



**Date:** August 16, 2019  
**To:** Planning Board  
**From:** Lincoln Daley, Community Development Director  
Kellie Shamel, Town Planner  
**Subject:** SD2019-08 - Richard Keogh, Tax Map 23, Lot 2, 118 Amherst Street. Major Subdivision Application to subdivide the subject parcel into eight (8) total lots, the construction of an 800 linear foot subdivision roadway, related drainage/stormwater improvements, and offsite improvements.

**BACKGROUND/PROPOSAL:**

The applicant before the Planning Board to continue the major subdivision application to create eight (8) total lots, the construction of an 800' linear foot subdivision roadway, and related drainage/stormwater improvements. Attached please find the subdivision plan set and waiver requests.

The applicant was before the Planning Board on June 25<sup>th</sup>. The applicant has revised the plans since the June 25 meeting based on Planning Board and staff comments.

**EXISTING USE/CONDITIONS:**

The subject parcel consists of approximately 7.66 acres (333,670 sq.ft.) with 183 linear feet of frontage on Amherst Road. The property contains a single-family residence and accessory structures. Located to the south of the subject property is an established multi-family development. East and west of the property consists primarily of single-family residences. The property borders the Town of Amherst to the north where the property owner owns the abutting, undeveloped 5.75 acre property labeled, Map 3 Lot 85 in Amherst.

A wetland delineation was performed as part of the submittal and shows a substantial wetland resource area along the northern portion of the property. The topography for the subject property slopes downward from east to west. Said wetland resource area may be hydrologically connected to an unmaintained stormwater system that runs under Amherst Street towards Orchard Street.

**LOT AREA:**

Proposed Tax Map 23, Lot 2 = ±7.66 acres (333,670 sq.ft.)

**APPLICATION STATUS:**

The application was accepted as complete at the June 25, 2019 Planning Board meeting.

**REGIONAL IMPACT:**

At the June 25, 2019 meeting the Board determined there is no potential regional impact.

**NOTICES:**

Notices were sent to all property abutters on August 6, 2019.

**WAIVERS:**

1. Waiver request from the Development Regulations, Article V, Section 5.08 for authorization to design a conventional subdivision instead of an open space conservation development.
2. Waiver request from Town's Stormwater Management and Erosion Control Regulations, Section 5.32.080, C.2.a to tie into the municipal stormwater system and permit an increase in the amount of runoff that leaves the boundaries of the site.
3. Waiver request from the Driveway Regulations, Section VII, F requiring the driveway entrance from having a negative slope.

**BOARD ACTION(S) / DECISION(S)**

The Board will need to determine the following as part of the Final Plan Review process:

1. Determination of possible impact studies.
2. Review of the waiver requests and vote to approve / deny.
3. Determination of the layout and design of the subdivision roadway and proposed lots.

**ZONING:**

The subject parcel lays within the Residential ‘A’ Zoning District. The intent of the Residence "A" District is to provide for low-density or low-intensity uses, primarily single-family residential on individual lots. The proposal calls for the creation of eight total lots each with a minimum area of 15,000 square feet and 100 feet of frontage on the subdivision roadway as required within the Zoning District for parcels serviced by municipal water and sewer.

The property falls outside of the groundwater protection district and the 100-year flood hazard area. The plans display the approximate location of each of the single-family residences and driveways. All existing and proposed structures are located within the dimensional 30 foot front and 15 foot side/rear setbacks and delineated wetland buffer area.

**SUBDIVISION DENSITY AND DESIGN**

The applicant is proposing an 8 lot conventional subdivision design. As stated previously, each of the proposed lots meet the minimum 15,000 square feet and 100 linear feet of frontage. The applicant should discuss and further clarify how this lot satisfies the purpose and intent of development regulations by providing for the safe, attractive and harmonious development of land and to insure the health, safety and welfare of the residents of the Town of Milford.

**TRAFFIC AND ACCESS MANAGEMENT:**

The applicant is proposing a 50 foot wide x 800 foot right of way to service the 8 lots off of Amherst Road. The proposed width of subdivision the roadway is 22 feet and terminates with a permitted “tomahawk” turn around area. Access/Egress from Lots 2-5 and 2-6 will be from a proposed shared driveway and maintenance easement. The proposal calls for a 30 foot wide Private Right of Way that extends into the abutting property in Amherst (Map 3, Lot 85). According to the plan Map 3, Lot 85 is not to be considered a buildable lot.

Given the topography of the property and curvature of the Amherst Street in proximity to the development, the applicant should verify that the entrance provides adequate sight distance. The applicant will be required to file for driveway permit with the Department of Public Works.

The applicant is proposing to connect the 5 foot wide existing sidewalk network located at the intersection of Merrimack Street and Amherst Street to the proposed subdivision roadway entrance, a distance of more 200 linear feet.

**DRAINAGE/STORMWATER MANAGEMENT:**

The drainage and stormwater has been redesigned to be managed onsite and not utilizing the municipal system as previously proposed. The stormwater and drainage design has been reviewed by the Town Engineering Consultant, KV Partners. See attached review dated 8/8/19.

**UTILITES:**

The subdivision will be serviced by underground utilities and municipal water and sewer. Milford water and sewer will not be extended into the Amherst to service Lot 3-85.

**INTERDEPARTMENTAL REVIEWS:**

**Ambulance:** No comments.

**Assessing:** No comments.

**Building Department:** No comments

**Code Enforcement/ Health:** No comments.

**Conservation Commission:** See attached comments.

**Environmental Programs/Stormwater:** See letter from the Town engineering consultant, KV Partners dated 8/8/19.

**Fire Department:** No comments.

**Heritage Commission:** Several concerns over the number of stone walls that will be disturbed in the proposed roadway and particularly in lots 23-2-1 and 23-2-8. Noting the large amount of recontouring of the slope, there would be much disruption of the walls. The Committee would like to see some alternative plans that would preserve most of the walls as this is a well-documented feature of the town's heritage speaking to the early farming use of the land going back to our earliest settlers.

**Police Department:** No comments.

**Public Works:**

1. Public Works is ok with the revised drainage so long as KV Partners comments from 8/8/12 are incorporated.
2. The other question is regarding sidewalks within the development. It was understood that sidewalks were to be on one side of the road within the development.

**Water/Sewer Utilities:**

1. The private right of way will not be utilized to extend municipal water and sewer into the Town of Amherst.
2. There are some issues / conflicts with the water & sewer drawings for the Amherst St. project. Discussions are still underway with Meridian to try and come to a resolution.

**Community Development / Planning:**

1. The plans display several existing stone walls on the property. The applicant is encouraged to reuse and incorporate the stone into the subdivision design and layout. **Addressed**
2. Sheet 1. Please revise note 7 to read, "The proposed lots will be subject to Police and Library impact fees" **Addressed**
3. Sheet 3 Subdivision Plan, Snow Storage. The snow storage areas shown at the ends of the subdivision roadway turnaround are located outside of the proposed Right of Way and would require the access/maintenance easements to store and maintain snow on private property. Please revise the plan to show the dimensions of the proposed snow storage areas and submit the legal descriptions and restrictions for each proposed access and maintenance easements to the Community Development Office for review and approval.

***Partially Addressed.** The plans have been updated to include the dimensions of the proposed snow storage maintenance areas. The Applicant will be required to submit the legal descriptions and restrictions for each proposed access and maintenance easements to the Community Development Office for review and approval.*

4. Sheet 3 Subdivision Plan, Drainage Easement. Please provide the legal description and limitations for the proposed drainage easement to the Community Development Office for review and approval.

***Partially Addressed.** The plans have been updated to include the approximate dimensions of the drainage easement areas. The Applicant will be required to submit the legal descriptions and restrictions for each proposed drainage easement to the Community Development Office for review and approval.*

5. Sheet, Subdivision Plan, Driveway Easement. Please provide the legal description and limitations for the proposed driveway easement to the Community Development Office for review and approval.

***Partially Addressed.** The plans have been updated to include the approximate dimensions of the shared driveway easement. The Applicant will be required to submit the legal descriptions and restrictions said easement to the Community Development Office for review and approval.*

6. Sheet 3, Subdivision Plan. Both the Building Setback Line and wetland buffer line have the same labeling. Please revise the plan set by delineating the building setback line and wetland buffer line. Further, please revise the plan by showing wetland buffer delineation.

***Partially Addressed.** Please revise the plan to delineate the 25' wetland buffer area for areas between the proposed lots 23-2-7 and 23-2-6. In addition, revise the Legend by changing "Wetland Setback Line" to "Wetland Buffer".*

7. General Question. Based on the discussion at the previous meeting involving the expanded area used for the drainage analysis, please explain if the project requires an Alteration of Terrain Permit to NHDES (projects that disturb areas

- greater than 100,000 square feet). If yes, please provide the Office of Community Development with a copy of said submittal.
8. Sheet D-1, Sidewalk Detail. Please refer to the Dept. of Public Works, Infrastructure Design, Construction & Administration Standards regarding the engineering and construction of the sidewalk along Amherst Street. *Addressed.*
  9. The proposed subdivision calls for the creation of a private 35' wide private Right of Way to a contiguous and landlocked property in Amherst owned by the applicant. The applicant has stated that the ROW would be used to provide access and means for extending utilities to a single lot (Tax Map 3, Lot 85) totaling 5.75 acres in Amherst.
    - a. Applicant submitted waiver request to permit the construction of the 35' Right of Way for Board consideration and approval.
    - b. As stated on Sheet 1, Note 14, the Right of Way is not a building lot. However, it is considered to be a taxable lot owned by the property owner of Map 3 lot 85 in Amherst. The plan set should be updated by assigning a lot number to the proposed Private Right of Way.
    - c. Sheet 1, Note 14 should be revised to include language stating that the Private Right of Way
  10. General Comment. The drainage design is under review by the Town's engineering consultant. Staff understands that the applicant is meeting with the Public Works Department to discuss potential offsite improvements needed to connect a portion of the drainage volume from the proposed subdivision to the municipal stormwater system on Amherst Street.
  11. General Comment. Additional information is required to determine if the delineated wetlands on the property are hydrologically connected to the adjacent unmaintained stormwater/drainage system.
  12. General Question. Given the elevation change from the Map 23, Lots 2, 2-1 through 2-4 to the abutting properties to the south and proximity to existing homes, please answer the following:
    - a. Please explain if additional stormwater mitigation is required to manage the drainage/stormwater in the rear portions of Map 23, Lots 2, 2-1 through 2-4 onto the abutting residential properties.
    - b. Please explain if the applicant intends to provide visual mitigation Map 23, Lots 2, 2-1 through 2-4 to the abutting properties to the south and proximity to existing homes, please answer the following:
  13. General Comment, Sheet P-5. Please revise the sheet to include the approximate finish grade elevations for each proposed house.
  14. Drainage Easement. Based on KV Partners review comments and comment from DPW it is understood that the swales along the lot lines are not to be the responsibility of the Town and therefore should not be included in the easement. Given this information, the responsibility of maintain the swales would fall to the property owners within the subdivision. This would require the formation of a HOA and thus legal documents will need to be drafted and submitted to the Town for review and approval.

#### **STAFF RECOMMENDATIONS:**

The applicant should be prepared to address the comments raised by the Planning Board, Conservation Commission, Town Consultants, Staff, and public pertaining to the Subdivision Plan. Staff recommends continuing the application to the next regularly scheduled Planning Board meeting to allow the applicant to address outstanding comments.



**Aerial/Street Level Photographs of Map 23, Lot 2**

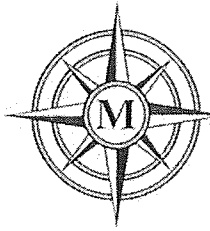


Street Level Photograph – Looking North



Street Level Photograph – Looking Southwest





# MERIDIAN LAND SERVICES, INC.

CIVIL ENGINEERING | LAND SURVEYING | PERMITTING | SOIL & WETLAND MAPPING | SEPTIC DESIGN | ENVIRONMENTAL

Office: 31 Old Nashua Road, Suite 2, Amherst, NH 03031

Mailing: PO Box 118, Milford, NH 03055

Phone: 603-673-1441 \* Fax 603-673-1584

[www.MeridianLandServices.com](http://www.MeridianLandServices.com)

Milford Planning Board

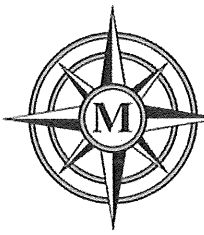
June 28, 2019

Re: Keogh Subdivision – Tax Map Lot 23-2, #118 Amherst Street

“We hereby request a waiver from the Milford Development Regulations, Article VII, Section 7.02 Roadway Standards Charts, Table 1: Roadway Standards seeking relief from the requirement to construct a private Rights of Way with a minimum width of 50 feet.” This request is based on discussions with the Planning Board regarding restricting potential future road extension.

Thank you for your consideration.

Samuel D. Ingram, SIT



# MERIDIAN LAND SERVICES, INC.

CIVIL ENGINEERING | LAND SURVEYING | PERMITTING | SOIL & WETLAND MAPPING | SEPTIC DESIGN | ENVIRONMENTAL

Office: 31 Old Nashua Road, Suite 2, Amherst, NH 03031

Mailing: PO Box 118, Milford, NH 03055

Phone: 603-673-1441 \* Fax 603-673-1584

[www.MeridianLandServices.com](http://www.MeridianLandServices.com)

May 28, 2019

Milford Planning Board  
1 Union Square  
Milford, New Hampshire 03055  
Attn: Lincoln Daley, Community Development Director



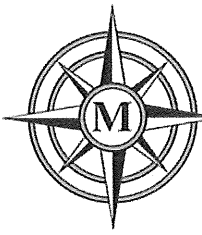
RE: Richard Keogh Subdivision  
Map 23 Lot 2

Meridian Land Services Inc., on behalf of Richard Keogh, we request a waiver from section 5.32.080 (Design Standards) C.2.a. of the Town of Milford's Stormwater Management and Erosion Control Regulations for the increase to observation point 3 (OP-3) as indicated in calculations. Per discussions with the Rick Riendeau, director of the Public Works department, it is understood that drainage runoff towards Amherst Street will be captured by catch basins and tied into the existing drainage system in Amherst Street. However, drainage calculations indicated that there is a total net reduction in site runoff.

If there are any questions or concerns, please do not hesitate to contact Meridian Land Services, Inc.

Sincerely,

Kevin M. Anderson, P.E.  
Chief of Engineering  
Meridian Land Services, Inc.  
[KMAnderson@MeridianLandServices.com](mailto:KMAnderson@MeridianLandServices.com)  
(603) 673-1441



# MERIDIAN LAND SERVICES, INC.

CIVIL ENGINEERING | LAND SURVEYING | PERMITTING | SOIL & WETLAND MAPPING | SEPTIC DESIGN | ENVIRONMENTAL

Office: 31 Old Nashua Road, Suite 2, Amherst, NH 03031

Mailing: PO Box 118, Milford, NH 03055

Phone: 603-673-1441 \* Fax 603-673-1584

[www.MeridianLandServices.com](http://www.MeridianLandServices.com)

Milford Planning Board

May 28, 2019

Re: Keogh Subdivision – Tax Map Lot 23-2, #118 Amherst Street

- 1) We hereby request a waiver from the Subdivision Regulations, Article V, Sec. 5.08 (Open Space Conservation Developments). A Conventional Design Subdivision will be pursued instead of Open Space as discussed in previous Design review meetings.
- 2) We hereby request a waiver from the Driveway Regulations Section VII, F requiring driveway entrance to have a negative slope. The proposed road will have a 2% positive slope at the entrance to allow for separation from the ground water table. Drainage onto the existing road will be controlled by the installation of the catch basins at the entrance as show on the design.
- 3) We hereby request a waiver from the Subdivision Checklist for Major Subdivision item Z (Provisions for storage of recycling and refuse). Not Applicable.
- 4) We hereby request a waiver from the Subdivision Checklist for Major Subdivision item BB (Location, size and detail of exterior lighting). Not Applicable.
- 5) We hereby request a waiver from the Subdivision Checklist for Major Subdivision item CC (Location, size and detail of storage tanks). Not Applicable.

Thank you for your consideration.

Samuel D. Ingram, SIT

August 8, 2019

Lincoln Daley, Community Development Director  
Town of Milford  
1 Union Square  
Milford, NH 03055

**Re: Richard N. Keogh Subdivision (Tax map 23, Lot 2) – Drainage Review**

Dear Mr. Daley:

We reviewed the revised 16-sheet plan set (dated August 2, 2019) and Stormwater Management Report (dated August 1, 2019) both prepared by Meridian Land Services, Inc. in accordance with our agreement with the Town. As requested, our review was limited to the drainage system only. Based on that review, we offer the following comments:

1. It appears that the proposed roadside swale (Sta. 1+25 to Sta. 2+25 right) is below the Estimated Seasonal High-Water Table which may lead to a constant water flow in the swale and to the proposed detention basin. An underdrain must be added that extends from the swale and discharges downhill of the detention basin to ensure the swale and basin will be dry except when raining.
2. The proposed swales along the lot lines that were added in this plan revision will direct flow to the proposed catch basins. The swales will keep drainage flow from running from one lot to another and will direct flow to the basins, which makes sense. However, these basins appear to be included in easements that will be dedicated to the Town. Considering that flow from one lot to another is not the responsibility of the Town, these swales should not be included in an easement to the Town (the roadside swale should be).

If you have any questions or need any additional information, please feel free to contact me at 603-413-6650 or on my cell phone at 603-731-1562 or by email at [MVignale@kvpllc.com](mailto:MVignale@kvpllc.com).

