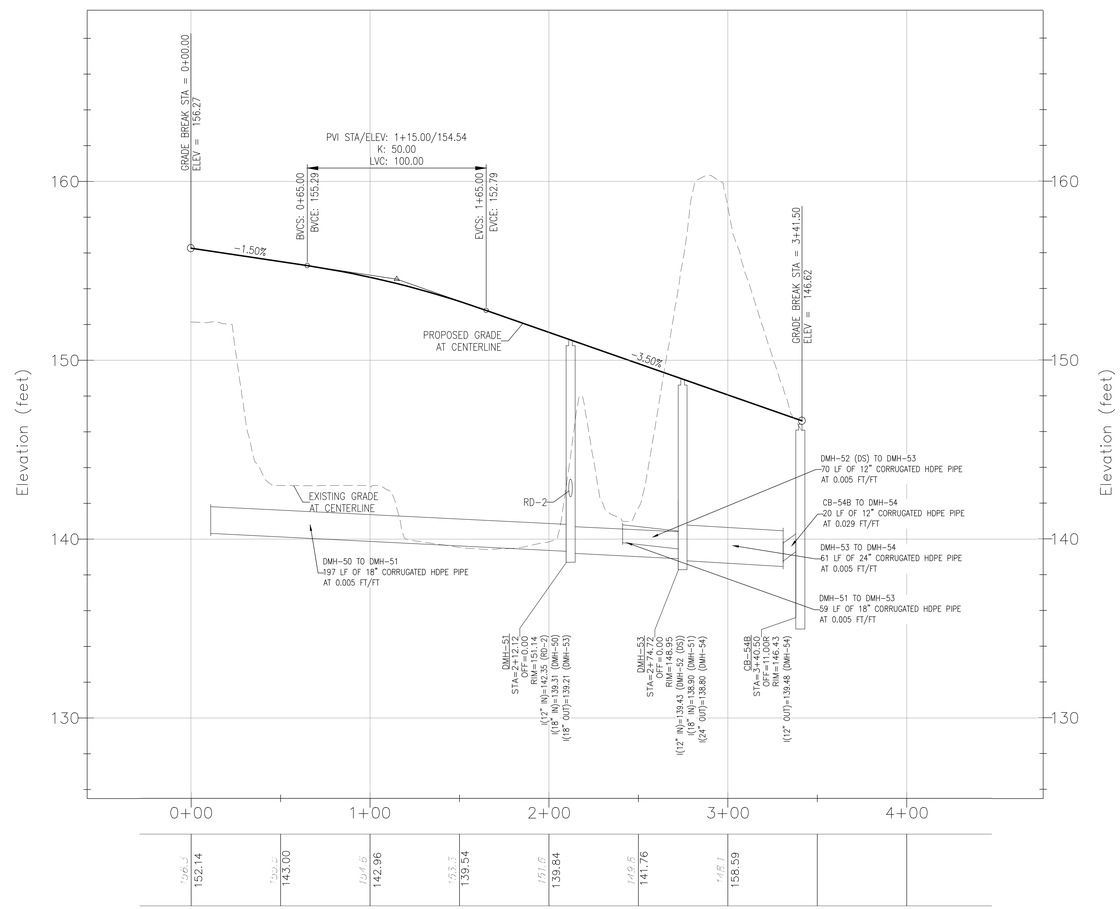
SHEET:

PLAN & PROFILE

23

DATE: 03/11/2020





PROFILE: BUILDING 2 PARKING LOT
STA 0+00 THROUGH 3+41.50

HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

40 0 20 40 80

GRAPHIC SCALE IN FEET

SHEET:

PLAN & PROFILE

24

DATE: 03/11/2020

PHASING NOTE

THIS PHASING PLAN IS INTENDED TO SHOW THE PROGRESSION OF CONSTRUCTION IN A GENERAL MANNER AS IS ANTICIPATED AT THIS TIME. THERE WILL BE SOME OVERLAP OF PHASES TO FACILITATE A SEAMLESS FLOW OF SITE WORK AND VERTICAL CONSTRUCTION ACTIVITIES AS THE BUILDOUT PROGRESSES, AND THEREFORE THE CONTRACTOR MAY MOVE TO SUBSEQUENT PHASES PRIOR TO COMPLETING PRIOR PHASE.

NOT FOR CONSTRUCTION

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PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

80 0 40 80 160

GRAPHIC SCALE IN FEET

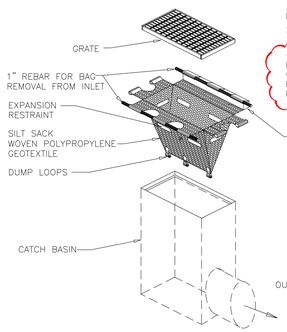
SHEET:

CONSTRUCTION PHASING

25

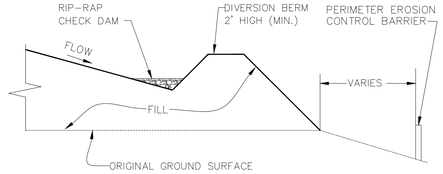
DATE: 03/11/2020

NOTES:
1. SILTSACK MANUFACTURED BY SI GEOSOLUTION (800-621-0444); INSTALL AND REMOVE PER MANUFACTURER'S RECOMMENDATIONS.
2. SILT SACK TO BE REMOVED WHEN SITE IS STABILIZED.
3. SILT SACK SHALL BE EMPTIED WHEN YELLOW RESTRAINT CORD IS NO LONGER VISIBLE.
4. SILT SACKS SHALL BE INSTALLED ON EVERY CATCH BASIN WITHIN 100' OF THE CONSTRUCTION ENTRANCE AND ON EACH PROPOSED CATCH BASIN UPON INSTALLATION.



TYPICAL SILT SACK DETAIL

NOT TO SCALE

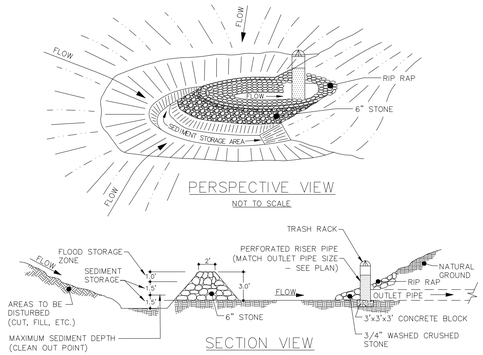


NOTES:

1. CHECK DAMS SHALL BE PROVIDED IN ALL UNSTABILIZED CHANNELS, SWALES AND ALONG DIVERSION BERMS AS NEEDED.
2. CHECK DAMS SHALL BE CLEANED OUT OF ALL DEBRIS AND SEDIMENT AS NEEDED.
3. ALL SEDIMENTATION BASIN BERMS SHALL BE 4' MIN. IN HEIGHT.

TYPICAL DIVERSION BERM DETAIL

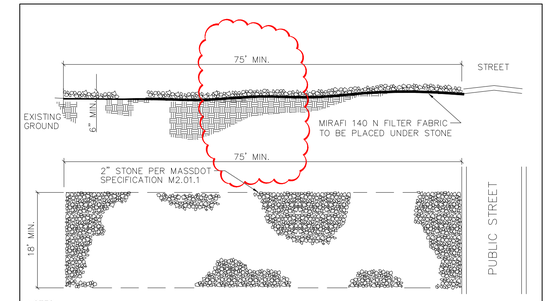
NOT TO SCALE



NOTE:
THIS DETAIL IS PROVIDED FOR GENERAL REPRESENTATION PURPOSES ONLY. TEMPORARY SEDIMENTATION BASINS SHALL BE SIZED IN ACCORDANCE WITH NPDES REQUIREMENTS.

TYPICAL TEMPORARY SEDIMENT BASIN WITH RISER PIPE DETAIL

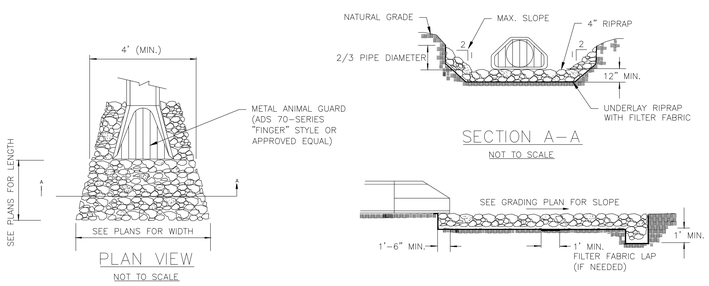
NOT TO SCALE



NOTES:
1. A STABILIZED CONSTRUCTION ENTRANCE COMPRISED OF 2"-3" CRUSHED STONE SHALL BE LOCATED WHERE CONSTRUCTION RELATED VEHICLES WILL ACCESS THE CONSTRUCTION SITE ONTO A PUBLIC STREET.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR ADJACENT LAND. ADDITIONAL STONE SHALL BE ADDED AS CONDITIONS WARRANT.
3. ANY SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED IMMEDIATELY.
4. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET, IF APPLICABLE. WHEEL WASHING SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS TO A DESIGNATED SEDIMENT TRAP.

TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

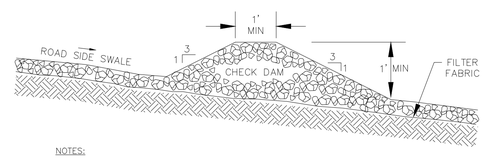


NOTE:
1. d50 RIP RAP STONE SIZE = 6 INCHES.

NOTES:
1. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
2. THE AREA TO BE RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL.
3. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
4. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
5. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
6. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.

