



TOWN OF MILFORD, NEW HAMPSHIRE
OFFICE OF COMMUNITY DEVELOPMENT

1 UNION SQUARE, MILFORD, NH 03055

TEL: (603)249-0620

WEB: WWW.MILFORD.NH.GOV

STAFF MEMO

Date: February 8, 2021
To: Town of Milford Planning Board
From: Jason Cleghorn, Town Planner
Subject: **SP2021-04 Crosby Townhomes, Kling/Mengyuan Property Management, 159 Elm Street, Map 19, Lot 5.** Public Hearing for a major site plan application to construct a six (6) unit townhouse, multi-family residential project with related parking, drainage/stormwater management, landscaping, and lighting improvements.

BACKGROUND:

The applicant is presenting the formal major site plan application to the Planning Board. They were last before the Board in July 2019 for a conceptual discussion. The project includes the construction of six-unit townhome building with additional parking spaces, enlarged drainage system and stormwater management system, and related landscaping and site lighting plans. The applicant previously applied for and received a variance for a slight density increase to permit the sixth unit as the property's acreage fell just short of permitting that many units by right. A previous multi-family building existed on the property but was razed in anticipation of this project. This application was continued from the March 16, 2021 Planning Board Meeting.

ADDRESS:

159 Elm Street, Map 19 Lot 5.

EXISTING USE:

The property is currently vacant and a prior multi-family residential building on the parcel was previously razed.

LOT AREA:

Lot 19-5: ±1.19 Acres (51,836 sf)

APPLICATION STATUS:

The application is complete and ready to be accepted. The Board will need to make a determination of regional impact.

NOTICES:

Notices were sent to all property abutters on February 24, 2021.

ZONING DISTRICT/INFORMATION:

The subject property is within the Commercial "C" Zoning District: The intent of the Commercial "C" District is to provide areas for those businesses, institutional, financial, governmental and compatible residential uses which constitute the commercial requirements of the Town. Multi-family residential is permitted in Zoning Ordinance § 5.05.1 Acceptable Uses provided that the residential use follows the Residential "B" zoning related conditions.

The property also falls within the Nashua and Elm Street Corridor District and is subject to the relevant design and performance standards therein. The intent of this District is to foster the traditional character of Milford's neighborhoods by encouraging a human scale of development that is similar in setbacks, size and height, and that is comfortable and safe for pedestrians and non-motorized vehicles while allowing for an efficient and safe roadway network.

EXISTING CONDITIONS:

The subject property, Tax Map 19, Lot 5 is a 1.19 acre parcel located northwest of the Elm Street (NH 101-A) and West Street intersection. The parcel is abutted by the Brookstone Manor residential apartment complex to the north, existing commercial and residential uses along Elm St. to the south, a converted single-family residence currently housing office uses to the west, and a Wendy’s fast food restaurant to the east. The property is serviced by Town municipal water and sewer.

TRAFFIC AND ACCESS MANAGEMENT:

Vehicular ingress and egress to the property will be from an access point (24’ driveway) along Elm St. at the southeast corner of the site. There will also be an emergency vehicle pull-off area at the central point of the frontage along Elm St. Original concerns about emergency vehicles being able to traverse around the site have been mitigated by the fact that the building will be sprinkled, thus eliminating the need for those vehicles to gain 360-degree access around the site.

OPEN SPACE/LANDSCAPING:

The site plan includes a landscape plan which exceeds the town’s requirements for landscaping for trees and shrubs. The proposed development has approximately ~65.5% open space.

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
GT	3	GLEDITSIA TRIANCANTHOS INERMIS	THORNLESS HONEYLOCUST	2-1/2" TO 3-1/2" CALIPER
PC	2	PRUNUS CERASIFERA	THUNDERCLOUD PLUM	2-1/2" TO 3-1/2" CALIPER
PN	4	PINUS NIGRA	AUSTRIAN PINE	6' – 7'
SR	5	SYRINGA RETICULATA	JAPANESE TREE LILAC	2-1/2" TO 3-1/2" CALIPER
TO	11	THUJA OCCIDENTALIS	DARK AMERICAN ARBORVITAE	6' TO 7'
AW	6	AZALEA	DELAWARE VALLEY WHITE	2' TO 3"
CAP	4	COTONEASTER ADPRESSA	EARLY COTONEASTER	15" TO 18"
JS	6	JUNIPERUS CHINENSIS	SEAGREEN JUNIPER	2 – 3'
PJM	6	RHODODENDRON	PJM RHODODENDRON	2 – 3'
RS	6	RHODOENDRON	SCINTILATION RHODODENDRON	2 – 3'

DRAINAGE:

Although the project is not located within the 100-year flood plain as shown on the Flood Insurance Rate Map Number 330096, dated September 25, 2009, the property falls within the Milford Groundwater Protection Zone 1 Overlay.

The applicant states that stormwater runoff will be collected and treated by a .06 acre detention pond with a forebay for pre-treatment. The system was designed to the 25-year/24-hour storm event for pre vs. post runoff rates and volumes. Drainage conditions after the proposed construction should reduce the discharge volume and rate compared to prior conditions.

The applicant has submitted the local stormwater permit application.

PARKING:

Proposed parking on site meets and/or exceeds the minimum requirements set forth in Section 6.05.4 Table of Off-Street Parking. The site plan and development contemplates a combination of parking below the townhomes (two spaces for each unit) as well as an area in the rear of the site between the units themselves and the detention pond to be used for parking.

LIGHTING PLAN:

The applicant indicates that lighting typically associated with residential properties will be utilized on or near the building/units.

BUILDING ELEVATIONS:

Staff finds that the building meets the requirements of the Development Regulations and the performance standards found within the Commercial zoning district of the Zoning Ordinance. Staff has requested elevations for the other three sides of the building as part of its final review of the plan.

INTERDEPARTMENTAL REVIEWS:

Ambulance: There is concern relative to a need for ambulance movement – turning around; the ambulances are 22-foot in length, in the back of the building, specifically the width of the driveway when cars are parked in all of the parking spots. This combined with the snow plowing and if removal is planned - for plowed snow accumulation, may not provide sufficient space for an ambulance to pull in and turnaround in the rear of the building.

Assessing:

Building Department:

Conservation Commission:

Fire Department: No comment: The building is designed to be sprinkled.

Heritage Commission:

Police Department:

SoRLAC: N/A

Water Utilities:

Zoning Administrator:

Stormwater:

Planning Department:

Comments and recommendations provide an overview of areas needed to be addressed at the Public Hearing or shown as part of the application:

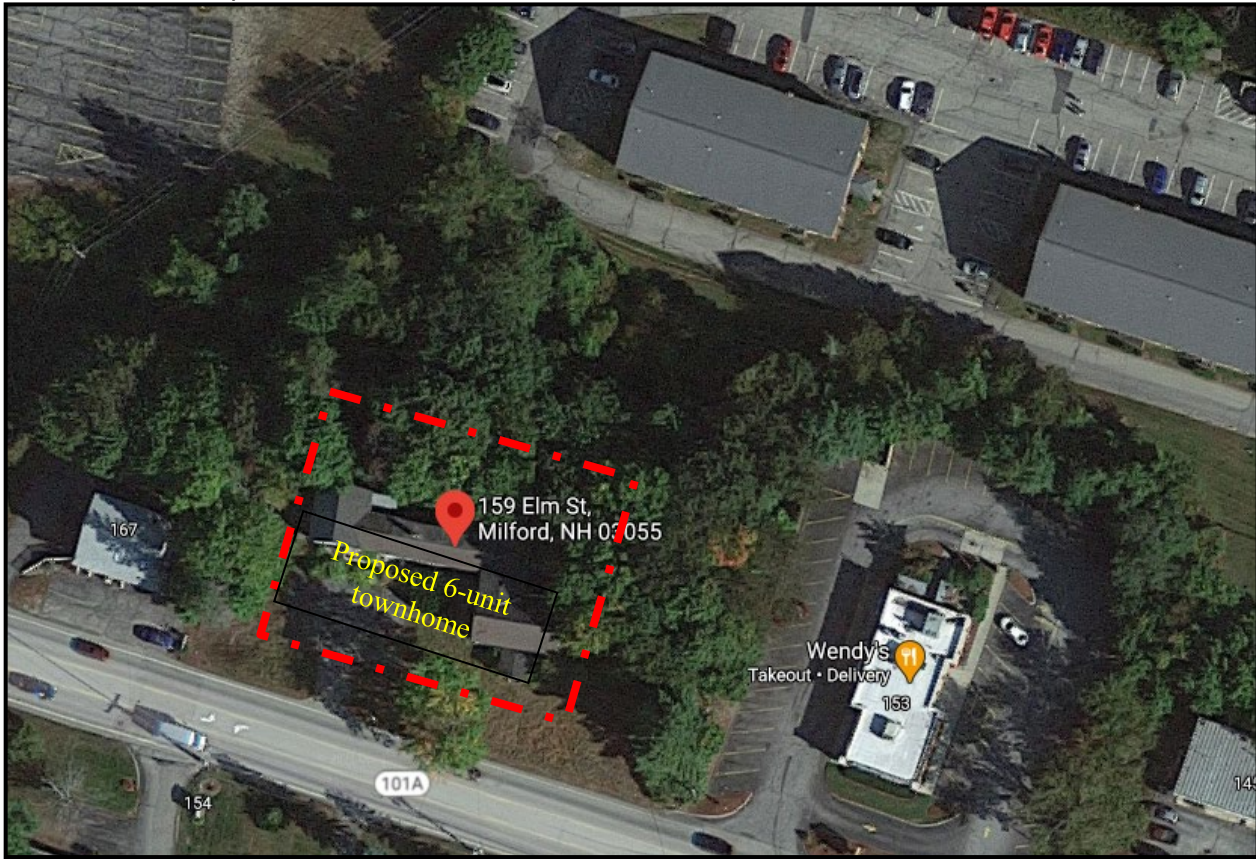
1. Elevations: Per § 6.04.2 of the Development Regulations, plans shall show all building elevations. The submitted elevation is only 1 view of 4. Please include the other three elevation views. While the parking is located in the rear of the building, the Town would still like to see these additional elevations. Staff may have additional comments pending the receipt of these elevations.
2. General Comment. Final approval should be conditional upon written confirmation of approvals for the local Stormwater Permit from the Town of Milford.

STAFF RECOMMENDATIONS:

The applicant should be prepared to address all of the comments raised by the Planning Board, Conservation Commission, Town Consultants, Staff, and public pertaining to the Site Plan Final Design and revise the plans/information accordingly. Staff finds that the majority of comments and recommendations by staff involve plan revisions that could be managed administratively prior to Board signature. Barring any/all input and recommendations from the Board, Staff recommends approving the application subject to the following conditions:

1. The Applicant shall submit any/all revised plans, reports, and associated information referenced in the Staff memo dated February 8, 2021 to the Community Development Office for review and approval by the Town and its agents.

Aerial of 159 Elm Street, Map 19 Lot 5



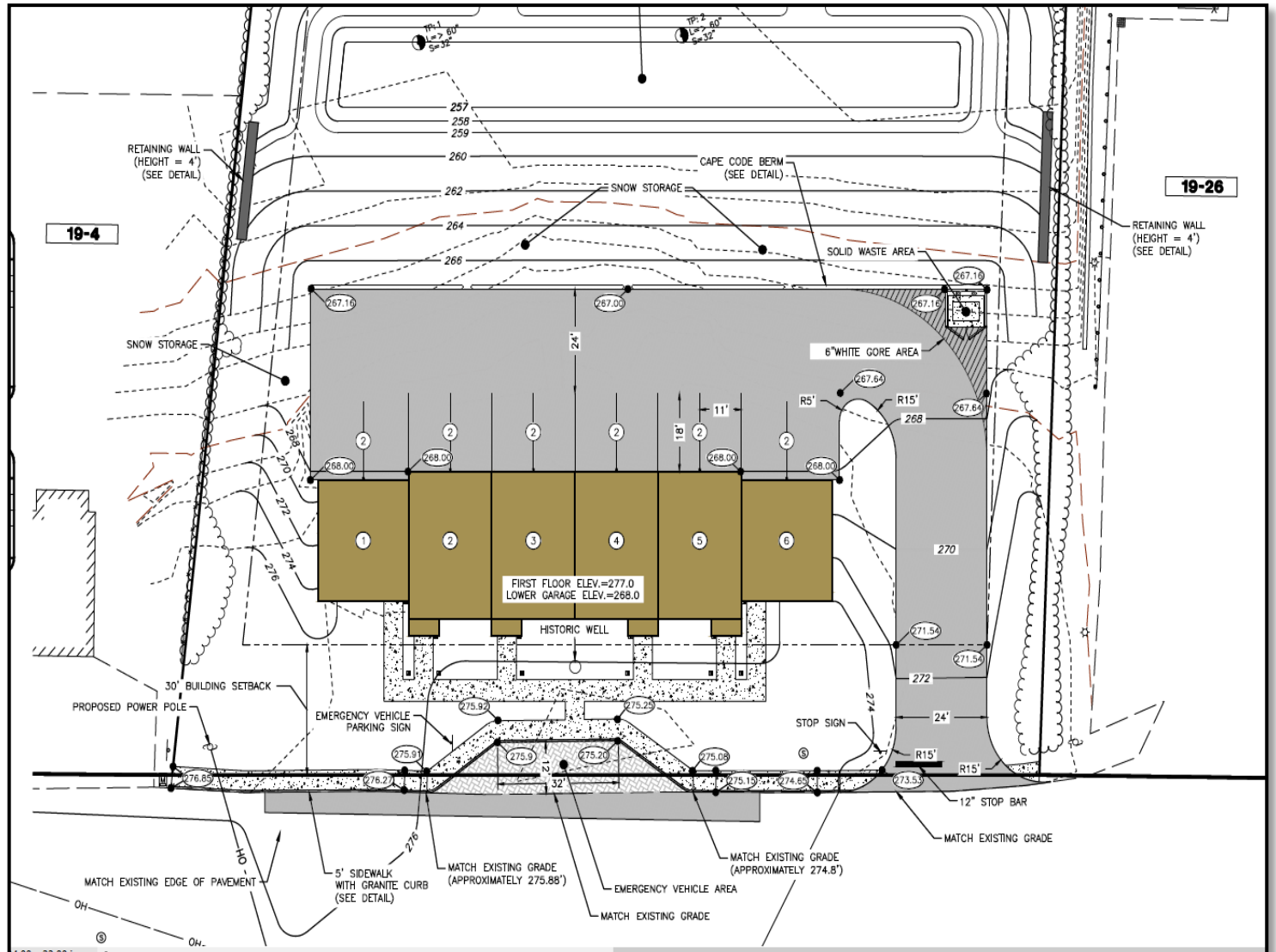
Existing (former) Conditions (has been demolished at this time)



Proposed Elevation from Elm St. looking north



Site Plan



CROSBY TOWNHOUSES

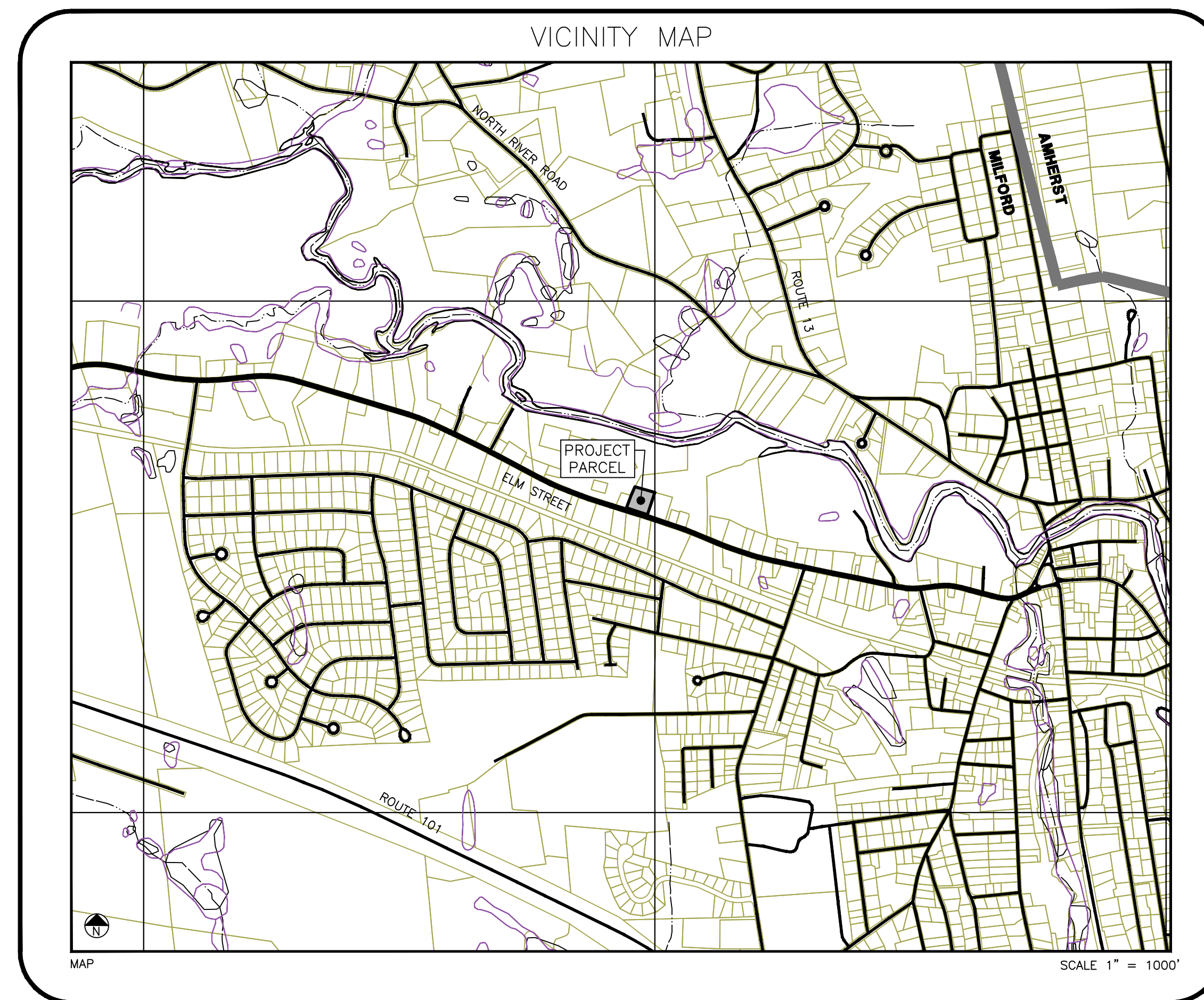
TAX MAP 19 LOT 5

MILFORD, NEW HAMPSHIRE


MARCH 31, 2021

PROJECT INFORMATION	
ZONING DISTRICT	COMMERCIAL
OVERLAY DISTRICT	NASHUA ELM ST OVERLAY DISTRICT
TAX MAP & LOT	19-5
SITE PERMIT NUMBER	TBD

UTILITY PROVIDERS		
WATER & SEWER	ELECTRIC	FIRE DISTRICT
MILFORD WATER SERVICES 564 NASHUA ST. MILFORD, NH 03055 603-249-0660	EVERSOROUCE 370 AMHERST ST NASHUA, NH 03063 800-662-7764	MILFORD FIRE DEPARTMENT 39 SCHOOL STREET MILFORD, NH 03055 603-249-0680
	GAS	
	LIBERTY UTILITIES 15 BUTTRICK RD LONDONDERRY, NH 03053 800-833-4200	



SHEET INDEX	
NO.	DESCRIPTION
1	COVER SHEET, VICINITY MAP AND SHEET INDEX
2	DEMOLITION AND CLEARING PLAN
3	SITE LAYOUT, PAVING, SIGNAGE AND MARKING
4	DRAINAGE AND UTILITY PLAN
5	SEWER PLAN AND PROFILES
6-8	PAVING, DRAINAGE AND UTILITY DETAILS
9	EROSION CONTROL PLAN
10	LANDSCAPE PLAN



MERIDIAN
LAND SERVICES, INC.
ENGINEERING | SURVEYING | PERMITTING
SOIL & WETLAND MAPPING | SEPTIC DESIGN
31 OLD NASHUA ROAD, AMHERST, NH 03031 TEL. 603-673-1441
MERIDIANLANDSERVICES.COM FAX 603-673-1584