Sincerely,

**KV Partners LLC**



Michael S. Vignale, P.E.  
Principal Engineer



**ABUTTER LIST**

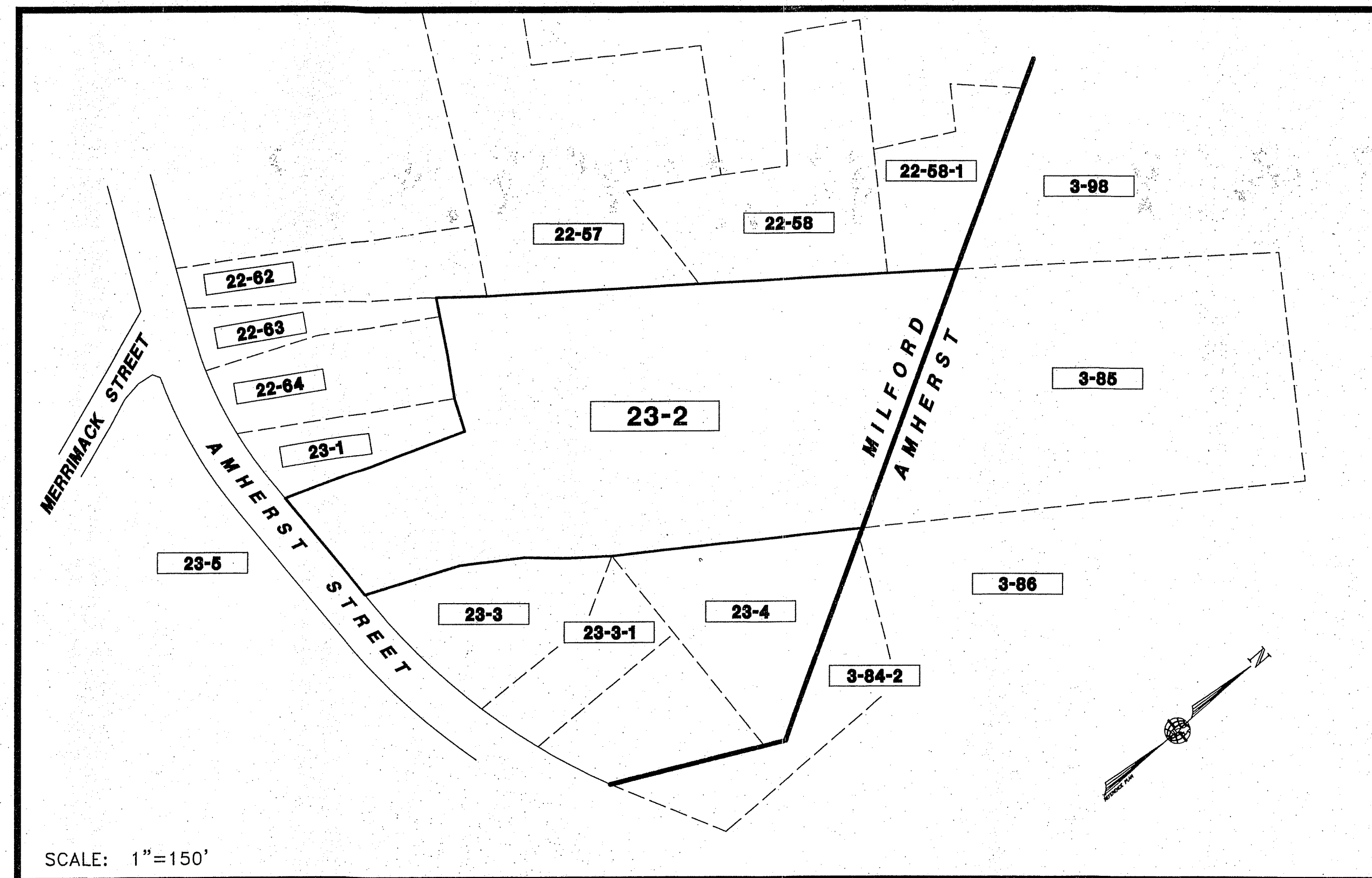
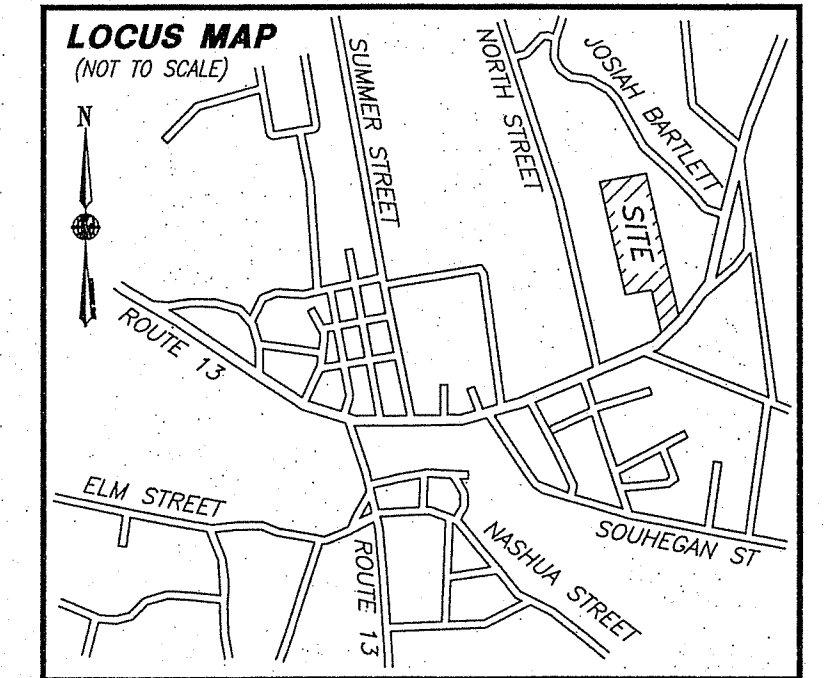
23-1 STEPHEN CURRIE PO BOX 85 NORTH READING, MA 01864	23-3-1 MARTIN FAMILY REVOCABLE TRUST 132 AMHERST STREET MILFORD, NH 03055
22-64 KATHY WALKER 108 AMHERST STREET MILFORD, NH 03055	ALBERT & LISA VASAS 128 AMHERST STREET MILFORD, NH 03055
22-63 HENRIETTA M. & RAYMOND COLLINS 104 AMHERST STREET MILFORD, NH 03055	23-5 M&B REALTY, LLC 15 POWERS STREET MILFORD, NH 03055
22-62 GLENN C. BURNS 100 AMHERST STREET MILFORD, NH 03055	3-85 RICHARD N. KEOGH 118 AMHERST ST MILFORD, NH 03055
22-57 ROSS MACLAREN 23 NORTH STREET MILFORD, NH 03055	3-84 BARTLETT
22-58 PETER F. MORAN III PO BOX 232 MILFORD, NH 03055	3-84-2 & 23-4 DEBRA A. DUNNE 138 AMHERST STREET MILFORD, NH 03055
22-58-1 & 3-98 NORMAN & JENNIFER FISK PO BOX 612 AMHERST, NH 03031	

**SHEET INDEX**

1. COVER SHEET \*
2. EXISTING CONDITIONS BOUNDARY SHEET \*
3. SUBDIVISION PLAN \*
4. EASEMENT PLAN \*
5. P-1, OVERVIEW PLAN
6. P-2, PROPOSED ROAD PLAN & PROFILE
7. P-3, AMHERST STREET PLAN & PROFILE
8. P-4, SIGHT DISTANCE PLAN & PROFILE
9. P-5, UTILITY PLAN
10. L-1 LANDSCAPE PLAN
11. D-1, CONSTRUCTION DETAILS
12. D-2, DRAINAGE DETAILS
13. D-3, EROSION DETAILS
14. D-4, SEWER LINE DETAILS
15. D-5, WATER LINE DETAILS (1)
16. D-6, WATER LINE DETAILS (2)

**REFERENCE PLANS:**

1. "SUBDIVISION PLAN - TAX MAP 23 LOT 3 - LAND OF: - GWENDOLYN R. & - SCOTT A. KRAUSS - AMHERST STREET - MILFORD & AMHERST, NEW HAMPSHIRE" SCALE: 1"=40' DATED SEPTEMBER 15, 2015. PREPARED BY THIS OFFICE AND RECORDED AT H.C.R.D. AS PLAN #38767.
2. "BARTLETT COMMON - CONDOMINIUM SITE PLAN - AMHERST STREET & NORTH STREET - AMHERST, NEW HAMPSHIRE - PREPARED FOR: - STARTER BUILDING & DEVELOPMENT, LLC - 20 TRAFALGAR SQUARE, SUITE 109 - NASHUA, NH 03063" SCALE: 1"=100' DATED MAY 24, 2000. PREPARED BY TF MORAN AND RECORDED AT H.C.R.D. AS PLAN #30504.
3. "LOT LINE ADJUSTMENT PLAN - MAP 22 / LOTS 52, 53, 57 & 58 (MILFORD) & MAP 3 / LOT 98 (AMHERST) - ROSS & SANDRA GANGLOFF, - JEFFREY M. & LISA C. SZELEST, - BRANDI THOMPSON & ERIC KILBANE, - OCRAH LAND DEVELOPMENT, LLC AND - NORMAN & JENIFER FISK - NORTH STREET - TOWN OF MILFORD & AMHERST - HILLSBOROUGH COUNTY, NEW HAMPSHIRE" SCALE: 1"=50' DATED AUGUST 3, 2007. PREPARED BY SANFORD SURVEYING AND ENGINEERING AND RECORDED AT H.C.R.D. AS PLAN #35842.
4. "BOUNDARY PLAN OF LAND - TAX MAP LOT 22-64 - FRANK C., SR. & PATRICIA A. STOREY - MILFORD, NEW HAMPSHIRE" SCALE: 1"=50' DATED APRIL 10, 2002. PREPARED BY THIS OFFICE.



**NOTES:**

1. THE OWNER OF TAX MAP LOT 23-2 IS RICHARD N. KEOGH, 118 AMHERST STREET, MILFORD NEW HAMPSHIRE. SEE H.C.R.D. BK. 1615 DATED 8/17/1960.
2. THE PURPOSE OF THIS PLAN IS TO DEPICT A 8 LOT CONVENTIONAL SUBDIVISION OF TAX MAP LOT 23-2, TO BE ACCESSED BY A PUBLIC ROAD AND UNDERGROUND UTILITIES.
3. TOTAL AREA OF THE SITE IS 6.726 ACRES OR 292,993 SQ. FT.
4. ZONING FOR THE SITE IS RESIDENCE "A". MINIMUM REQUIREMENTS ARE: 15,000 S.F. OF AREA WITH MUNICIPAL SEWER & WATER & 100' OF ROAD FRONTAGE. SETBACKS ARE: 30' FRONT & 15' SIDE & REAR.
5. THE SITE LIES OUTSIDE OF THE 100 YEAR FLOOD HAZZARD AREA ON F.I.R.M. COMMUNITY PANEL MAP NUMBER 33011C0459D EFFECTIVE DATE SEPTEMBER 25, 2009.
6. THE SITE LIES WITHIN THE LEVEL 1 PROTECTION AREA OF THE GROUNDWATER PROTECTION OVERLAY DISTRICT AND IS SUBJECT TO GROUNDWATER PROTECTION OVERLAY DISTRICT REGULATIONS.
7. THE PROPOSED LOTS WILL BE SUBJECT TO POLICE AND LIBRARY IMPACT FEES.
8. HORIZONTAL ORIENTATION AND VERTICAL DATUM ARE BASED ON REFERENCE PLAN #1.
9. WETLANDS SHOWN WERE DELINEATED IN ACCORDANCE WITH THE ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE NORTHEAST REGIONAL SUPPLEMENT, BY SPENCER C. TATE C.W.S. OF THIS OFFICE IN DECEMBER, 2018.
10. PROPOSED LOTS 23-2-5 & 23-2-6 ARE SUBJECT TO A PROPOSED COMMON DRIVEWAY EASEMENT AS SHOWN AND PROPOSED LOT 23-2-7 IS SUBJECT TO A PROPOSED DRAINAGE EASEMENT AS SHOWN
11. NO RECORDED EASEMENTS OR DEED RESTRICTIONS WERE FOUND FOR THE PARENT LOT 23-2.
12. ALL WATER, SEWER, ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF MILFORD'S WATER UTILITIES DEPARTMENT AND PUBLIC WORKS DEPARTMENTS STANDARDS.
13. A SIGN, READING AS FOLLOWS, MUST BE POSTED AT THE ENTRANCE TO THE SUBDIVISION PRIOR TO ANY CERTIFICATE OF OCCUPANCY BEING ISSUED. "THIS ROAD HAS NOT BEEN ACCEPTED BY THE TOWN OF MILFORD. UNTIL THIS ROAD HAS BEEN ACCEPTED, THE TOWN ASSUMES NO RESPONSIBILITY FOR MAINTENANCE INCLUDING SNOW REMOVAL, NOR ANY LIABILITY FOR DAMAGE RESULTING FROM THE USE OF THIS ROAD. POSTED BY THE TOWN OF MILFORD."
14. THE PROPOSED PRIVATE RIGHT OF WAY IS NOT TO BE CONSIDERED A BUILDING LOT, BUT WILL BE CONVEYED TO THE OWNER OF AMHERST LOT 3-85 AND SHALL BE CONSIDERED A CONTIGUOUS PART THEREOF.

**APPROVED**

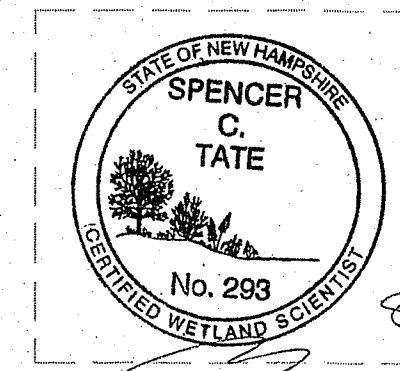
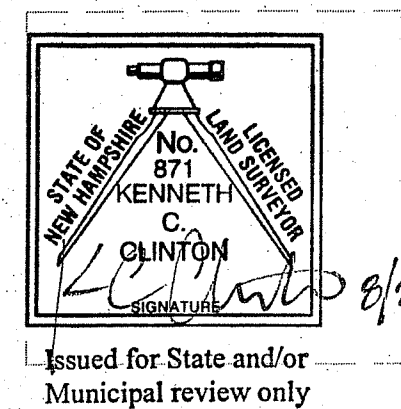
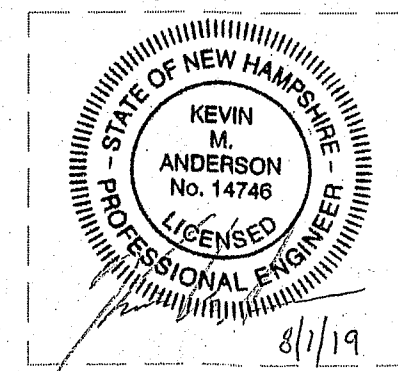
MILFORD, NH PLANNING BOARD

SUB DIVISION #: \_\_\_\_\_

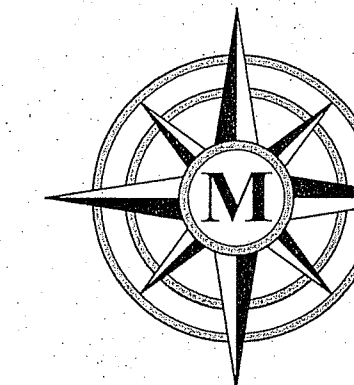
DATE APPROVED: \_\_\_\_\_

SIGNED: \_\_\_\_\_

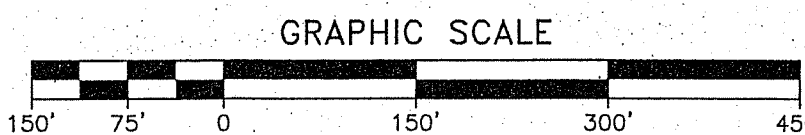
**MERIDIAN DESIGN PROFESSIONALS:**



**SUBDIVISION PLAN**  
**LAND OF:**  
**RICHARD N. KEOGH**  
**TAX MAP 23 LOT 2**  
**MILFORD, NEW HAMPSHIRE**  
 SCALE: AS SHOWN      MAY 28, 2019



**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

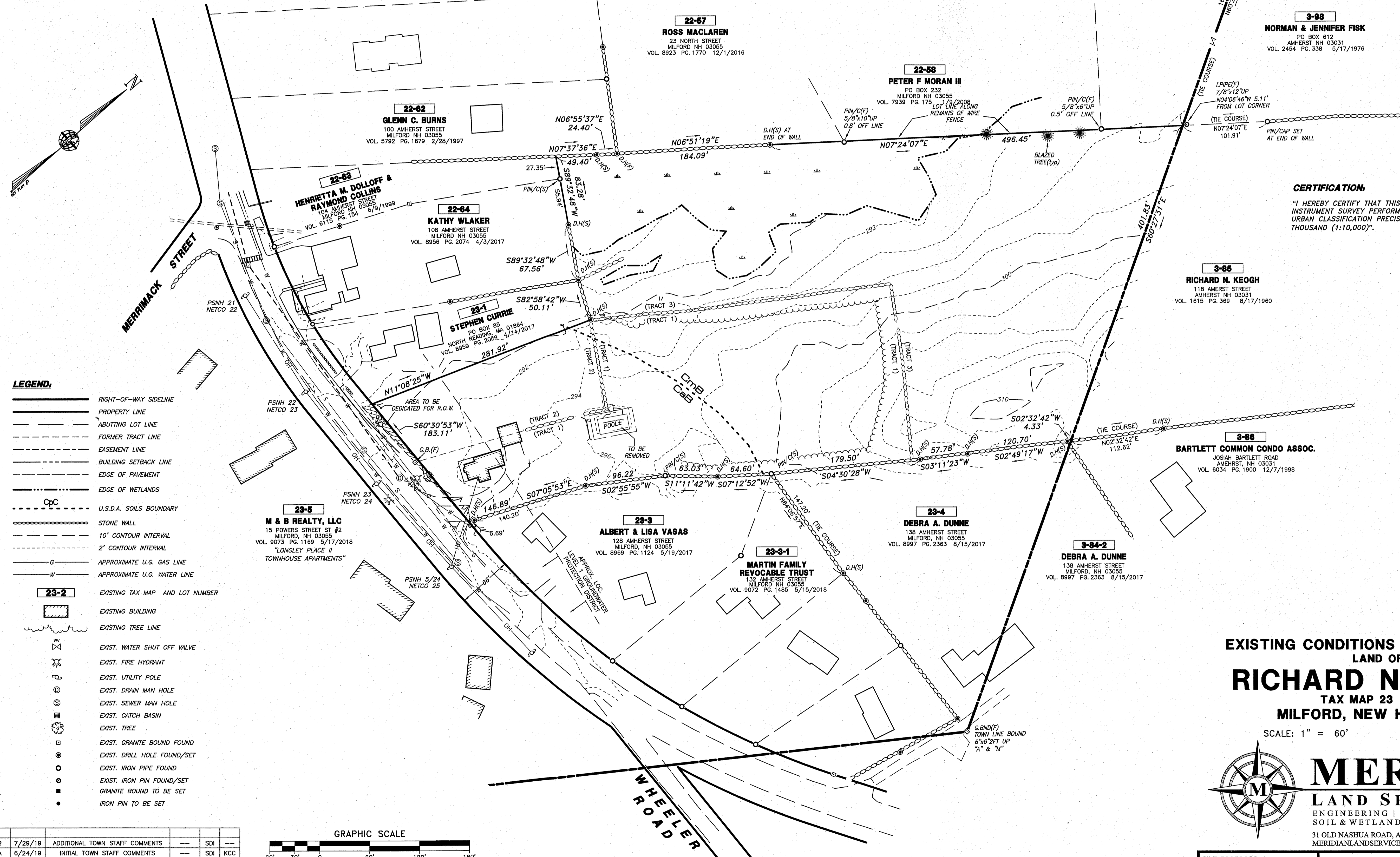


REV.	DATE	DESCRIPTION	C/O	DR	CK
B	7/29/19	ADDITIONAL TOWN STAFF COMMENTS	---	SDI	KCC
A	6/24/19	INITIAL TOWN STAFF COMMENTS	---	SDI	KCC

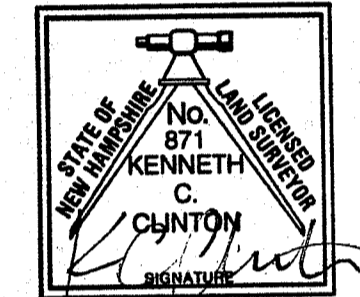




**APPROVED**  
 MILFORD, NH PLANNING BOARD  
 SUB DIVISION #: \_\_\_\_\_  
 DATE APPROVED: \_\_\_\_\_  
 SIGNED: \_\_\_\_\_

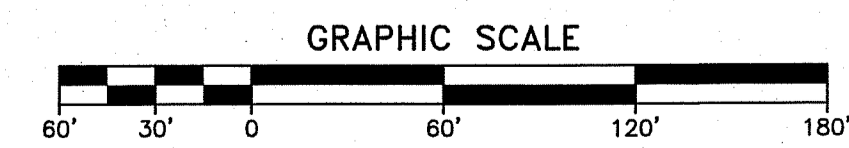


**CERTIFICATION:**  
 "I HEREBY CERTIFY THAT THIS PLAN IS THE RESULT OF AN ON-SITE INSTRUMENT SURVEY PERFORMED BY THIS OFFICE WHICH MEETS THE URBAN CLASSIFICATION PRECISION REQUIREMENT OF ONE PART IN TEN THOUSAND (1:10,000)".