RIP-RAP APRON DETAIL

NOT TO SCALE

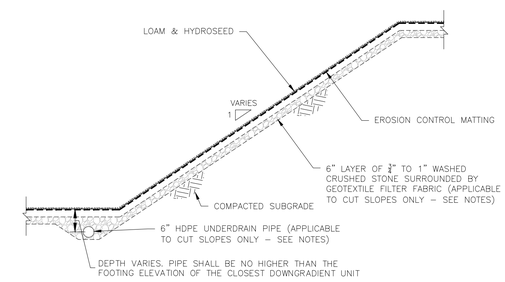


NOTES:

CHECK DAM STONES SHALL BE ANGULAR AND WELL GRADED:
- MINIMUM STONE SIZE IS 2" DIAMETER
- MAXIMUM STONE SIZE IS 3" DIAMETER

RIP-RAP CHECK DETAIL

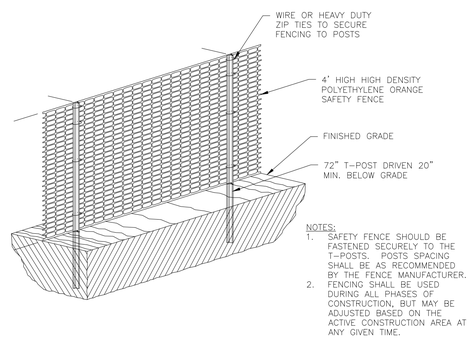
NOT TO SCALE



NOTES:
1. THIS DETAIL APPLIES TO ALL SLOPES 3H:1V AND STEEPER.
2. STONE LAYER AND ASSOCIATED UNDERDRAIN ONLY APPLY WHERE SLOPE IS IN A CUT (NOT APPLICABLE TO FILL SLOPES).

TYPICAL SLOPE STABILIZATION DETAIL

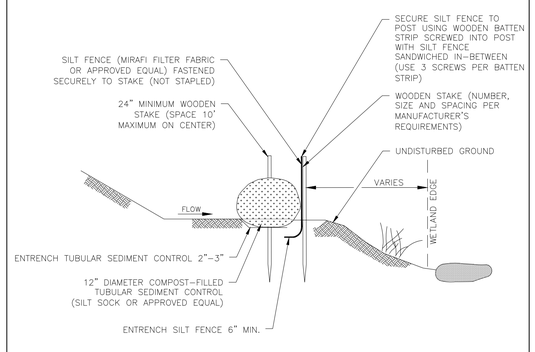
NOT TO SCALE



NOTES:
1. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS. POSTS SPACING SHALL BE AS RECOMMENDED BY THE FENCE MANUFACTURER.
2. FENCING SHALL BE USED DURING ALL PHASES OF CONSTRUCTION, BUT MAY BE ADJUSTED BASED ON THE ACTIVE CONSTRUCTION AREA AT ANY GIVEN TIME.

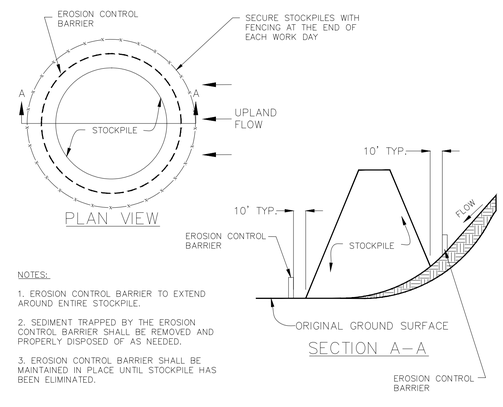
TEMPORARY CONSTRUCTION DELINEATION FENCING DETAIL

NOT TO SCALE



TYPICAL EROSION CONTROL BARRIER DETAIL

NOT TO SCALE



NOTES:

1. EROSION CONTROL BARRIER TO EXTEND AROUND ENTIRE STOCKPILE.
2. SEDIMENT TRAPPED BY THE EROSION CONTROL BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF AS NEEDED.
3. EROSION CONTROL BARRIER SHALL BE MAINTAINED IN PLACE UNTIL STOCKPILE HAS BEEN ELIMINATED.

TYPICAL TEMPORARY STOCKPILE DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

PREPARED BY:

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21 HIGH STREET, SUITE 207
NORTH ANDOVER, MA 01845
www.cdgengineering.com
p: 978-794-5400 f: 978-965-3971

PREPARED FOR:

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2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

AS-NOTED

SHEET:

CONSTRUCTION DETAILS

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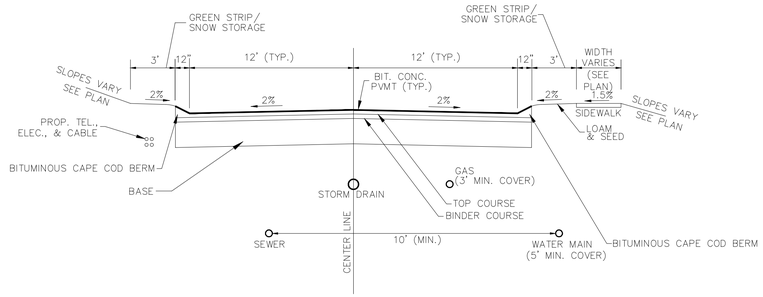
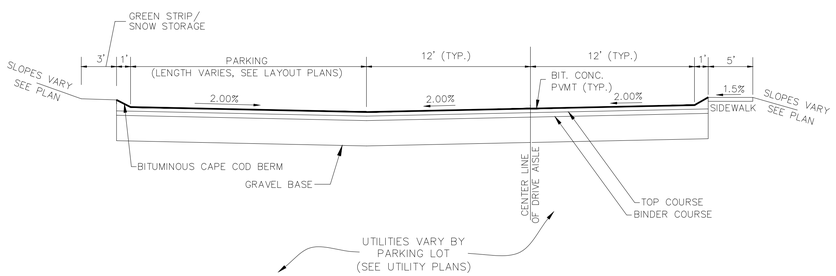
DATE: 03/11/2020



NOTES:
1. LOCATIONS OF UTILITIES SHOWN IN THIS DETAIL FOR REPRESENTATION PURPOSES ONLY. SEE SITE PLAN FOR PROPOSED LOCATIONS OF UTILITIES.
2. REFER TO TYPICAL PAVEMENT SECTION DETAIL FOR FURTHER INFORMATION ON PAVEMENT SYSTEM.

TYPICAL SITE DRIVE CROSS-SECTION (NO PARKING)

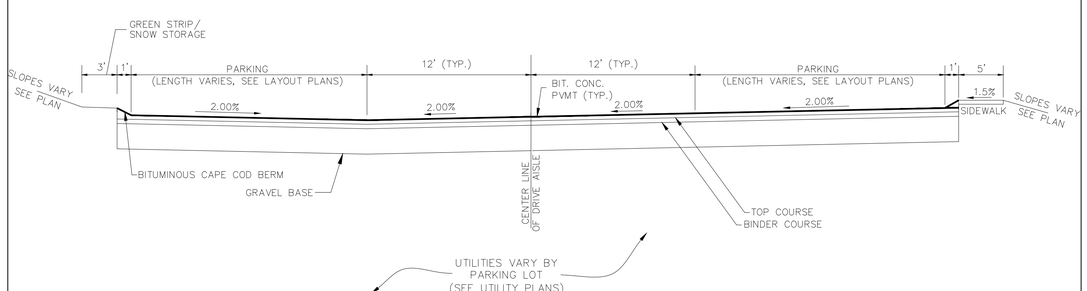
NOT TO SCALE



NOTES:
1. LOCATIONS OF UTILITIES SHOWN IN THIS DETAIL FOR REPRESENTATION PURPOSES ONLY. SEE SITE PLAN FOR PROPOSED LOCATIONS OF UTILITIES.
2. REFER TO TYPICAL PAVEMENT SECTION DETAIL FOR FURTHER INFORMATION ON PAVEMENT SYSTEM.

TYPICAL PARKING LOT CROSS-SECTION (PARKING ON ONE SIDE)

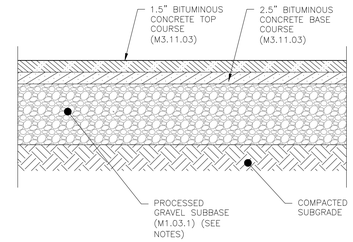
NOT TO SCALE



NOTES:
1. LOCATIONS OF UTILITIES SHOWN IN THIS DETAIL FOR REPRESENTATION PURPOSES ONLY. SEE SITE PLAN FOR PROPOSED LOCATIONS OF UTILITIES.
2. REFER TO TYPICAL PAVEMENT SECTION DETAIL FOR FURTHER INFORMATION ON PAVEMENT SYSTEM.

TYPICAL PARKING LOT CROSS-SECTION (PARKING ON BOTH SIDES)

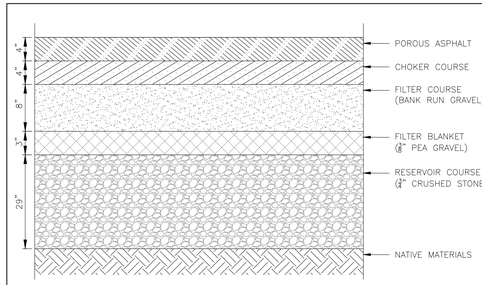
NOT TO SCALE



NOTES:
1. THIS DETAIL PROVIDES A MINIMUM STANDARD FOR PAVEMENT CONSTRUCTION BASED ON THE AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES. THE FINAL PAVEMENT SECTION SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER AND SHALL BE UTILIZED IF MORE STRINGENT THAN THIS DETAIL.
2. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MassDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
3. THE SOIL MUST HAVE A MOISTURE CONTENT DRY OF OPTIMUM AS DETERMINED BY THE MOISTURE-DENSITY RELATIONSHIP TEST METHOD ASTM D1557.
4. THE SOIL CAN BE COMPACTED TO 98% OF THE MAXIMUM STANDARD PROCTOR DENSITY AS DETERMINED BY THE MOISTURE-DENSITY RELATIONSHIP TEST METHOD ASTM D698.
5. THE SOIL SHALL NOT BE USED IF THE MATERIAL CONTAINS ORGANIC MATTER, RUBBLE, DEBRIS OR ANY OTHER DELETERIOUS MATERIAL.