FILE:10839100.dwg	PROJECT NO. 10839.00	SHEET NO. 1 OF 10
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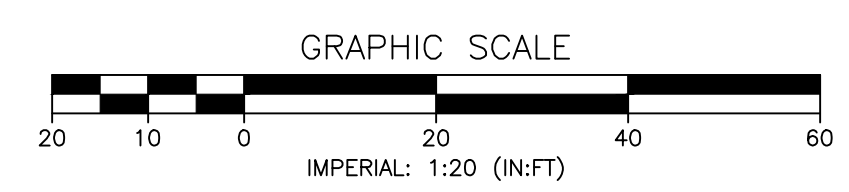
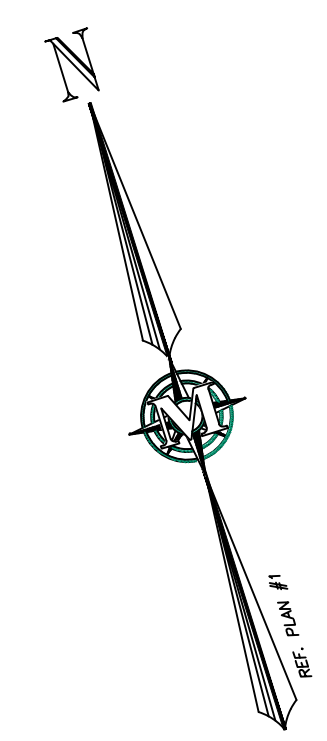
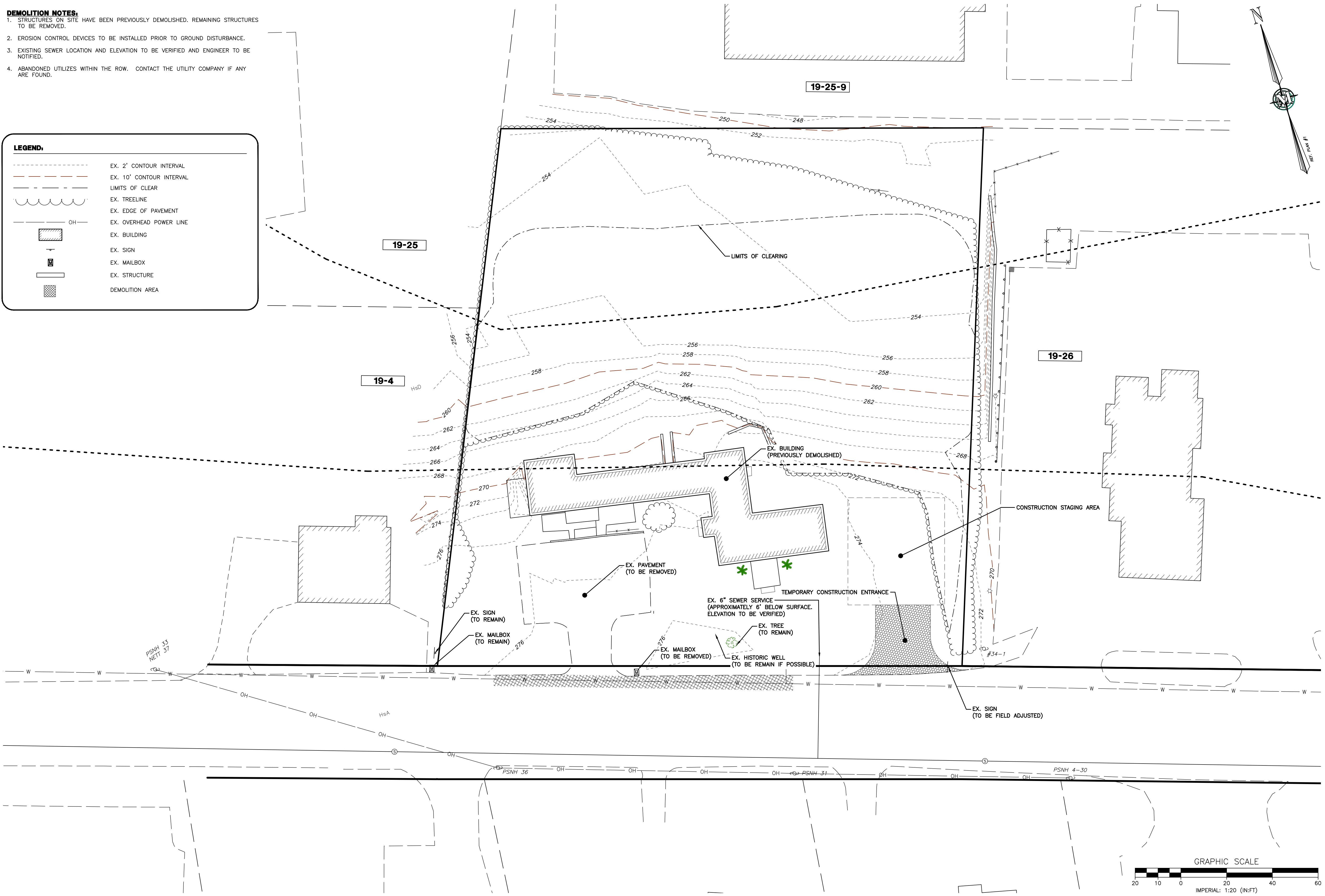
OWNER'S SIGNATURE _____

REV.	DATE	DESCRIPTION	DR	CK
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H	---	---	---	---
G	---	---	---	---
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E	---	---	---	---
D	---	---	---	---
C	---	---	---	---
B	3/31/2021	WATER UTILITY REVISION	SRF	SRF
A	3/17/21	REV FOR COMMENTS DATED 3/10/21	SRF	SRF

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- DEMOLITION NOTES:**
- STRUCTURES ON SITE HAVE BEEN PREVIOUSLY DEMOLISHED. REMAINING STRUCTURES TO BE REMOVED.
 - EROSION CONTROL DEVICES TO BE INSTALLED PRIOR TO GROUND DISTURBANCE.
 - EXISTING SEWER LOCATION AND ELEVATION TO BE VERIFIED AND ENGINEER TO BE NOTIFIED.
 - ABANDONED UTILITIES WITHIN THE ROW. CONTACT THE UTILITY COMPANY IF ANY ARE FOUND.

- LEGEND:**
- EX. 2' CONTOUR INTERVAL
 - EX. 10' CONTOUR INTERVAL
 - - - - - LIMITS OF CLEAR
 - EX. TREE LINE
 - EX. EDGE OF PAVEMENT
 - OH --- EX. OVERHEAD POWER LINE
 - ▨ EX. BUILDING
 - ⊕ EX. SIGN
 - ☐ EX. MAILBOX
 - ▭ EX. STRUCTURE
 - ▨ DEMOLITION AREA



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CROSBY TOWNHOUSES
 SITE PLAN
 EXISTING CONDITIONS AND
 DEMOLITION PLAN

MENGYUAN PROPERTY
 MANAGEMENT, LLC
 159 ELM STREET
 MAP 19 LOT 5
 MILFORD, NEW HAMPSHIRE

SP-1
 SHEET

FILE: 10839100.dwg
 PROJECT: 10839.00
 SHEET NO. 2 OF 10

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REFERENCE PLANS:

- "SUBDIVISION-CONSOLIDATION PLAN - PREPARED FOR: - BIRCHTREE ASSOCIATES - MILFORD, N.H." SCALE: 1"=100' DATED MAY 18, 1984. PREPARED BY THOMAS F. MORAN INC. AND RECORDED AT H.C.R.D. AS PLAN #16910.

GENERAL DEVELOPMENT NOTES:

- THE APPLICANT INTENDS TO CONSTRUCT SIX (6) TOWNHOUSES STYLE CONDOMINIUM ON MAP 19 LOT 5.
- IMPACT FEES ARE TO BE PAID IN ACCORDANCE WITH THE TOWN OF MILFORD DEVELOPMENT REGULATION 5.04 FF. IMPACT FEE AMOUNT TO BE FOUND IN THE MILFORD BUILDING DEPARTMENT UTILITY AND IMPACT FEE SCHEDULE.
- ALL CONTRACTORS AND SUB-CONTRACTORS SHALL MAINTAIN THEIR WORK AND THE SITE RELATIVE TO THEIR WORK IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND ALL REQUIREMENTS OF THE PROJECT N.P.D.E.S. PERMIT.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO DEWATER IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL PERMITTING REQUIREMENTS.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF TOWN OF MILFORD ZONING ORDINANCES AND SITE REGULATIONS.
- THE CONTRACTOR SHALL RETAIN ON THE WORK SITE AT ALL TIMES COPIES OF ALL PERMITS NECESSARY FOR ANY CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AND CONTACT ALL UTILITY COMPANIES FOR LOCATIONS OF EXISTING UTILITIES IN THE AREA 72 HOURS (MINIMUM) PRIOR TO COMMENCING CONSTRUCTION.
- THE LOCATION OF EXISTING UTILITIES, SIDEWALKS, PAVEMENT, VEGETATION AND MISCELLANEOUS IMPROVEMENTS ARE APPROXIMATE. THE EXACT FIELD LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO COMMENCING ANY CONSTRUCTION.
- ANY PUBLIC LAND CORNER WITHIN LIMITS OF CONSTRUCTION IS TO BE PROTECTED. ANY LAND CORNER MONUMENT IN DANGER OF BEING DESTROYED MUST BE PROPERLY REFERENCED BY THE CONTRACTOR.
- EXISTING IMPROVEMENTS SHALL BE RESTORED TO A CONDITION EQUIVALENT TO THAT WHICH EXISTED PRIOR TO COMMENCING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DEVIATION IN PLAN INFORMATION SHALL BE REPORTED TO THE ENGINEER AND OWNER'S REPRESENTATIVE IMMEDIATELY.
- CONTRACTOR IS REQUIRED TO OBTAIN FROM THE ENGINEER WRITTEN APPROVAL FOR ANY DEVIATIONS FROM THE PLANS AND/OR SPECIFICATIONS.
- UNDERGROUND CONTRACTOR SHALL MINIMIZE THE WORK AREA AND WIDTH OF ALL TRENCHES TO AVOID DISTURBANCES OF NATURAL VEGETATION. SPOIL FROM TRENCHES SHALL BE PLACED ONLY ON PREVIOUSLY CLEARED AREAS OR AS DIRECTED BY THE OWNER. CONTRACTOR SHALL NOT REMOVE OR DISTURB ANY TREES AND/OR SHRUBS WITHOUT PRIOR APPROVAL OF THE OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH NEW HAMPSHIRE MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS. TRAFFIC CONTROL OPERATION PROCEDURES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO THE BEGINNING OF CONSTRUCTION.
- WATER, SEWER, ROAD (INCLUDING PARKING LOT) AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF MILFORD'S WATER UTILITIES DEPARTMENT AND PUBLIC WORKS DEPARTMENT STANDARDS.
- AS-BUILT PLANS SHALL BE DELIVERED TO THE BUILDING DEPARTMENT PRIOR TO A CERTIFICATE OF OCCUPANCY BEING ISSUED.
- GROUNDWATER PROTECTION DISTRICT LEVEL 1 PROTECTION AREA.
- SNOW SHALL BE STORED ONSITE IN THE AREAS DESIGNATED ON THE DRAWINGS. EXCESS SNOW SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. SNOW REMOVAL SERVICES SHALL BE MANAGED BY A CERTIFIED GREEN PRO REMOVAL SERVICE AND THE COMPANY SHALL FOLLOW ALL APPLICABLE BMPs.

SIGNAGE AND MARKING NOTES:

- ALL SIGNING SHALL BE IN ACCORDANCE WITH THE N.H.D.O.T. STANDARDS.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE N.H.D.O.T. STANDARDS.
- ALL STOP SIGN LOCATIONS SHALL INCLUDE A 24" PAINTED WHITE STOP BAR UNLESS NOTED OTHERWISE.
- ALL SIGNING, PAVEMENT MARKINGS, STREET NAME SIGNS, ETC. ARE TO BE INCLUDED IN THE LUMP SUM PRICE FOR SIGNING AND MARKING.
- THE CONTRACTOR SHALL COMPLY WITH THE STATE OF NEW HAMPSHIRE TRAFFIC CONTROL.
- THERE IS NO SIGN PROPOSED. IF A SIGN IS PROPOSED AT A LATER DATE THE SIGN MUST COMPLY WITH THE TOWN OF MILFORD 7.06.0 SIGN ORDINANCE

SITE LIGHTING NOTES:

- LIGHTING SHALL BE WALL MOUNTED LIGHTS WITH NO FOOT CANDLES SPILLING OVER THE PROPERTY LINE.

SITE DEVELOPMENT REGULATIONS

	REQUIRED	PROVIDED
MIN. LOT SIZE	20,000 SF	51,785 SF
MIN. FRONTAGE	150'	416'
FRONT BUILDING SETBACK	30'	32.0'
REAR BUILDING SETBACK	15'	165.1'
SIDE BUILDING SETBACK	15'	33.6'
WETLAND BUFFER	25'	N/A
MAX BUILDING HEIGHT	100'	30'

NOTES

- SITE DEVELOPMENT REGULATIONS IN ACCORDANCE WITH TOWN OF MILFORD ZONING ORDINANCE SECTION 5.05.1.P: TWO-FAMILY AND MULTI-FAMILY DWELLINGS AND THEIR ACCESSORY USES AND STRUCTURES, WITH THEIR RESPECTIVE RELATED CONDITIONS SET FORTH IN RESIDENCE "B"
- WETLAND BUFFER IN ACCORDANCE WITH TOWN OF MILFORD ZONING ORDINANCE SECTION 6.02.3.D

LEGEND:

	EX. BUILDING SETBACK
	EX. 2' CONTOUR INTERVAL
	EX. 10' CONTOUR INTERVAL
	PROPOSED 2'/10' CONTOUR INTERVAL
	PROPOSED TREELINE
	PROPOSED 2'/10' CONTOUR INTERVAL
	PROPOSED BUILDING
	PROPOSED PAVEMENT
	PROPOSED PAVER EMERGENCY LOADING AREA
	PROPOSED ADA SIDEWALK
	PROPOSED DETENTION BASIN
	PROPOSED GRADE
	PROPOSED SIGN
	PROPOSED RELOCATED MAILBOX
	PROPOSED RETAINING WALL

LAND USE SUMMARY

AREA	AREA	PERCENTAGE
BUILDING	0.10 AC.	8.4%
PAVEMENT / SIDEWALK	0.25 AC.	21.0%
OPEN SPACE	0.78 AC.	65.5%
STORMWATER MANAGEMENT AREA	0.06 AC.	5.0%
TOTAL	1.19 AC.	100%

DENSITY CALCULATION

ZONING DISTRICT	RATIO	ALLOWED	PROPOSED
COMMERCIAL (C)	5 UNITS PER ACRE	5.95	6 (2)
TOTAL		5.95	6 (2)

NOTES

- DENSITY CALCULATION IN ACCORDANCE WITH TOWN OF MILFORD ZONING ORDINANCE SECTION 5.05.1.P: TWO-FAMILY AND MULTI-FAMILY DWELLINGS AND THEIR ACCESSORY USES AND STRUCTURES, WITH THEIR RESPECTIVE RELATED CONDITIONS SET FORTH IN RESIDENCE "B"
- 6 UNITS ALLOWED PER VARIANCE REFERENCE # 2020-03 (DATE APPROVED: 4/16/20).

PARKING SUMMARY

DESCRIPTION	RATIO	REQUIRED	PROVIDED
RESIDENTIAL (MULTIFAMILY)	4 PER UNIT	24	24
TOTAL		24	24

NOTES

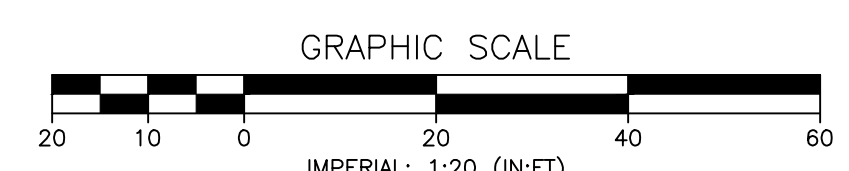
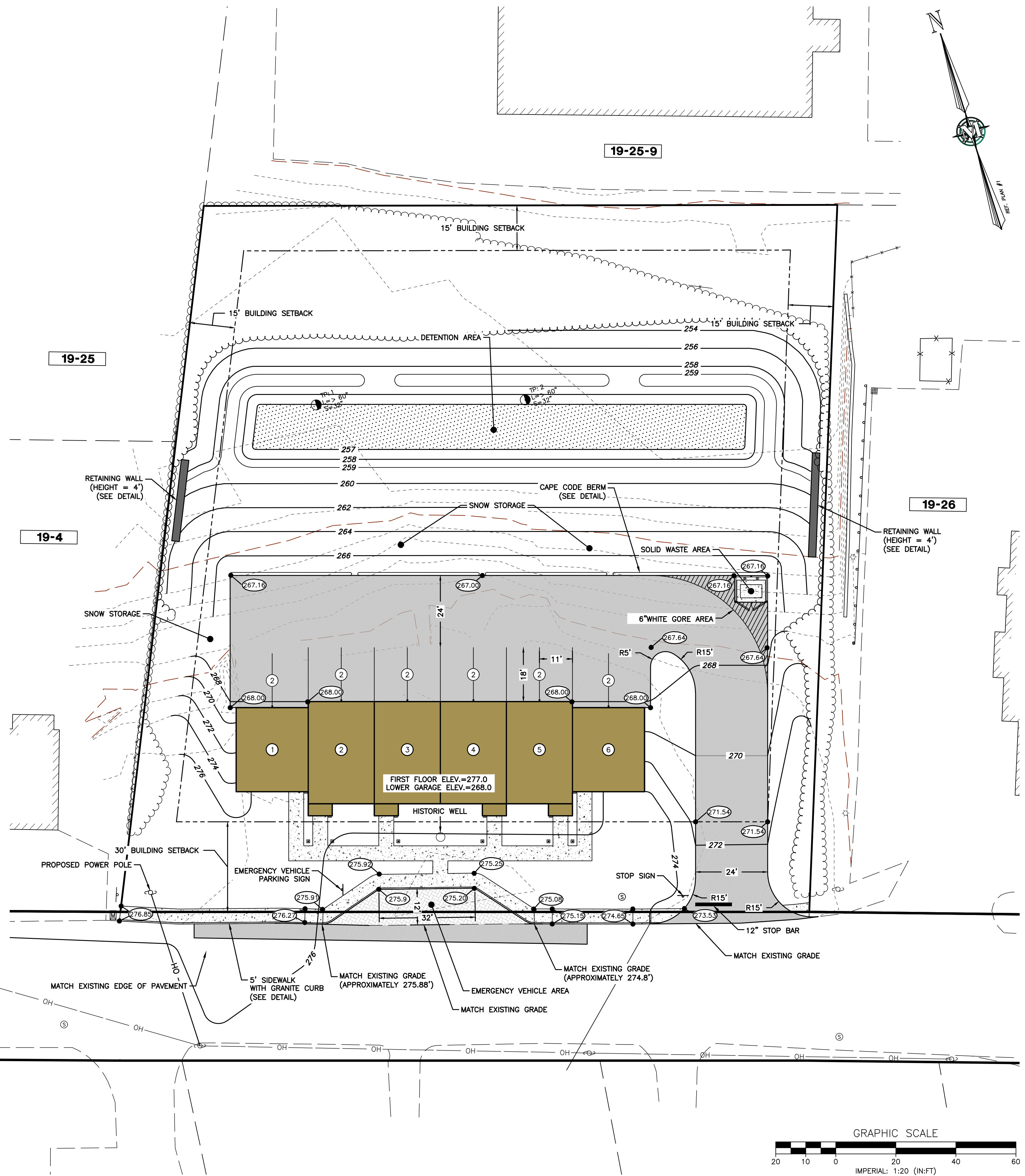
- TWO PARKING SPACES PER UNIT ARE WITHIN THE LOWER LEVEL GARAGE.

LANDSCAPE BUFFER

	REQUIRED	PROVIDED
NORTH (MULTI-FAMILY RESIDENTIAL)	10'	10'
SOUTH (ELM STREET ROW)	20'	20'
EAST (COMMERCIAL)	10'	10'
WEST (SINGLE FAMILY RESIDENTIAL)	10'	10'

NOTES

- LANDSCAPE BUFFER PER TOWN OF MILFORD DEVELOPMENT REGULATIONS SECTION 6.08.5



REV.	DATE	DESCRIPTION	DR	CK
A	3/17/21	REV FOR COMMENTS DATED 3/10/21	SRF	SRF
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DRAINAGE NOTES:

1. THE LENGTH OF ALL STORM DRAIN PIPES SHOWN ARE APPROXIMATE AND ARE MEASURED FROM THE INSIDE FACE OF STRUCTURE TO THE INSIDE FACE OF THE NEXT STRUCTURE.
2. EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING THE COURSE OF CONSTRUCTION.
3. THE LOCATION OF THE DRAINAGE STRUCTURES SHOWN ON THE PLANS MAY BE FIELD ADJUSTED TO PRESERVE ANY EXISTING VEGETATION, AS APPROVED BY THE ENGINEER.
4. THE CONTRACTOR SHALL ADJUST ALL PROPOSED ELEVATIONS TO MEET THE EXISTING GRADES AS NEEDED.
5. ALL STORM DRAINAGE PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP), UNLESS OTHERWISE NOTED.
6. ALL DRAINAGE STRUCTURES CONCRETE SHALL HAVE COMPRESSION STRENGTH OF 3,000 PSI @ 28 DAYS.
7. PROPOSED GRADES IN OPEN SPACE AREAS ARE TOP OF SOD.
8. THERE ARE NO KNOWN IMPACTS TO SURFACE GROUND WATER RESULTING FROM THE PROJECT.
9. THERE ARE NO KNOWN IMPACTS TO WETLANDS RESULTING FROM THIS PROJECT.
10. CEMENT STABILIZED SAND, 57 STONE OR SIMILAR BEDDING REQUIRED FOR ALL STORM DRAIN INLET STRUCTURES AND JUNCTION BOXES.
11. HDPE PIPE JOINTS SHALL BE WRAPPED IN MIRAFI FABRIC UPON INSTALLATION.
12. OPERATION AND OWNERSHIP OF THE SURFACE WATER MANAGEMENT SYSTEM SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

LEGEND:

- EX. 2' CONTOUR INTERVAL
- EX. 10' CONTOUR INTERVAL
- PROPOSED 2'/10' CONTOUR INTERVAL
- INTRAMEDIANTE CONTOUR INTERVAL
- W --- PROPOSED WATER LINE
- S --- PROPOSED GRAVITY SEWER
- OH --- PROPOSED OVERHEAD POWER LINE
- PROPOSED BUILDING
- PROPOSED PAVEMENT
- PROPOSED RIPRAP
- PROPOSED ADA SIDEWALK

STORMWATER MANAGEMENT PARAMETERS

POND PARAMETERS		ELEVATION
SEASONAL HIGH WATER TABLE		252.9
POND BOTTOM ELEVATION		256.9'
OVERFLOW ELEVATION		258.4'
POND TOP OF BANK		258.9'

DESIGN STORM PARAMETERS	RAINFALL AMOUNT (INCHES)	ELEVATION
25 YEAR, 24 HOUR	5.54	258.18'
50 YEAR, 24 HOUR	6.58	258.41

GENERAL UTILITY NOTES:

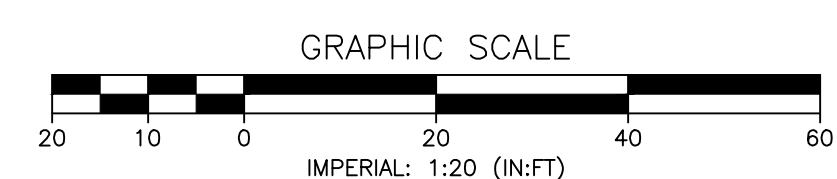
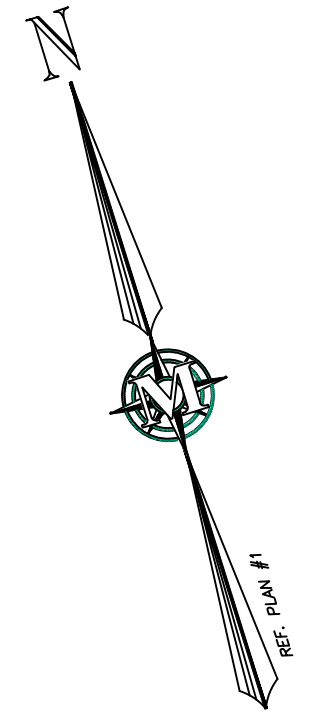
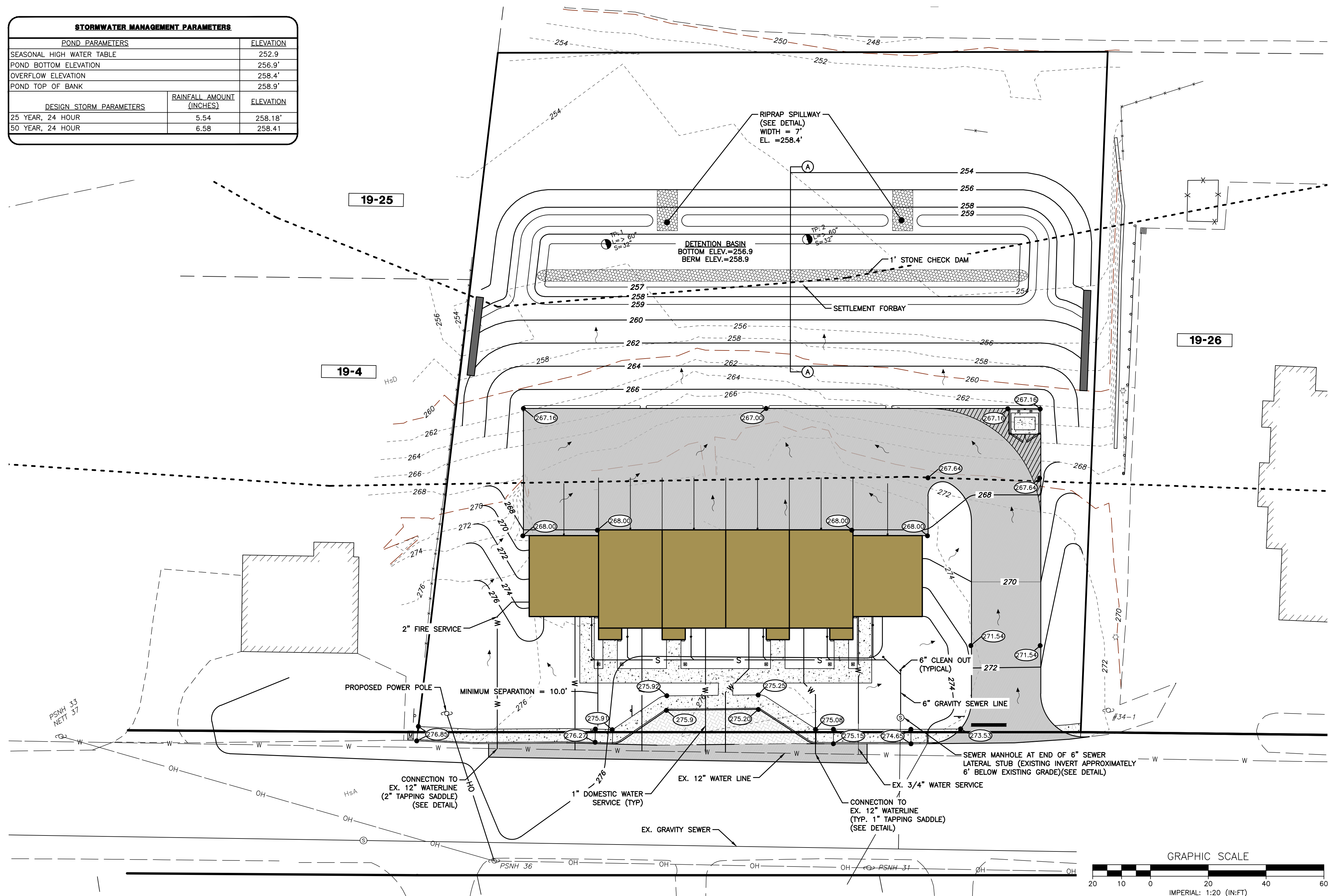
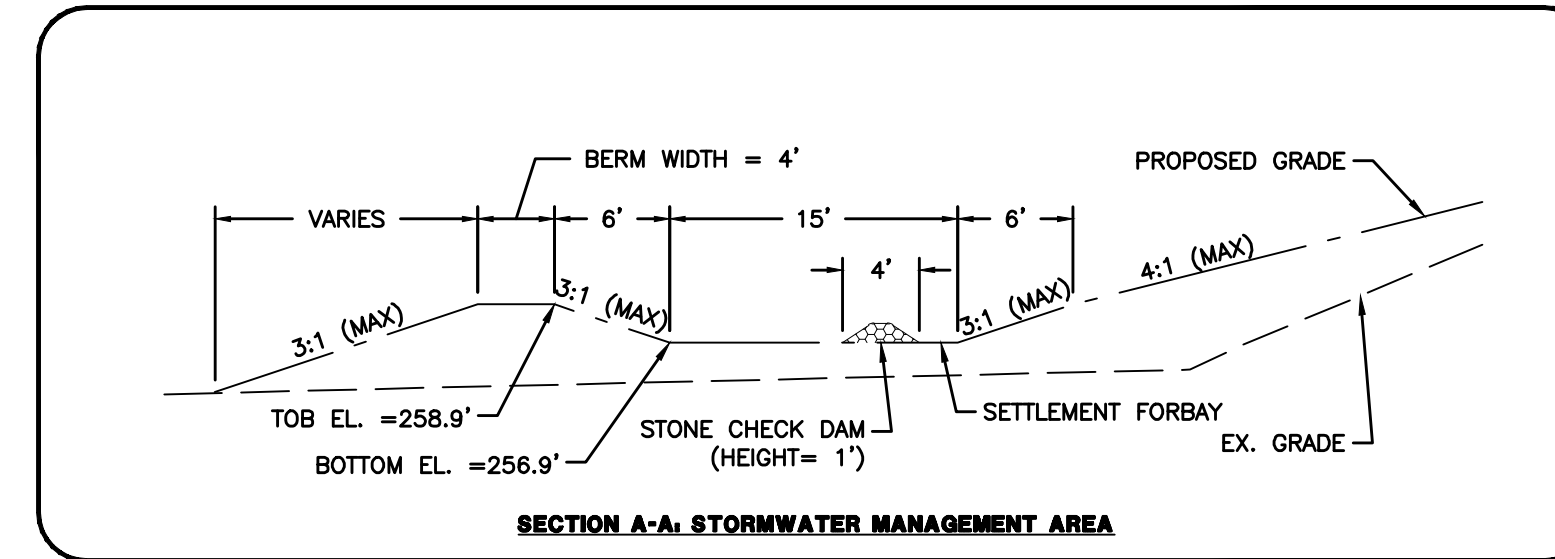
1. ALL UTILITY CONSTRUCTION TO BE IN ACCORDANCE WITH MILFORD WATER UTILITIES TECHNICAL SPECIFICATIONS AND DETAILS, LATEST EDITION.
2. CONTRACTOR TO VERIFY THE SIZE AND LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. EXISTING M.W.U. INFRASTRUCTURE ON THE PROPERTY TO BE PHYSICALLY LOCATED TO AVOID POTENTIAL CONFLICTS OR DAMAGE TO THIS INFRASTRUCTURE.
3. ABANDONED UTILITIES ARE LOCATED WITHIN THE ROW. VERIFY LOCATIONS OF ABANDONED UTILITIES WITH UTILITY COMPANY.
4. LOCATIONS OF PROPOSED UTILITY LINES ARE SUBJECT TO MODIFICATIONS TO PRESERVE ANY EXISTING VEGETATION AS DETERMINED BY THE ENGINEER.
5. WHEN REFERENCING IMPROVEMENTS ADJACENT TO THE SUBJECT PROPERTY THE WORD "EXISTING" (OR ABBREVIATED "EX.") SHALL MEAN IMPROVEMENTS PROPOSED BY THE DEVELOPER WHICH ARE INTENDED TO BE CONSTRUCTED PRIOR TO OR CONCURRENT WITH THIS PROJECT.
6. NO TREES OR SHRUBS SHALL BE PLACED SO AS TO BLOCK ACCESS OR LINE OF SIGHT TO FIRE HYDRANTS PLACED WITHIN LANDSCAPE ISLANDS THROUGHOUT THE PROJECT SITE.
7. CONTRACTOR TO PROVIDE UTILITY RECORD DRAWINGS TO OWNER AND ENGINEER PRIOR TO FINAL PAYMENT REQUEST.
8. ALL UNDERGROUND UTILITIES LOCATED BENEATH THE STABILIZED PORTION OF THE ROAD BED SHALL BE INSTALLED PRIOR TO COMPACTION OF THE SUBGRADE.
9. CONTRACTOR SHALL NOTIFY ALL UTILITY PROVIDERS AT LEAST 72 HOURS PRIOR TO THE START OF UNDERGROUND CONSTRUCTION THE CONTRACTOR SHALL DETERMINE IF UTILITIES OTHER THAN THOSE SHOWN THE PLANS EXIST.
10. CONTRACTOR TO EXERCISE CARE TO PROTECT THE ROOTS OF TREES TO REMAIN. WITH THE BRANCH SPREAD OF SUCH TREES, PERFORM ALL TRENCHING BY HAND. OPEN THE TRENCH ONLY WHEN UTILITIES CAN BE INSTALLED IMMEDIATELY. PRUNE INJURED ROOTS CLEANLY AND BACKFILL AS SOON AS POSSIBLE.
11. THE CONTRACTOR IS REQUIRED TO ADJUST ALL EXISTING AND PROPOSED VALVE BOXES, MANHOLE RIMS, GRATES, ETC. AS REQUIRED TO MATCH THE PROPOSED GRADES.
12. CASINGS AND/OR CONDUIT SHALL EXTEND FIVE(5) FEET BEYOND THE EDGE OF PAVEMENT, BACK OF CURB AND/OR SIDEWALK AT EACH END AND SHALL BE INCLUDED IN RECORD DRAWINGS TO THE ENGINEER.

GENERAL POTABLE WATER NOTES:

1. THE CONTRACTOR SHALL PLACE PROPOSED VALVES AS SHOWN. THE VALVE BOX SHALL NOT BE LOCATED IN PAVEMENT, BRICK PAVERS OR DRIVEWAY AREAS WHERE POSSIBLE.
2. PROPOSED WATERLINE FITTINGS ARE SHOWN AT MAJOR BENDS IN WATER MAIN ALIGNMENT. CONTRACTOR SHALL UTILIZE ADDITIONAL FITTINGS AS NECESSARY TO DEFLECT WATERLINE IN ACCORDANCE WITH THE UTILITY PROVIDER SPECIFICATIONS.
3. THE ENDS OF ALL CAPPED POTABLE WATERLINES SHALL BE MARKED WITH ELECTRONIC MARKER AND 2"x4" STAKES 5' IN LENGTH WITH 2" ABOVE GROUND.
4. THE CONTRACTOR SHALL PROVIDE AND INSTALL BLUE-BLUE REFLECTIVE PAVEMENT MARKERS AS REQUIRED IN CENTER OF ADJACENT TRAVEL LANE AT EACH FIRE HYDRANT.
5. ALL WATER VALVES SHALL CONFORM TO A.W.W.A. C-509 RESILIENT SEATED TYPE.
6. CONTRACTOR SHALL USE 45 DEGREE BENDS AT CONFLICTS. RESTRAINTS TO BE MEGA-LUG, TYLER MJR GLANDS OR APPROVED EQUAL. CONTRACTOR SHALL NOT EXCEED 75% OF THE MANUFACTURES RECOMMENDED MAXIMUM PIPE DEFLECTION.
7. ALL WATER MAINS SHALL HAVE A MINIMUM OF 5' COVER.
8. ALL POTABLE WATERLINES SHALL BE DUCTILE IRON, CLASS 52.

GENERAL SEWER UTILITY NOTES:

1. CONTRACTOR TO VERIFY INVERT ELEVATION AND LOCATION OF EXISTING SANITARY SEWER MANHOLES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL GRAVITY SEWER LINES SHALL BE PVC (SDR 35), GREEN IN COLOR, UNLESS OTHERWISE NOTED, WITH A MINIMUM OF 36" COVER.
3. ALL SEWER LENGTHS ARE APPROXIMATE AND ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4. MANHOLE TOPS ARE APPROXIMATE AND SHOULD BE ADJUSTED TO FINAL GRADE OR PAVEMENT ELEVATION.
5. ALL SANITARY SEWER SERVICES TO BE 6" IN DIAMETER, UNLESS OTHERWISE NOTED.
6. ALL SANITARY SEWER MAIN TESTING SHALL BE IN ACCORDANCE WITH MILFORD WATER UTILITIES TECHNICAL SPECIFICATIONS FOR GRAVITY SEWER.
7. CONTRACTOR TO COORDINATE WITH M.W.U. TO VERIFY THE CONDITION OF THE COATING OF THE EXISTING MANHOLES AND RE-COAT IF NECESSARY.

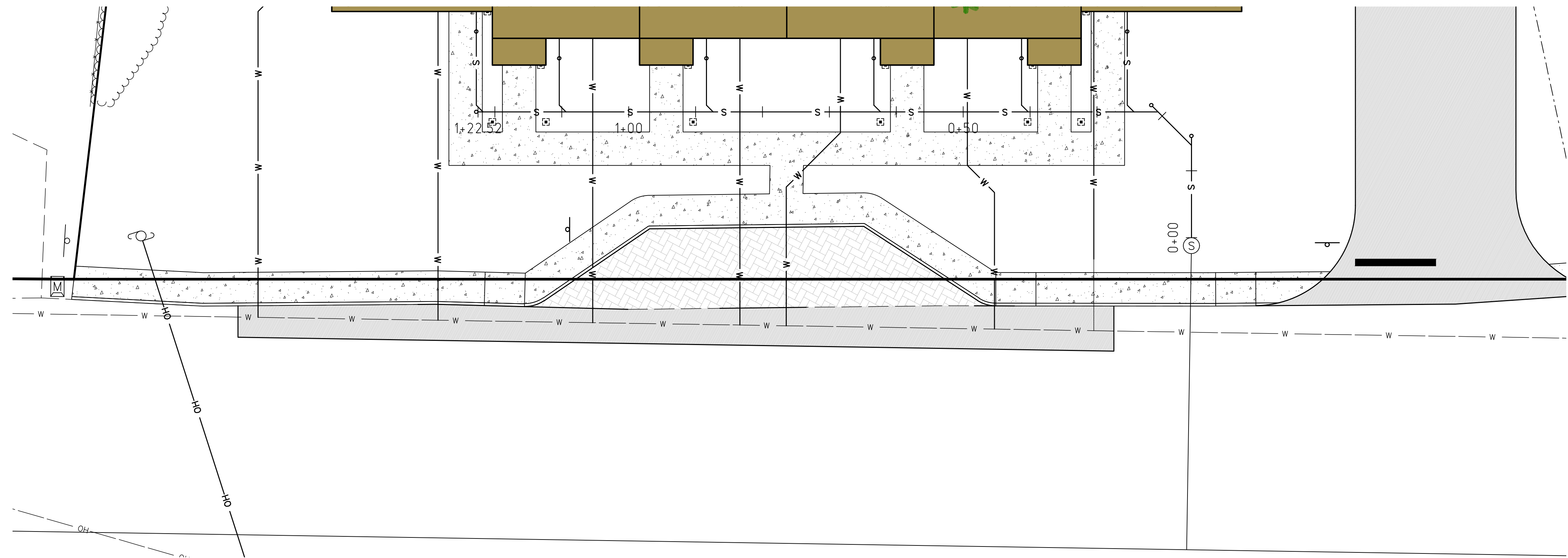
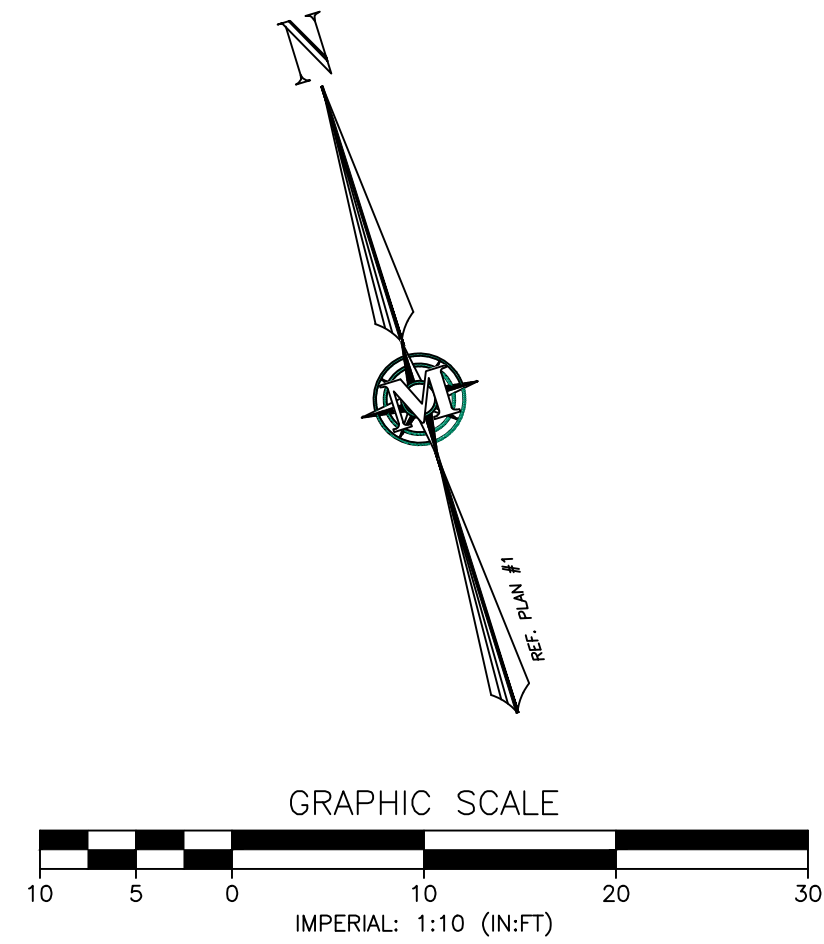


REV.	DATE	DESCRIPTION	DR	CK
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B	8/31/2021	WATER UTILITY REVISION	SRF	SRF
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CROSBY TOWNHOUSES
SITE PLAN
DRAINAGE AND UTILITY PLAN

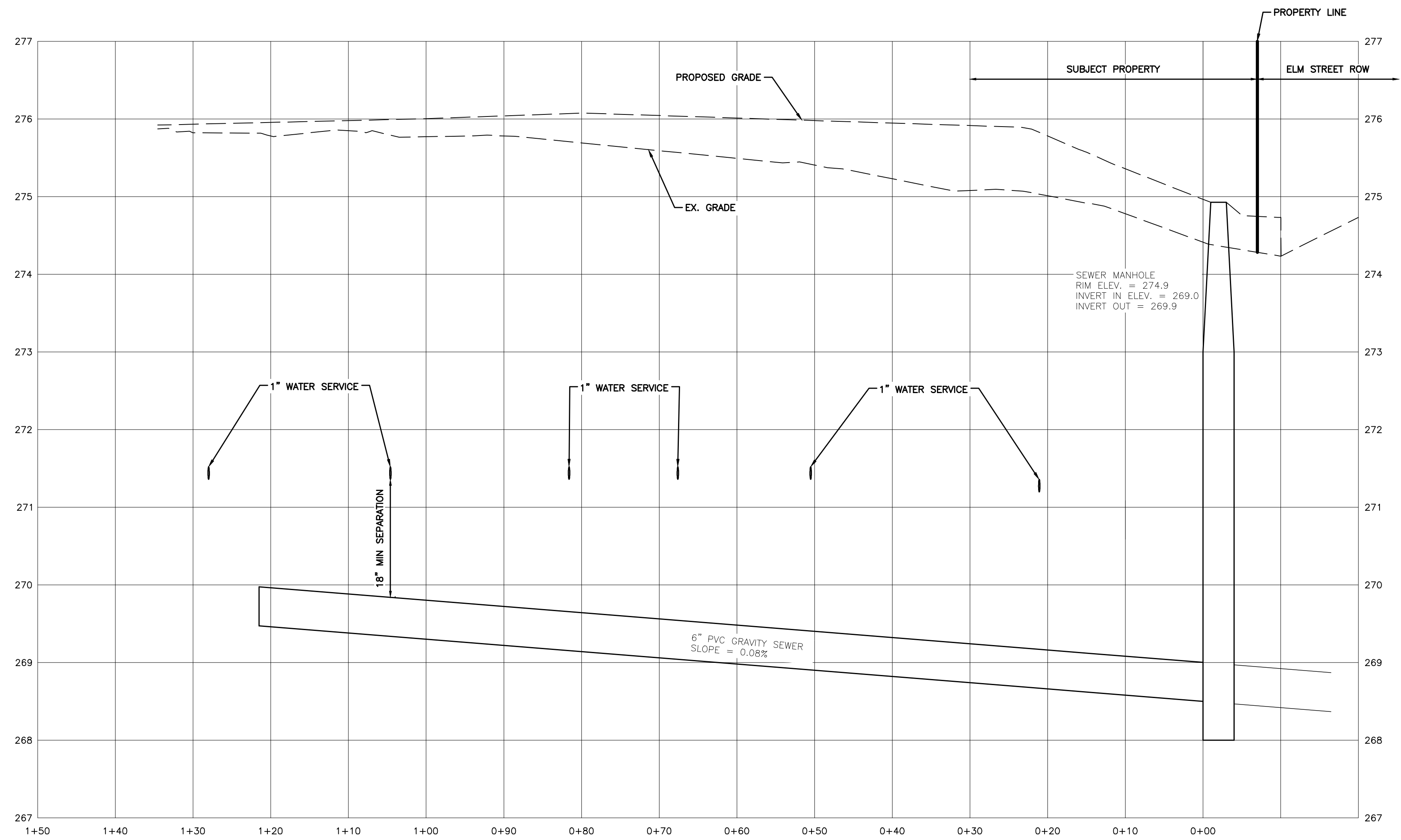
MENGUAN PROPERTY
MANAGEMENT, LLC
159 ELM STREET
MAP 19 LOT 5
MILFORD, NEW HAMPSHIRE
SCALE: 1" = 20'

Plotted: 3/31/2021 2:06 PM By: SRF
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LEGEND:	
	EX. RIGHTS-OF-WAY
	EX. WATER LINE
	EX. GRAVITY SEWER
	PROPOSED WATER LINE
	PROPOSED GRAVITY SEWER
	PROPOSED BUILDING
	PROPOSED SEWER MANHOLE
	EX. SEWER MANHOLE

NOTES
 1. UNDERGROUND UTILITIES ARE SHOWN AS APPROXIMATE. CONTRACTOR TO VERIFY LOCATION PRIOR TO CONSTRUCTION.