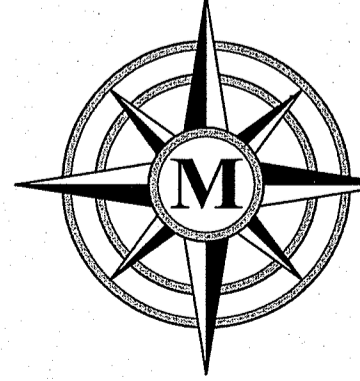


Issued for State and/or Municipal review only

- LEGEND:**
- RIGHT-OF-WAY SIDELINE
  - PROPERTY LINE
  - - - ABUTTING LOT LINE
  - - - FORMER TRACT LINE
  - - - EASEMENT LINE
  - - - BUILDING SETBACK LINE
  - - - EDGE OF PAVEMENT
  - - - EDGE OF WETLANDS
  - - - CpC U.S.D.A. SOILS BOUNDARY
  - STONE WALL
  - - - 10' CONTOUR INTERVAL
  - - - 2' CONTOUR INTERVAL
  - - - APPROXIMATE U.G. GAS LINE
  - - - APPROXIMATE U.G. WATER LINE
  - 23-2 EXISTING TAX MAP AND LOT NUMBER
  - EXISTING BUILDING
  - EXISTING TREE LINE
  - EXIST. WATER SHUT OFF VALVE
  - EXIST. FIRE HYDRANT
  - EXIST. UTILITY POLE
  - EXIST. DRAIN MAN HOLE
  - EXIST. SEWER MAN HOLE
  - EXIST. CATCH BASIN
  - EXIST. TREE
  - EXIST. GRANITE BOUND FOUND
  - EXIST. DRILL HOLE FOUND/SET
  - EXIST. IRON PIPE FOUND
  - EXIST. IRON PIN FOUND/SET
  - GRANITE BOUND TO BE SET
  - IRON PIN TO BE SET



**EXISTING CONDITIONS BOUNDARY PLAN**  
 LAND OF:  
**RICHARD N. KEOGH**  
 TAX MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE  
 SCALE: 1" = 60'  
 MAY 25, 2019



**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

REV.	DATE	DESCRIPTION	C/O	DR	CK
B	7/29/19	ADDITIONAL TOWN STAFF COMMENTS	---	SDI	---
A	6/24/19	INITIAL TOWN STAFF COMMENTS	---	SDI	KCC

Plotter: 8/1/2019 1:18 PM Bx: SN  
 H:\MIS\3203\3203D05B.dwg

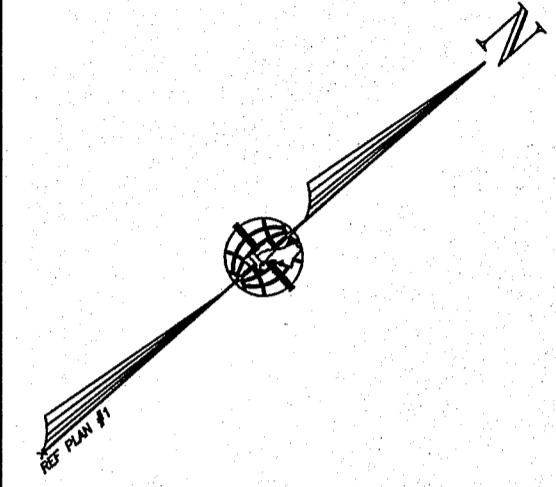




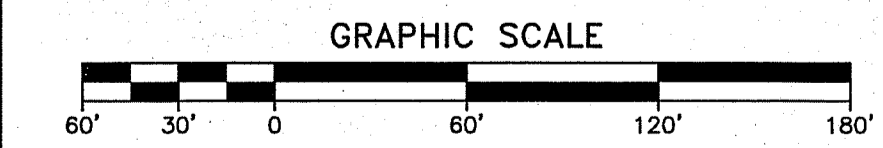
LOT LINE TABLE		
LINE	BEARING	LENGTH
L1	N60°30'53"E	87.31'
L2	S80°06'30"W	50.00'
L3	N09°53'30"W	30.00'
L4	N80°06'30"E	28.00'
L5	N09°53'30"W	50.00'
L6	S80°06'30"W	28.00'

CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	CHORD DIR.	DISTANCE
C1	25.00	47.27	108°20'42"	S65°18'46"E	40.54
C2	22.00	34.56	90°00'00"	N35°06'30"E	31.11
C3	22.00	34.56	90°00'00"	N54°53'30"W	31.11
C4	250.00	52.68	12°04'22"	S22°17'49"W	52.58

**APPROVED**  
 MILFORD, NH PLANNING BOARD  
 SUB DIVISION #: \_\_\_\_\_  
 DATE APPROVED: \_\_\_\_\_  
 SIGNED: \_\_\_\_\_

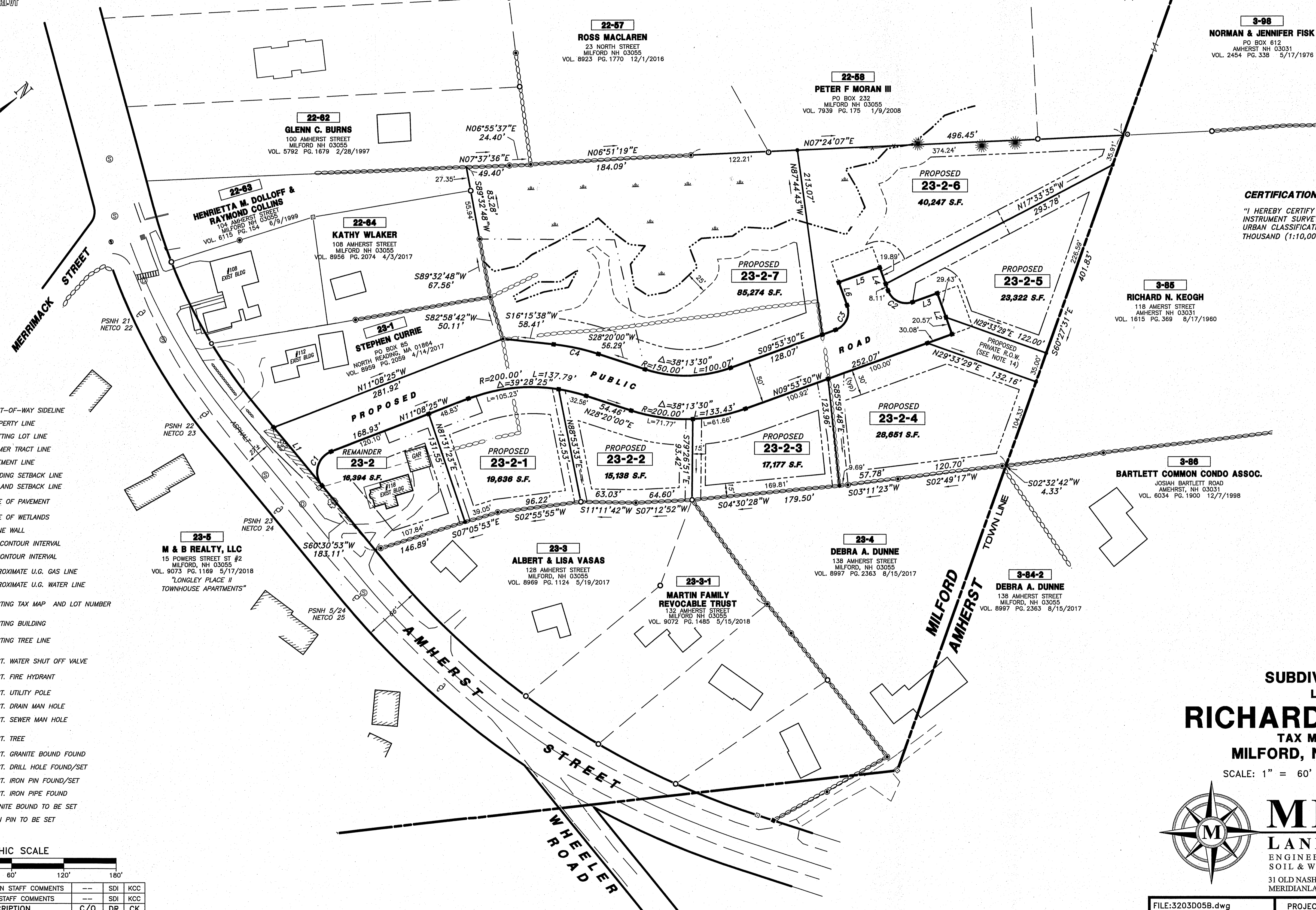


- LEGEND:**
- RIGHT-OF-WAY SIDELINE
  - PROPERTY LINE
  - - - ABUTTING LOT LINE
  - - - FORMER TRACT LINE
  - - - EASEMENT LINE
  - - - BUILDING SETBACK LINE
  - - - WETLAND SETBACK LINE
  - - - EDGE OF PAVEMENT
  - - - EDGE OF WETLANDS
  - - - STONE WALL
  - - - 10' CONTOUR INTERVAL
  - - - 2' CONTOUR INTERVAL
  - - - APPROXIMATE U.G. GAS LINE
  - - - APPROXIMATE U.G. WATER LINE
- 23-2** EXISTING TAX MAP AND LOT NUMBER
- ▭ EXISTING BUILDING
  - EXISTING TREE LINE
  - ⊗ EXIST. WATER SHUT OFF VALVE
  - ⊕ EXIST. FIRE HYDRANT
  - ⊙ EXIST. UTILITY POLE
  - ⊖ EXIST. DRAIN MAN HOLE
  - ⊗ EXIST. SEWER MAN HOLE
  - ⊙ EXIST. TREE
  - ⊖ EXIST. GRANITE BOUND FOUND
  - ⊙ EXIST. DRILL HOLE FOUND/SET
  - ⊖ EXIST. IRON PIN FOUND/SET
  - ⊙ EXIST. IRON PIPE FOUND
  - ⊖ GRANITE BOUND TO BE SET
  - ⊙ IRON PIN TO BE SET

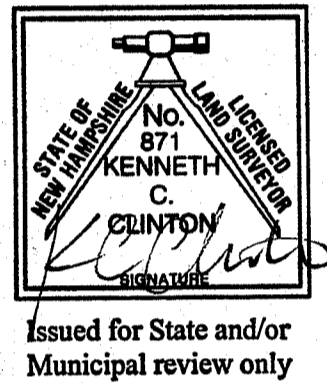


REV.	DATE	DESCRIPTION	C/O	DR	CK
B	7/29/19	ADDITIONAL TOWN STAFF COMMENTS	---	SDI	KCC
A	6/24/19	INITIAL TOWN STAFF COMMENTS	---	SDI	KCC
REV.	DATE	DESCRIPTION	C/O	DR	CK

Plotted: 8/1/2019 1:19 PM Bx: SUI  
 H:\MIS\03203\3203\_05\_V\_Drawings\SURV\32030505B.dwg



**CERTIFICATION:**  
 "I HEREBY CERTIFY THAT THIS PLAN IS THE RESULT OF AN ON-SITE INSTRUMENT SURVEY PERFORMED BY THIS OFFICE WHICH MEETS THE URBAN CLASSIFICATION PRECISION REQUIREMENT OF ONE PART IN TEN THOUSAND (1:10,000)".



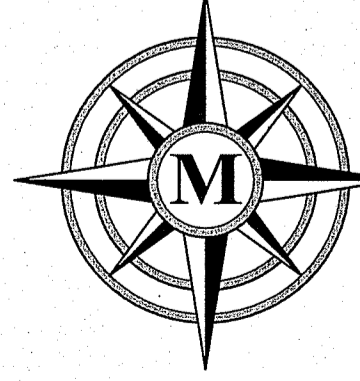
**22-58-1**  
**NORMAN & JENNIFER FISK**  
 PO BOX 612  
 AMHERST NH 03031  
 VOL. 7937 PG. 2874 1/4/2008

**3-98**  
**NORMAN & JENNIFER FISK**  
 PO BOX 612  
 AMHERST NH 03031  
 VOL. 2454 PG. 338 5/17/1976

**3-85**  
**RICHARD N. KEOGH**  
 118 AMHERST STREET  
 AMHERST NH 03031  
 VOL. 1615 PG. 369 8/17/1960

**3-86**  
**BARTLETT COMMON CONDO ASSOC.**  
 JOSIAH BARTLETT ROAD  
 AMHERST, NH 03031  
 VOL. 6034 PG. 1900 12/7/1998

**SUBDIVISION PLAN**  
 LAND OF:  
**RICHARD N. KEOGH**  
 TAX MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE  
 SCALE: 1" = 60' MAY 28, 2019



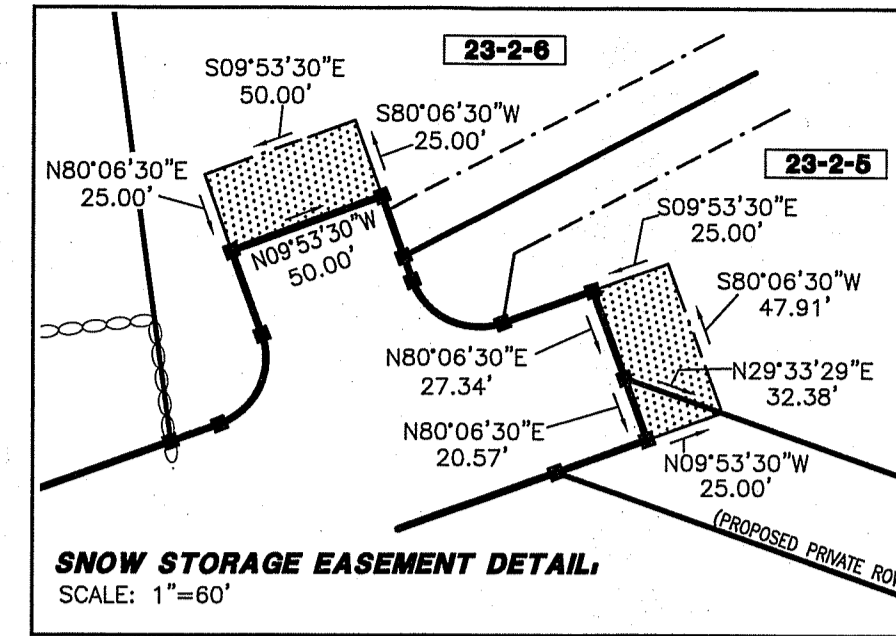
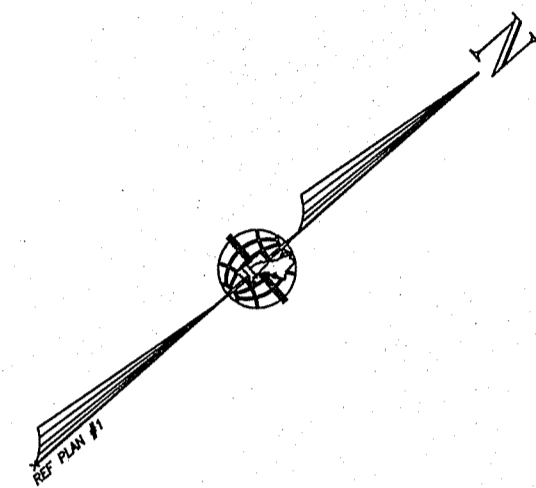
**MERIDIAN**  
**LAND SERVICES, INC.**  
 ENGINEERING | SURVEYING | PERMITTING  
 SOIL & WETLAND MAPPING | SEPTIC DESIGN  
 31 OLD NASHUA ROAD, AMHERST, NH 03031 TEL. 603-673-1441  
 MERIDIANLANDSERVICES.COM FAX 603-673-1584





**APPROVED**

MILFORD, NH PLANNING BOARD  
 SUB DIVISION #: \_\_\_\_\_  
 DATE APPROVED: \_\_\_\_\_  
 SIGNED: \_\_\_\_\_



**LEGEND:**

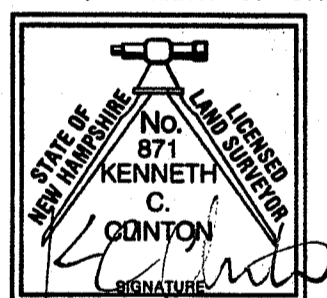
- RIGHT-OF-WAY SIDELINE
- PROPERTY LINE
- ABUTTING LOT LINE
- - - FORMER TRACT LINE
- - - EASEMENT LINE
- - - BUILDING SETBACK LINE
- - - WETLAND SETBACK LINE
- - - EDGE OF PAVEMENT
- - - EDGE OF WETLANDS
- - - STONE WALL
- - - 10' CONTOUR INTERVAL
- - - 2' CONTOUR INTERVAL
- - - APPROXIMATE U.G. GAS LINE
- - - APPROXIMATE U.G. WATER LINE
- 23-2 EXISTING TAX MAP AND LOT NUMBER
- EXISTING BUILDING
- EXISTING TREE LINE
- EXIST. WATER SHUT OFF VALVE
- EXIST. FIRE HYDRANT
- EXIST. UTILITY POLE
- EXIST. DRAIN MAN HOLE
- EXIST. SEWER MAN HOLE
- EXIST. TREE
- EXIST. GRANITE BOUND FOUND
- EXIST. DRILL HOLE FOUND/SET
- EXIST. IRON PIN FOUND/SET
- EXIST. IRON PIPE FOUND
- GRANITE BOUND TO BE SET
- IRON PIN TO BE SET

**EASEMENT LEGEND:**

- PROPOSED DRAINAGE EASEMENT
- PROPOSED COMMON DRIVEWAY EASEMENT
- PROPOSED SNOW STORAGE EASEMENT

**CERTIFICATION:**

"I HEREBY CERTIFY THAT THIS PLAN IS THE RESULT OF AN ON-SITE INSTRUMENT SURVEY PERFORMED BY THIS OFFICE WHICH MEETS THE URBAN CLASSIFICATION PRECISION REQUIREMENT OF ONE PART IN TEN THOUSAND (1:10,000)".