TYPICAL BITUMINOUS PAVEMENT DETAIL

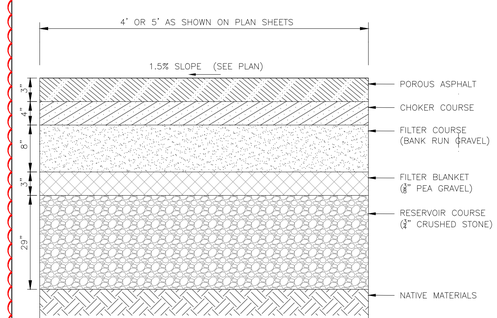
NOT TO SCALE



NOTES:
1. MATERIAL SPECIFICATIONS FOR THE POROUS PAVEMENT SECTIONS SHALL BE AS OUTLINED IN THE LATEST REVISION OF THE "UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER (UNHSC) DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS".
2. RESERVOIR COURSE DEPTH CALCULATED AS FOLLOWS IN ACCORDANCE WITH SECTION 2.1.4.e OF THE ABOVE REFERENCED UNHSC SPECIFICATIONS:
   100-YEAR RAINFALL DEPTH = 8.6"
   VOIDS = 30%
   8.6" / 30% = 29"

TYPICAL POROUS PAVEMENT DETAIL

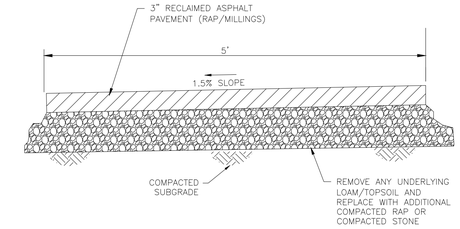
NOT TO SCALE



NOTES:
1. MATERIAL SPECIFICATIONS FOR THE POROUS PAVEMENT SECTIONS SHALL BE AS OUTLINED IN THE LATEST REVISION OF THE "UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER (UNHSC) DESIGN SPECIFICATIONS FOR POROUS ASPHALT PAVEMENT AND INFILTRATION BEDS".
2. RESERVOIR COURSE DEPTH CALCULATED AS FOLLOWS IN ACCORDANCE WITH SECTION 2.1.4.e OF THE ABOVE REFERENCED UNHSC SPECIFICATIONS:
   100-YEAR RAINFALL DEPTH = 8.6"
   VOIDS = 30%
   8.6" / 30% = 29"

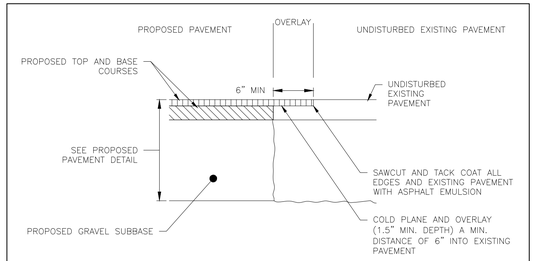
TYPICAL SIDEWALK DETAIL

NOT TO SCALE



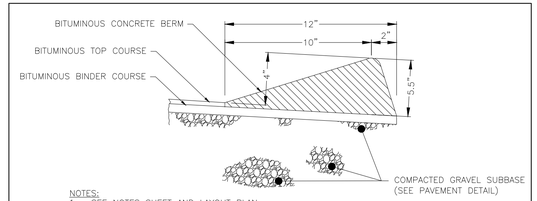
TRAIL DETAIL

NOT TO SCALE



PAVEMENT TIE-IN DETAIL

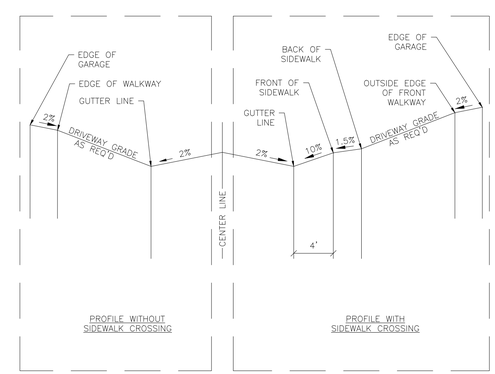
NOT TO SCALE



NOTES:
1. SEE NOTES SHEET AND LAYOUT PLAN FOR WHERE EACH CURB TYPE IS TO BE UTILIZED.

TYPICAL MONOLITHIC CAPE COD BERM DETAIL

NOT TO SCALE



TYPICAL TOWNHOME DRIVEWAY DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION

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CONSTRUCTION DETAILS

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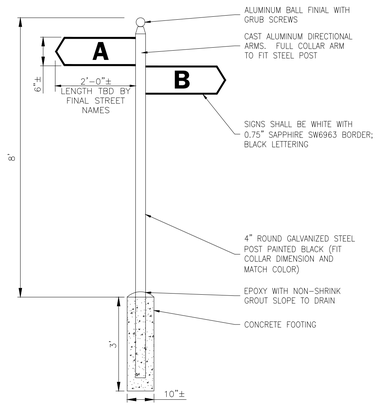
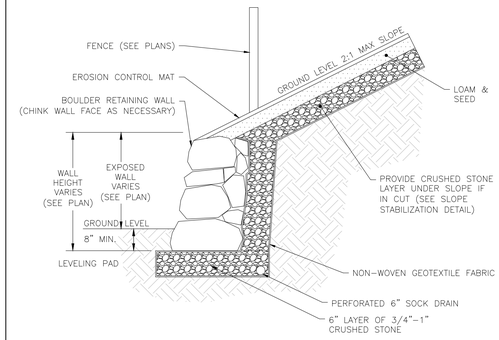
DATE: 03/11/2020



STREET SIGN DETAIL

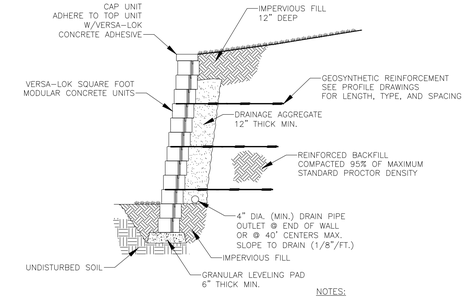
NOT TO SCALE



NOTES:
1. TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON GRADING & DRAINAGE PLANS REPRESENT THE EXPOSED PORTION OF THE WALL.
2. ALL WALLS WITH GREATER THAN 4 FEET EXPOSED HEIGHT SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.

TYPICAL LANDSCAPE WALL DETAIL

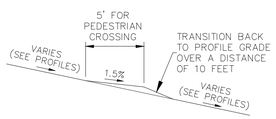
NOT TO SCALE



NOTES:
1. THIS DETAIL IS PROVIDED FOR REPRESENTATION PURPOSES. FINAL RETAINING WALL DESIGN SHALL BE PREPARED BY A STRUCTURAL ENGINEER.
2. RETAINING WALLS SHALL BE "SQUARE FOOT" BLOCK BY VERSA-LOK.

TYPICAL STRUCTURAL RETAINING WALL DETAIL

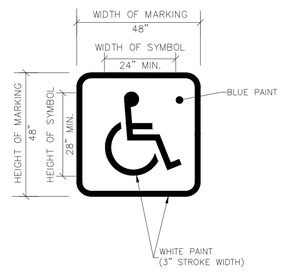
NOT TO SCALE



NOTES:
1. THIS DETAIL APPLIES WHERE PEDESTRIAN ROUTES ALONG SIDEWALKS OR CROSSWALKS CROSS SITE ROADWAYS, REGARDLESS OF WHETHER OR NOT A PAINTED CROSSWALK IS PROPOSED.
2. WHERE SITE DRIVE PROFILE GRADE IS LESS THAN 1.5%, THE CROSS SLOPE OF THE CROSSWALK SHALL MATCH THE ROAD GRADE (I.E. NO ADJUSTMENT NECESSARY).

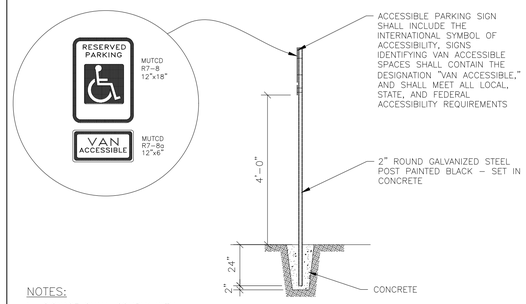
ROADWAY ADJUSTMENT AT PEDESTRIAN CROSSING DETAIL

NOT TO SCALE



TYPICAL ACCESSIBLE PARKING SPACE MARKING DETAIL

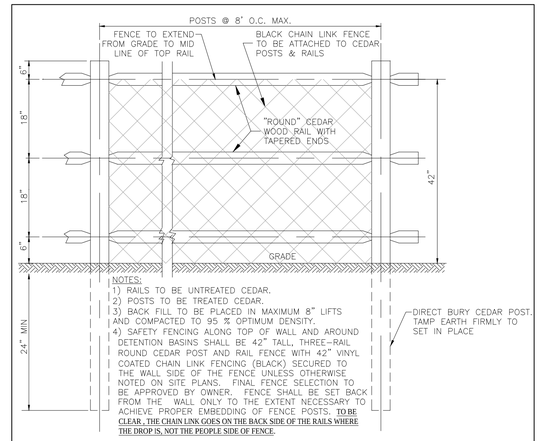
NOT TO SCALE



NOTES:
1. SIGNAGE SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, & LOCAL CODES, REGULATIONS, & POLICIES.
2. VAN ACCESSIBLE SIGN SHALL BE USED ON ONE PARKING SPACE PER BUILDING, SUCH THAT THE STRIPED ACCESSIBLE AISLE IS ON THE PASSENGER SIDE OF THE VAN SPACE.