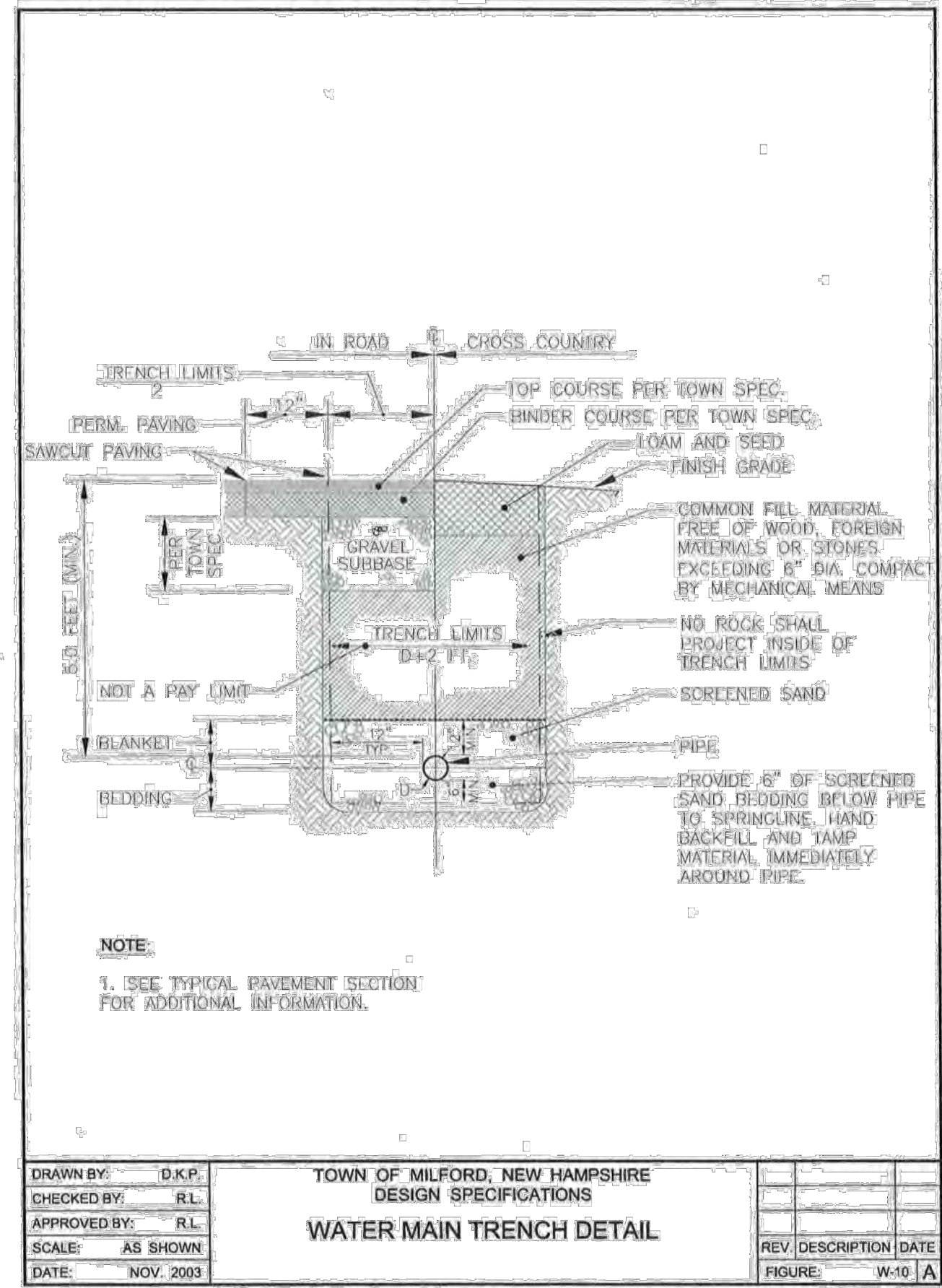


REV.	DATE	DESCRIPTION
A	3/17/21	REV FOR COMMENTS DATED 3/10/21
B	3/31/2021	WATER UTILITY REVISION
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CROSBY TOWNHOUSES
 SITE PLAN
 PROPOSED SEWER

MENGYUAN PROPERTY
 MANAGEMENT, LLC
 159 ELM STREET
 MAP 19 LOT 5
 MILFORD, NEW HAMPSHIRE
 SCALE: 1" = 10'

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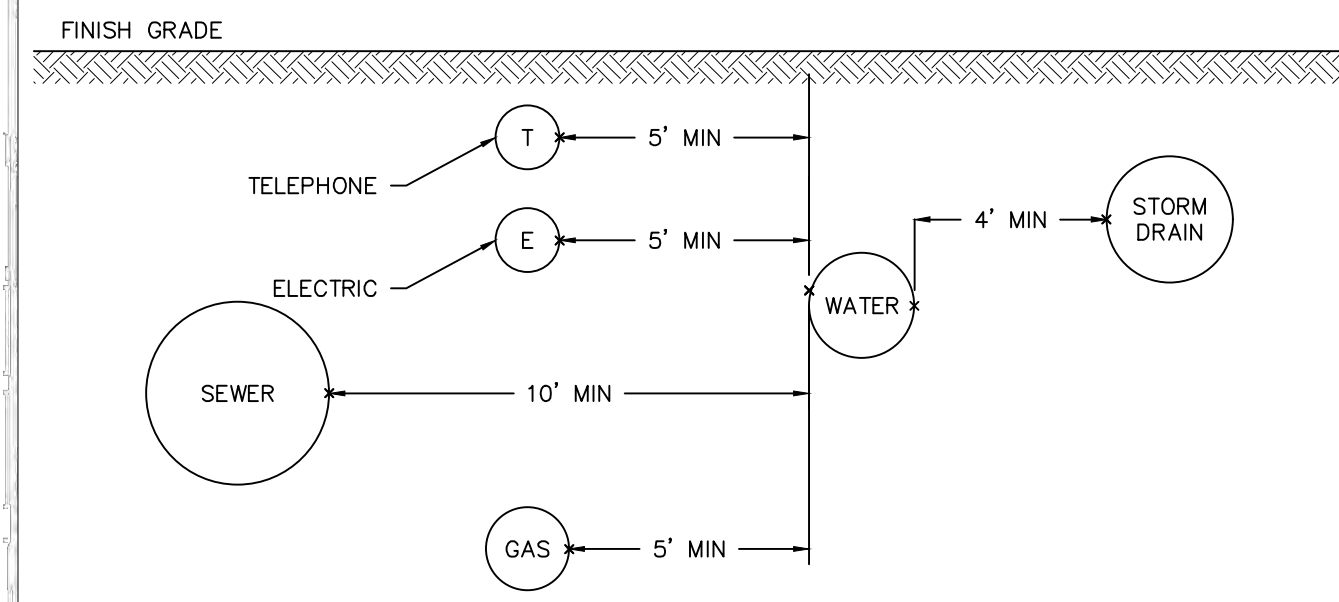


DRAWN BY: D.K.P.
CHECKED BY: R.L.
APPROVED BY: R.L.
SCALE: AS SHOWN
DATE: NOV. 2003

TOWN OF MILFORD, NEW HAMPSHIRE
DESIGN SPECIFICATIONS

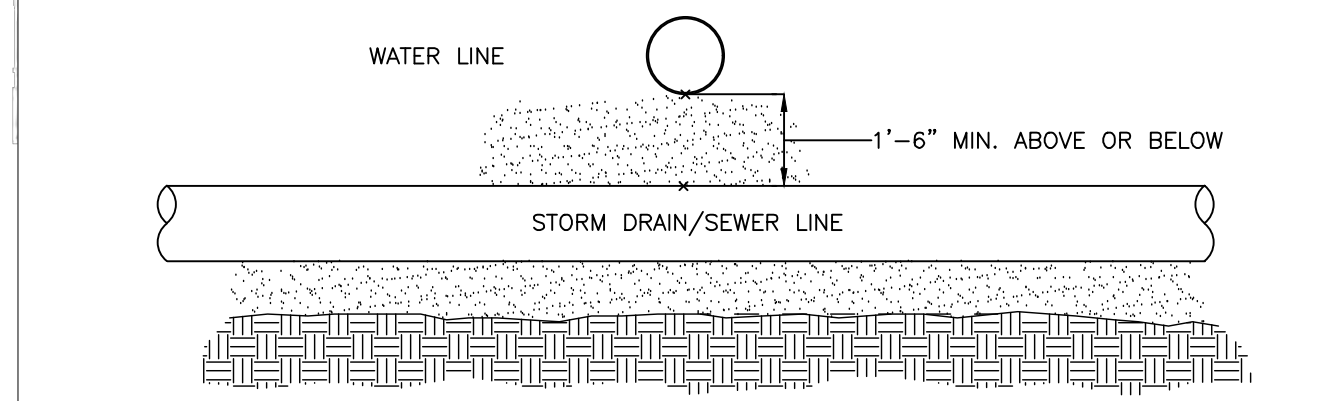
WATER MAIN TRENCH DETAIL

REV. DESCRIPTION DATE
FIGURE: W-10 | A

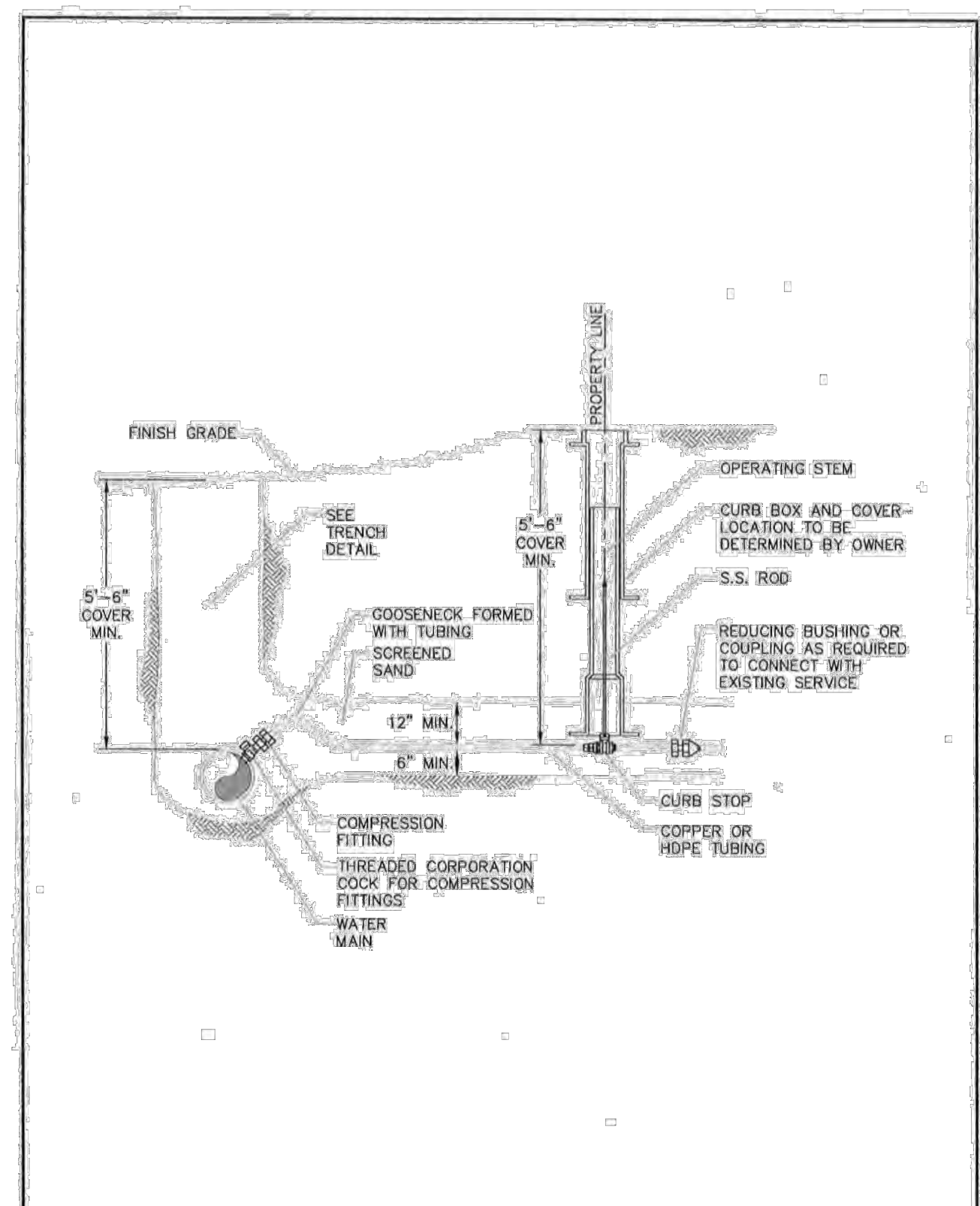


- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL CONFORM TO (INSERT TOWN NAME HERE) SPECIFICATIONS.
 2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
 3. SEE DETAIL 4/D-1 FOR EXACT DEPTH AND LOCATION.

UTILITY TRENCH - HORIZONTAL SEPARATION SCALE: NONE **1 D-1**



WATER MAINS CROSSING **2 D-1**



DRAWN BY: D.K.P.
CHECKED BY: R.L.
APPROVED BY: R.L.
SCALE: AS SHOWN
DATE: NOV. 2003

TOWN OF MILFORD, NEW HAMPSHIRE
DESIGN SPECIFICATIONS

TYPICAL SERVICE CONNECTION DETAIL

REV. DESCRIPTION DATE
FIGURE: W-2 | A



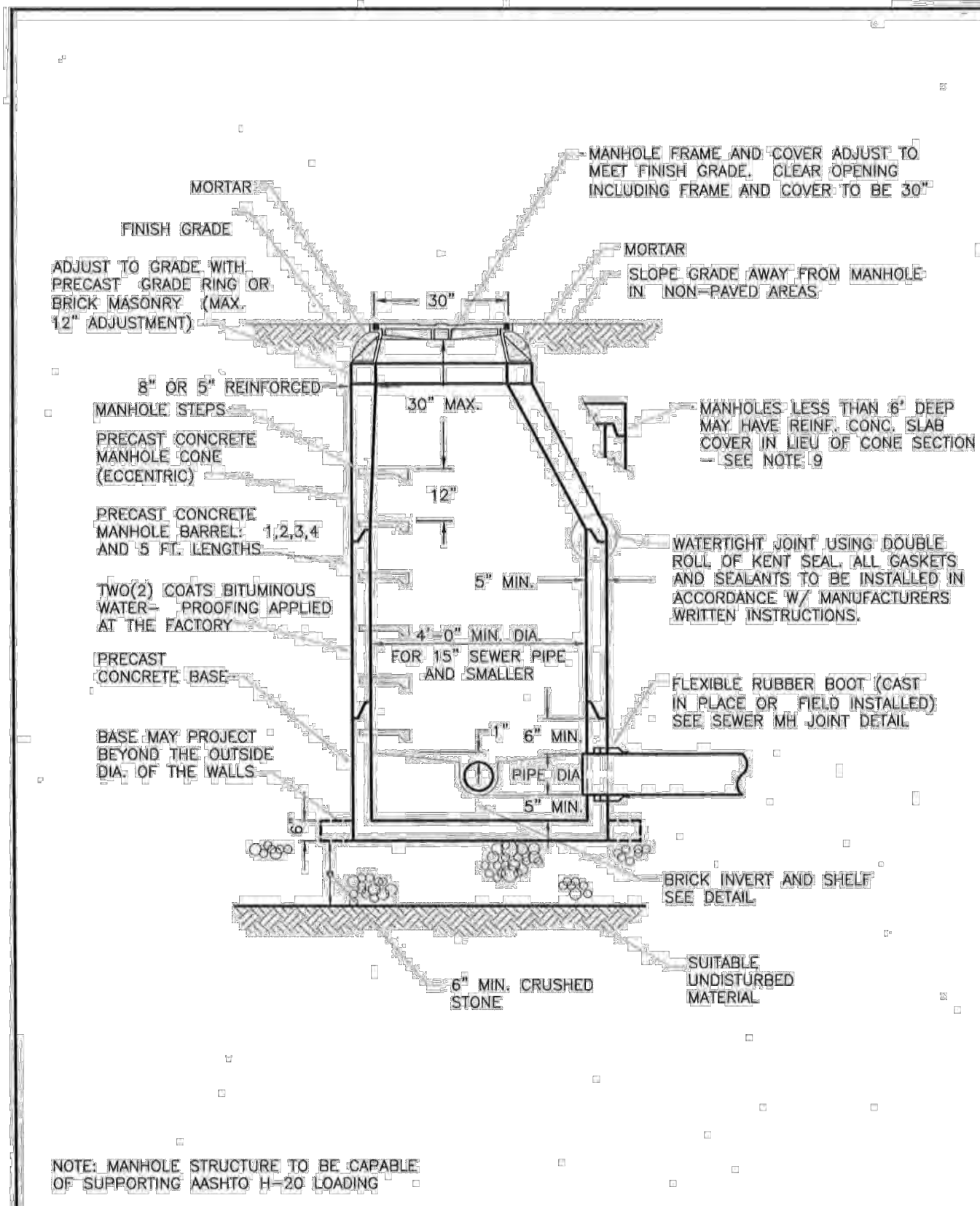
REV.	DATE	DESCRIPTION
A	3/17/21	REV FOR COMMENTS DATED 3/10/21
B	8/31/2021	WATER UTILITY REVISION
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CROSBY TOWNHOUSES
SITE PLAN
WATER DETAILS
MARCH 31, 2021

MENGYUAN PROPERTY
MANAGEMENT, LLC
159 ELM STREET
MAP 19 LOT 5
MILFORD, NEW HAMPSHIRE
SCALE: N/A

D-1
SHEET

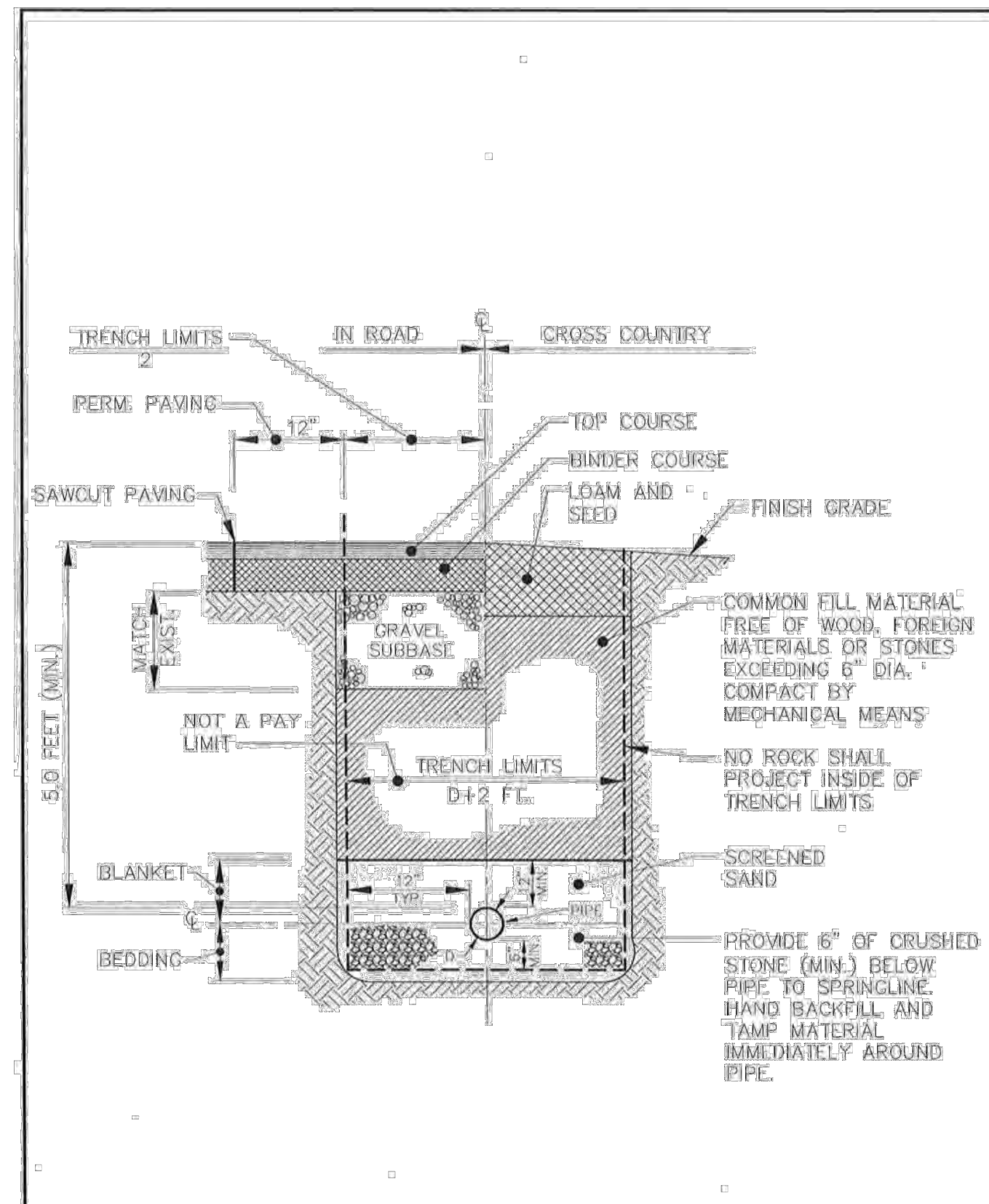
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DRAWN BY: D.K.P.
 CHECKED BY: R.L.
 APPROVED BY: R.L.
 SCALE: AS SHOWN
 DATE: NOVEMBER 2003