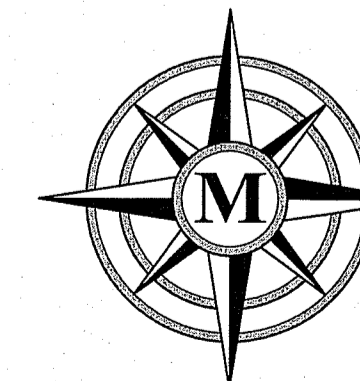
Issued for State and/or Municipal review only

**EASEMENT PLAN**  
 LAND OF:

**RICHARD N. KEOGH**  
 TAX MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE

SCALE: 1" = 60'

MAY 28, 2019



**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

Plotted: 8/2/2019 8:23 AM By: SDI  
 H:\MS\03203\3203.05\Drawings\SURV\3203D05B.dwg

REV.	DATE	DESCRIPTION	C/O	DR	CK
B	7/29/19	ADDITIONAL TOWN STAFF COMMENTS	---	SDI	KCC
A	6/24/19	INITIAL TOWN STAFF COMMENTS	---	SDI	KCC



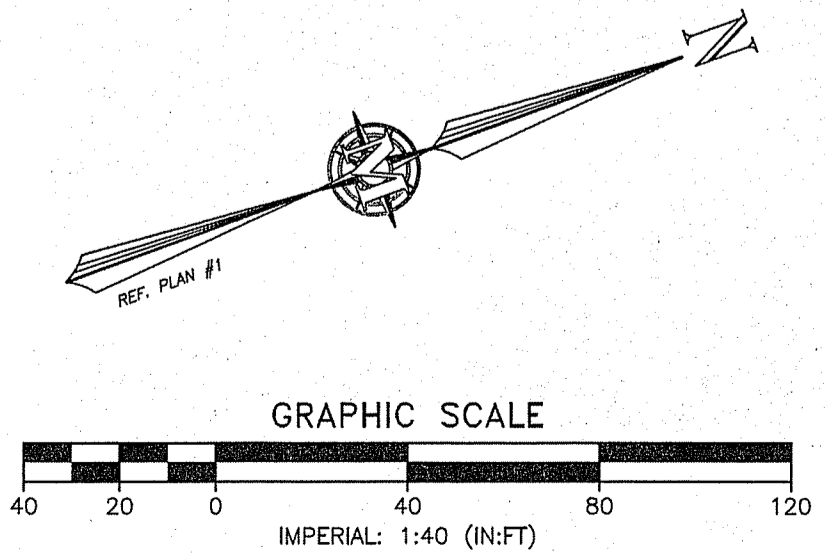
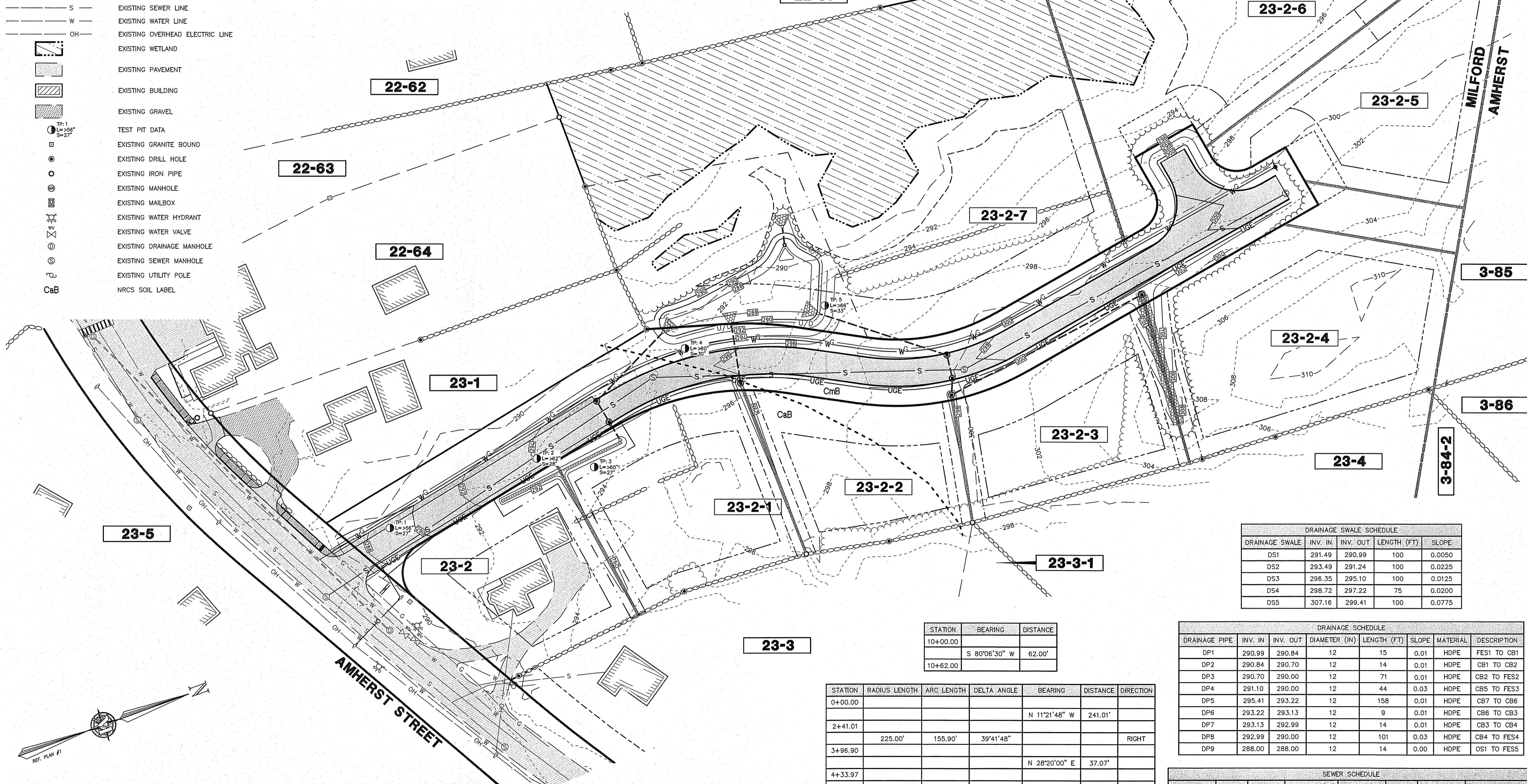
**LEGEND:**

- |     |                                 |     |                                    |   |                             |
|-----|---------------------------------|-----|------------------------------------|---|-----------------------------|
| --- | EXISTING 2' CONTOUR INTERVAL    | --- | PROPOSED 2' CONTOUR INTERVAL       | ▨ | PROPOSED PAVEMENT           |
| --- | EXISTING 10' CONTOUR INTERVAL   | --- | PROPOSED 10' CONTOUR INTERVAL      | ▨ | PROPOSED BUILDING           |
| --- | EXISTING RIGHT-OF-WAY           | --- | PROPOSED RIGHT-OF-WAY              | ▨ | PROPOSED SIDEWALK           |
| --- | EXISTING PROPERTY LINE          | --- | PROPOSED PROPERTY LINE             | ▨ | PROPOSED RIPRAP             |
| --- | TOWN LINE                       | --- | PROPOSED EASEMENT                  | ○ | PROPOSED CATCH BASIN        |
| --- | ABUTTING LOT LINE               | --- | ROAD CENTERLINE                    | ○ | PROPOSED FLARED END SECTION |
| --- | EXISTING STONE WALL             | --- | PROPOSED VERTICAL GRANITE CURBING  | ○ | PROPOSED SEWER MANHOLE      |
| --- | BUILDING SETBACK LINE           | --- | PROPOSED TREELINE                  | ○ | PROPOSED SIGN               |
| --- | WETLAND SETBACK LINE            | --- | PROPOSED EASEMENT LINE             | ○ |                             |
| --- | NRCS SOIL DELINEATION           | --- | PROPOSED DRAINAGE PIPE             | ○ |                             |
| --- | EXISTING TREELINE               | --- | PROPOSED SEWER LINE                | ○ |                             |
| --- | EXISTING FENCE                  | --- | PROPOSED WATER LINE                | ○ |                             |
| --- | EXISTING DRAINAGE PIPE          | --- | PROPOSED UNDERGROUND ELECTRIC LINE | ○ |                             |
| --- | EXISTING GAS LINE               | --- | PROPOSED GAS LINE                  | ○ |                             |
| --- | EXISTING SEWER LINE             | --- |                                    | ○ |                             |
| --- | EXISTING WATER LINE             | --- |                                    | ○ |                             |
| --- | EXISTING OVERHEAD ELECTRIC LINE | --- |                                    | ○ |                             |
| --- | EXISTING WETLAND                | --- |                                    | ○ |                             |

- |   |                           |
|---|---------------------------|
| ▨ | EXISTING PAVEMENT         |
| ▨ | EXISTING BUILDING         |
| ▨ | EXISTING GRAVEL           |
| ○ | TEST PIT DATA             |
| ○ | EXISTING GRANITE BOUND    |
| ○ | EXISTING DRILL HOLE       |
| ○ | EXISTING IRON PIPE        |
| ○ | EXISTING MANHOLE          |
| ○ | EXISTING MAILBOX          |
| ○ | EXISTING WATER HYDRANT    |
| ○ | EXISTING WATER VALVE      |
| ○ | EXISTING DRAINAGE MANHOLE |
| ○ | EXISTING SEWER MANHOLE    |
| ○ | EXISTING UTILITY POLE     |
| ○ | NRCS SOIL LABEL           |

**SOIL LEGEND:**

- |     |   |       |
|-----|---|-------|
| CaB | CANTON FINE SANDY LOAM, 0 TO 8 PERCENT SLOPES             | HSG B |
| CmB | CANTON FINE SANDY LOAM, 0 TO 8 PERCENT SLOPES, VERY STONY | HSG B |
- SOURCE: USDA NATURAL RESOURCE CONSERVATION SERVICE (NRCS) WEB SOIL SURVEY



STATION	BEARING	DISTANCE
10+00.00		
	S 80°06'30" W	62.00'
10+62.00		

STATION	RADIUS	LENGTH	ARC LENGTH	DELTA ANGLE	BEARING	DISTANCE	DIRECTION
0+00.00							
2+41.01					N 11°21'48" W	241.01'	
3+96.90							RIGHT
4+33.97					N 28°20'00" E	37.07'	
5+50.72							LEFT
7+85.79					N 09°53'30" W	235.07'	

DRAINAGE SWALE SCHEDULE				
DRAINAGE SWALE	INV. IN.	INV. OUT.	LENGTH (FT)	SLOPE
DS1	291.49	290.99	100	0.0050
DS2	293.49	291.24	100	0.0225
DS3	296.35	295.10	100	0.0125
DS4	298.72	297.22	75	0.0200
DS5	307.16	299.41	100	0.0775

DRAINAGE SCHEDULE							
DRAINAGE PIPE	INV. IN.	INV. OUT.	DIAMETER (IN)	LENGTH (FT)	SLOPE	MATERIAL	DESCRIPTION
DP1	290.99	290.84	12	15	0.01	HDPE	FES1 TO CB1
DP2	290.84	290.70	12	14	0.01	HDPE	CB1 TO CB2
DP3	290.70	290.00	12	71	0.01	HDPE	CB2 TO FES2
DP4	291.10	290.00	12	44	0.03	HDPE	CB5 TO FES3
DP5	295.41	293.22	12	158	0.01	HDPE	CB7 TO CB6
DP6	293.22	293.13	12	9	0.01	HDPE	CB6 TO CB3
DP7	293.13	292.99	12	14	0.01	HDPE	CB3 TO CB4
DP8	292.99	290.00	12	101	0.03	HDPE	CB4 TO FES4
DP9	288.00	288.00	12	14	0.00	HDPE	OS1 TO FES5

SEWER SCHEDULE							
SEWER PIPE	INV. IN.	INV. OUT.	DIAMETER (IN)	LENGTH (FT)	SLOPE	MATERIAL	DESCRIPTION
SP1	294.96	292.25	8	273	0.0099	PVC SDR 35	SMH3 TO SMH2
SP2	290.10	289.19	8	230	0.0040	PVC SDR 35	SMH2 TO SMH1
SP3	289.09	280.96	8	293	0.0277	PVC SDR 35	SMH1 TO EX. SMH1

**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
31 OLD NASHUA ROAD, AMHERST, NH 0381  
TEL: 603-673-1441  
FAX: 603-673-1584  
MERIDIANLANDSERVICES.COM

STATE OF NEW HAMPSHIRE  
KEVIN M. ANDERSON  
No. 14748  
LICENSED PROFESSIONAL ENGINEER  
8/1/19

REV	DATE	DESCRIPTION	DR	CK
A	1/28/19	PLANNING BOARD SUBMISSION		
B	1/28/19	INITIAL TOWN STAFF COMMENTS		
C	8/1/19	REVISE DRAINAGE LAYOUT		

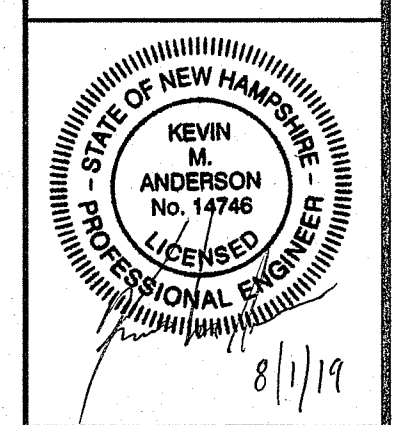
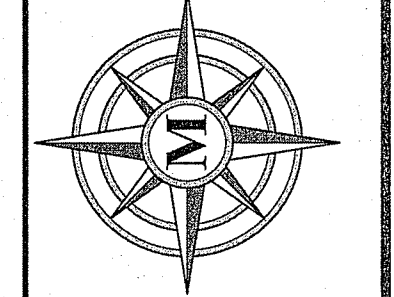
OVERVIEW PLAN  
FEBRUARY 25, 2019

RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE  
SCALE: 1" = 40'

**P-1**  
SHEET  
FILE: 3203P05C.dwg  
PROJECT: 3203.05  
SHEET NO. 5 OF 16

Plotted: 8/1/2019 10:44 AM By: BJC  
H:\MIS\3203\3203.05\Drawings\ENG\3203P05C.dwg



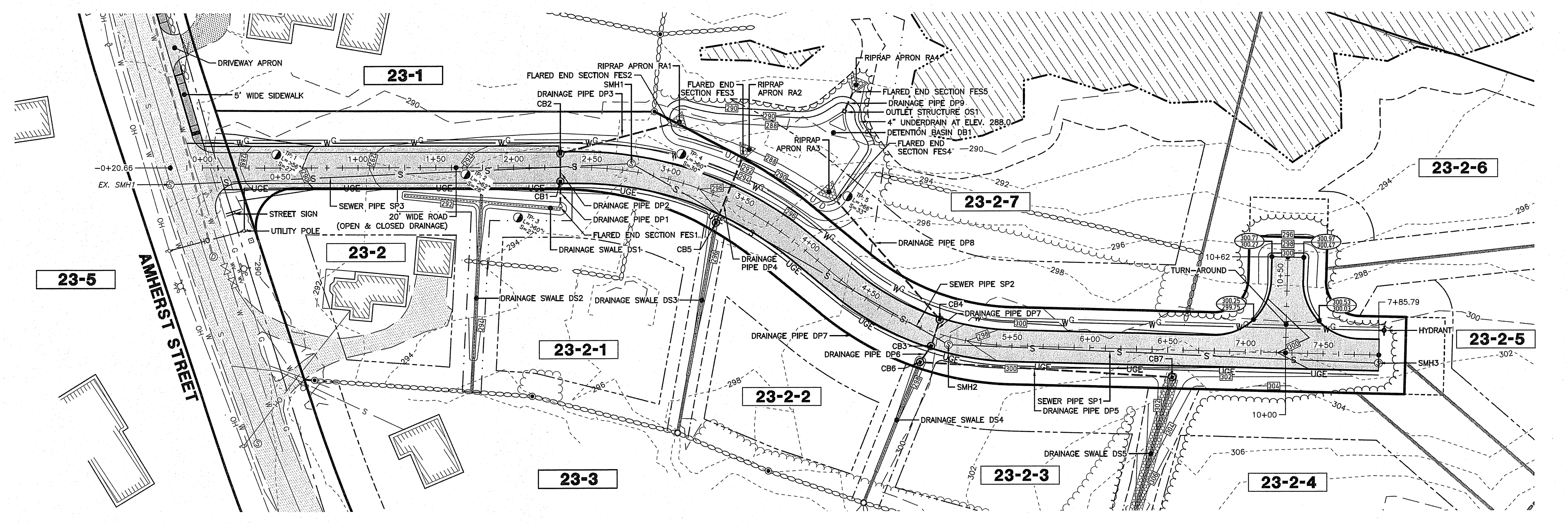


REV.	DATE	DESCRIPTION	BY	CHK
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99				
100				