ACCESSIBLE PARKING SIGNAGE DETAIL

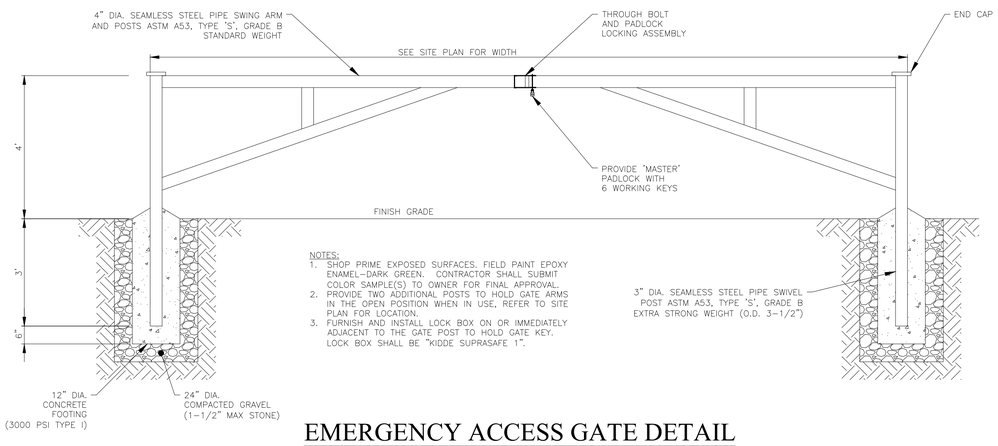
NOT TO SCALE



NOTES:
1) RAILS TO BE UNTREATED CEDAR.
2) POSTS TO BE TREATED CEDAR.
3) BACK FILL TO BE PLACED IN MAXIMUM 8" LIFTS AND COMPACTED TO 95 % OPTIMUM DENSITY.
4) SAFETY FENCING ALONG TOP OF WALL AND AROUND DETENTION BASINS SHALL BE 42" TALL, THREE-RAIL ROUND CEDAR POST AND RAIL FENCE WITH 42" VINYL COATED CHAIN LINK FENCING (BLACK) SECURED TO THE WALL SIDE OF THE FENCE UNLESS OTHERWISE NOTED ON SITE PLANS. FINAL FENCE SELECTION TO BE APPROVED BY OWNER. FENCE SHALL BE SET BACK FROM THE WALL ONLY TO THE EXTENT NECESSARY TO ACHIEVE PROPER EMBEDDING OF FENCE POSTS. TO BE CLEAR, THE CHAIN LINK GOES ON THE BACK SIDE OF THE RAILS WHERE THE DROP IS, NOT THE PEOPLE SIDE OF FENCE.

42" HIGH RAIL FENCE DETAIL

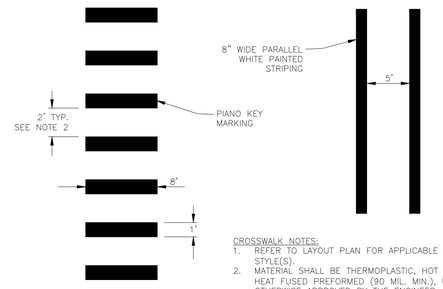
NOT TO SCALE



NOTES:
1. SHOP PRIME EXPOSED SURFACES. FIELD PAINT EPOXY ENAMEL-DARK GREEN. CONTRACTOR SHALL SUBMIT COLOR SAMPLE(S) TO OWNER FOR FINAL APPROVAL.
2. PROVIDE TWO ADDITIONAL POSTS TO HOLD GATE ARMS IN THE OPEN POSITION WHEN IN USE, REFER TO SITE PLAN FOR LOCATION.
3. FURNISH AND INSTALL LOCK BOX ON OR IMMEDIATELY ADJACENT TO THE GATE POST TO HOLD GATE KEY. LOCK BOX SHALL BE "KIDDE SUPRASAFE 1".

EMERGENCY ACCESS GATE DETAIL

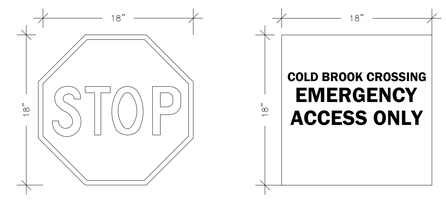
NOT TO SCALE



CROSSWALK NOTES:
1. REFER TO LAYOUT PLAN FOR APPLICABLE CROSSWALK STYLE(S).
2. MATERIAL SHALL BE THERMOPLASTIC, HOT APPLIED OR HEAT FUSED PREFORMED (90 MIL. MIN.), UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. GAP WIDTH ON PIANO KEY STYLE CROSSWALKS MAY BE ADJUSTED BETWEEN 12" AND 60" TO AVOID WHEEL PATHS.
4. RAMP PORTION OF WHEELCHAIR CURB RAMP TO BE LOCATED WITHIN CROSSWALK, WHERE APPLICABLE.
5. CROSSWALK LENGTH WILL VARY.

TYPICAL CROSSWALK PAINTING DETAIL

NOT TO SCALE



STOP SIGN DETAIL
NOT TO SCALE

EMERGENCY ACCESS ONLY SIGN
NOT TO SCALE

1. SIGNS LOCATIONS ARE SHOWN ON THE LAYOUT PLAN.
2. UNLESS OTHERWISE NOTED ON THE LAYOUT PLAN, SIGNS SHALL BE MOUNTED ON A 4"x4" PRESSURE-TREATED POST WITH BLACK PVC WRAP AND MANSARD CAP, AND SHALL BE 48" FROM GROUND TO BOTTOM OF SIGN.
3. SIGN COLOR, MATERIAL, AND FONT SHALL BE SPECIFIED BY OWNER. STOP SIGNS SHALL BE WHITE ON RED REFLECTIVE BACKGROUND.

MISC. SIGN DETAILS

NOT TO SCALE

NOT FOR CONSTRUCTION

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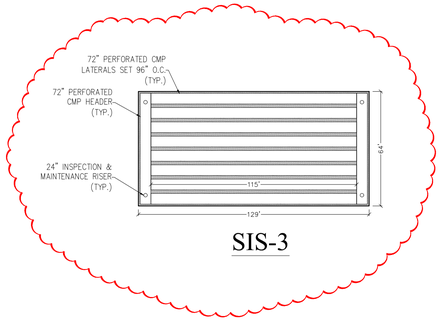
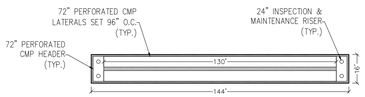
SIS-1

SIS-2



SIS-3



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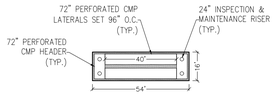
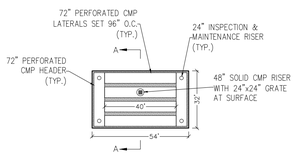
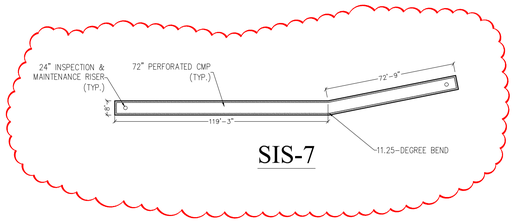


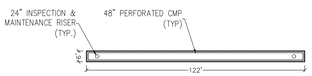
SIS-5



SIS-6



SIS-7



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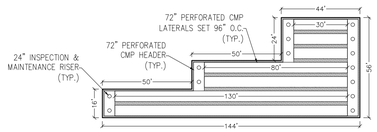
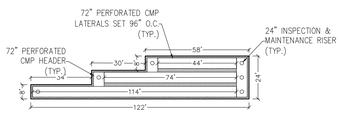


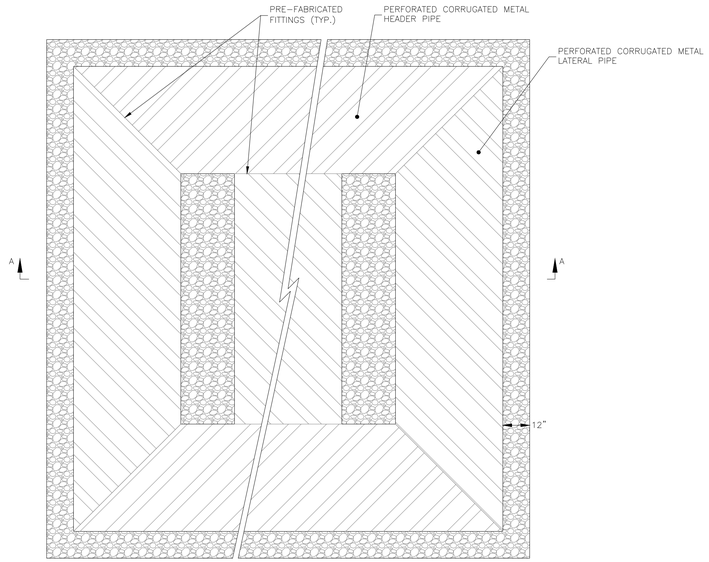
SIS-9

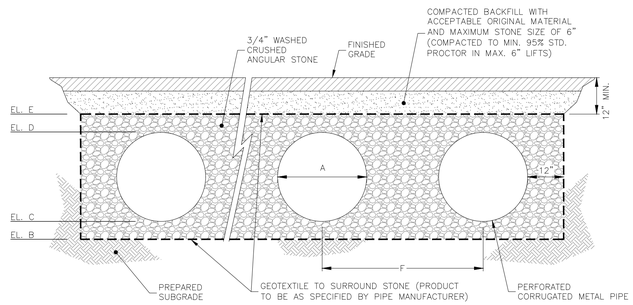


SIS-10

SUBSURFACE INFILTRATION SYSTEM (SIS) DIMENSIONS

NOT TO SCALE





ESTIMATED SEASONAL HIGH WATER TABLE (REFER TO HYDROGEOLOGY STUDY & TEST PIT LOGS)

SECTION A–A

NOT TO SCALE

TABLE OF DIMENSIONS/ELEVATIONS

SYSTEM*	PIPE DIAMETER (A)	NUMBER OF LATERAL PIPES	BOTTOM OF STONE (B)	BOT. INSIDE OF PIPE (C)	TOP INSIDE OF PIPE (D)	TOP OF STONE (E)	ON-CENTER SPACING (F)
SIS-1	36"	1	163.00	164.00	167.00	168.00	NA
SIS-2	72"	1	141.50	142.50	148.50	149.50	NA
SIS-3	72"	8	140.50	141.50	147.50	148.50	96"
SIS-4	72"	2	145.00	146.00	152.00	153.00	96"
SIS-5	72"	2	137.00	138.00	144.00	145.00	96"
SIS-6	72"	4	132.00	133.00	139.00	140.00	96"
SIS-7	72"	1	131.50	132.50	138.50	139.50	NA
SIS-8	48"	1	127.00	128.00	132.00	133.00	NA
SIS-9	72"	7	126.00	127.00	133.00	134.00	96"
SIS-10	72"	3	127.00	128.00	134.00	135.00	96"