TOWN OF MILFORD, NEW HAMPSHIRE
 DESIGN SPECIFICATIONS
SEWER MANHOLE
 STANDARD DETAIL

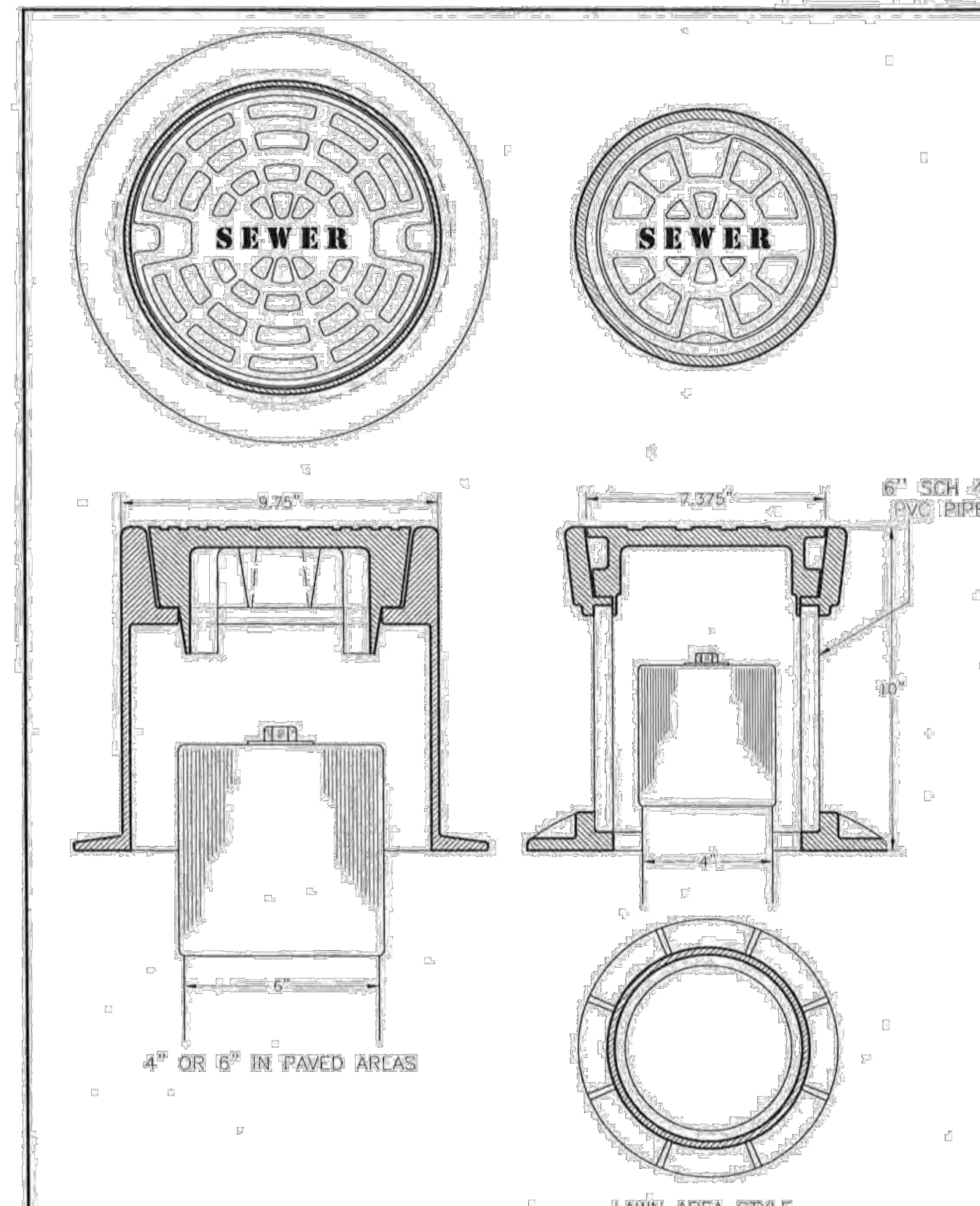
REV. DESCRIPTION DATE
 FIGURE: S-2 | A



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TOWN OF MILFORD, NEW HAMPSHIRE
 DESIGN SPECIFICATIONS
GRAVITY SEWER TRENCH DETAIL

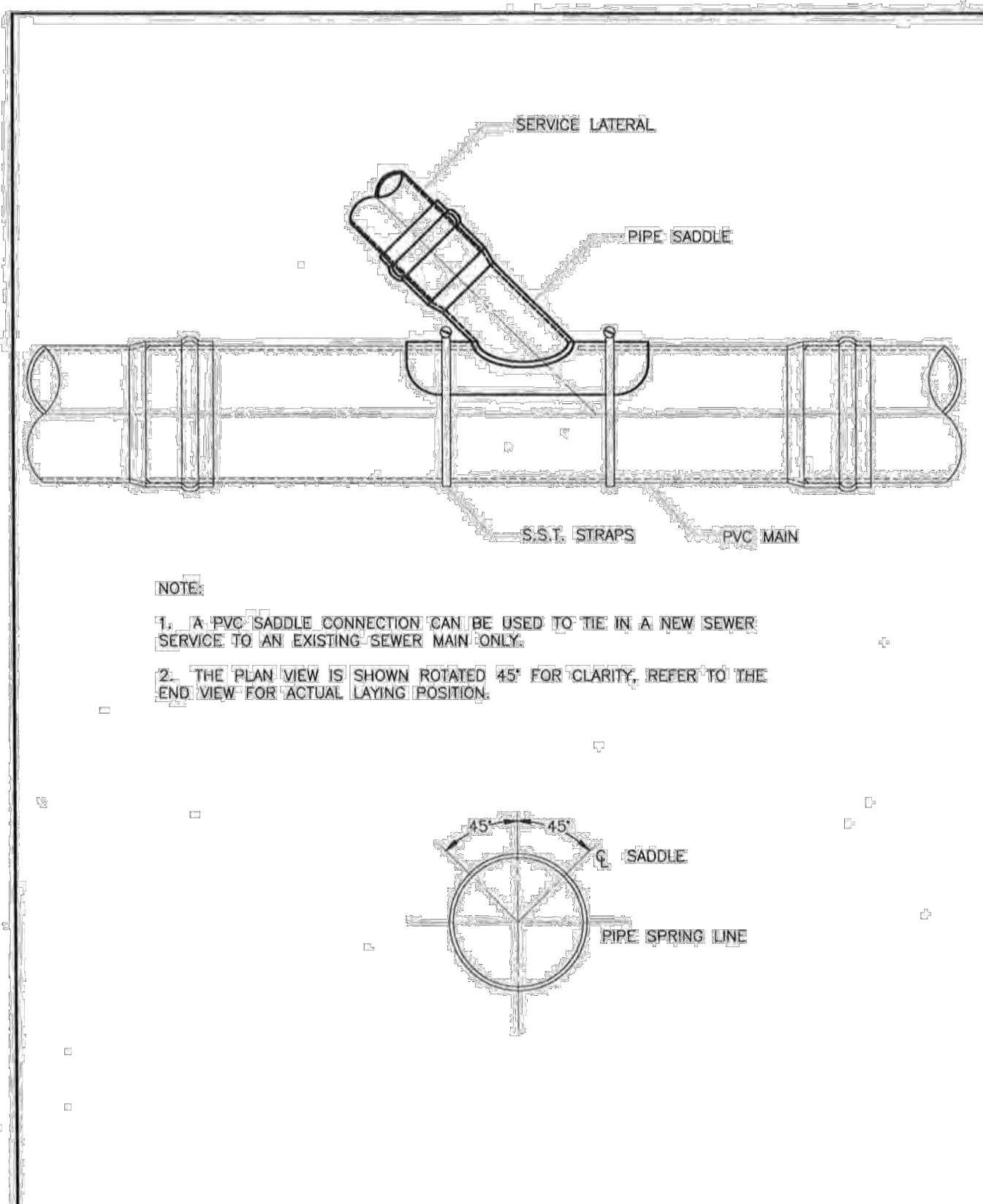
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 FIGURE: S-11 | A



DRAWN BY: D.K.P.
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TOWN OF MILFORD, NEW HAMPSHIRE
 DESIGN SPECIFICATIONS
SEWER CLEANOUT COVERS

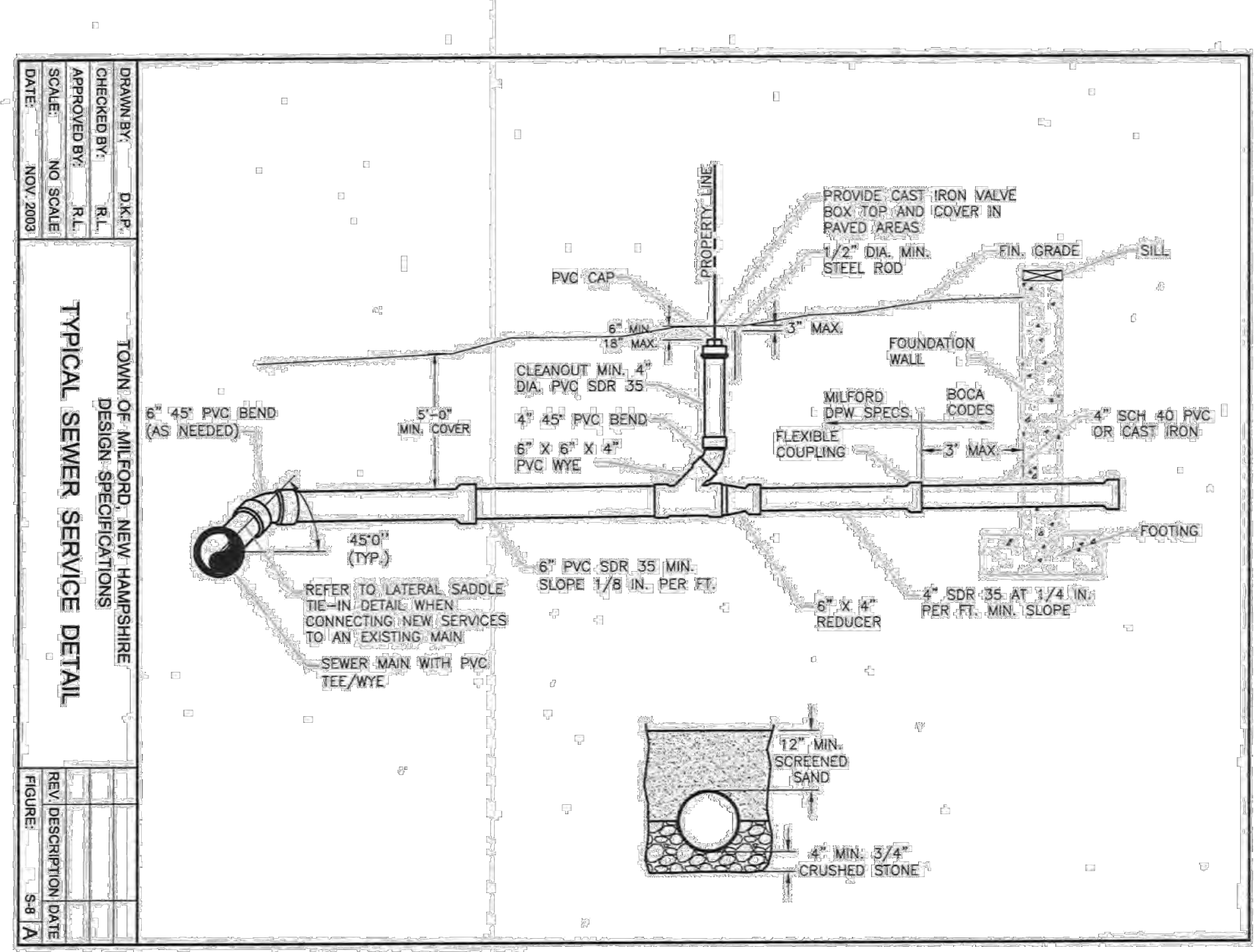
REV. DESCRIPTION DATE
 FIGURE: S-8 | A



DRAWN BY: D.K.P.
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 SCALE: NO SCALE
 DATE: NOV. 2003

TOWN OF MILFORD, NEW HAMPSHIRE
 DESIGN SPECIFICATIONS
LATERAL SADDLE TIE-IN DETAIL

REV. DESCRIPTION DATE
 FIGURE: S-9 | A



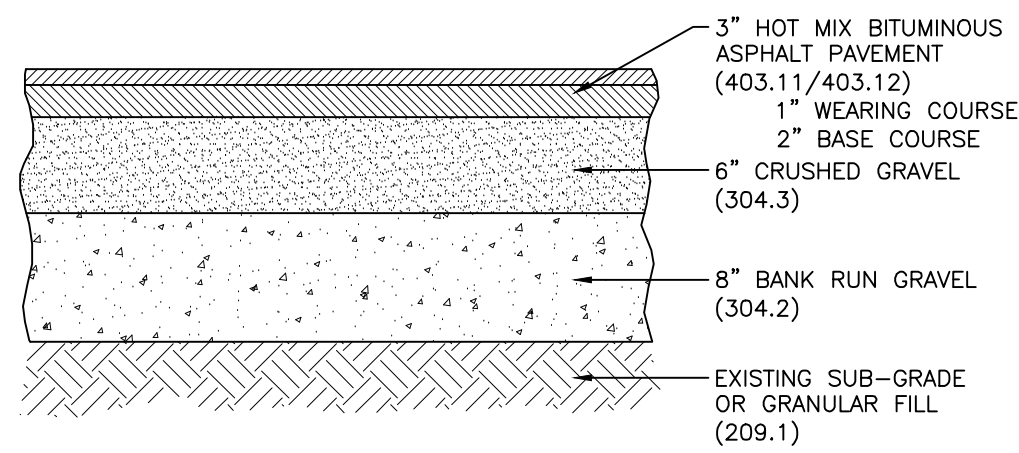
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 DATE: NOV. 2003

TOWN OF MILFORD, NEW HAMPSHIRE
 DESIGN SPECIFICATIONS
TYPICAL SEWER SERVICE DETAIL

REV. DESCRIPTION DATE
 FIGURE: S-8 | A

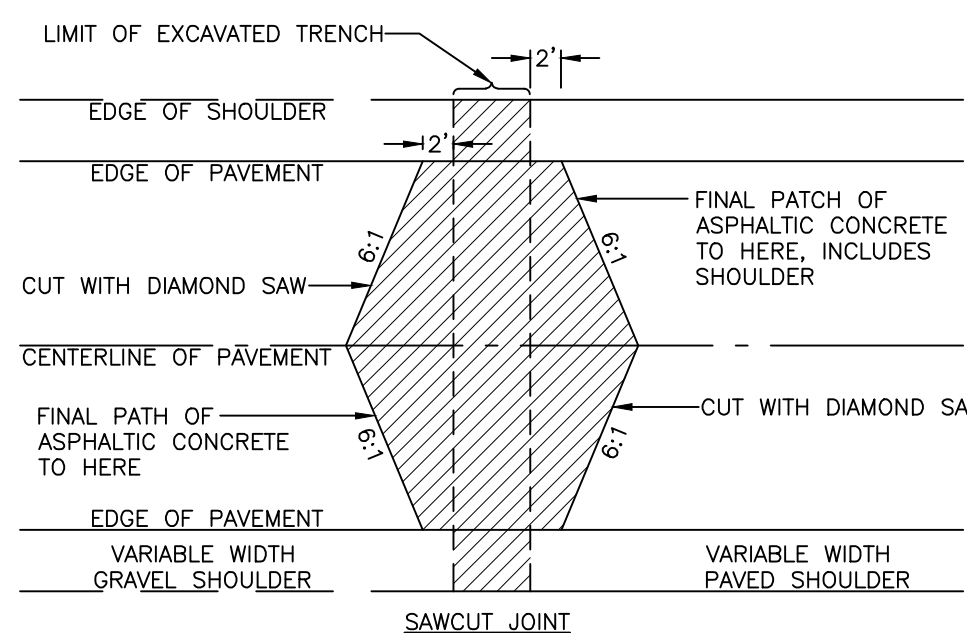
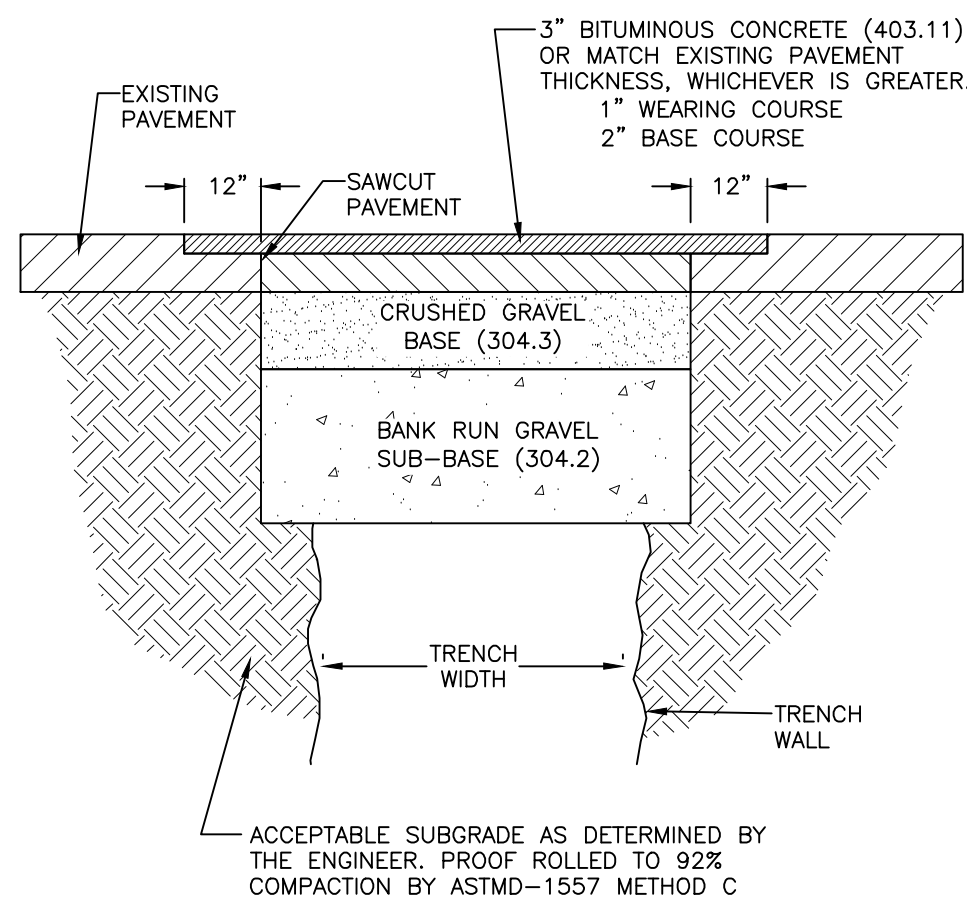
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B	5/31/2021	WATER UTILITY REVISION
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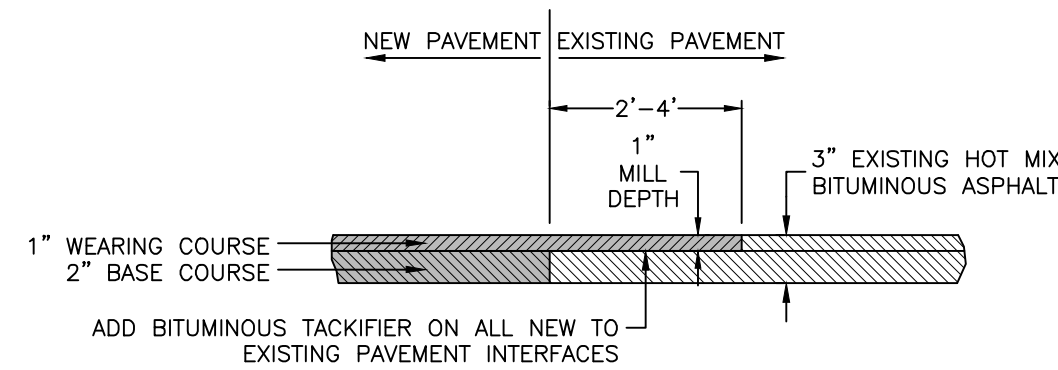
- NOTES:
- PAVEMENT JOINT ADHESIVE (403.6) SHALL BE APPLIED AT ALL LONGITUDINAL PAVEMENT JOINTS AND ALONG ALL LONGITUDINAL CURB LINES.
 - ASPHALT BONDING AGENT SHALL BE APPLIED TO ALL INTERFACES WITH EXISTING PAVEMENTS, AND/OR AREAS OF COLD PLANING.