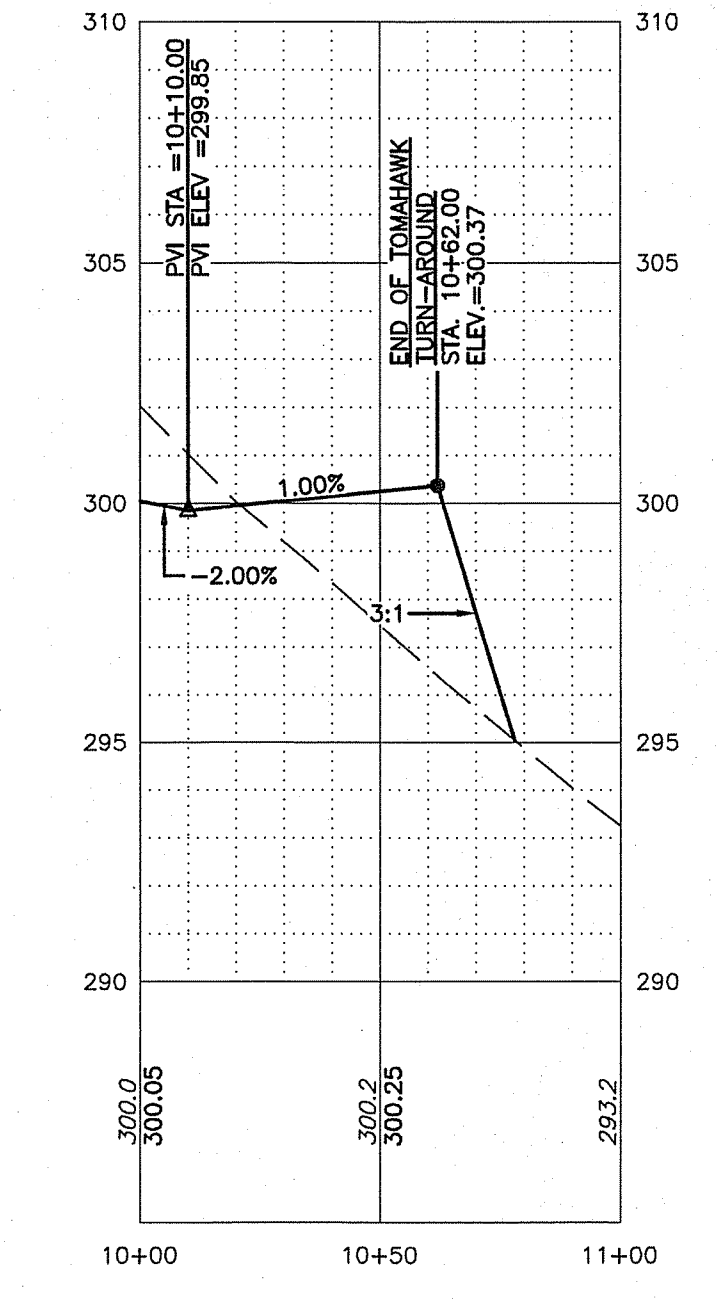
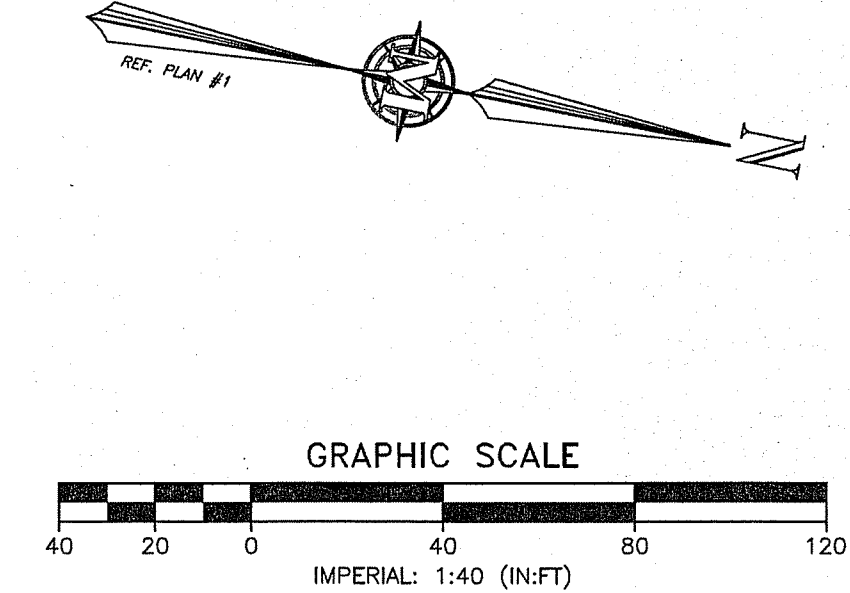
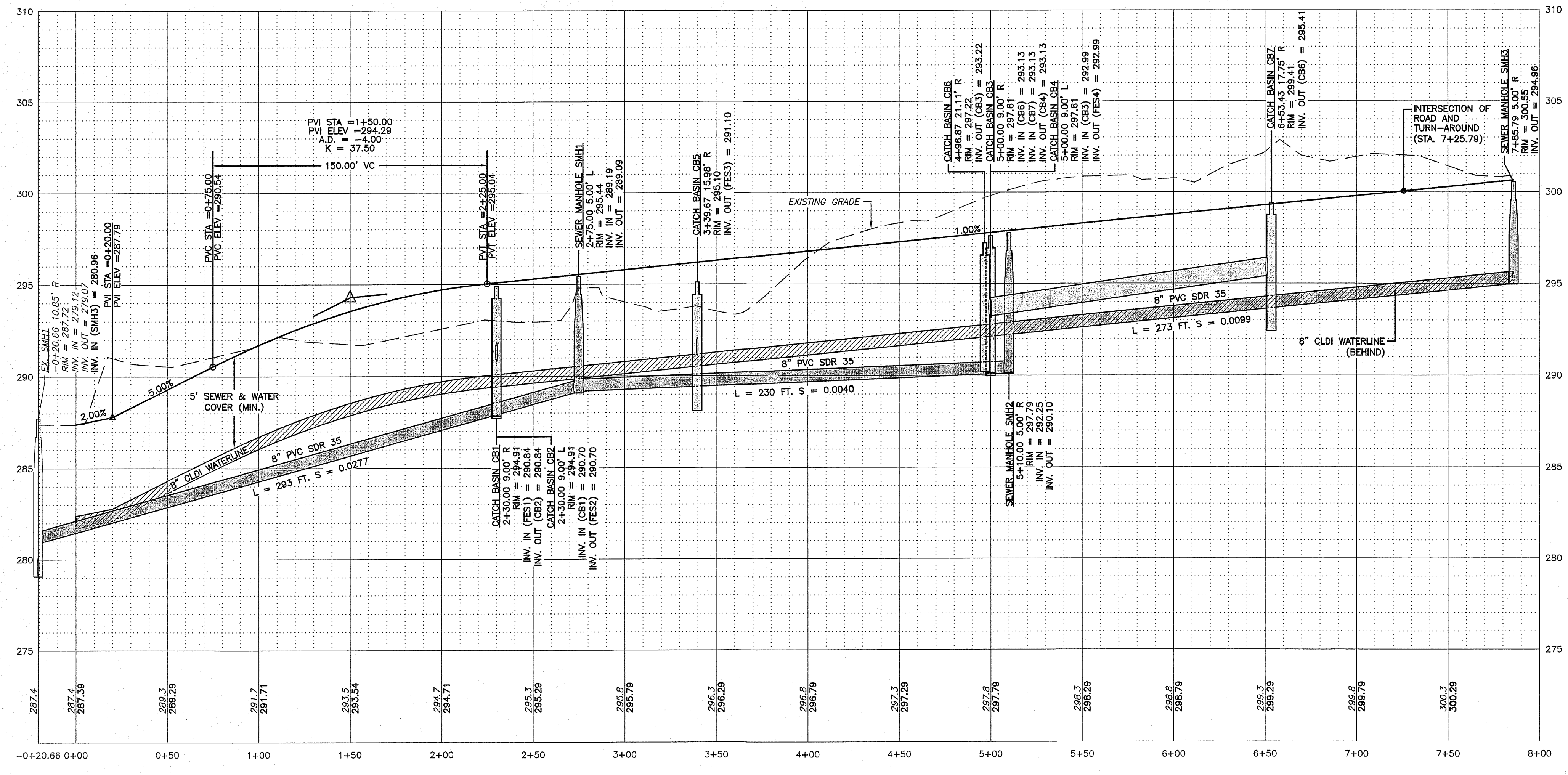
**PROPOSED ROAD**  
**AMHERST STREET**  
**MAP 23 LOT 2**  
**MILFORD, NEW HAMPSHIRE**

RICHARD KEOGH  
 AMHERST STREET  
 MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE

**P-2**  
 SHEET  
 FILE: 3203P05C.dwg  
 PROJECT: 3203.05  
 SHEET NO. 6 OF 16

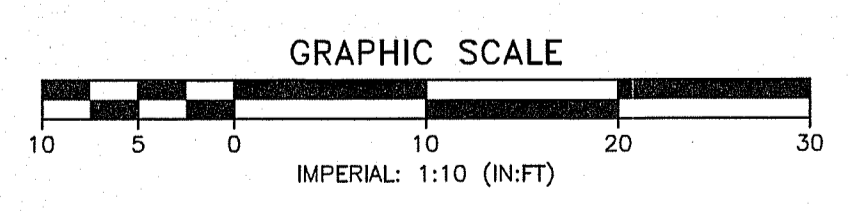
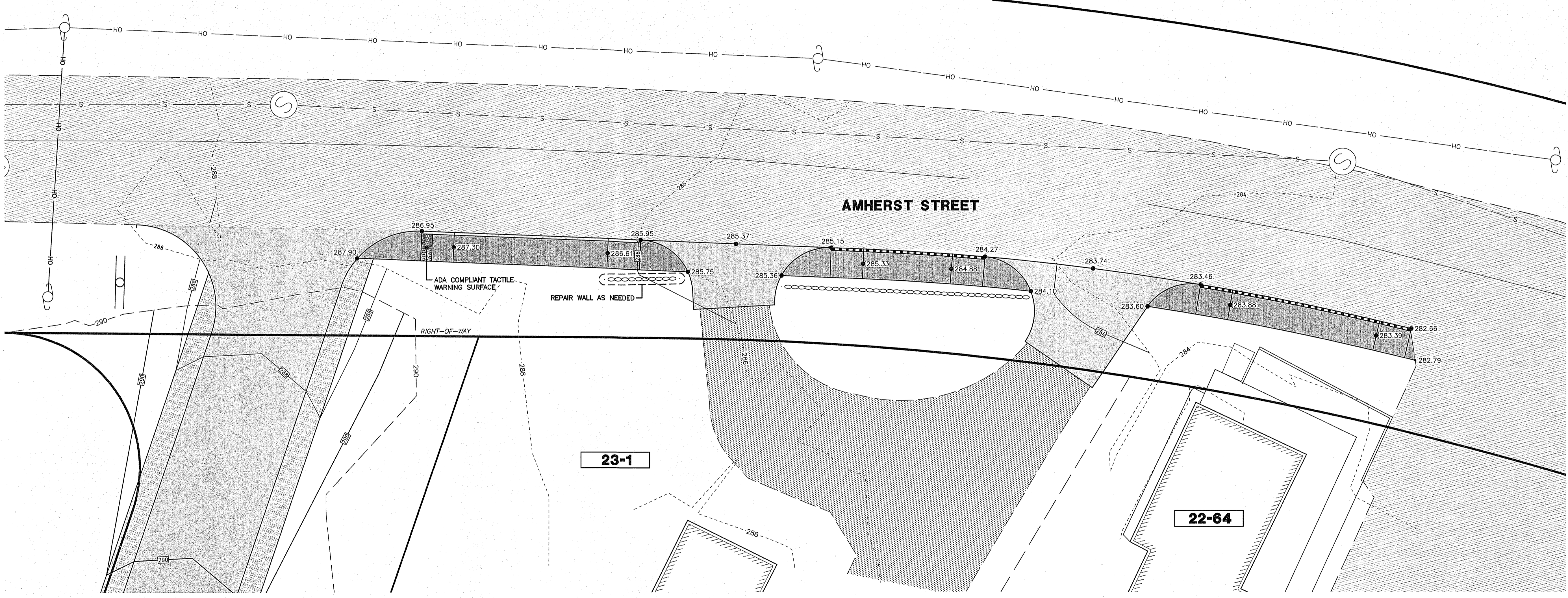
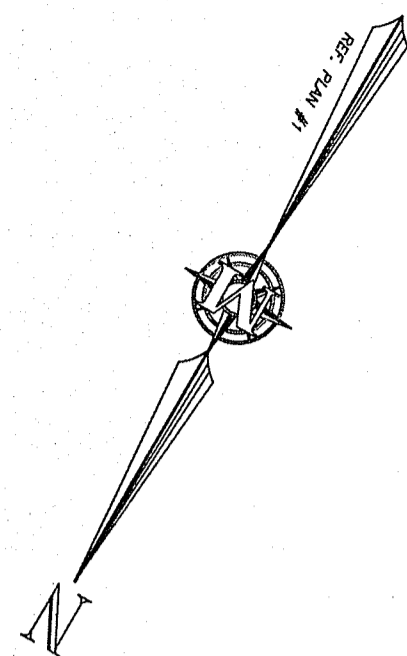


STRUCTURE	STATION	OFFSET	RIM
CB1	2+30.00	9.00' R	294.91
CB2	2+30.00	9.00' L	294.91
CB3	5+00.00	9.00' R	287.97
CB4	5+00.00	9.00' L	286.97
CB5	3+39.67	15.98' R	295.10
CB6	4+96.87	21.11' R	297.22
CB7	6+53.43	17.75' R	299.41
SMH1	2+75.00	5.00' L	295.44
SMH2	5+10.00	5.00' R	297.79
SMH3	7+85.79	5.00' R	300.55

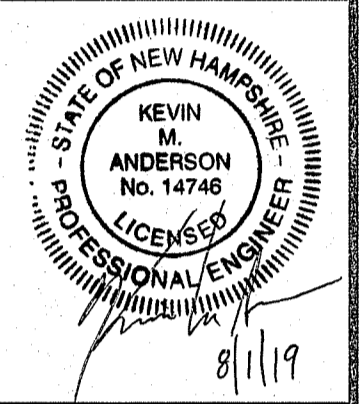
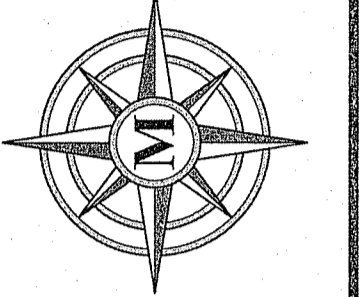


Plotfile: 8/1/2019 10:38 AM Br\_BUC  
 H:\VLS\3203\3203.05\Drawings\ENG\3203P05C.dwg





**MERIDIAN**  
**LAND SERVICES, INC.**  
 ENGINEERING | SURVEYING | PERMITTING  
 SOIL & WETLAND MAPPING | SEPTIC DESIGN  
 31 OLD NASHUA ROAD, AMHERST, NH 03001  
 MERIDIANLANDSERVICES.COM  
 TEL: 603-673-1141  
 FAX: 603-673-1184



REV.	DATE	DESCRIPTION	BY	CHK
A	5/29/19	PLANNING BOARD SUBMISSION	BUC	KMA
B	5/29/19	INITIAL TOWN STAFF COMMENTS	BUC	KMA
C	5/7/19	REVISE DRAINAGE LAYOUT	BUC	KMA

**AMHERST STREET  
 SIDEWALK PLAN**

FEBRUARY 25, 2019

**RICHARD KEOGH  
 AMHERST STREET  
 MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE**

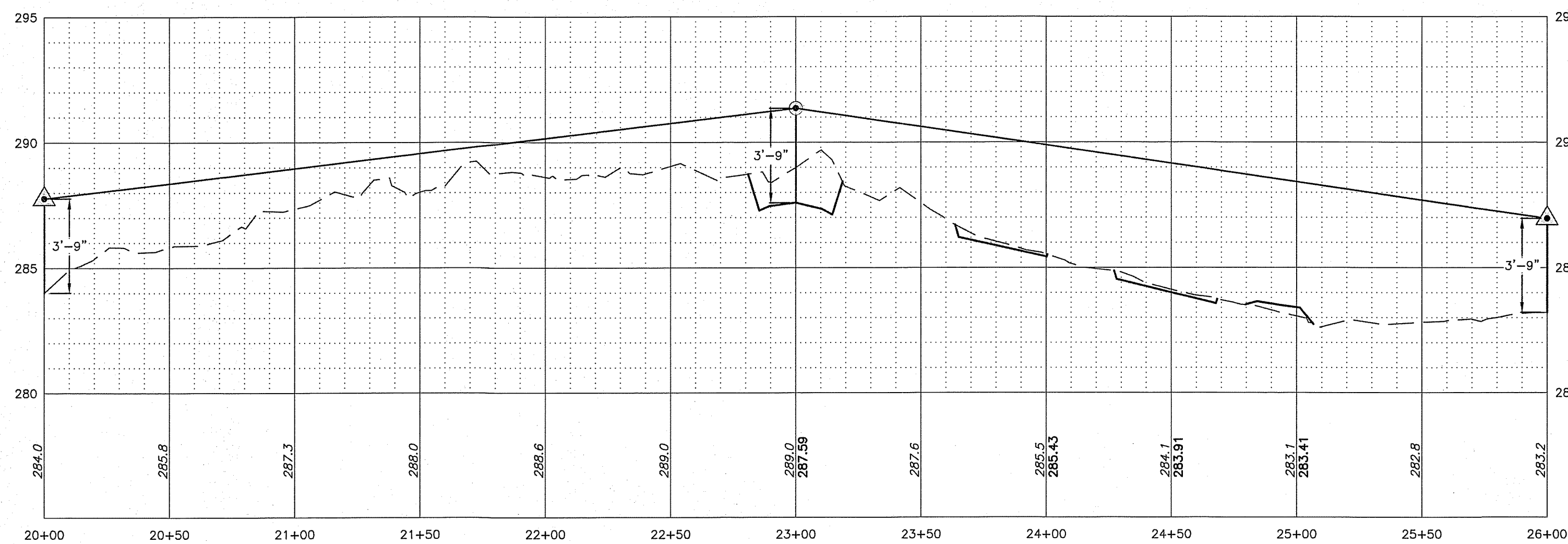
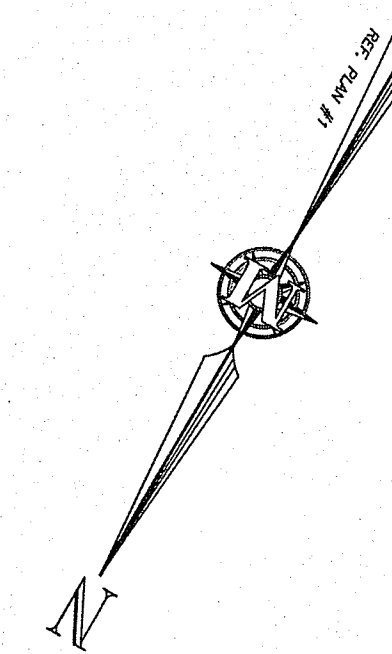
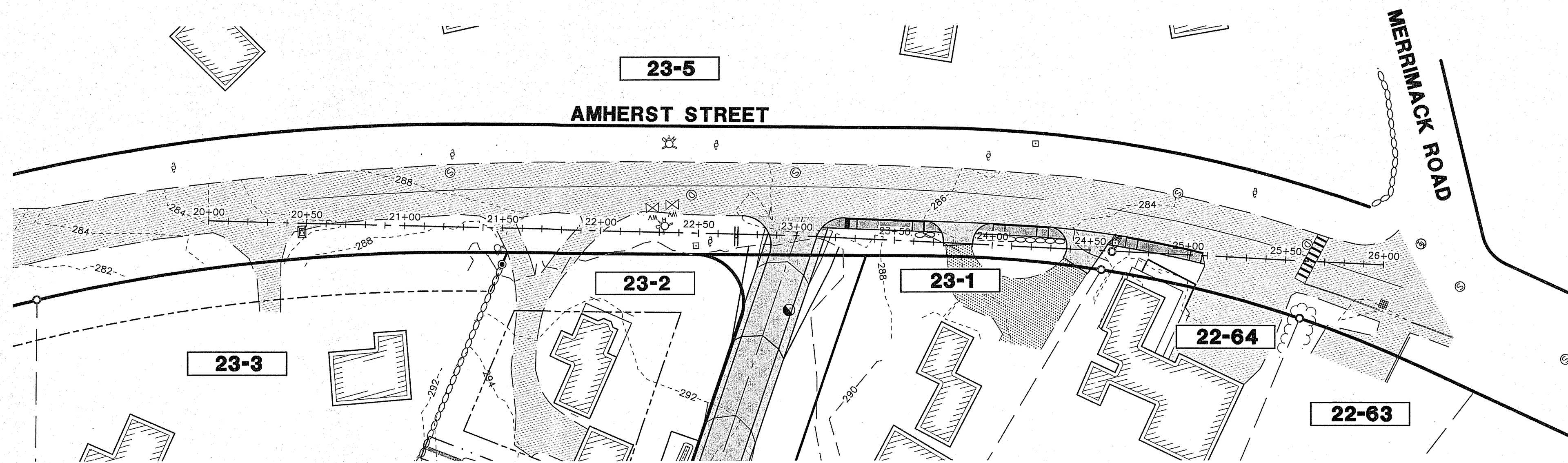
SCALE: VARIES