* SEE NOTE 10 FOR BMP-SPECIFIC NOTES

SIEVE	% PASSING
#4	100
#50	10–100
#100	0–20
#200	0–5

NOTES:

1. THE SUBSURFACE INFILTRATION SYSTEMS SHALL BE CONSTRUCTED OF ALUMINIZED TYPE II CORRUGATED METAL PIPE (CMP) AS SUPPLIED BY CONTECH ENGINEERED SOLUTIONS OR APPROVED EQUAL. ALL PIPING WITHIN THE LIMITS OF THE STONE BED SHALL BE PERFORATED, AND ALL PIPING OUTSIDE LIMITS OF THE STONE BED SHALL BE SOLID WALL.
2. ALUMINIZED TYPE II MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929. CMP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760.
3. THE CMP SYSTEM SHALL BE DESIGNED FOR A MINIMUM HS-20/HS-25 FINAL LIVE LOADING CONDITIONS. THE CMP SYSTEM SHALL MEET HS-20/HS-25 LOADING REQUIREMENTS WITH A MINIMUM OF 12-INCHES OF COVER TO BOTTOM OF FLEXIBLE PAVEMENT FOR PIPE SPANS LESS THAN OR EQUAL TO 96 INCHES AND 18 INCHES OF COVER TO BOTTOM OF FLEXIBLE PAVEMENT FOR PIPE SPANS GREATER THAN 96 INCHES.
4. THE CMP SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE; CONSULT MANUFACTURER'S RECOMMENDATIONS.
6. PIPING THROUGHOUT SYSTEM SHALL BE SET LEVEL AT THE INVERT INDICATED IN THE DETAIL.
7. BACKFILL MATERIAL SHALL BE PLACED IN 8 INCH LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY.
8. WITHIN THE FOOTPRINT OF THE SUBSURFACE INFILTRATION SYSTEMS, EXISTING TOPSOIL AND SUBSOIL SHALL BE REMOVED TO EXPOSE THE EXISTING SUBGRADE. THE AREA SHALL THEN BE BUILT UP TO PROPOSED SUBGRADE WITH MATERIAL MEETING THE FOLLOWING SPECIFICATION, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
9. FOLLOWING THE PRELIMINARY ROUGH GRADING OF THE SITE OR PORTIONS THEREOF, THE LIMITS OF THE SUBSURFACE INFILTRATION SYSTEMS IN THOSE AREAS SHALL BE FIELD DELINEATED BY THE CONTRACTOR. THE USE OF HEAVY EQUIPMENT IN THOSE AREAS SHALL BE AVOIDED TO THE EXTEND PRACTICABLE TO HELP PREVENT COMPACTION OF THE UNDERLYING SOILS.
10. BMP-SPECIFIC NOTES:
    - 10.1. SIS-1: UPON ESTABLISHMENT OF ROUGH GRADE IN THE VICINITY OF SIS-1, THE CONTRACTOR SHALL SCHEDULE AND PERFORM THREE TEST PITS WITH THE DESIGN ENGINEER WITHIN THE FOOTPRINT OF THE SYSTEM. THE TEST PITS SHALL EXTEND TO A DEPTH CORRESPONDING TO ELEVATION 159 (I.E. 4 FEET BELOW THE PROPOSED BOTTOM OF THE SYSTEM). IF ANY SOIL HAVING AN INFILTRATION RATE LESS THAN THAT OF SAND (8.27 INCHES/HOUR) IS ENCOUNTERED IN THIS ZONE, SIS-1 SHALL BE OVER EXCAVATED BY A DEPTH OF 4 FEET AND BACKFILLED WITH SAND UP TO THE BOTTOM OF THE SYSTEM. THE SAND SOURCE SHALL BE APPROVED BY THE DESIGN ENGINEER.
    - 10.2. SIS-2: UPON ESTABLISHMENT OF ROUGH GRADE IN THE VICINITY OF SIS-2, THE CONTRACTOR SHALL SCHEDULE AND PERFORM THREE TEST PITS WITH THE DESIGN ENGINEER WITHIN THE FOOTPRINT OF THE SYSTEM. THE TEST PITS SHALL EXTEND TO A DEPTH CORRESPONDING TO ELEVATION 137.5 (I.E. 4 FEET BELOW THE PROPOSED BOTTOM OF THE SYSTEM). IF ANY SOIL HAVING AN INFILTRATION RATE LESS THAN THAT OF SAND (8.27 INCHES/HOUR) IS ENCOUNTERED IN THIS ZONE, SIS-2 SHALL BE OVER EXCAVATED BY A DEPTH OF 4 FEET AND BACKFILLED WITH SAND UP TO THE BOTTOM OF THE SYSTEM. THE SAND SOURCE SHALL BE APPROVED BY THE DESIGN ENGINEER.
    - 10.3. SIS-3 SHALL BE OVER EXCAVATED BY A DEPTH OF 4 FEET AND BACKFILLED WITH SAND UP TO THE BOTTOM OF THE SYSTEM. THE SAND SOURCE SHALL BE APPROVED BY THE DESIGN ENGINEER.
    - 10.4. SIS-7 SHALL BE OVER EXCAVATED BY A DEPTH OF 4 FEET AND BACKFILLED WITH SAND UP TO THE BOTTOM OF THE SYSTEM. THE SAND SOURCE SHALL BE APPROVED BY THE DESIGN ENGINEER.
    - 10.5. SIS-8 SHALL BE OVER EXCAVATED BY A DEPTH OF 4 FEET AND BACKFILLED WITH SAND UP TO THE BOTTOM OF THE SYSTEM. THE SAND SOURCE SHALL BE APPROVED BY THE DESIGN ENGINEER.

SUBSURFACE INFILTRATION SYSTEM (SIS) DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

REVISIONS:

REV	DATE	COMMENT
1	07/08/20	UPDATED PER PLANNING BOARD COMMENTS
2		
3		
4		
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10		

PLANNING BOARD:

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

PREPARED BY:

CIVIL DESIGN GROUP, LLC

21 HIGH STREET, SUITE 207
NORTH ANDOVER, MA 01845
www.cdgengineering.com
p: 978-794-5400 f: 978-965-3971

PREPARED FOR:

QUARRY NORTH ROAD LLC

2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

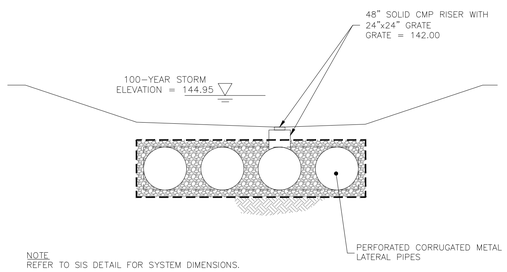
AS-NOTED

SHEET:

CONSTRUCTION DETAILS

29

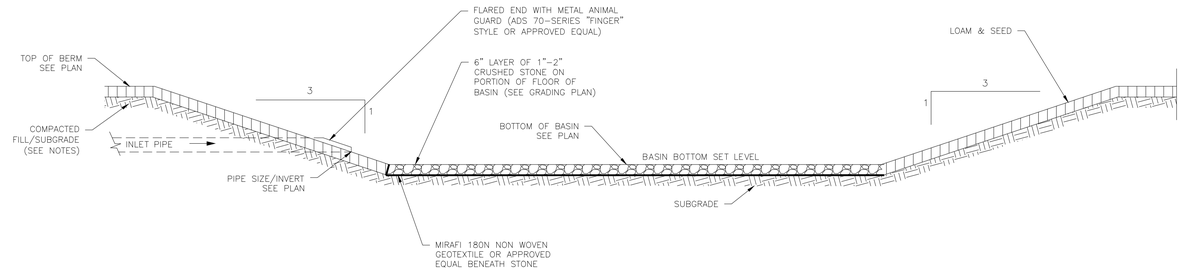
DATE: 03/11/2020



NOTE
REFER TO SIS DETAIL FOR SYSTEM DIMENSIONS.

SIS-6 SECTION A-A

NOT TO SCALE



NOTES

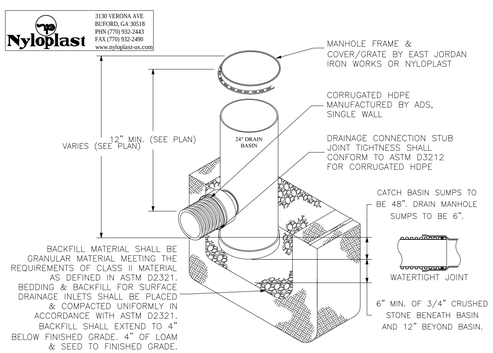
1. WITHIN THE FOOTPRINT OF THE INFILTRATION BASIN FLOOR, EXISTING TOPSOIL AND SUBSOIL SHALL BE REMOVED TO EXPOSE THE EXISTING SUBGRADE. THE AREA SHALL THEN BE BUILT UP TO PROPOSED SUBGRADE WITH MATERIAL MEETING THE FOLLOWING SPECIFICATION, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SIEVE	% PASSING
#4	100
#50	10–100
#100	0–20
#200	0–5

2. AFTER THE BASIN IS SHAPED, PLACE SOIL ADDITIVES ON THE BASIN SIDE SLOPES TO AMEND THE SOIL. THE SOIL ADDITIVES SHALL INCLUDE COMPOST, PROPERLY AGED TO KILL ANY SEED STOCK CONTAINED WITHIN THE COMPOST. DO NOT PUT BIOSOLIDS IN THE COMPOST. MIX NATIVE SOILS THAT WERE EXCAVATED FROM THE A OR B HORIZONS TO CREATE THE BASIN WITH THE COMPOST, AND THEN SCARIFY THE NATIVE MATERIALS AND COMPOST INTO THE PARENT MATERIAL USING A CHISEL PLOW OR ROTARY DEVICE TO A DEPTH OF 12 INCHES.
3. IMMEDIATELY AFTER CONSTRUCTING THE BASIN, STABILIZE ITS SIDE SLOPES WITH A DENSE TURF OF WATER-TOLERANT GRASS. USE LOW-MAINTENANCE, RAPIDLY GERMINATING GRASSES, SUCH AS FESCUES. THE SELECTED GRASSES MUST BE CAPABLE OF SURVIVING IN BOTH WET AND DRY CONDITIONS. DO NOT USE SOD, WHICH CAN PREVENT ROOTS FROM DIRECTLY CONTACTING THE UNDERLYING SOIL.
4. DURING THE FIRST TWO MONTHS, INSPECT THE NEWLY ESTABLISHED VEGETATION SEVERAL TIMES TO DETERMINE IF ANY REMEDIAL ACTIONS (E.G., RESEEDING, IRRIGATING) ARE NECESSARY.