HOT BITUMINOUS ASPHALT PAVEMENT SECTION SCALE: NONE **4** **D-3**

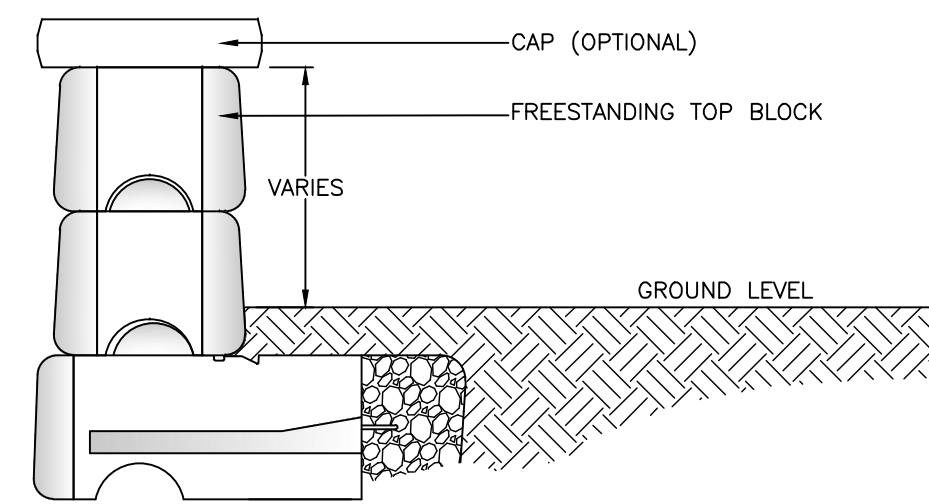


- NOTES:
- PRIOR TO EXCAVATION, THE CONCRETE SHALL BE SAWN AT LEAST 2 FEET BEYOND THE TRENCH AND PREFERABLY LOCATED TO INCLUDE AN EXISTING TRANSVERSE CONCRETE JOINT.
 - BACKFILL AND COMPACT THE TRENCH TO THE BOTTOM OF THE CONCRETE IN ACCORDANCE WITH THE TRENCH PERMIT. TEMPORARILY REPLACE THE CONCRETE WITH CRUSH GRAVEL AND WITH 2 TO 3 INCHES OF BITUMINOUS PAVEMENT THE SAME DAY.
 - AFTER SUITABLE EXPOSURE TO TRAFFIC COMPACTION (2 WEEKS MINIMUM), PLACE BINDER IN THE TRENCH IN 3 INCH LIFTS OR LESS, OR EQUAL DEPTH TO THE CONCRETE SLABS.
 - THE EXISTING PAVEMENT OVER THE CONCRETE SHALL THEN BE DIAMOND CUT AS SHOWN BELOW AND REPLACED WITH BITUMINOUS PAVEMENT AND A ONE (1) INCH WEARING COURSE.
 - IN ALL CASES, THE TRENCH SHALL BE FLUSH WITH THE EXISTING PAVEMENT AT THE END OF THE WORK DAY.
 - THE PAVEMENT TRENCH PATCH SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN OF MILFORD

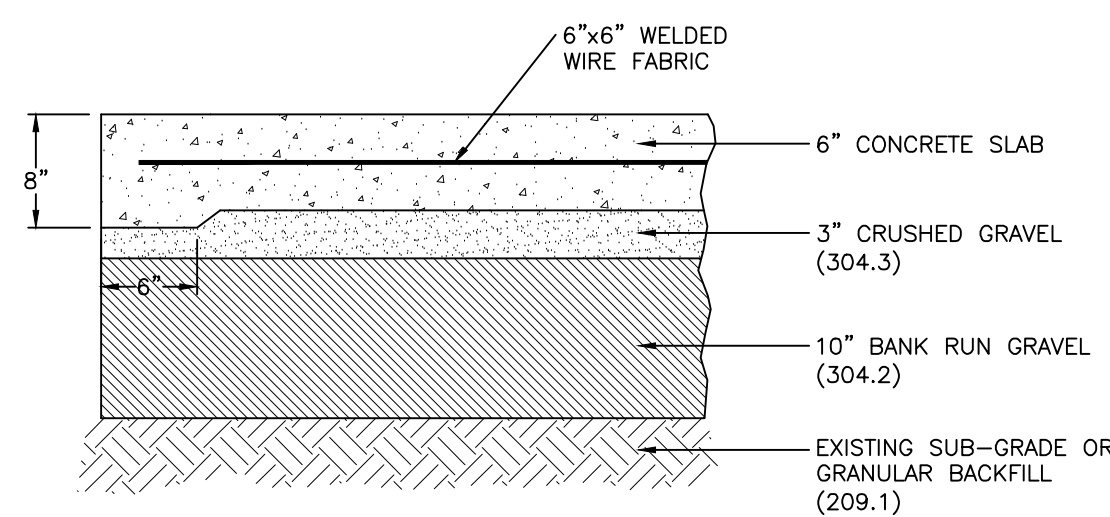
PAVEMENT TRENCH PATCH SCALE: NONE **5** **D-3**



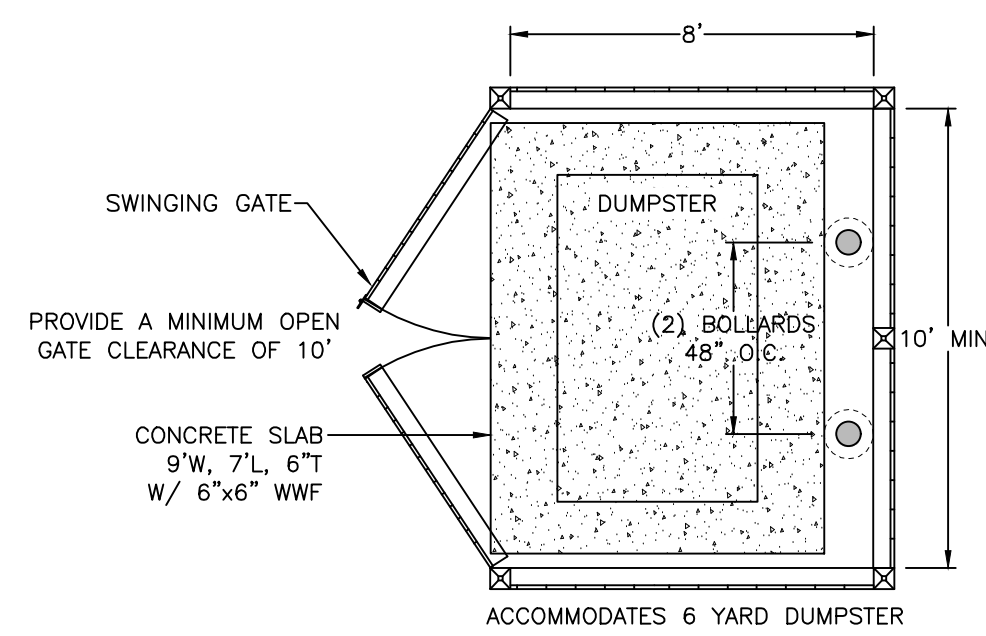
NEW TO EXISTING PAVEMENT MILLING INTERFACE SCALE: NONE **6** **D-3**



TYPICAL FREESTANDING BLOCK AT TOP OF WALL JUN 22, 2015 SCALE: NONE **7** **D-3**



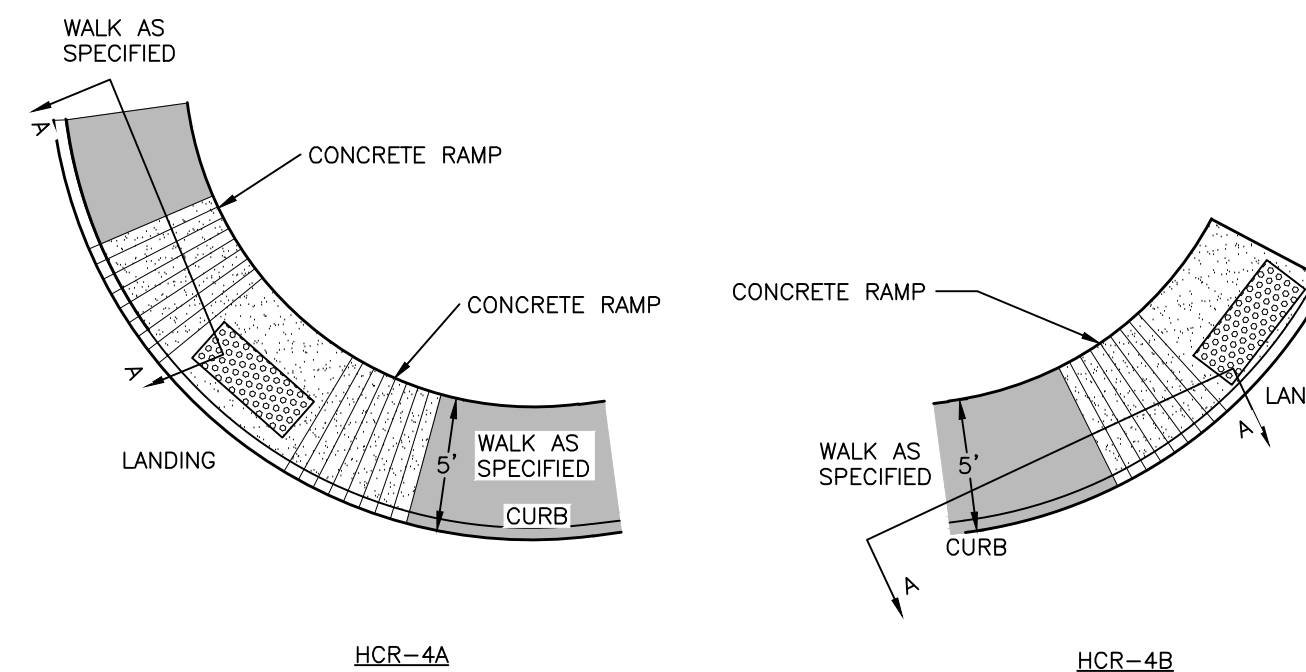
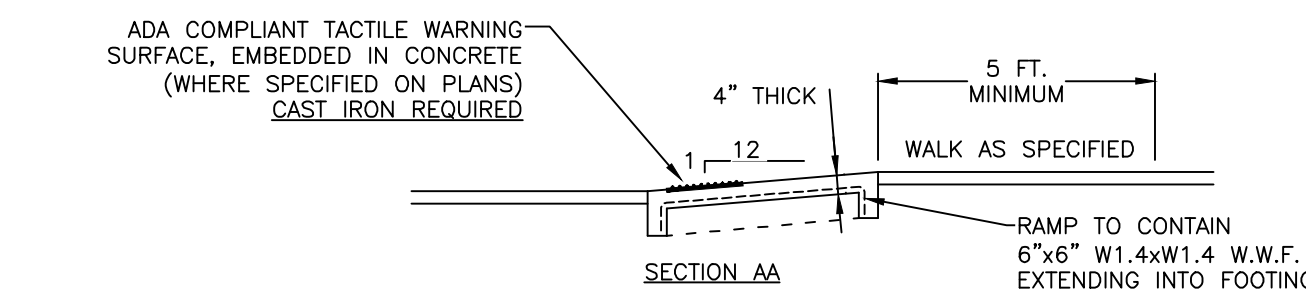
CONCRETE DUMPSTER PAD (NHDOT ITEM NO.) APRIL 11, 2011 SCALE: NONE **8** **D-3**



DUMPSTER ENCLOSURE - 6 YARD JULY, 2010 SCALE: NONE **9** **D-3**

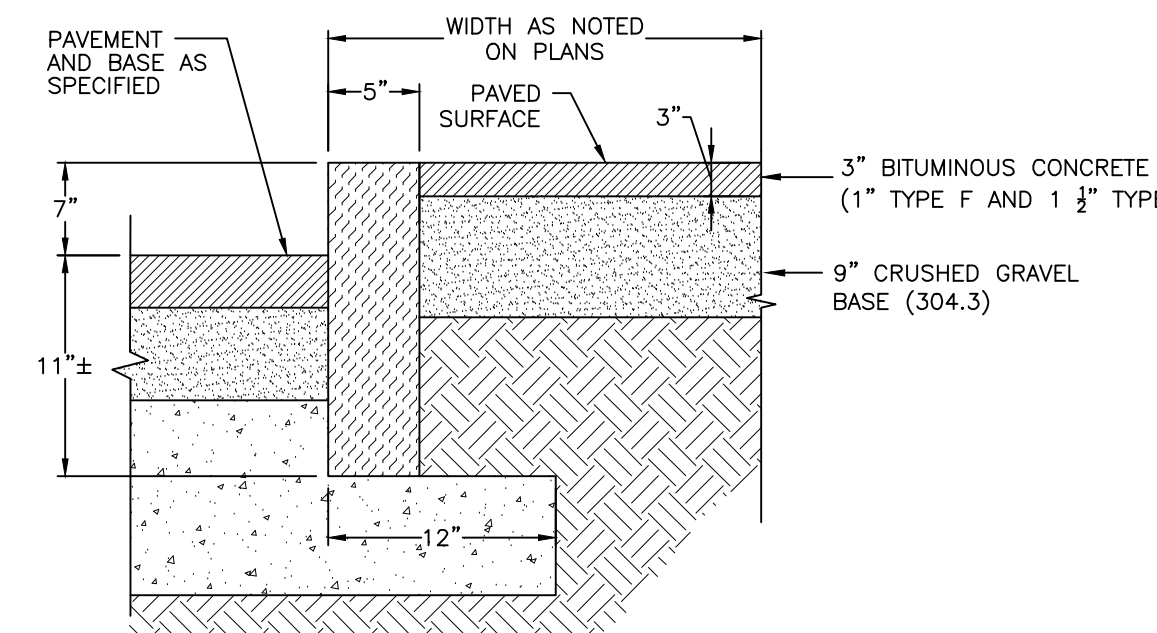
- GENERAL NOTES:
- ALL SIGNING AND PAVEMENT MARKINGS SHALL CONFORM TO "NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", SECTIONS 615 AND 632, AS AMENDED, AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
 - THE CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF ALL SIGNING AND PAVEMENT MARKINGS.

TRAFFIC SIGNS SCALE: NONE **10** **D-3**

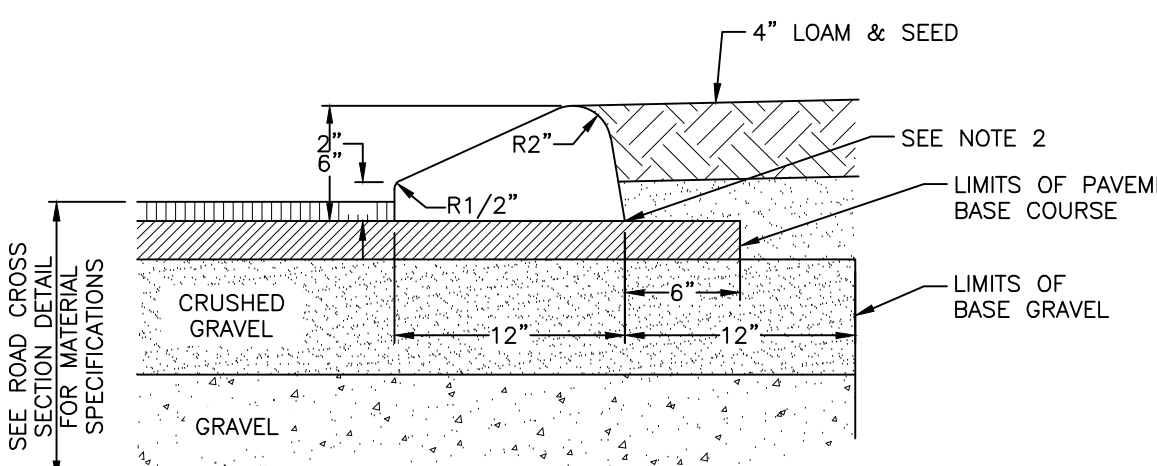


- NOTES:
- DETECTABLE WARNINGS SHALL BE PROVIDED WHERE EVER A CURB RAMP CROSSES A VEHICULAR WAY.
 - DETECTABLE WARNINGS SHALL BE PROVIDED 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE. THE DETECTABLE WARNING SHALL BE LOCATED ADJACENT TO THE CURB LINE, PLACED 6" TO 8" BEHIND THE FACE OF THE CURB JOINT.
 - DETECTABLE WARNING MATERIALS SHALL BE TEXTURED TO PROVIDE SLIP RESISTANCE AND SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES - EITHER LIGHT ON DARK OR DARK ON LIGHT. THE PREFERRED COLOR FOR A LIGHT BACKGROUND IS RED BRICK AND FOR A DARK BACKGROUND SHALL BE SAFETY YELLOW.
 - DETECTABLE WARNING SURFACES SHALL BE SURFACE MOUNTED, THIN MOLDED SHEET GOODS WHICH INCLUDES TILES OR MATS (RIGID OR FLEXIBLE, WITH TRUNCATED DOMES), BONDED AND/OR ANCHORED TO THE SURFACE OF THE RAMP. DETECTABLE WARNINGS SHALL COMPLY WITH ICC/ANSI A117.1 SECTIONS 406.13 AND 705. TRUNCATED DOMES SHALL BE ALIGNED IN A SQUARE GRID PATTERN.

HANDICAP SIDEWALK RAMPS WITH DETECTABLE WARNINGS APRIL 8, 2011 SCALE: NONE **11** **D-3**

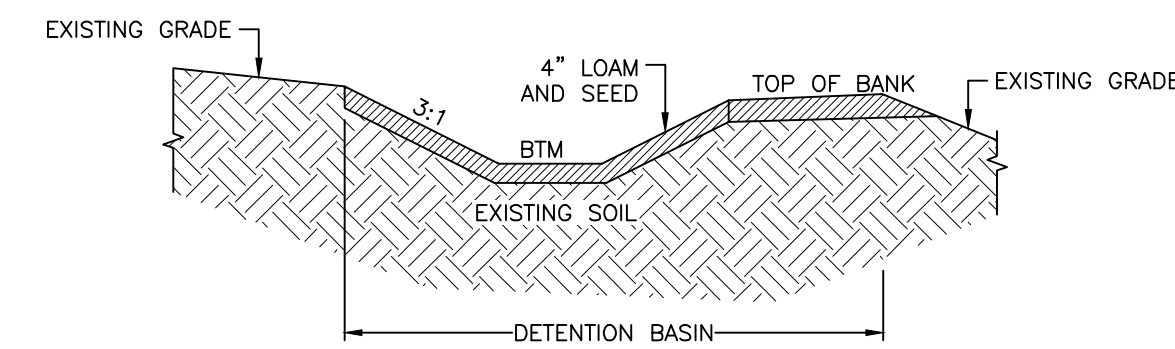


TYPICAL CAPE COD BERM MAY 20, 2013 SCALE: NONE **12** **D-3**



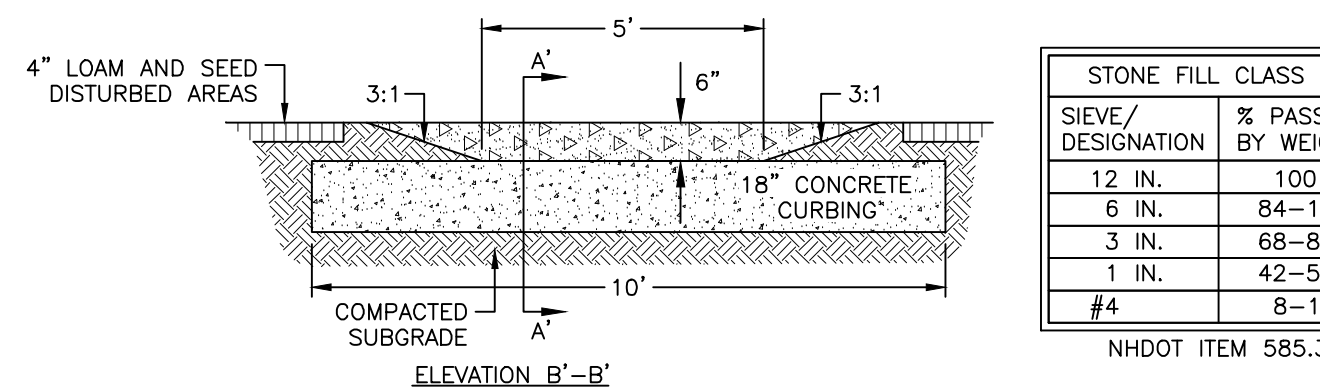
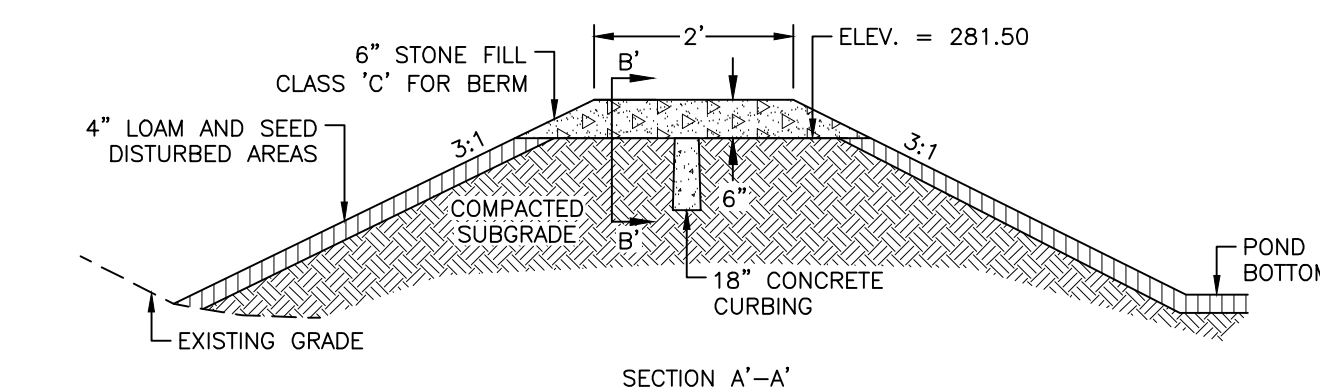
- NOTES:
- CURB FORM SHALL BE MILLER #1144 OR EQUAL
 - APPLY TACK COAT PRIOR TO PLACEMENT OF CURB
 - BITUMINOUS CURB MATERIAL SHALL MEET THE REQUIREMENTS OF NHDOT SECTION 609
 - CAPE COD BERM DIMENSIONS SHALL MATCH THOSE GIVEN IN THIS DETAIL
 - TO BE USED WHERE CURB DOES NOT ABUT SIDEWALK

TYPICAL CAPE COD BERM AUG. 28, 2013 SCALE: NONE **13** **D-3**



- CONSTRUCTION NOTES:
- THE BOTTOM OF THE EXCAVATION SHALL BE DEEPLY TILLED FOLLOWED BY A PASS WITH A LEVELING DRAG.
 - THE BOTTOM AND SIDES OF THE DETENTION BASIN(S) SHALL HAVE 4" OF LOAM AND SEED.
- NOTES:
- DO NOT PLACE DETENTION BASIN(S) INTO SERVICE UNTIL THE CONTRIBUTING AREA HAS BEEN COMPLETELY STABILIZED.