**P-3**  
 SHEET

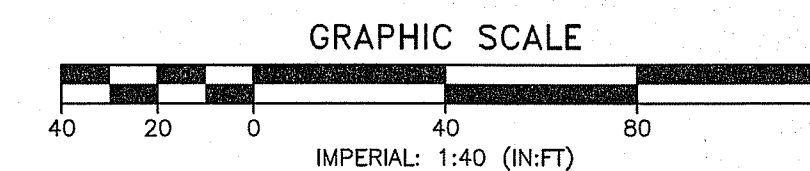
FILE: 3203P05C.dwg  
 PROJECT: 3203.05  
 SHEET NO. 7 OF 16

Plotter: 8/1/2019 10:38 AM By: BUC  
 H:\MIS\03203\3203.05\Drawings\ENG\3203P05C.dwg

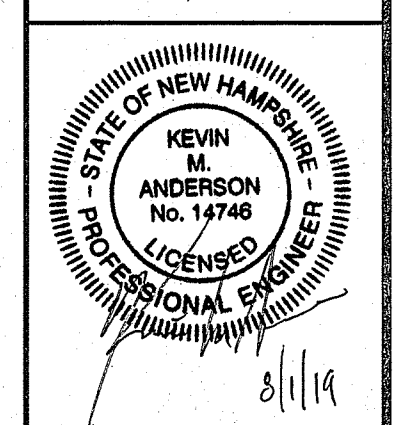
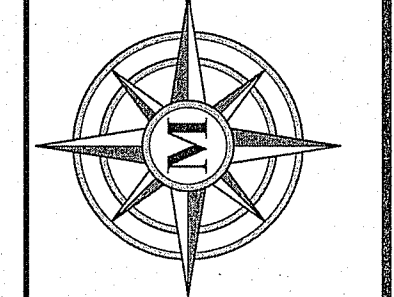




**SIGHT DISTANCE REQUIREMENTS**  
 POSTED SPEED LIMIT ON AMHERST STREET: 30 MPH  
 REQUIRED SIGHT DISTANCE: 300 FEET (FOR 26-35 MPH SPEED LIMIT)



**MERIDIAN**  
**LAND SERVICES, INC.**  
 ENGINEERING | SURVEYING | PERMITTING  
 SOIL & WETLAND MAPPING | SEPTIC DESIGN  
 3 FOLD NASHUA ROAD, AMHERST, NH 03001  
 MERIDIANLANDSERVICES.COM  
 TEL: 603-673-1441  
 FAX: 603-673-1584



REV	DATE	DESCRIPTION	DR	CK
H				
G				
F				
E				
D				
C	8/1/19	REVISE DRAINAGE LAYOUT	BUC	KVA
B	6/25/19	INITIAL TOWN STAFF COMMENTS	BUC	KVA
A	5/29/19	PLANNING BOARD SUBMISSION	BUC	KVA

**SIGHT DISTANCE  
 PLAN AND PROFILE**

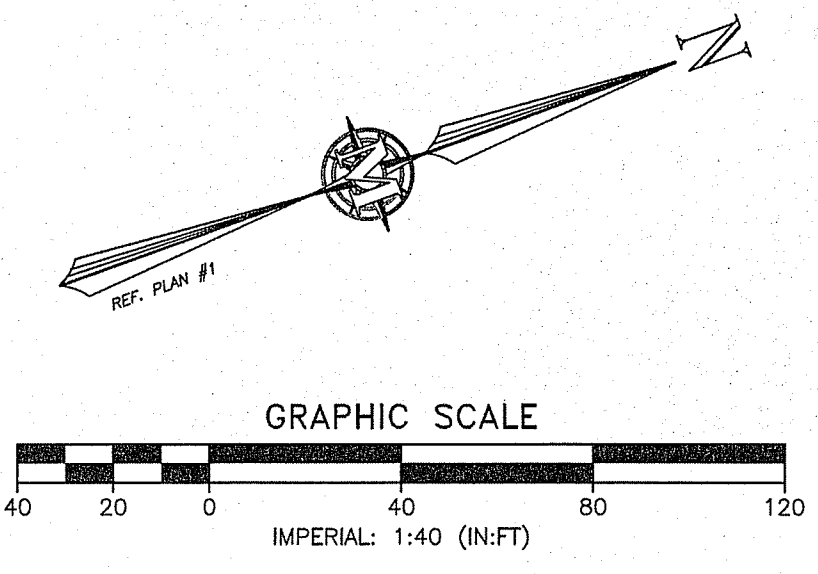
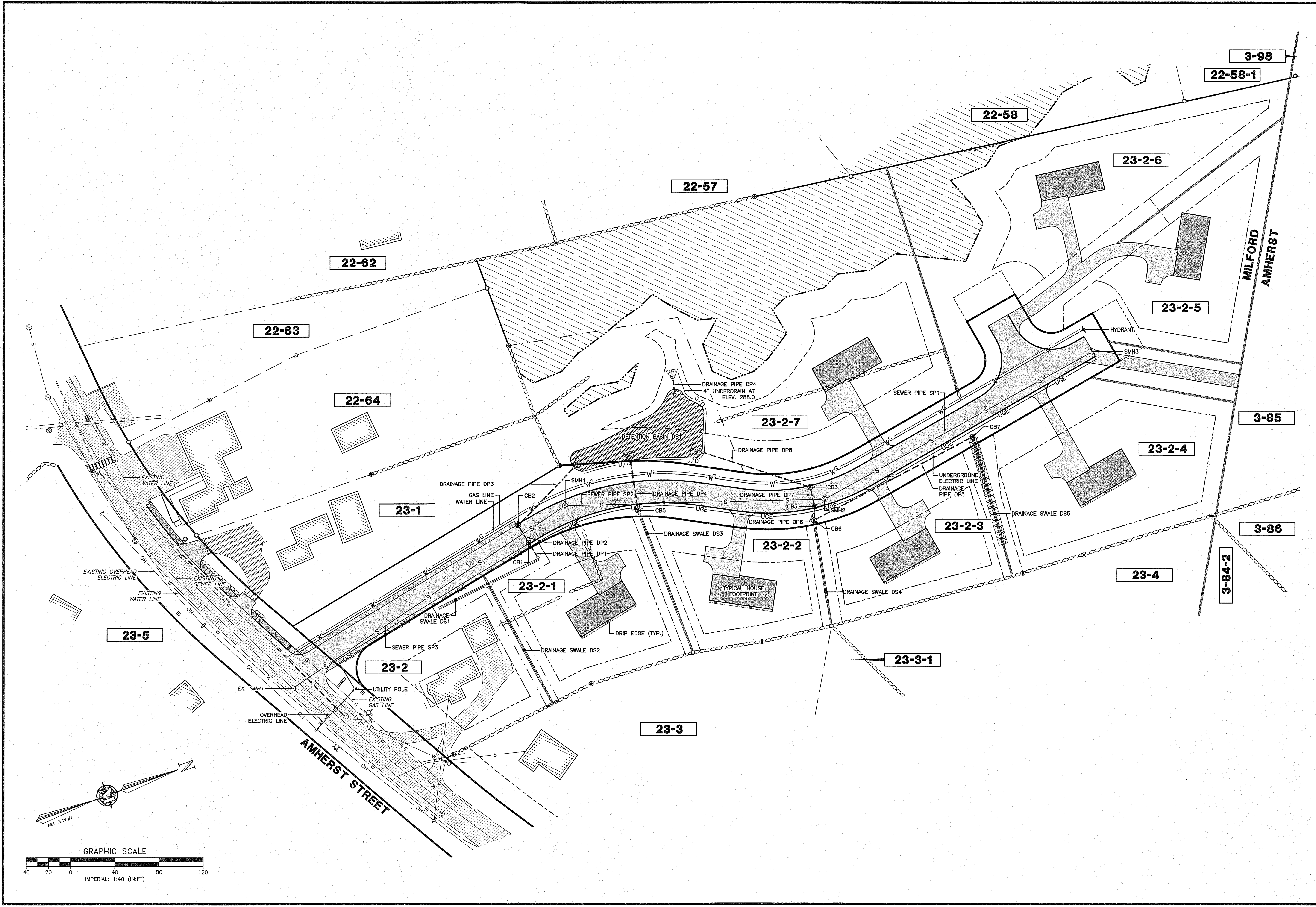
RICHARD KEOGH  
 AMHERST STREET  
 MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE

**P-4**  
 SHEET

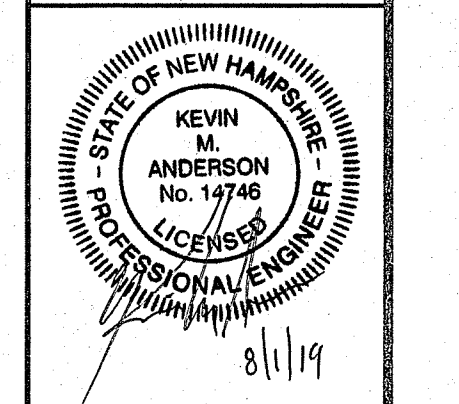
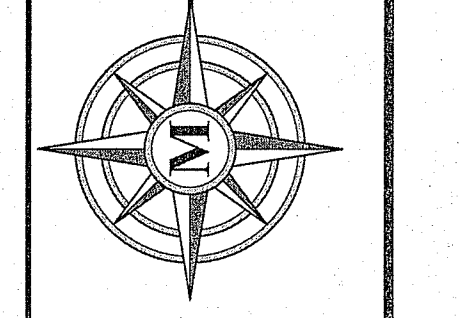
FILE: 3203P05C.dwg  
 PROJECT: 3203.05  
 SHEET NO. 8 OF 16

Plotted: 8/1/2019 10:38 AM By: BUC  
 H:\MIS\03203\3203.05\Drawings\ENG\3203P05C.dwg





**MERIDIAN**  
**LAND SERVICES, INC.**  
 ENGINEERING | SURVEYING | PERMITTING  
 SOIL & WETLAND MAPPING | SEPTIC DESIGN  
 31 OLD NASHUA ROAD, AMHERST, NH 0381  
 MERIDIANLANDSERVICES.COM  
 TEL: 603-673-1441  
 FAX: 603-673-1384



REV.	DATE	DESCRIPTION	BY	CHK
A	12/25/19	PLANNING BOARD SUBMISSION	BUC KVA	DR
B	1/25/19	INITIAL TOWN STAFF COMMENTS	BUC KVA	DR
C	8/1/19	REVISE DRAINAGE LAYOUT	BUC KVA	DR

**UTILITY PLAN**

RICHARD KEOGH  
 AMHERST STREET  
 MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE

SCALE: 1" = 40'

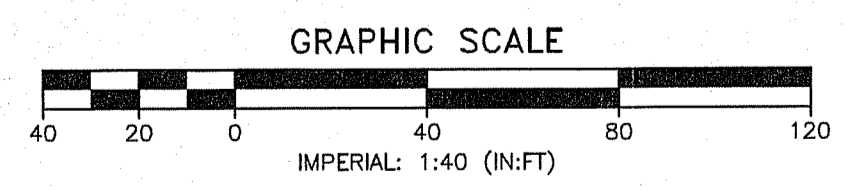
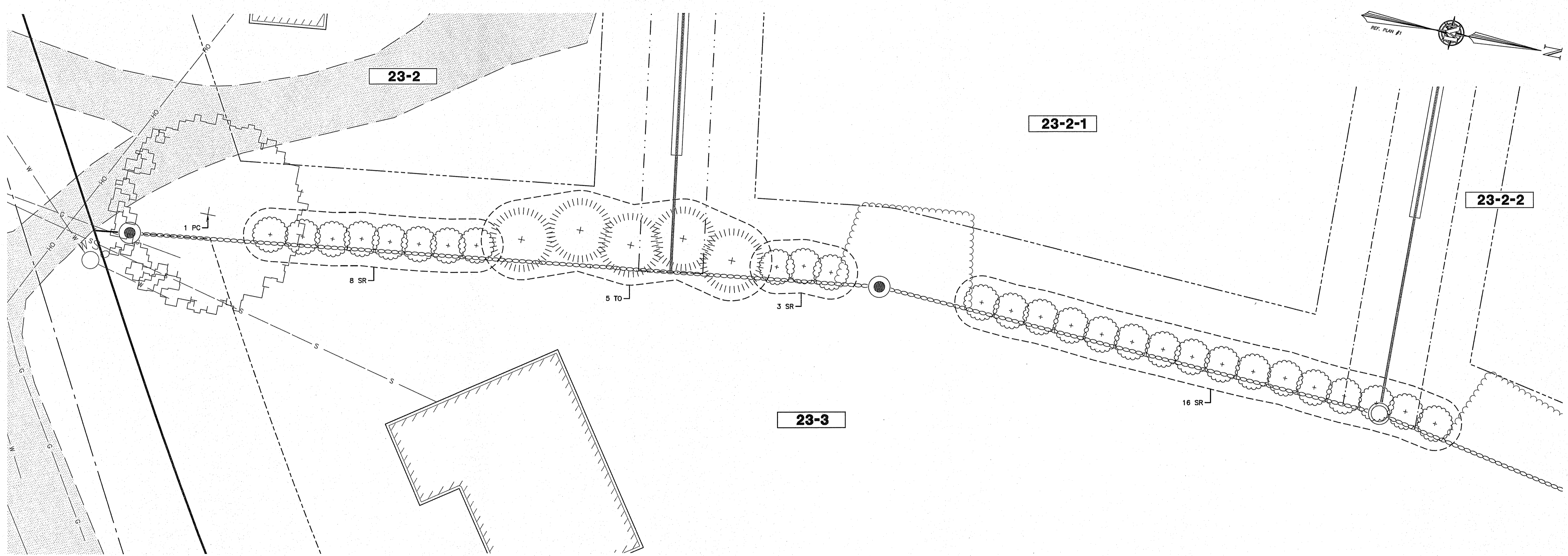
**P-5**  
 SHEET

FILE: 3203P05C.dwg  
 PROJECT: 3203.05  
 SHEET NO. 9 OF 16

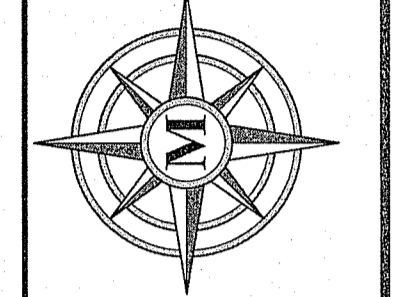
Plotfile: 8/1/2019 10:38 AM By: BUC  
 H:\MLS\03203\3203.05\Drawings\ENG\3203P05C.dwg



PLANTING SCHEDULE				
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
PC	1	PYRUS CALLERYANA	BRADFORD PEAR	2" TO 2.5" CALIPER
TO	5	THUJA OCCIDENTALIS NIGRA	DARK AMERICAN ARBORVITAE	7' TO 8'
SR	27	SYRINGA VULGARIS	COMMON LILAC	3' TO 4'



**MERIDIAN**  
**LAND SERVICES, INC.**  
 ENGINEERING | SURVEYING | PERMITTING  
 SOIL & WETLAND MAPPING | SEPTIC DESIGN  
 3 TOLL NASHUA ROAD, AMHERST, NH 03061 TEL: 603-671-1941  
 MERIDIANLANDSERVICES.COM FAX: 603-671-1584



REV.	DATE	DESCRIPTION	DR	CR
A	5/29/19	PLANNING BOARD SUBMISSION	EUC	KMA
B	6/25/19	INITIAL TOWN STAFF COMMENTS	EUC	KMA
C	9/1/19	REVISE DRAINAGE LAYOUT	EUC	KMA
D				
E				
F				
G				
H				
I				

LANDSCAPING PLAN

RICHARD KEOGH  
 AMHERST STREET  
 MAP 23 LOT 2  
 MILFORD, NEW HAMPSHIRE

SCALE: 1" = 40'