BASIN 1 DETAIL

NOT TO SCALE



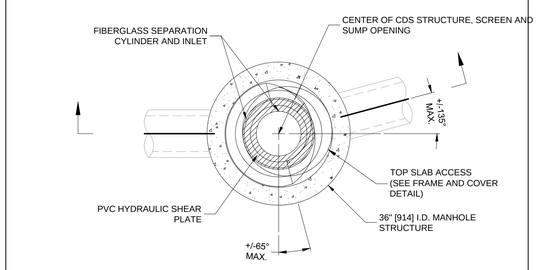
NYLOPLAST (NP) 24" MANHOLE OR YARD DRAIN

NOT TO SCALE

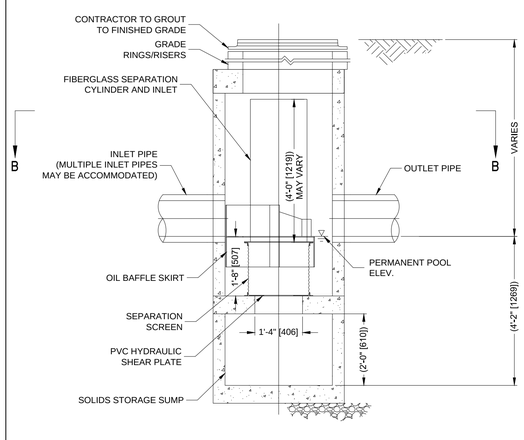
WQU STRUCTURE	MODEL
DMH-16	CONTECH CASCADE CS-6
DMH-17	CONTECH CDS 1515-3
DMH-21	CONTECH CDS 1515-3
DMH-26	CONTECH CDS 1515-3
DMH-35	CONTECH CASCADE CS-4
DMH-36	CONTECH CDS 1515-3
DMH-39	CONTECH CDS 1515-3
DMH-55	CONTECH CASCADE CS-4

WATER QUALITY UNIT (WQU) SCHEDULE

NOT TO SCALE



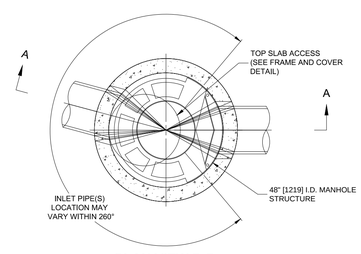
PLAN VIEW B-B
N.T.S.



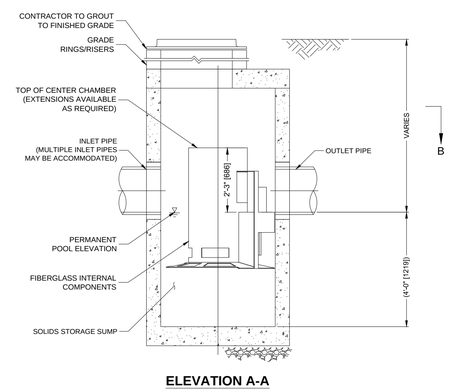
ELEVATION A-A
N.T.S.

CONTECH CDS1515-3 DETAIL

NOT TO SCALE



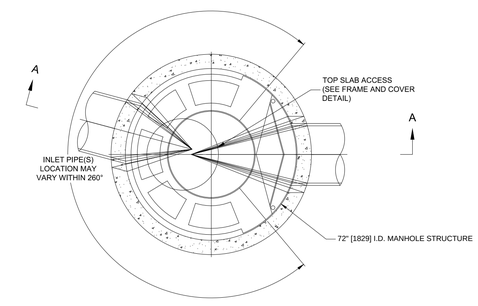
PLAN VIEW B-B
NOT TO SCALE



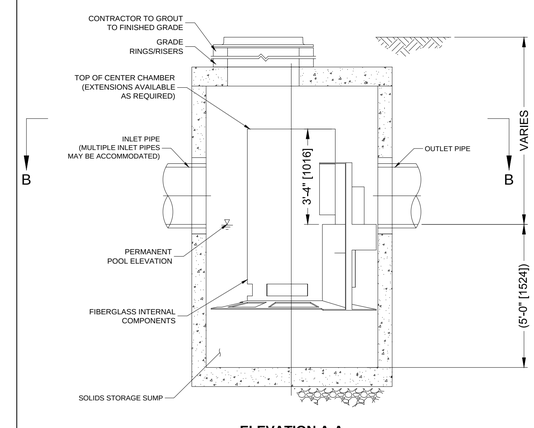
ELEVATION A-A
NOT TO SCALE

CONTECH CS-4 CASCADE SEPARATOR DETAIL

NOT TO SCALE



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CONTECH CS-6 CASCADE SEPARATOR DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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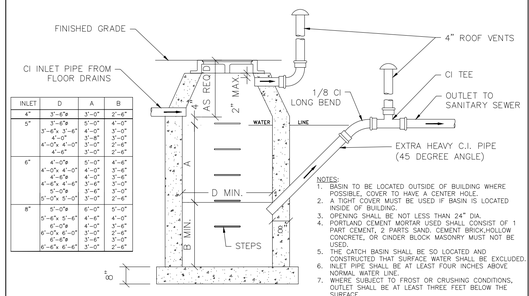
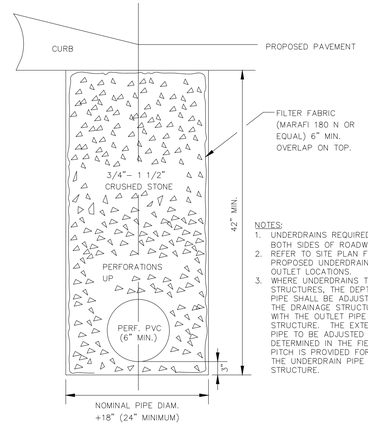


INLET	D	A	B
4"	3'-6"ø	3'-0"	2'-6"
5"	3'-6"ø	3'-0"	4'-0"
	3'-6"x 3'-6"	4'-0"	3'-0"
	4'-0"x 4'-0"	3'-0"	3'-0"
	4'-6"	3'-0"	2'-6"
6"	4'-0"ø	3'-0"	4'-6"
	4'-0"x 4'-0"	4'-0"	3'-6"
	4'-6"ø	3'-0"	3'-6"
	4'-6"x 4'-6"	3'-0"	3'-0"
	5'-0"ø	3'-6"	3'-0"
	5'-0"x 5'-0"	3'-6"	2'-6"
8"	5'-0"ø	6'-0"	3'-0"
	5'-6"x 5'-6"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

NOTES:
1. BASIN TO BE LOCATED OUTSIDE OF BUILDING WHERE POSSIBLE. COVER TO HAVE A CENTER HOLE.
2. A TIGHT COVER MUST BE USED IF BASIN IS LOCATED INSIDE OF BUILDING.
3. OPENING SHALL BE NOT LESS THAN 24" DIA.
4. PORTLAND CEMENT MORTAR USED SHALL CONSIST OF 1 PART CEMENT, 2 PARTS SAND. CEMENT BRICK,HOLLOW CONCRETE, OR CINDER BLOCK MASONRY MUST NOT BE USED.
5. THE CATCH BASIN SHALL BE SO LOCATED AND CONSTRUCTED THAT SURFACE WATER SHALL BE EXCLUDED.
6. INLET PIPE SHALL BE AT LEAST FOUR INCHES ABOVE NORMAL WATER LINE.
7. WHERE SUBJECT TO FROST OR CRUSHING CONDITIONS, OUTLET SHALL BE AT LEAST THREE FEET BELOW THE SURFACE.
8. THE NEW CATCH BASIN MUST BE FILLED WITH CLEAN WATER BEFORE USING, AND AFTER BEING EMPTIED FOR PERIODIC CLEANING.
9. ALUMINUM OR PLASTIC COATED WROUGHT IRON STEPS SHALL BE SPACED ABOUT 18" APART.
10. BOTH VENTS SHALL BE EXTENDED INDEPENDENTLY PER APPLICABLE CODE REQUIREMENTS.

GAS TRAP DETAIL

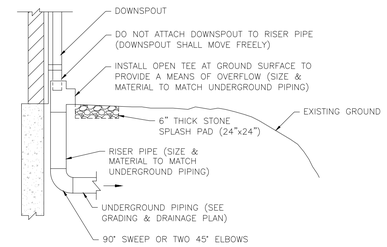
NOT TO SCALE



NOTES:
1. UNDERDRAINS REQUIRED IN CUTS ONLY (TYP. BOTH SIDES OF ROADWAY).
2. REFER TO SITE PLAN FOR LOCATIONS OF PROPOSED UNDERDRAIN AND PROPOSED OUTLET LOCATIONS.
3. WHERE UNDERDRAINS TIE INTO DRAINAGE STRUCTURES, THE DEPTH OF THE UNDERDRAIN PIPE SHALL BE ADJUSTED AS IT APPROACHES THE DRAINAGE STRUCTURE TO MATCH CROWNS WITH THE OUTLET PIPE OF THE DRAINAGE STRUCTURE. THE EXTENT OF THE UNDERDRAIN PIPE TO BE ADJUSTED IN DEPTH SHALL BE DETERMINED IN THE FIELD SUCH THAT POSITIVE PITCH IS PROVIDED FOR THE FULL LENGTH OF THE UNDERDRAIN PIPE TO THE DRAINAGE STRUCTURE.