DETENTION BASIN - TYPICAL CROSS-SECTIONS SCALE: NONE **14** **D-3**



RIPRAP SPILLWAY SCALE: NONE **15** **D-3**



REV.	DATE	DESCRIPTION	DR	CK
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EROSION CONTROL NOTES:

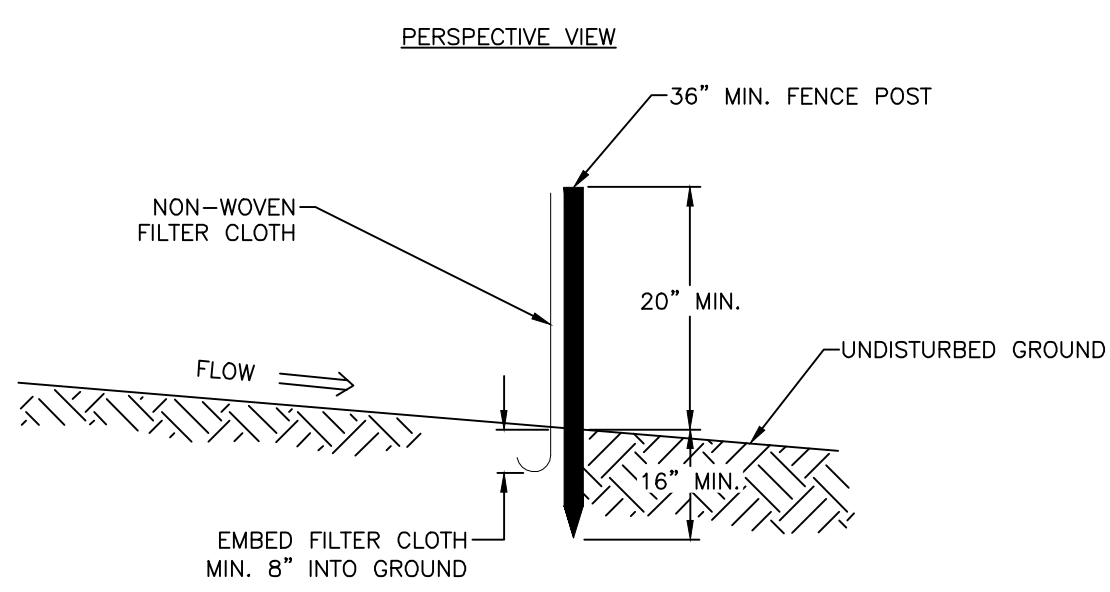
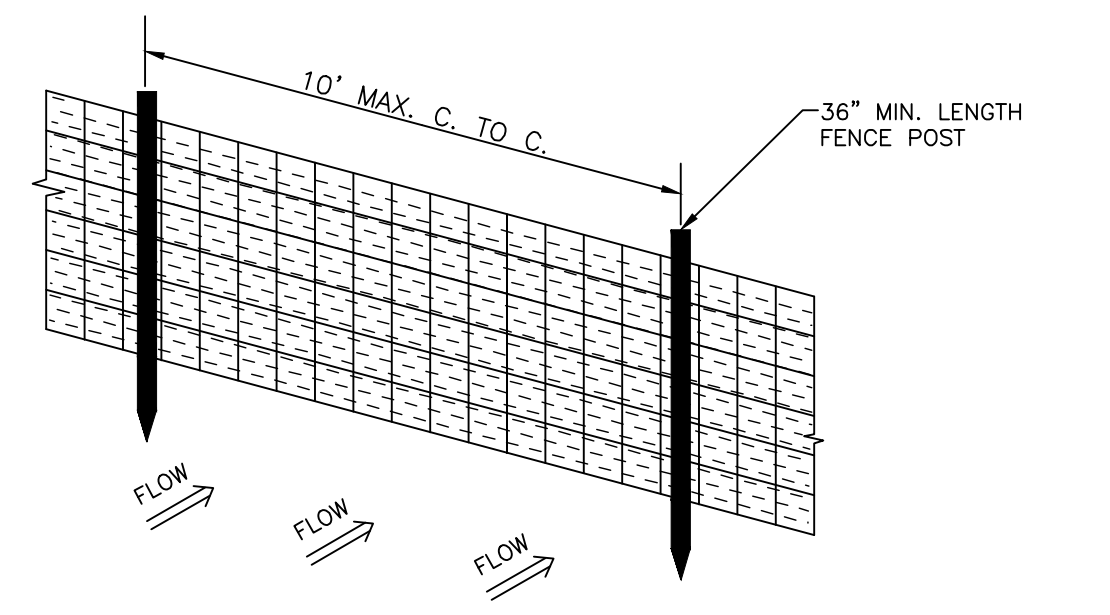
DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED:

1. INSTALLATION OF SILT SOCKS AND SILTATION FENCE WHERE INDICATED SHALL BE COMPLETED PRIOR TO THE START OF SITE WORK IN ANY GIVEN AREA.
2. SILT SOCKS AND SILTATION FENCES SHALL BE KEPT CLEAN DURING CONSTRUCTION AND REMOVED WHEN ALL DISTURBED AREAS HAVE A HEALTHY STAND OF VEGETATIVE COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EVERY 0.5" OR GREATER RAINFALL.
3. EXISTING VEGETATION IS TO REMAIN UNDISTURBED WHEREVER POSSIBLE.
4. PER THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION. THE TOTAL AREA OF ACTIVE DISTURBANCE, INCLUDING LOT DISTURBANCES, SHALL NOT EXCEED 5 ACRES.
5. THE DURATION OF TIME THAT AN AREA IS DISTURBED SHALL BE MINIMIZED. ALL NON-ACTIVE DISTURBED AREAS (i.e. CLEARED FOR CONSTRUCTION BUT NOT PRESENTLY UNDERGOING CONSTRUCTION) SHALL BE STABILIZED WITHIN 28 DAYS OF DISTURBANCE. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS AFTER FINAL GRADING.
6. ALL DITCHES, SWALES AND DETENTION BASINS SHALL BE CONSTRUCTED DURING THE INTIAL PHASE OF CONSTRUCTION AND SHALL BE STABILIZED PRIOR TO DIRECTING STORM WATER FLOW TO THEM.
7. AN AREA MAY BE CONSIDERED STABILIZED WHEN ONE OF THE FOLLOWING HAS OCCURED:
 - A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - B. A MINIMUM OF 65% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

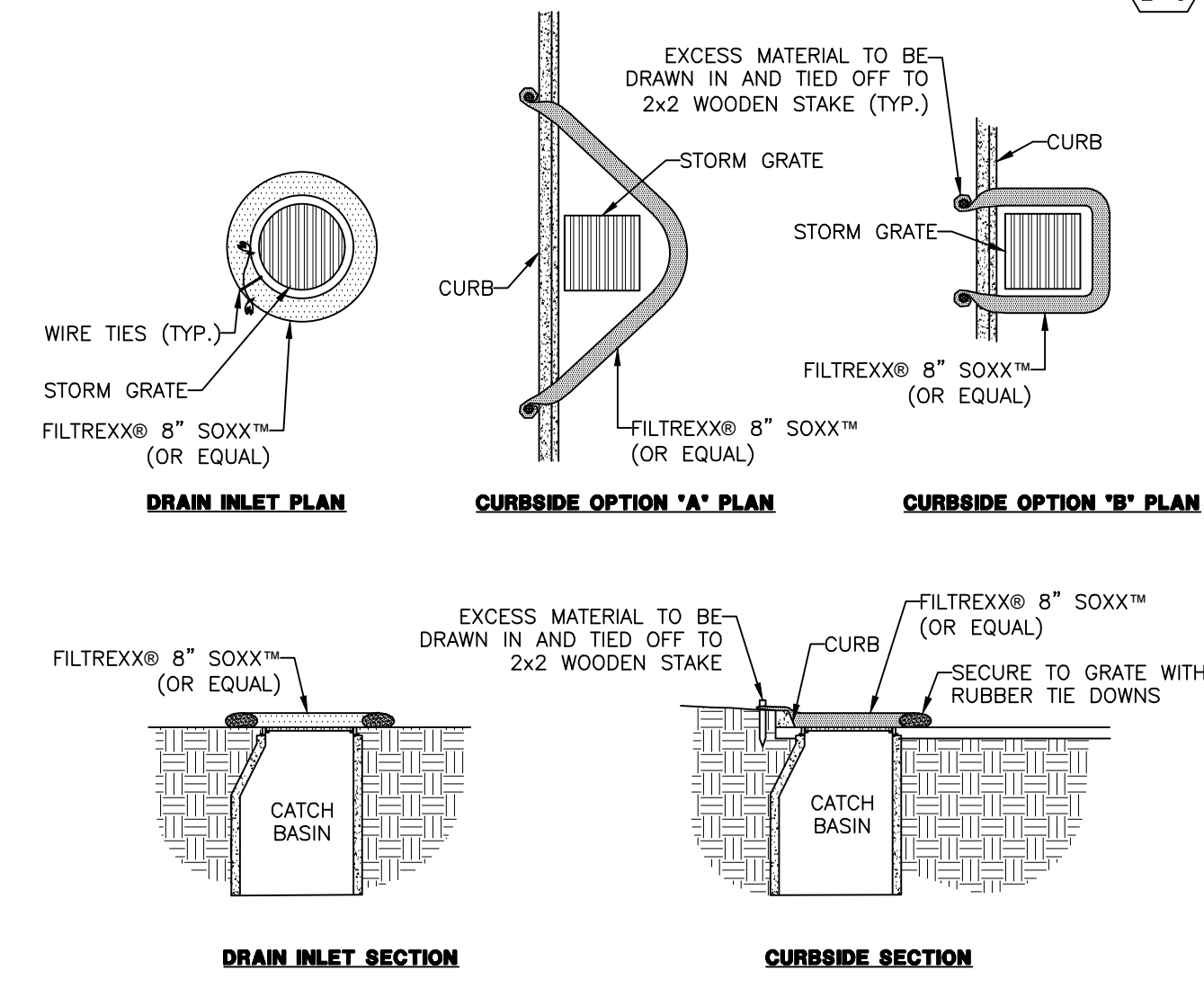
- THE SEED MIXTURE SHALL BE APPLIED AT A RATE OF 2.5 POUNDS PER 1,000 SQ. FT. AND SHALL BE MIXED AS FOLLOWS:
- | TYPICAL LAWN SEED | SLOPE SEED | |
|-------------------------------|-------------------------------|--|
| CREeping RED FESCUE 0.87 LBS. | CREeping RED FESCUE 1.01 LBS. | |
| KENTUCKY BLUEGRASS 0.71 LBS. | RYE GRASS 0.75 LBS. | |
| RYE GRASS 0.58 LBS. | RED TOP 0.18 LBS. | |
| RED TOP 0.14 LBS. | ALSIKE CLOVER 0.18 LBS. | |
| | BIRDSFOOT TREFLOIL 0.18 LBS. | |

9. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 600 POUNDS PER ACRE OR 13.8 POUNDS PER 1,000 SQUARE FEET OF LOW PHOSPHATE FERTILIZER (N-P2O5-K2O) OR EQUIVALENT (LOW PHOSPHORUS FERTILIZER IS DEFINED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT AS LESS THAN 2% PHOSPHORUS). APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQUARE FEET).
10. FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 FEET AND 250 FEET FROM A SURFACE WATER BODY AS SPECIFIED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT (SLOW RELEASE FERTILIZERS MUST BE AT LEAST 50% SLOW RELEASE NITROGEN COMPONENT). NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER. THESE LIMITATIONS ARE REQUIREMENTS.
11. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING THE WINTER MONTHS.

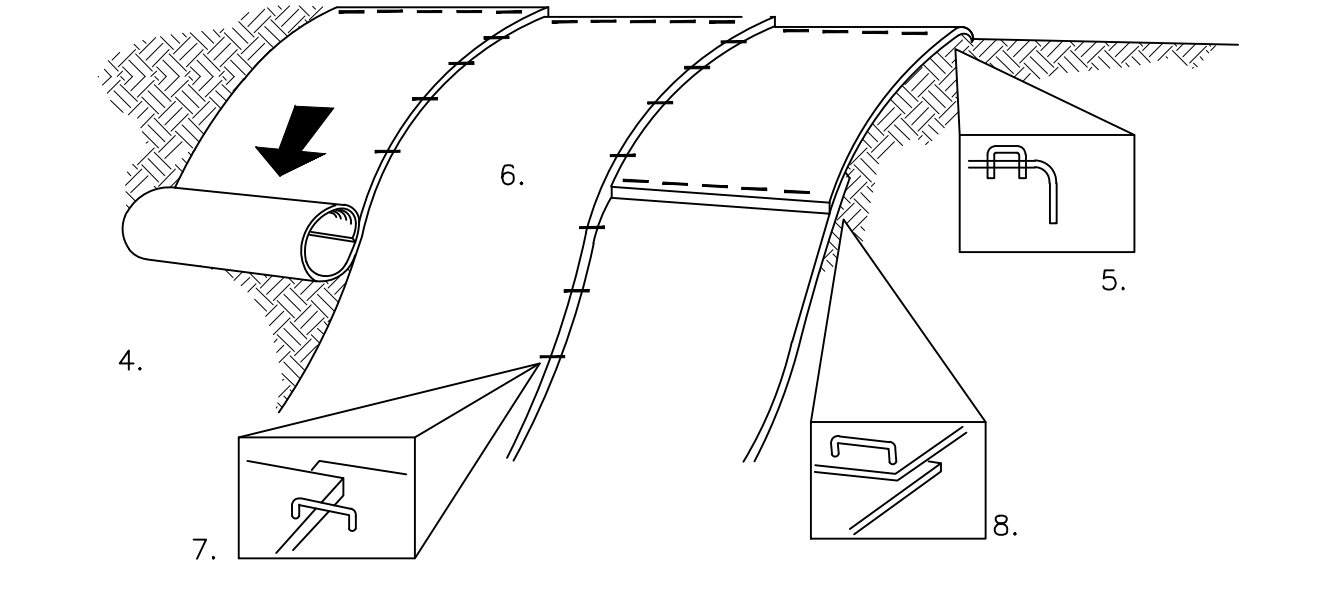
1. THE SITE CONTRACTOR SHALL MAINTAIN A VIGOROUS DUST CONTROL PROGRAM THROUGHOUT THE CONSTRUCTION PROCESS. EXPOSED EARTH SHALL BE KEPT MOIST OR MULCHED AT ALL TIMES TO PREVENT DUST FORMATION. SPECIAL ATTENTION SHALL BE PAID TO HIGH TRAFFIC AREAS.



SILTATION FENCE SCALE: NONE **13 D-4**

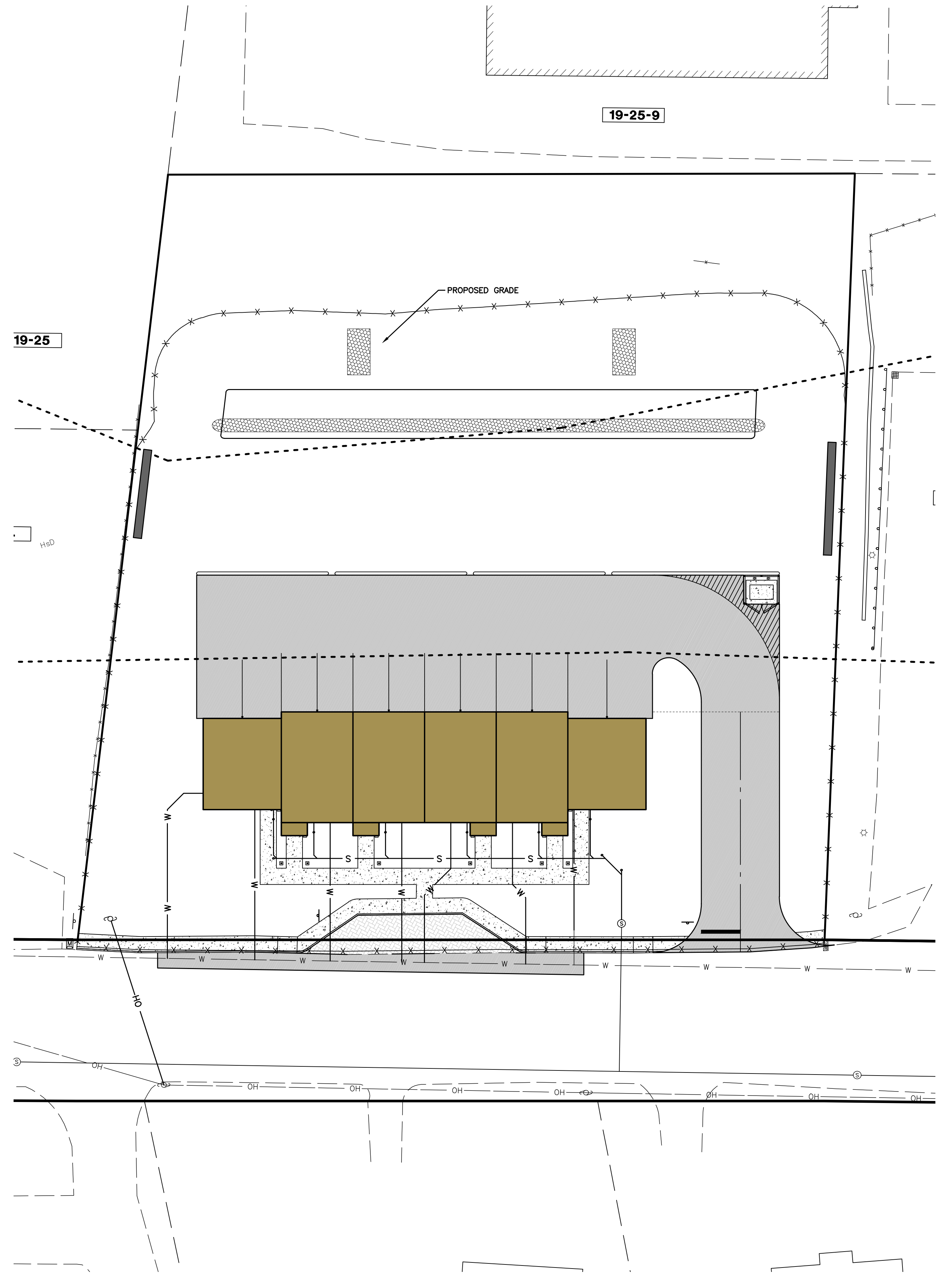


INLET PROTECTION (BY FILTREXX® OR EQUAL) SCALE: NONE **14 D-4**



1. FABRIC SHALL BE A STRAW/COCONUT FIBER EROSION CONTROL TURF REINFORCEMENT MAT SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUAL.
2. THE USE OF ANY EROSION CONTROL MAT WHICH CONTAINS WELDED PLASTIC OR BIODEGRADABLE PLASTIC THREAD OR NETTING IS STRICTLY PROHIBITED.
3. THE EROSION CONTROL MATERIAL(S) SHALL BE ANCHORED WITH "U" SHAPED 11 GAUGE WIRE STAPLES OR WOODEN STAKES WITH A MINIMUM TOP WIDTH OF 1" AND A LENGTH OF 6".
4. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
5. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROLL OF STAPLES OR STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET WITH A ROW OF STAPLES/STAKES PLACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
6. ROLL THE BLANKETS DOWN THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES OR STAKES IN APPROPRIATE LOCATIONS. REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN.
7. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OF OVERLAP DEPENDING ON THE BLANKET TYPE.
8. CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE OVERLAPPED AREA APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
9. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE BLANKETS.
10. THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO REESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEEDED AND REMULCHED AS DIRECTED.

SLOPE STABILIZATION TURF REINFORCEMENT MAT SCALE: NONE **4 D-4**



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LAND SERVICES, INC.
 ENGINEERING SURVEYING PERMITTING
 SOIL & WETLAND MAPPING SEPTIC DESIGN
 31 OLD NASHUA ROAD, AMHERST, NH 03801
 TEL: 603-673-1441
 FAX: 603-673-1584
 MERIDIANLANDSERVICES.COM



REV.	DATE	DESCRIPTION	DR	CK
A	3/17/21	REV FOR COMMENTS	SRF	SRF
B	8/31/2021	WATER UTILITY REVISION	SRF	SRF
C				
D				
E				
F				
G				
H				

CROSBY TOWNHOUSES
 SITE PLAN
 EROSION CONTROL PLAN DETAILS

MENGUYAN PROPERTY
 MANAGEMENT, LLC
 159 ELM STREET
 MAP 19 LOT 5
 MILFORD, NEW HAMPSHIRE
 SCALE: 1" = 20'




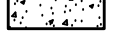
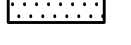
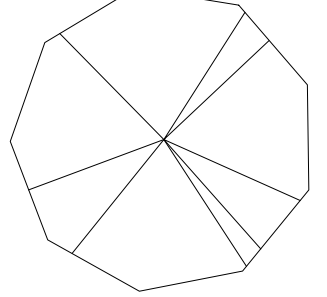
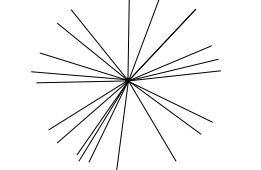
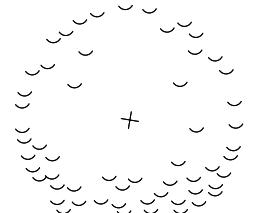
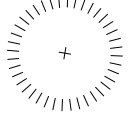


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 PROJECT 10839.00
 SHEET NO. 9 OF 10

NOTES:

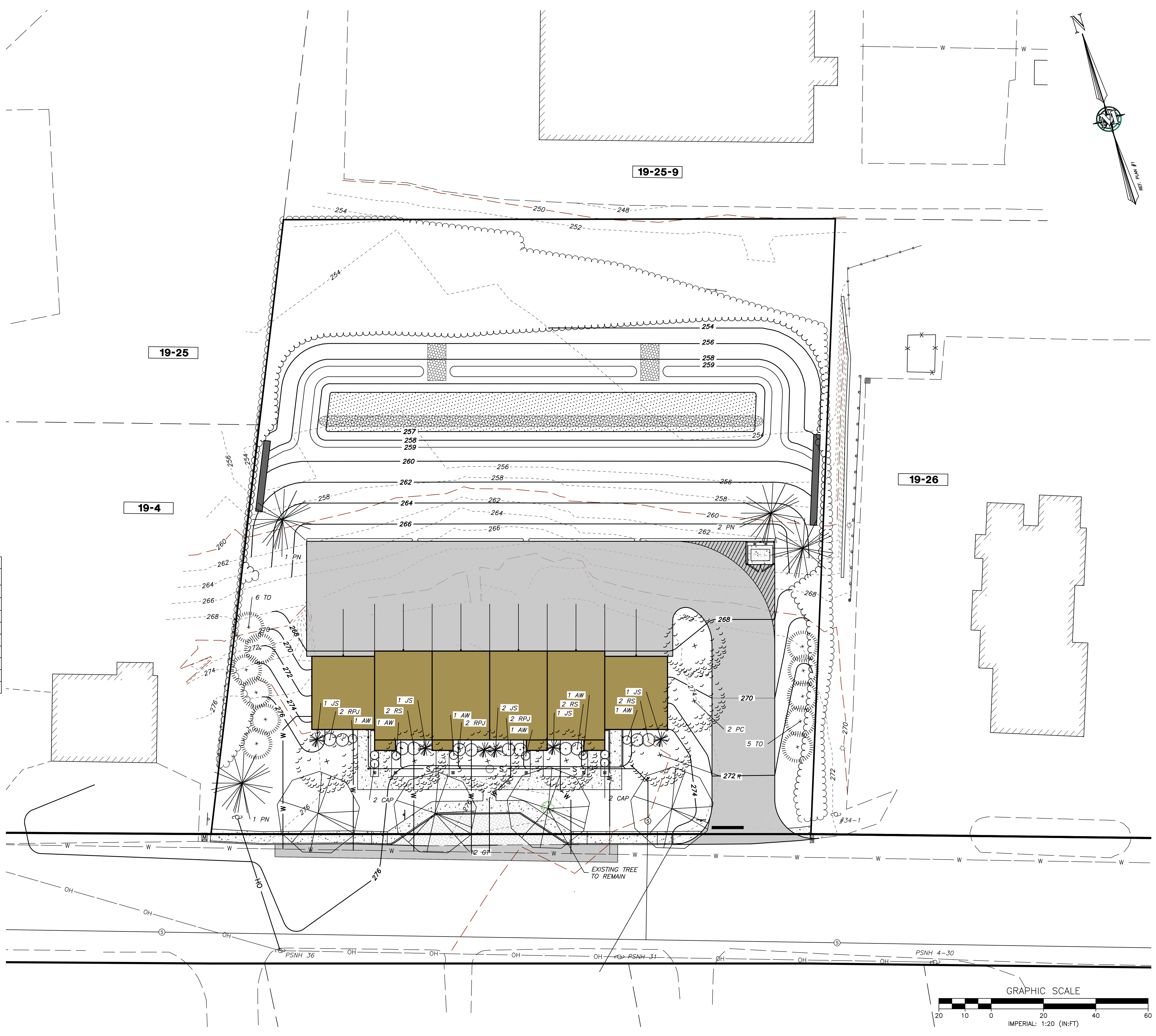
- THE PURPOSE OF THIS PLAN IS TO DEPICT LANDSCAPING FOR THE CROSBY TOWNHOUSE.
- LANDSCAPE REQUIREMENTS:

	REQUIRED	PROVIDED
ALONG R.O.W.	10 TREES	10 TREES (1 EXIST.)
ALONG PARKING	6 TREES	5 TREES
BUILDING FRONTAGE	28 SHRUBS	28 SHRUBS
PERIPHERY	AS NEEDED	11 TREES
TOTAL PROVIDED:	26 TREES & 28 SHRUBS	

LEGEND:

-  PROPOSED BUILDING
-  PROPOSED PAVEMENT
-  PROPOSED PAVER EMERGENCY LOADING AREA
-  PROPOSED ADA SIDEWALK
-  PROPOSED DETENTION BASIN
-  EXISTING & PROPOSED DECIDUOUS SHADE TREE
-  PROPOSED EVERGREEN TREE
-  PROPOSED FLOWERING TREE
-  PROPOSED EVERGREEN SCREEN TREE
-  PROPOSED FLOWERING SHRUB
-  PROPOSED EVERGREEN SHRUB

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
GT	3	GLEDITSIA TRIANCANTHOS INERMIS	THORNLESS HONEYLOCUST	2-1/2" TO 3-1/2" CALIPER
PC	2	PRUNUS CERASIFERA	THUNDERCLOUD PLUM	2-1/2" TO 3-1/2" CALIPER
PN	4	PINUS NIGRA	AUSTRIAN PINE	6' - 7'
SR	5	SYRINGA RETICULATA	JAPANESE TREE LILAC	2-1/2" TO 3-1/2" CALIPER
TO	11	THUJA OCCIDENTALIS	DARK AMERICAN ARBORVITAE	6' TO 7'
AW	6	AZALEA	DELAWARE VALLEY WHITE	2' TO 3"
CAP	4	COTONEASTER ADPRESSA	EARLY COTONEASTER	15" TO 18"
JS	6	JUNIPERUS CHINENSIS	SEAGREEN JUNIPER	2 - 3'
PJM	6	RHODOENDRON	PJM RHODOENDRON	2 - 3'
RS	6	RHODOENDRON	SCINTILLATION RHODOENDRON	2 - 3'



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REV.	DATE	DESCRIPTION	DR	CK
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CROSBY TOWNHOUSES
 SITE PLAN
 EROSION CONTROL PLAN DETAILS

MENGUANY PROPERTY
 MANAGEMENT, LLC
 159 ELM STREET
 MAP 19 LOT 5
 MILFORD, NEW HAMPSHIRE
 SCALE: 1" = 20'

LS-1
 SHEET
 FILE: 10839100.dwg
 PROJECT: 10839.00
 SHEET NO. 10 OF 10

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Crosby Townhouse
MENGYUAN PROPERTY MANAGEMENT, LLC
MAP 19 LOT 5
Milford, New Hampshire
Storm Water Management System
Inspection and Maintenance Manual
March 17, 2021

Introduction:

The operation and maintenance of a storm water management system and its individual components is as critical to system performance as the design. Without proper maintenance, best management practices (BMPs) are likely to become functionally impaired or to fail, providing reduced or no treatment of storm water. Proper operation and maintenance will ensure that the storm water system and individual BMPs will remain effective at removing pollutants as designed and meeting New Hampshire's water quality objectives. Proper maintenance will:

- Maintain the volume of storm water treated over the long term;
- Sustain the pollutant removal efficiency of the BMP;
- Reduce the risk of re-suspending sediment and other pollutants captured by the BMP;
- Prevent structural deterioration of the BMP and minimize the need for expensive repairs;
- Decrease the potential for failure of the BMP.

The Town of Milford require the long-term maintenance of storm water practices and stipulate the establishment of a mechanism to provide for ongoing inspections and maintenance.

Facilities Information:

Owner of Record:

Mengyuan Property Management, LLC
7 Mountain Ash Lane
Franklin, MA 02038

Report Information:

- Every effort has been made to provide a comprehensive operation and maintenance plan for this project. All measures and guidelines presented within this plan are the minimum efforts required to achieve the intent of the erosion and sedimentation control program and minimize off site impacts.
- Should any omissions or inconsistencies arise in the plan, the owner, and governing officials are expected to use reasonable and experienced judgment in the field relative to evaluation and implementing measures based on the intent of this plan.
- This manual does not preclude any requirements for additional controls identified in the approved plan set or support documents or any other appropriate techniques to limit erosion and sedimentation of the site.
- Any measures deemed necessary by the town planning board, conservation commission, zoning board, or the town's representative shall become part of this inspection and maintenance plan.
- Mengyuan Property Management, LLC will be responsible for implementing the required reporting, inspection, and maintenance activities identified in this Inspection and Maintenance (I&M) manual.
- Mengyuan Property Management, LLC shall maintain all record keeping required by the I&M manual. Any transfer of responsibility for I&M activities or transfer in ownership shall be documented to the DES in writing.
- Inspection and maintenance reports shall be completed after each inspection. Copies of the report forms to be completed by the inspector are attached at the end of this manual, including:
 - Inspection checklist to be used during each inspection;
 - Inspection and maintenance logs to document each inspection and maintenance activity;
- A plan showing the locations of all the storm water practices described in the I&M manual is attached at the end of this manual.
- **Inspection and maintenance records must be provided to DES upon request.**

Storm water management systems present at Crosby Townhouses

Description:

The site's stormwater runoff is proposed to be collected and treated via a 0.06 acre detention pond with a forebay for pretreatment. The system was designed to the 25 year-24 hour storm event pre verse post runoff rates and volumes. With the proposed improvements the site reduces the discharge volume and rate when compared to the pre-condition. Maintenance:

1. Regular inspection and routine maintenance are necessary to ensure that the storm water management system continues to control and treat runoff.
2. Structural components of the site's drainage system must be inspected and maintained on an annual basis (minimum).
3. The outlets of the storm water management system must be inspected bi-annually.
4. All outfalls shall be cleaned of all siltation and debris at the completion of the construction process when the site has been stabilized with loam, seed, and landscaping.
5. Any evidence of erosion, structural damage to the outlet, or other damage must be reported to the appropriate on-site representative and repaired as soon as possible.
6. Any sediment and/or trash should be removed from the outlet structures and pipes cleaned of all silt.
7. Subsurface pipe detention systems must be inspected and maintained on an annual basis (minimum).

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In-ground Infiltration Basin

Description:

Infiltration basins are impoundments designed to temporarily store runoff, allowing all or a portion of the water to infiltrate into the ground. An infiltration basin is designed to completely drain between storm events. An infiltration basin is specifically designed to retain and infiltrate the entire Water Quality Volume. Some infiltration basins may infiltrate additional volumes during larger storm events, but many will be designed to release stormwater exceeding the water quality volume from the larger storms. In a properly sited and designed infiltration basin, water quality treatment is provided by runoff pollutants binding to soil particles beneath the basin as water percolates into the subsurface. Biological and chemical processes occurring in the soil also contribute to the breakdown of pollutants. Infiltrated water is used by plants to support growth or it is recharged to the underlying groundwater.

As with all impoundment BMPs, surface infiltration basins should be designed with an outlet structure to pass peak flows during a range of storm events, as well as with an emergency spillway to pass peak flows around the embankment during extreme storm events that exceed the combined infiltration capacity and outlet structure capacity of the facility.

Maintenance:

1. Removal of debris from inlet and outlet structures
2. Removal of accumulated sediment
3. Inspection and repair of outlet structures and appurtenances
4. Inspection of infiltration components at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
5. Inspection of pretreatment measures at least twice annually, and removal of accumulated sediment as warranted by inspection, but no less than once annually.
6. Periodic mowing of embankments
7. Removal of woody vegetation from embankments
8. Inspection and repair of embankments and spillways
9. If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration trench.

**Inspection Checklist and Maintenance Report
In-Ground Infiltration Basin**

Practice Location: _____

Date: _____

Performed By: _____

Signature _____

Inspection Checklist

Presence of woody vegetation on embankments Yes No

Presence of trash or debris Yes No

Presence of accumulated sediment Yes No

Structural damage at inlet or outlet Yes No

Drains with 72 hours of rainfall Yes No

Maintenance Performed

Sediment Forebay

Description:

A sediment forebay is an impoundment, basin, or other storage structure designed to dissipate the energy of incoming runoff and allow for initial settling of coarse sediments. Forebays are used for pretreatment of runoff prior to discharge into the primary water quality treatment BMP. In some cases, forebays may be constructed as separate structures but often, they are integrated into the design of larger stormwater management structures.

Maintenance:

1. Forebays help reduce the sediment load to downstream BMPs and will therefore require more frequent cleaning.
2. Inspect at least annually;
3. Conduct periodic mowing of embankments (generally two times per year) to control growth of woody vegetation on embankments;
4. Remove debris from outlet structures at least once annually;
5. Remove and dispose of accumulated sediment based on inspection;
6. Install and maintain a staff gage or other measuring device, to indicate depth of sediment accumulation and level at which clean-out is required.

Inspection Checklist and Maintenance Report Sediment Forebay

Practice Location: _____

Date: _____

Performed By: _____

Signature _____

Inspection Checklist

Presence of erosion or vegetation loss Yes No

Presence of accumulated sediment Yes No

Presence of trash or debris Yes No

Maintenance Performed

Terraced Slopes or Benching

Description:

The land grading practice of providing terraced slopes or benching consists of shaping disturbed land surfaces to control the length of flow down steep slopes. Intermediate terraces (or benches) are incorporated into slopes that exceed 4:1 gradient. These terraces are then used to convey runoff laterally to a safe discharge (or to a constructed drainage system). The purpose of this practice is to provide for erosion control and vegetative establishment on those areas where the existing land surface is to be reshaped by grading.

Provisions should be made to safely conduct surface runoff collected by the terraced slope to storm drains, stabilized channels, or other stable conveyance practices or water courses. Runoff should also be intercepted at the top of the slopes and directed to a stable outlet.

Maintenance:

1. Grassed slopes should be mowed to grass height and frequency specified by design.
2. Vegetated slopes should be inspected periodically for signs of vegetation loss or damage, with restoration as needed.
3. Terraces and slopes should be inspected periodically for any sign of rill or gully erosion, and if such conditions are noted, the area should be immediately investigated and repaired as needed.

Flow Splitters

Description:

A flow splitter is an engineered structure used to divide flow into two or more directions. The structure typically consists of a manhole, precast concrete vault, or other structure divided into chambers, with the chambers separated by hydraulic control elements. Various hydraulic devices (such as pipes, weirs, or orifices) can be used to control the direction and quantity of flow entering the structure. Generally, a flow splitter consists of a structure with one inlet and two outlets set at different elevations. One outlet conveys low flows, such as those during small storms or at the beginning of a large storm.

The other outlet conveys high flows occurring later in the storm. The flows are conveyed in different directions for water quantity or quality control.

The flow splitter is typically used to direct base flows and smaller storm flows to an “off-line” water quality treatment or pretreatment practice, with larger storms directed to an alternative outlet to bypass, and thus prevent overloading of, the treatment system. This simple type of device works on hydraulic principles and does not require mechanical components or instrumentation.

Maintenance:

1. Flow splitters should be inspected concurrently with the conveyance and treatment practices served by the devices. It is recommended that the device be inspected and maintained at least once annually.
2. Sediments and debris should be removed and disposed as for other components of the drainage system.

Inspection Checklist and Maintenance Report Flow Splitters

Practice Location: _____

Date: _____

Performed By: _____

Signature _____

Inspection Checklist

Presence of accumulated sediment

Yes

No

Damage to inlet or outlet

Yes

No

Presence of trash or debris

Yes

No

Maintenance Performed

Permanent Outlet Protection

Description:

Outlet protection is typically provided at stormwater discharge conduits from structural best management practices to reduce the velocity of concentrated stormwater flows to prevent scour and minimize the potential for downstream erosion. Outlet protection is also provided where conduits discharge runoff into an in-ground stormwater management practice (e.g., pond or swale) to prevent scour where flow enters the BMP.

Standard engineering practices allow for many different types of outlet protection which provide energy dissipation. Common outlet protection measures include:

- Riprap aprons, the design of which is covered within this section;
- Riprap lined scour holes, stilling basins or plunge pools. Design references for stilling basins are provided under 'Design References'.

Maintenance:

3. Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.

Inspection Checklist and Maintenance Report Permanent Outlet Protection

Practice Location: _____

Date: _____

Performed By: _____

Signature _____

Inspection Checklist

Presence of accumulated sediment

Yes

No

Damage to outlet

Yes

No

Presence of trash or debris

Yes

No

Maintenance Performed

Invasive Species Information:

Description:

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

Maintenance:

1. Remove invasive plant species from the storm water management practices by pulling, either by hand for small plants or by hand shovel for shrubs and bushes.
2. Refer to the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species.



UNIVERSITY of NEW HAMPSHIRE
COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Knowing how a particular plant reproduces helps determine the appropriate disposal method. Most

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

New Hampshire Regulations

Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag “head first” at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarpping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let it dry for several weeks.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants non-viable before composting. Closely examine the plant before composting and avoid composting seeds.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database /
Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Finally, be diligent looking for seedlings for years in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Plant Name	Method of Reproducing	Time of Year To Dispose	Methods of Disposal
Woody Plants*	Fruit/Seeds		
Norway Maple <i>(Acer platanoides)</i> European Barberry <i>(Berberis vulgaris)</i> Japanese Barberry <i>(Berberis thunbergii)</i> Autumn Olive <i>(Elaeagnus umbellata)</i> Burning Bush <i>(Euonymus alatus)</i>		Prior to fruit/seed ripening	Seedlings and small plants. <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots up. No special care needed. Larger plants <ul style="list-style-type: none"> ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn.
Morrow's Honeysuckle <i>(Lonicera morrowii)</i> Tatarian Honeysuckle <i>(Lonicera tatarica)</i> Showy Bush Honeysuckle <i>(Lonicera x bella)</i> Common Buckthorn <i>(Rhamnus cathartica)</i> Glossy Buckthorn <i>(Frangula alnus)</i>		After fruit/seed is ripe	Don't remove from site. <ul style="list-style-type: none"> ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
Woody Plants*	Fruits/Seeds/Plant Fragments		
Oriental Bittersweet <i>(Celastrus orbiculatus)</i> Multiflora Rose <i>(Rosa multiflora)</i>		Prior to fruit/seed ripening	Seedlings and small plants. <ul style="list-style-type: none"> ▪ Pull or cut and leave on site with roots up. No special care needed. Larger plants <ul style="list-style-type: none"> ▪ Make a brush pile. ▪ Burn.
		After fruit/seed is ripe	Don't remove from site. <ul style="list-style-type: none"> ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

Plant Name	Method of Reproducing	Time of Year To Dispose	Methods of Disposal
Non-woody plants	Fruits/Seeds		
Garlic Mustard (<i>Alliaria petiolata</i>) Spotted Knapweed (<i>Centaurea maculosa</i>) ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. Black Swallow-wort (<i>Cynanchum nigrum</i>) ▪ May cause skin rash. Wear gloves and long sleeves when handling. Pale swallow-wort (<i>Cynanchum rossicum</i>) Giant Hogweed (<i>Heracleum mantegazzianum</i>) ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. Dame's Rocket (<i>Hesperis matronalis</i>) Perennial Pepperweed (<i>Lepidium latifolium</i>) Purple loosestrife (<i>Lythrum salicaria</i>) Japanese Stilt Grass (<i>Microstegium vimineum</i>) Mile-a-Minute Weed (<i>Polygonum perfoliatum</i>)		Prior to flowering	Depends on scale of infestation Small infestation: ▪ Remove and scatter Large infestation: ▪ Remove and pile. (You can pile on or cover with plastic sheeting) ▪ Monitor. Remove any re-sprouting material
		During and following flowering	Do nothing until the following year; Or Remove flowering heads and bag and let rot. Small infestation: ▪ Remove and scatter remaining material Large infestation: ▪ Remove and pile remaining material. (You can pile on or cover with plastic sheeting) ▪ Monitor. Remove any re-sprouting material
Non-woody plants *	Fruits/seeds/plant parts		
Common Reed (<i>Phragmites australis</i>) Japanese Knotweed (<i>Polygonum cuspidatum</i>) Bohemian Knotweed (<i>Polygonum x bohemicum</i>)	Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.		Small infestation: ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn Large infestation: ▪ Remove material to unsuitable habitat (dry, hot sunny or dry shaded location) and scatter or pile. • Monitor and remove any sprouting material. • Pile, let dry, and burn.

October, 2009

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Deicing Log

Access Drives & Parking Areas

Do Not Apply Sand To Permeable Pavements

Date: _____

Performed By: _____

Signature _____

Maintenance Performed:

Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky

Reason for applying:

Chemical:

Application Time:

Application Amount:

Observation (first day):

Observation (after event):

Observation (before next application):

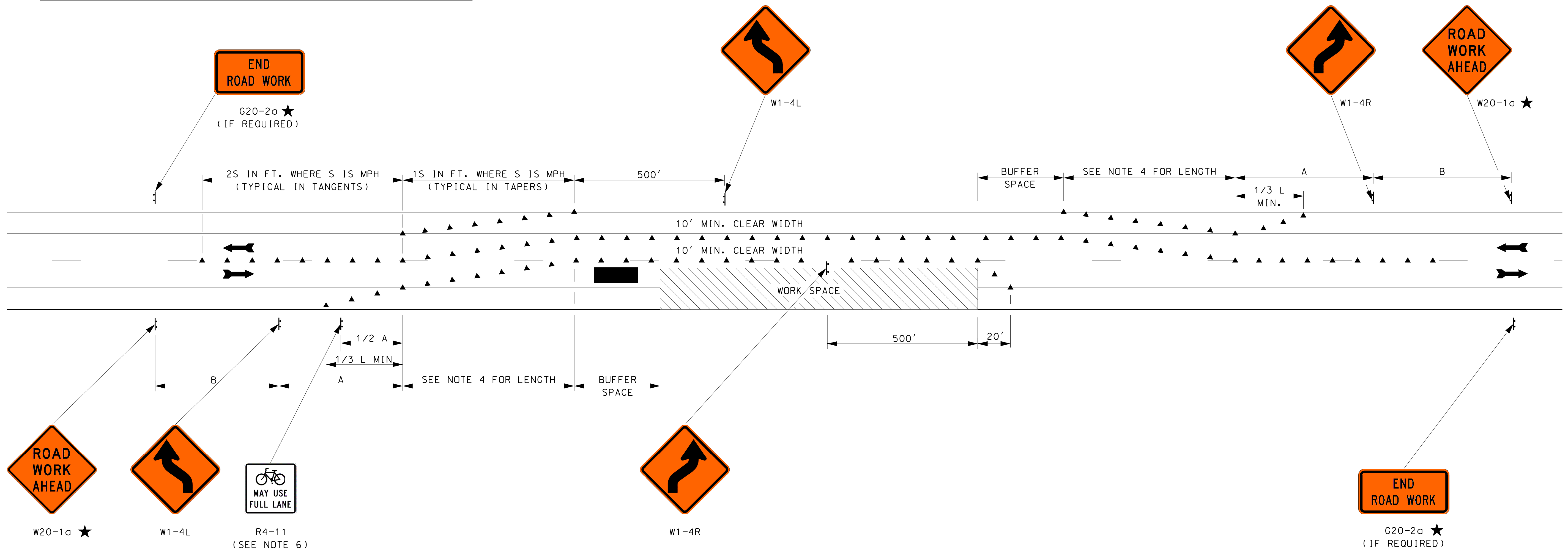
Inspection and Maintenance Log					
	BMP	Inspection Date	Inspected By	Maintenance Required?	Maintenance Performed
1				<input type="checkbox"/> Yes <input type="checkbox"/> No	
2				<input type="checkbox"/> Yes <input type="checkbox"/> No	
3				<input type="checkbox"/> Yes <input type="checkbox"/> No	
4				<input type="checkbox"/> Yes <input type="checkbox"/> No	
5				<input type="checkbox"/> Yes <input type="checkbox"/> No	
6				<input type="checkbox"/> Yes <input type="checkbox"/> No	
7				<input type="checkbox"/> Yes <input type="checkbox"/> No	
8				<input type="checkbox"/> Yes <input type="checkbox"/> No	
9				<input type="checkbox"/> Yes <input type="checkbox"/> No	

REVISION DATE
08/03/2004
03/16/2017
11/28/2018
05/17/2019

*.DGN FILE NAME
TC-4

TYPICAL APPLICATION TWO WAY TRAFFIC LANE SHIFT

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (≤ 30 MPH)	100'	100'	100'
URBAN (≥ 35 MPH)	350'	350'	350'
RURAL	500'	500'	500'
EXPRESSWAY / FREEWAY	1000'	1500'	2640'



GENERAL NOTES

- ★ SEE AMENDMENT NO. 11 ON TC-1.
- 1. FOR OPERATIONS WHERE TWO-WAY TRAFFIC LANE SHIFT CAN BE MAINTAINED ON TWO 10' MIN. CLEAR WIDTH LANES.
- 2. FOR LONG-TERM STATIONARY OR INTERMEDIATE-TERM STATIONARY WORK, PAVEMENT MARKINGS INDICATING NO PASSING SHALL BE USED. DO NOT PASS SIGNS (R4-1) MAY BE REQUIRED.
- 3. FOR TAPER LENGTH (L) CRITERIA, SEE MUTCD TABLES 6C-3 AND 6C-4.
- 4. FOR SPEEDS > 50 MPH, LENGTH = L. FOR SPEEDS ≤ 50 MPH LENGTH = 1/2L.
- 5. FOR BUFFER SPACE CRITERIA, SEE STOPPING SIGHT DISTANCE, MUTCD TABLE 6C-2.
- 6. INSTALL ON ALL APPROACHES IF THE CRITERIA IN AMENDMENT NO. 10 ON TC-1 APPLIES.

LEGEND	
▲	CHANNELIZING DEVICES
■	TMA (SEE TC-1, NOTE 9)

WORK ZONE TRAFFIC CONTROL
**TWO WAY TRAFFIC
LANE SHIFT**

NOT TO SCALE

STANDARD PLANS