FEBRUARY 25, 2019

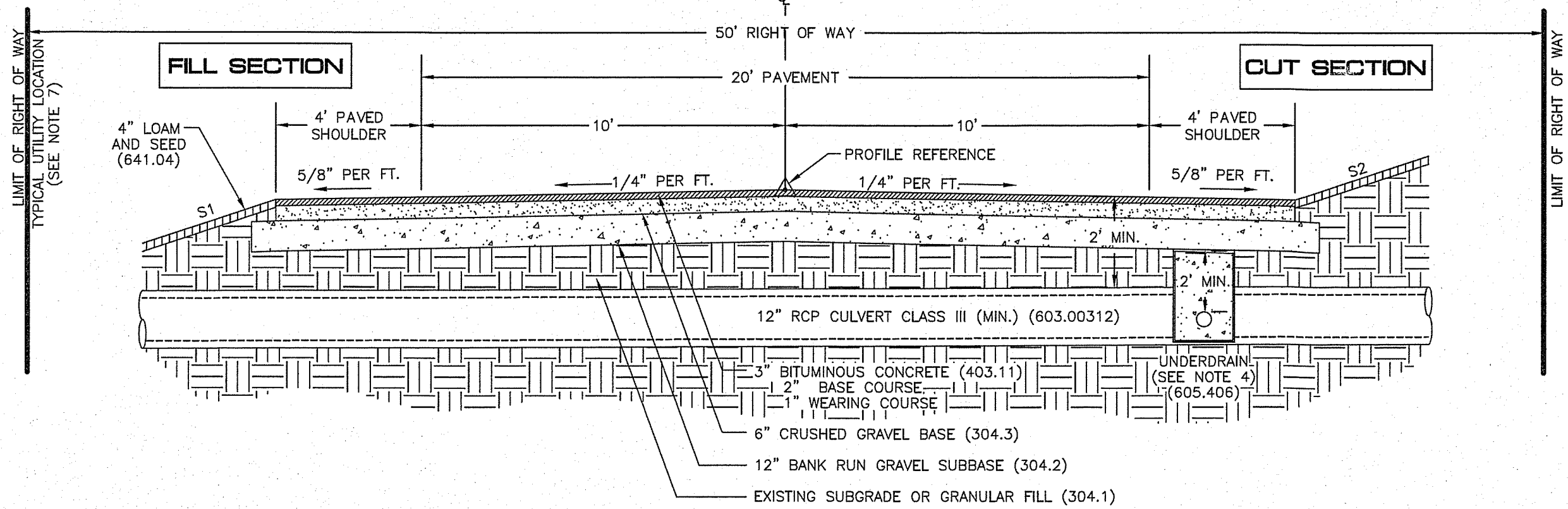
**LS-1**  
 SHEET

FILE: 3203P05C.dwg  
 PROJECT: 3203.05  
 SHEET NO. 10 OF 16

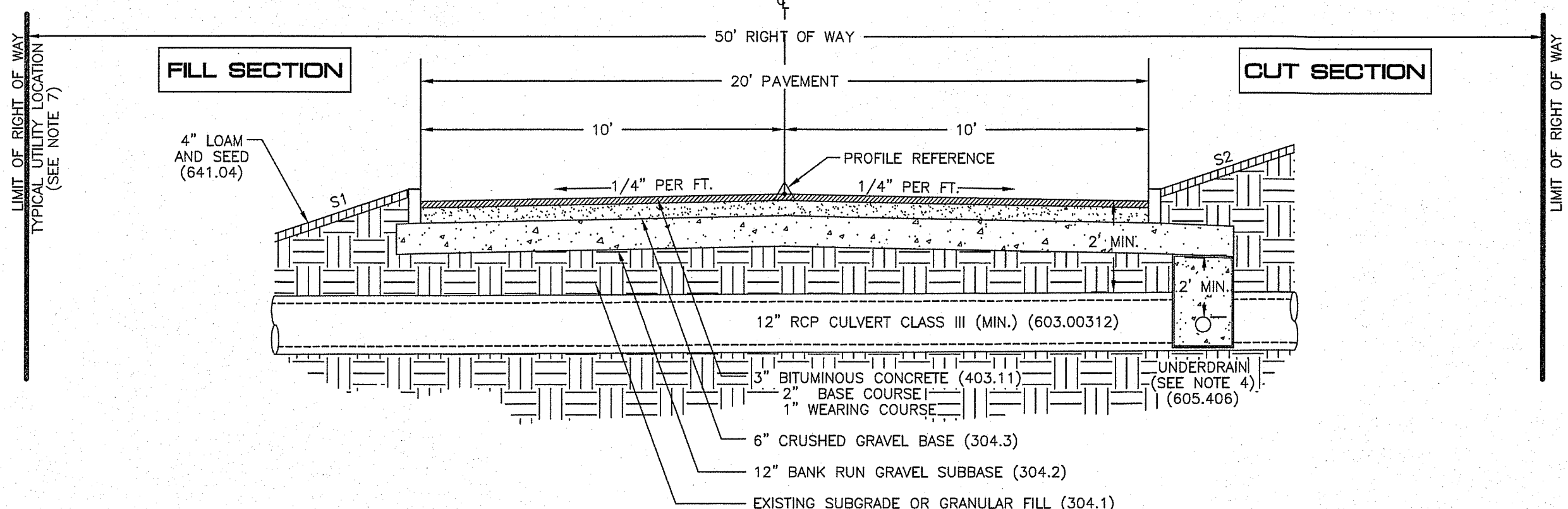
Plotfile: 8/7/2019 10:38 AM Br\_BUC  
 H:\MLS\03203\3203.05\Drawings\ENG\3203P05C.dwg



**ROADWAY SECTION - OPEN DRAINAGE**



**ROADWAY SECTION - CLOSED DRAINAGE**



**ROAD DESIGN REQUIREMENTS**

ROAD GRADE (MIN.)	1%
ROAD GRADE (MAX.)	8%
GRADE WITHIN 75' OF INTERSECTION	3%
CENTERLINE RADIUS - CURVES (MIN.)	100'
BINDER COURSE	2" (MIN.)
WEARING COURSE	1" (MIN.)

**MAXIMUM SIDE SLOPES:**

DISTANCE TO ORIGINAL GROUND	S1 (FILL)	S2 (CUT)
LESS THAN 10'	4:1	3:1
10 TO 20'	3:1	2:1
GREATER THAN 20'	2:1	2:1
LEDGE	-	1:2

**NOTES:**

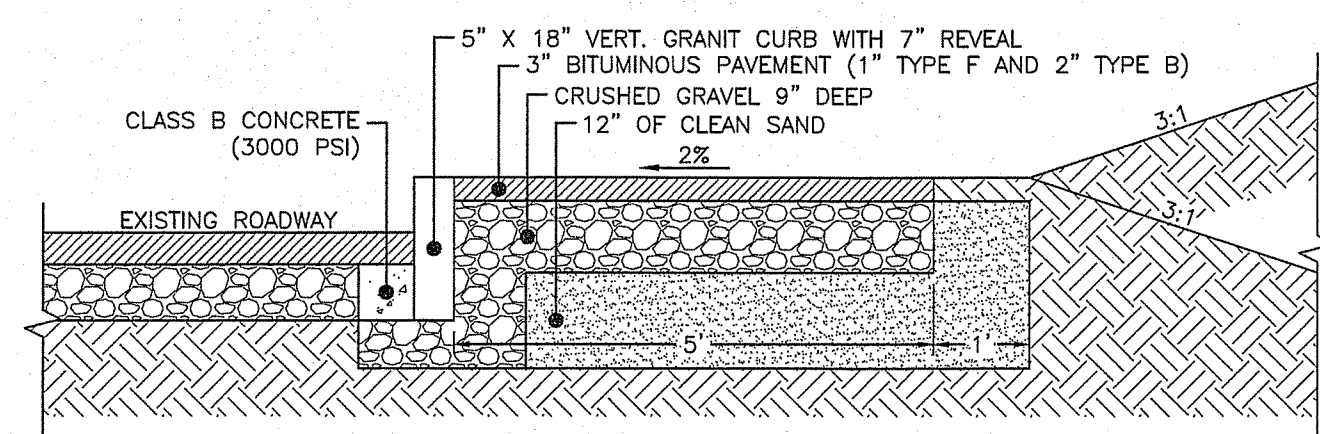
- THE ROAD DESIGNS ARE IN ACCORD WITH THE FOLLOWING DESIGN STANDARDS:  
NHDOT - "HIGHWAY DESIGN MANUAL" MAY 1981  
AASHTO - "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", 1990
- DESIGN SPEED MAY BE MODIFIED UPON APPROVAL OF THE MILFORD CHIEF OF POLICE AND IN ACCORDANCE WITH STATE LAW.

**GUARDRAIL LOCATIONS**

IF THE FILL SLOPE IS STEEPER THAN 4:1 WITH MORE THAN 10' OF FILL, A GUARDRAIL SHALL BE PROVIDED.

**TYPICAL ROAD CROSS-SECTIONS**

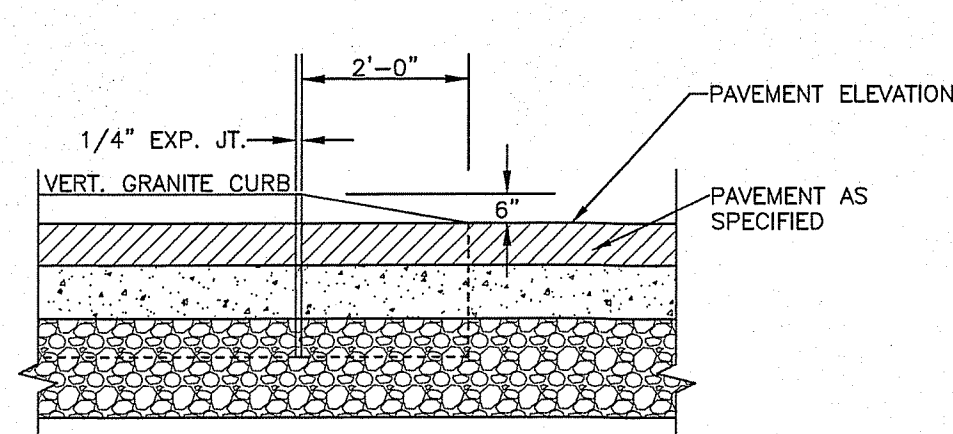
NOTE: SAW CUT EXISTING ROADWAY AS REQUIRED FOR SIDEWALK CONSTRUCTION.



**SIDEWALK - ASPHALT**

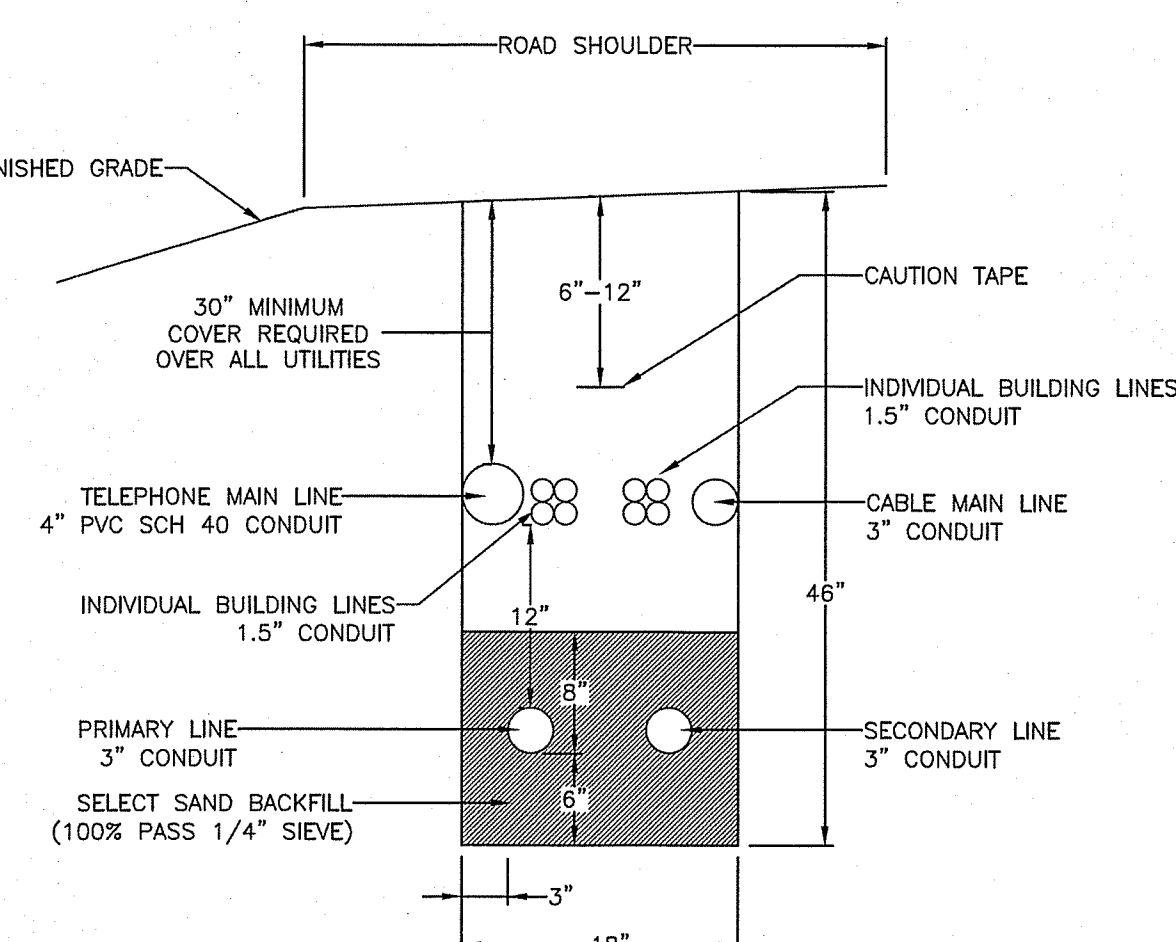
SCALE: NONE D-1

**CURB - TYPICAL END TIP DOWN**



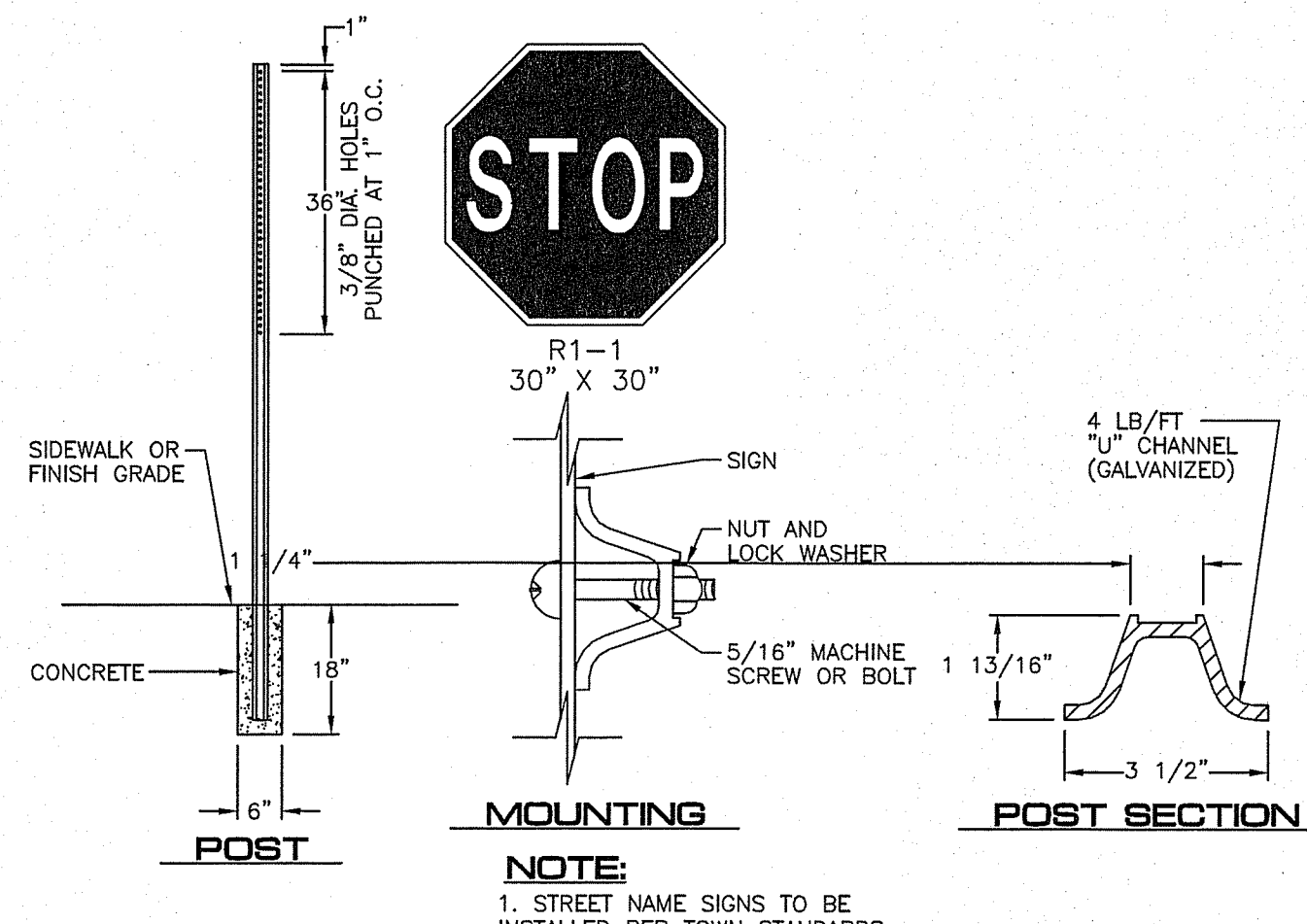
SCALE: NONE D-1

**TYPICAL UTILITY TRENCH**



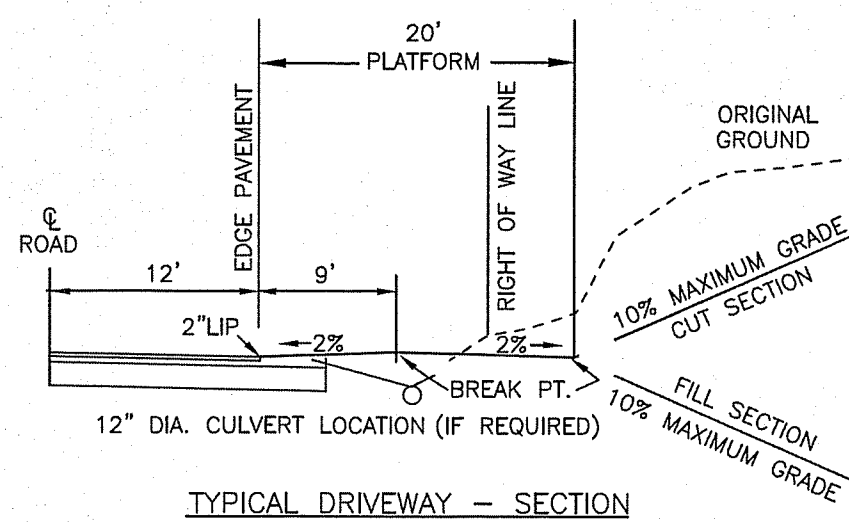
SCALE: NONE D-1

**SIGNS & POST**

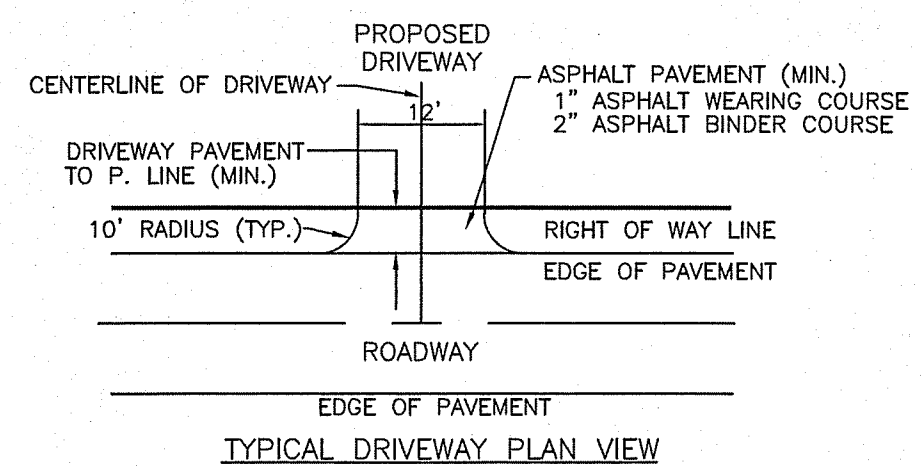


NOTE:  
1. STREET NAME SIGNS TO BE INSTALLED PER TOWN STANDARDS.