TYPICAL ROADWAY SUBDRAIN DETAIL

NOT TO SCALE

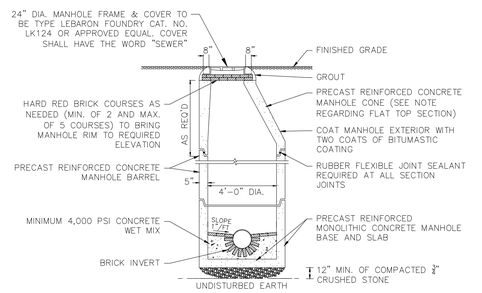


NOTE:

EACH BUILDING SHALL HAVE A MINIMUM OF ONE GUTTER DOWNSPOUT OVERFLOW ON EACH INDEPENDENT PIPE NETWORK. THE OVERFLOW SHALL BE INSTALLED ON THE DOWNSPOUT LOCATED AT THE LOWEST GROUND ELEVATION ALONG THE BUILDING WITHIN EACH PIPE NETWORK.

GUTTER DOWNSPOUT DETAIL

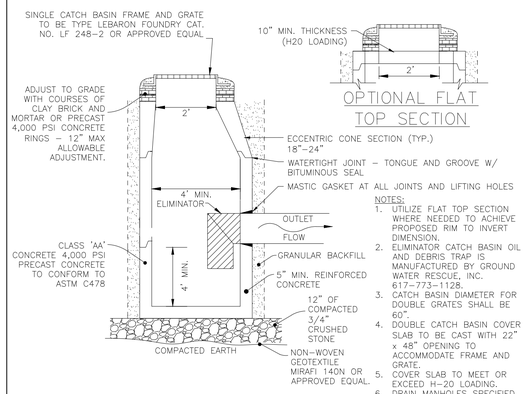
NOT TO SCALE



NOTES:
1. TYPICAL SANITARY MANHOLE TO BE 4 FEET IN DIAMETER.
2. 5'-0" DIAMETER FOR ALL MANHOLE DEPTHS GREATER THAN 12 FEET (6" MIN. WALL THICKNESS AND 7" MIN. BASE THICKNESS FOR 5'-0" DIAMETER MANHOLES).
3. UTILIZE FLAT TOP SECTION IF NEEDED FOR SHALLOW INSTALLATION.
4. INNER EDGE OF BRICK TABLE TO BE AT ELEVATION OF CROWN OF TOP OF PIPE.
5. DESIGN LOAD – HS20.
6. ALL INVERTS SHALL BE 4,000 PSI CEMENT CONCRETE IN VOID AREAS AND RED SEWER BRICK CONSTRUCTION.
7. ALL INVERTS SHALL BE BUILT IN PLACE AFTER ALL PIPES HAVE BEEN INSTALLED.
8. FILL ALL LIFTING HOLES WITH NON-SHRINK GROUT AFTER INSTALLATION.

TYPICAL SEWER MANHOLE DETAIL

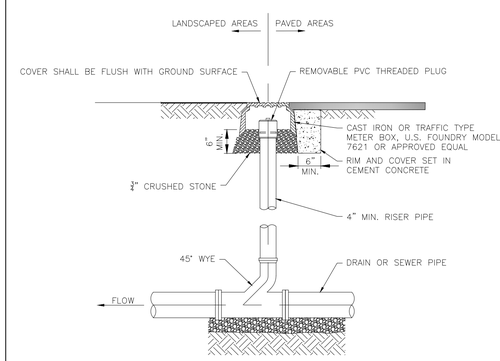
NOT TO SCALE



NOTES:
1. UTILIZE FLAT TOP SECTION WHERE NEEDED TO ACHIEVE PROPOSED RIM TO INVERT DIMENSION.
2. ELIMINATOR CATCH BASIN OIL AND DEBRIS TRAP IS MANUFACTURED BY GROUND WATER RESCUE, INC. 617-773-1128.
3. CATCH BASIN DIAMETER FOR DOUBLE GRATES SHALL BE 60".
4. DOUBLE CATCH BASIN COVER SLAB TO BE CAST WITH 22" x 48" OPENING TO ACCOMMODATE FRAME AND GRATE.
5. COVER SLAB TO MEET OR EXCEED H-20 LOADING.
6. DRAIN MANHOLES SPECIFIED FOR DEEP SUMPS ON THE PLAN SHALL USE THIS DETAIL EXCEPT FOR THE FRAME AND COVER.

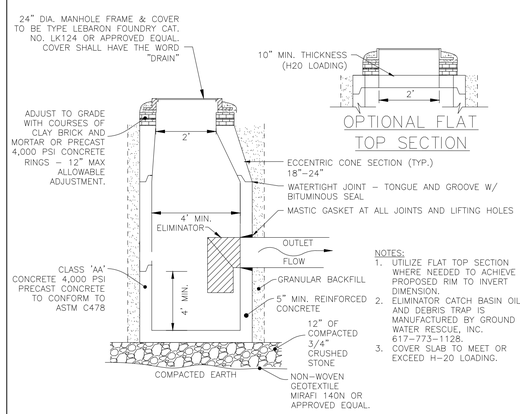
TYPICAL CATCH BASIN DETAIL

NOT TO SCALE



TYPICAL CLEANOUT DETAIL

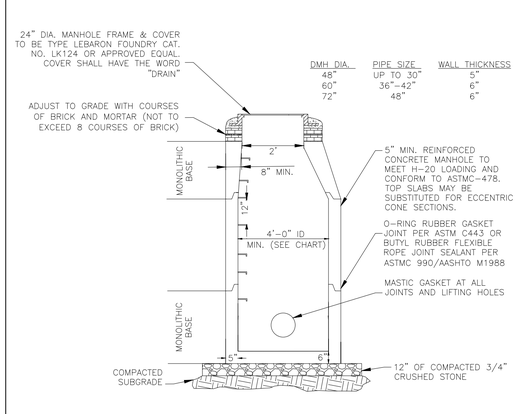
NOT TO SCALE



NOTES:
1. UTILIZE FLAT TOP SECTION WHERE NEEDED TO ACHIEVE PROPOSED RIM TO INVERT DIMENSION.
2. ELIMINATOR CATCH BASIN OIL AND DEBRIS TRAP IS MANUFACTURED BY GROUND WATER RESCUE, INC. 617-773-1128.
3. COVER SLAB TO MEET OR EXCEED H-20 LOADING.

TYPICAL DEEP SUMP MANHOLE DETAIL

NOT TO SCALE



TYPICAL DRAIN MANHOLE DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

REVISIONS:

REV	DATE	COMMENT
1	07/08/20	UPDATED PER PLANNING BOARD COMMENTS
2		
3		
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5		
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8		
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10		

PLANNING BOARD:

SEAL:

COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

PREPARED BY:

CIVIL DESIGN GROUP, LLC

21 HIGH STREET, SUITE 207
NORTH ANDOVER, MA 01845
www.cdgengineering.com
p: 978-794-5400 f: 978-965-3971

PREPARED FOR:

QUARRY NORTH ROAD LLC

2134 SEVILLA WAY
NAPLES, FL 34109

PROJECT:

COLD BROOK CROSSING

NORTH ROAD
SUDBURY, MASSACHUSETTS

SCALE:

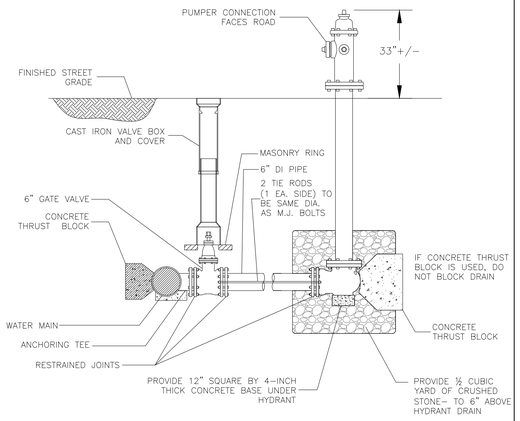
AS-NOTED

SHEET:

CONSTRUCTION DETAILS

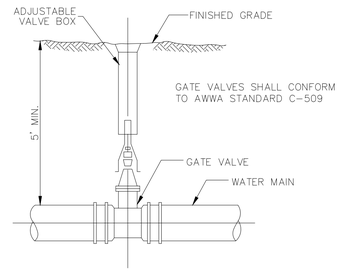
31

DATE: 03/11/2020



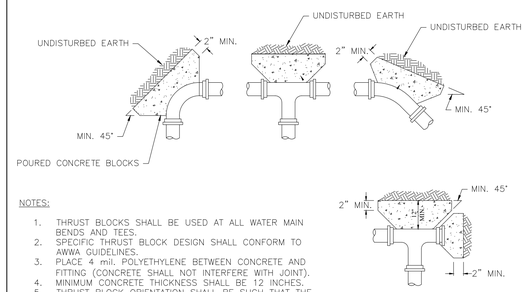
FIRE HYDRANT DETAIL

NOT TO SCALE



TYPICAL GATE VALVE DETAIL

NOT TO SCALE

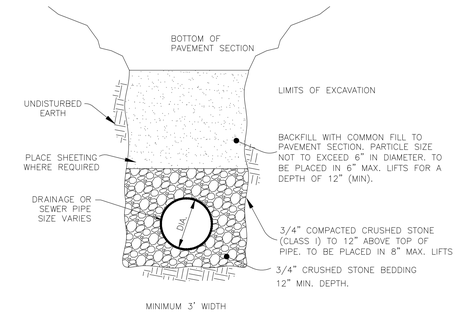


NOTES:

1. THRUST BLOCKS SHALL BE USED AT ALL WATER MAIN BENDS AND TEES.
2. SPECIFIC THRUST BLOCK DESIGN SHALL CONFORM TO AWWA GUIDELINES.
3. PLACE 4 mil. POLYETHYLENE BETWEEN CONCRETE AND FITTING (CONCRETE SHALL NOT INTERFERE WITH JOINT).
4. MINIMUM CONCRETE THICKNESS SHALL BE 12 INCHES.
5. THRUST BLOCK ORIENTATION SHALL BE SUCH THAT THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
6. THE MINIMUM ALLOWABLE ANGLE (EITHER VERTICAL OR HORIZONTAL) SHALL BE 45 DEGREES.

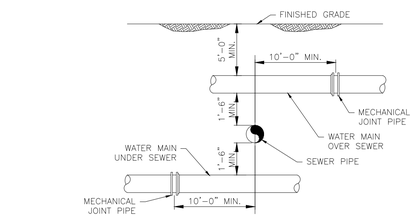
TYPICAL THRUST BLOCK DETAIL

NOT TO SCALE



TYPICAL DRAIN & SEWER TRENCH DETAIL

NOT TO SCALE

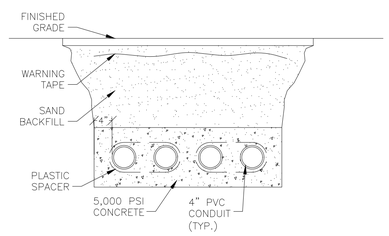


NOTES:

1. SEWERS SHALL BE KEPT REMOTE FROM WATER SUPPLY PIPING AND STRUCTURES. WHEREVER FEASIBLE, SEWERS SHOULD BE LAID AT A MINIMUM HORIZONTAL DISTANCE OF 10 FEET FROM WATER MAINS. IF LOCAL CONDITIONS PREVENT THIS, THE WATER MAIN SHOULD BE LAID IN A SEPARATE TRENCH, AND THE ELEVATIONS OF THE CROWN OF THE SEWER PLACED AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN.
2. WHENEVER SEWERS MUST CROSS UNDER WATER MAINS, THE CROWN OF THE SEWER SHOULD BE PLACED A MINIMUM OF 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IN ADDITION, THE WATER MAIN MUST BE CONSTRUCTED WITH ONE FULL LENGTH OF PIPE CENTERED ABOVE THE CROSSING. THE WATER PIPE SHALL HAVE MECHANICAL JOINTS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING.
3. WHEN IT IS IMPOSSIBLE TO OBTAIN HORIZONTAL OR VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER AND THE SEWER PIPING SHALL BE CONSTRUCTED SUCH THAT THE PIPE JOINTS ARE PLACED AS FAR AWAY FROM THE CROSSING AS POSSIBLE AND THE PIPE CROSSING SHALL BE ENCASED IN CONCRETE FOR A DISTANCE OF 10 FEET ON ALL SIDES OF THE CROSSING.

WATER/SEWER CROSSING DETAIL

NOT TO SCALE



NOTES:

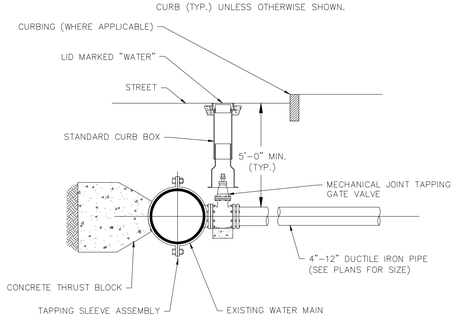
1. DUCT BANK TO BE CONSTRUCTED PER UTILITY COMPANY STANDARDS IF DIFFERENT THAN THIS DETAIL.

TYPICAL ELECTRICAL/TELEPHONE/CABLE DUCT BANK DETAIL

NOT TO SCALE

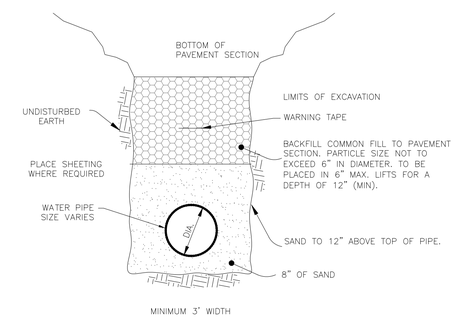
NOTES:

1. EXTENSION TYPE VALVE BOX TO BE MUELLER MODEL NO. H-10336 OR APPROVED EQUAL.
2. VALVE BOX TO CONFORM TO THE LOCAL MUNICIPALITY OR UTILITY COMPANY SPECIFICATIONS.
3. VALVE BOX TO BE LOCATED 18" OFF OF BACK OF CURB (TYP.) UNLESS OTHERWISE SHOWN.



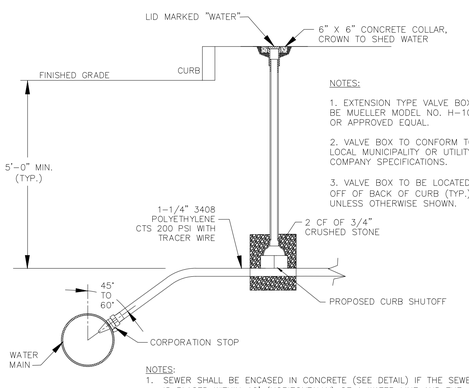
TAPPING SLEEVE CONNECTION DETAIL

NOT TO SCALE



TYPICAL WATER TRENCH DETAIL

NOT TO SCALE



NOTES:

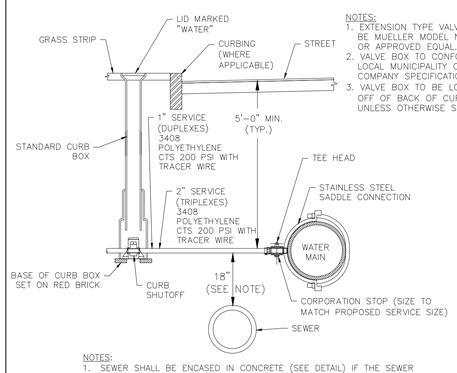
1. EXTENSION TYPE VALVE BOX TO BE MUELLER MODEL NO. H-10336 OR APPROVED EQUAL.
2. VALVE BOX TO CONFORM TO THE LOCAL MUNICIPALITY OR UTILITY COMPANY SPECIFICATIONS.
3. VALVE BOX TO BE LOCATED 18" OFF OF BACK OF CURB (TYP.) UNLESS OTHERWISE SHOWN.

NOTES:

1. SEWER SHALL BE ENCASED IN CONCRETE (SEE DETAIL) IF THE SEWER IS PLACED WITHIN 10' (HORIZONTALLY) OF A WATER LINE AND THE SEWER IS EITHER ABOVE OR WITHIN 18" BELOW THE WATER LINE.

CLUBHOUSE WATER SERVICE CONNECTION DETAIL

NOT TO SCALE



NOTES:

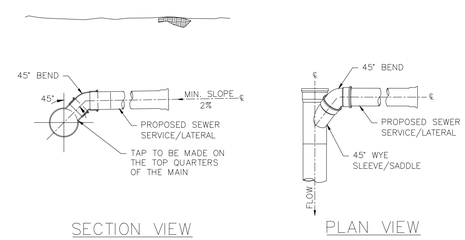
1. EXTENSION TYPE VALVE BOX TO BE MUELLER MODEL NO. H-10336 OR APPROVED EQUAL.
2. VALVE BOX TO CONFORM TO THE LOCAL MUNICIPALITY OR UTILITY COMPANY SPECIFICATIONS.
3. VALVE BOX TO BE LOCATED 18" OFF OF BACK OF CURB (TYP.) UNLESS OTHERWISE SHOWN.

NOTES:

1. SEWER SHALL BE ENCASED IN CONCRETE (SEE DETAIL) IF THE SEWER IS PLACED WITHIN 10' (HORIZONTALLY) OF A WATER LINE AND THE SEWER IS EITHER ABOVE OR WITHIN 18" BELOW THE WATER LINE.

TYPICAL TOWNHOME WATER SERVICE CONNECTION DETAIL

NOT TO SCALE



SECTION VIEW

NOT TO SCALE

PLAN VIEW

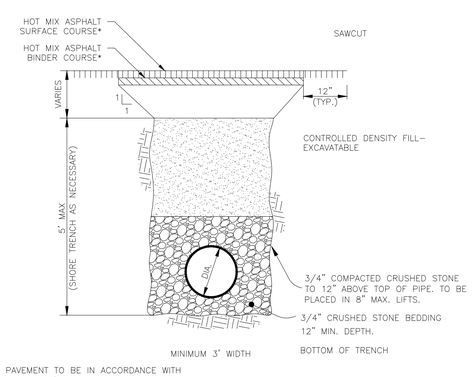
NOT TO SCALE

NOTES:

1. SEWER SERVICES SHALL BE 6" SDR-35 PVC UNLESS OTHERWISE NOTED ON THE PLAN. THE CONTRACTOR SHALL CONFIRM THE PIPE SIZE AND MATERIAL WITH THE MUNICIPALITY PRIOR TO INSTALLATION.
2. SEWER TAP AND LATERAL SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE MUNICIPAL REQUIREMENTS AND/OR STANDARDS.
3. SEWER LATERAL SHALL BE PITCHED AT 2.0% MINIMUM SLOPE UNLESS OTHERWISE INDICATED OR UNLESS OTHERWISE REQUIRED BY THE MUNICIPALITY.

TYPICAL SEWER SERVICE CONNECTION DETAIL

NOT TO SCALE



* PAVEMENT TO BE IN ACCORDANCE WITH MUNICIPAL/STATE STREET STANDARDS

UTILITY TRENCH DETAIL IN EXISTING PAVEMENT TO REMAIN

NOT TO SCALE

NOT FOR CONSTRUCTION

CDG PROJECT #: 19044 & 19045

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SEAL:

COMMONWEALTH OF MASSACHUSETTS
MATTHEW A. LEIDNER
CIVIL
No. 45641
REGISTERED PROFESSIONAL ENGINEER

MATTHEW A. LEIDNER, P.E.

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CONSTRUCTION DETAILS

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DATE: 03/11/2020