SCALE: NONE D-1



**TYPICAL DRIVEWAY - SECTION**



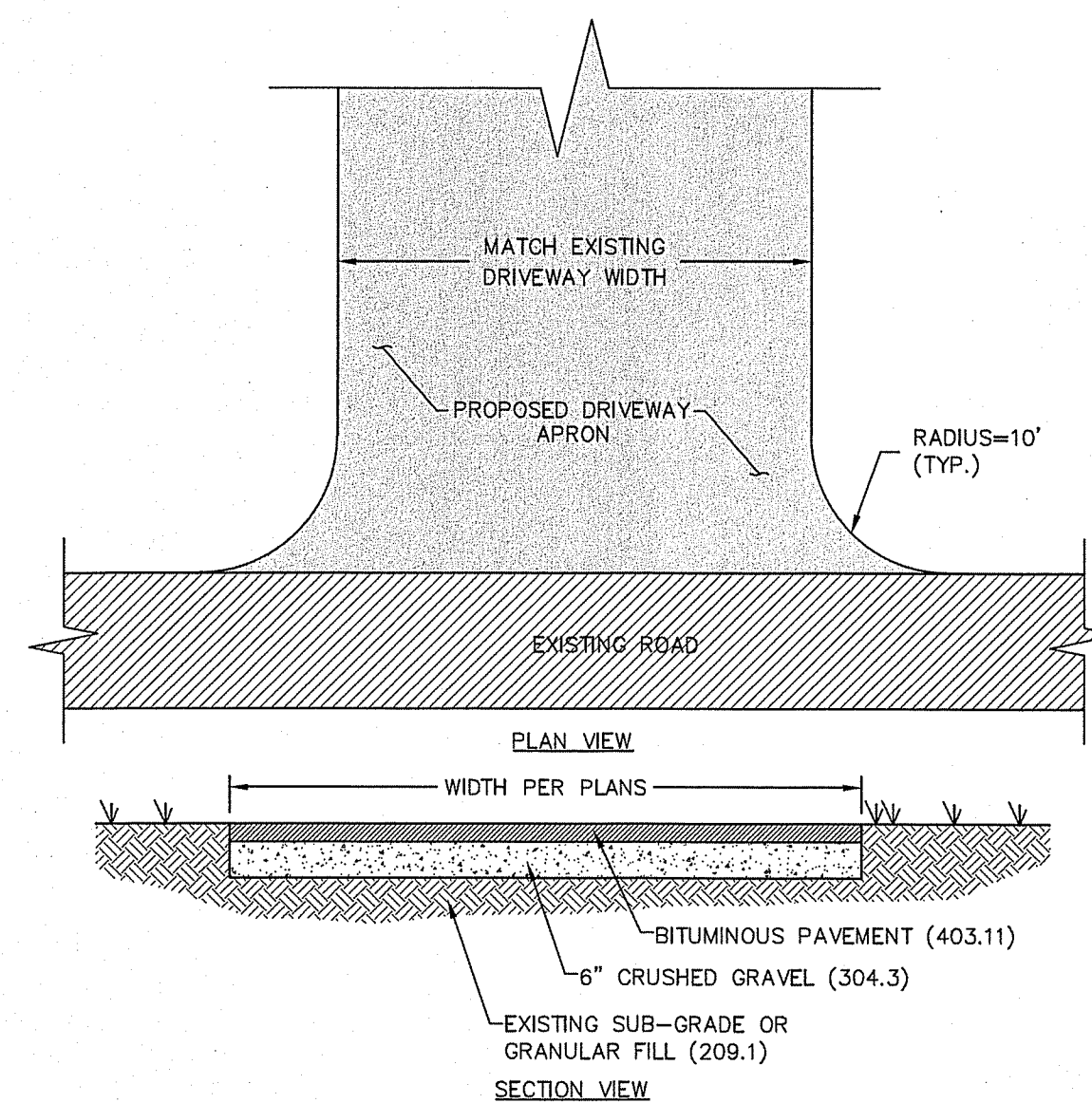
**TYPICAL DRIVEWAY PLAN VIEW**

**DRIVEWAY CONSTRUCTION REQUIREMENTS**

- ALL DRIVEWAYS CONNECTED TO TOWN ROADS MUST BE BUILT AND MAINTAINED BY THE HOMEOWNER OR HIS/HER REPRESENTATIVE IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE TOWN DRIVEWAY REGULATIONS.
- ALL MAILBOXES SHALL BE PLACED ON THE LEFT UPON ENTERING THE PROPERTY TO FACILITATE MUNICIPAL SNOW REMOVAL.
- WHERE REQUIRED, CULVERTS SHALL BE A MINIMUM OF TWELVE (12) INCHES IN DIAMETER AND SHALL BE CONSTRUCTED OF CORRUGATED METAL, REINFORCED CONCRETE, HIGH DENSITY POLYETHYLENE PIPE OR APPROVED EQUAL. THE DRIVEWAY SHALL HAVE A MINIMUM 3-FOOT SHOULDER ON EACH SIDE WHERE IT MEETS THE CULVERT.
- HEADWALLS SHALL BE CONSTRUCTED OF STONE RUBBLE AND MORTAR, PRECAST CONCRETE OR APPROVED EQUAL AND INSTALLED ON BOTH ENDS OF THE CULVERT.
- ON ALL PAVED ROADS, NEW DRIVEWAYS REQUIRE AN ASPHALT APRON FROM THE ROAD TO THE PROPERTY LINE.

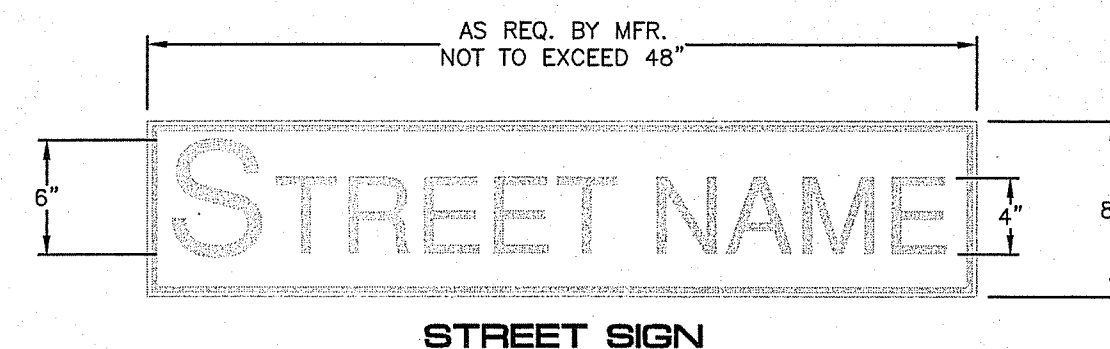
**TYPICAL DRIVEWAY**

SCALE: NONE D-1



**PAVED DRIVEWAY APRON (LOT 23-1)**

SCALE: NONE D-1

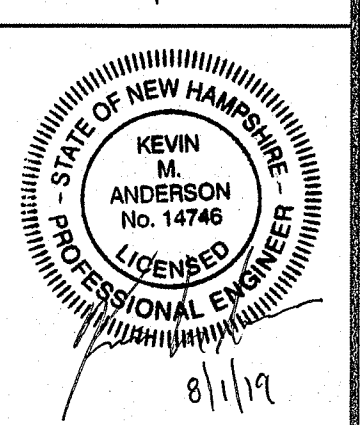
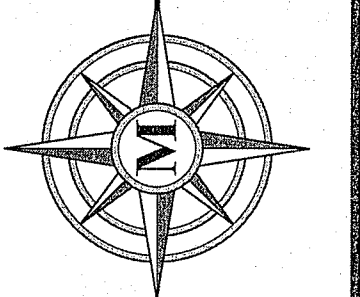


**STREET SIGN**

**STREET SIGN NOTES:**

- STREET SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE MUTCD SIGN TYPE D3-1, GREEN IN COLOR UNLESS OTHERWISE SPECIFIED BY THE TOWN.
- STREET SIGN SHALL CONFORM TO THE LATEST EDITION OF THE MUTCD IN SIGN LOCATION, MOUNTING HEIGHT, SIGN HEIGHT AND WIDTH AND TEXT HEIGHT AND STYLE.
- LETTERING ON POST-MOUNTED STREET NAMES SIGNS SHOULD BE COMPOSED OF INITIAL UPPER-CASE LETTERS AT LEAST 6 INCHES IN HEIGHT AND LOWER CASE LETTERS AT LEAST 4.5 INCHES IN HEIGHT.
- STREET NAME SIGN SHALL BE RETROREFLECTIVE TO SHOW THE SAME SHAPE AND COLOR BOTH DAY AND NIGHT. NAME AND BORDER SHALL CONTRAST WITH THE BACKGROUND COLOR.
- SIGN HEIGHT SHALL BE 8" IN HEIGHT WITH A WIDTH NOT TO EXCEED 48"
- CAPITAL LETTERS SHALL BE 6" IN HEIGHT. LOWER CASE LETTERS SHALL BE 4.5" IN HEIGHT.

**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
31 OLD WASHUA ROAD, AMHERST, NH 0381  
MERIDIANLANDSERVICES.COM  
TEL: 603-973-1141  
FAX: 603-973-1184



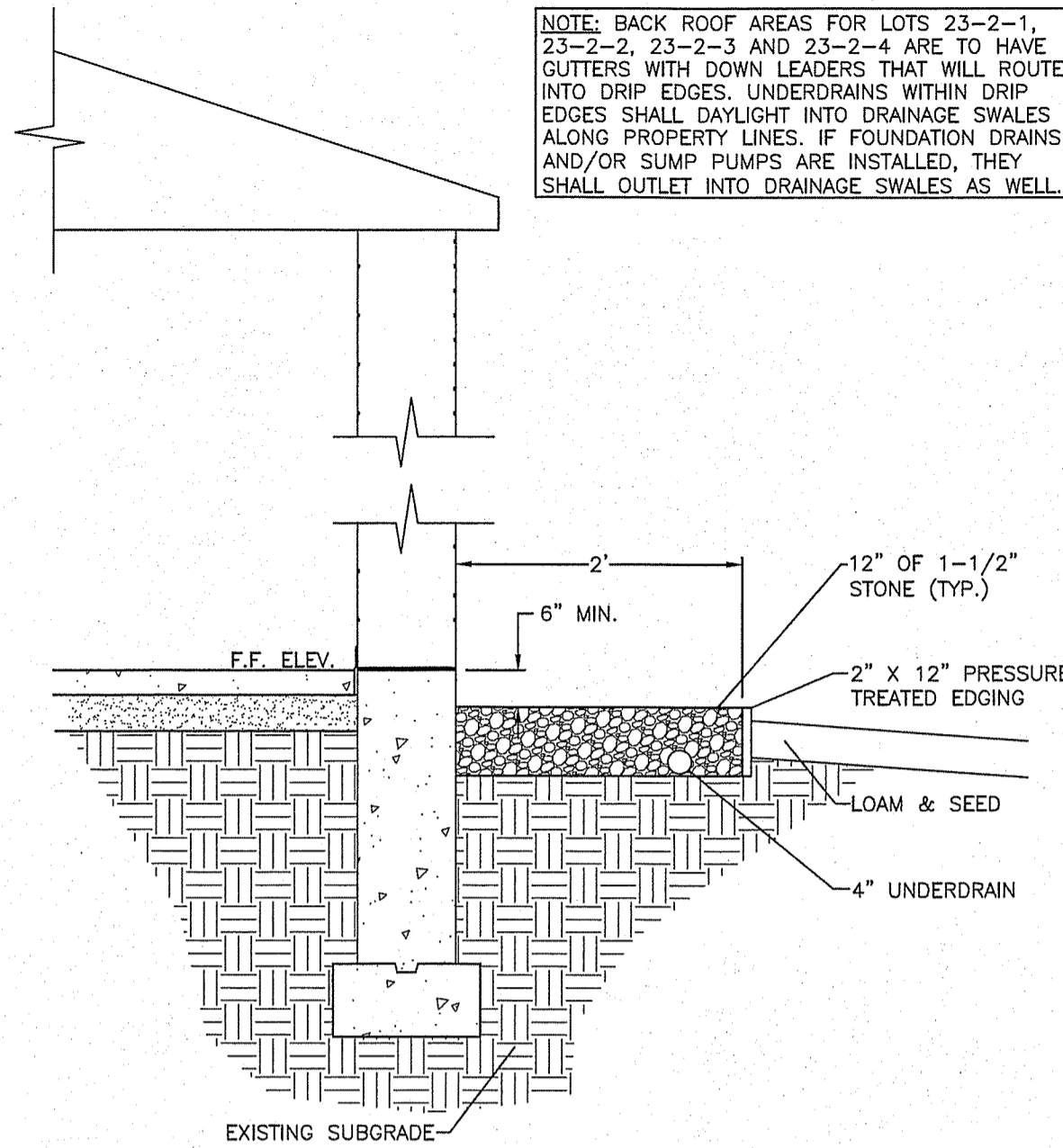
REV	DATE	DESCRIPTION	DR	CK
A	15/25/19	PLANNING BOARD SUBMISSION	BC	KMA
B	6/25/19	INITIAL TOWN STAFF COMMENTS	BC	KMA
C	8/1/19	REVISE DRAINAGE LAYOUT	BC	KMA

**CONSTRUCTION DETAILS**

RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

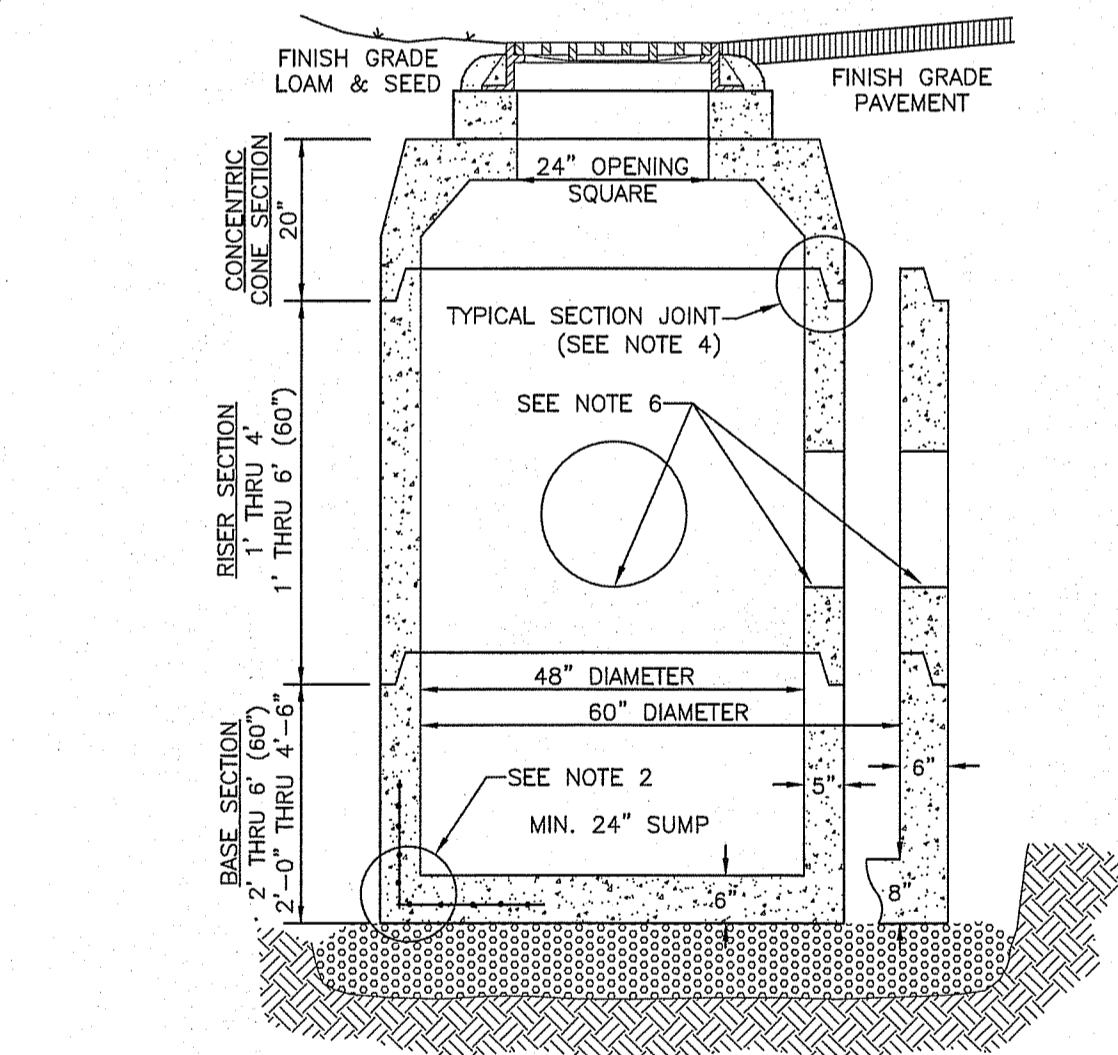
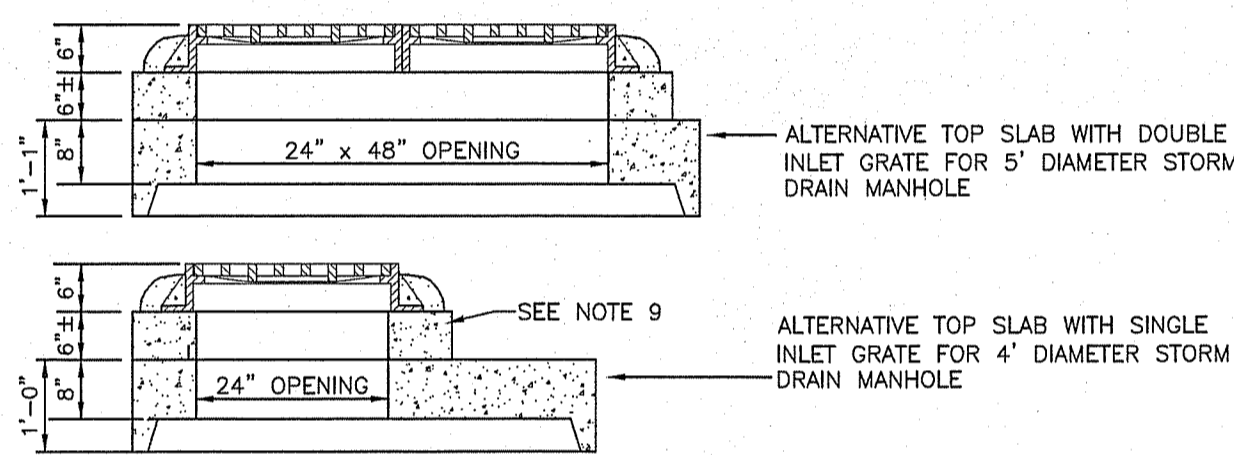
SCALE: VARIES  
FEBRUARY 25, 2019  
**D-1**  
SHEET  
FILE: 3203P05C.dwg  
PROJECT 3203.05  
SHEET NO. 11 OF 16





**ROOF DRIP EDGE**

SCALE: NONE **1**  
D-2

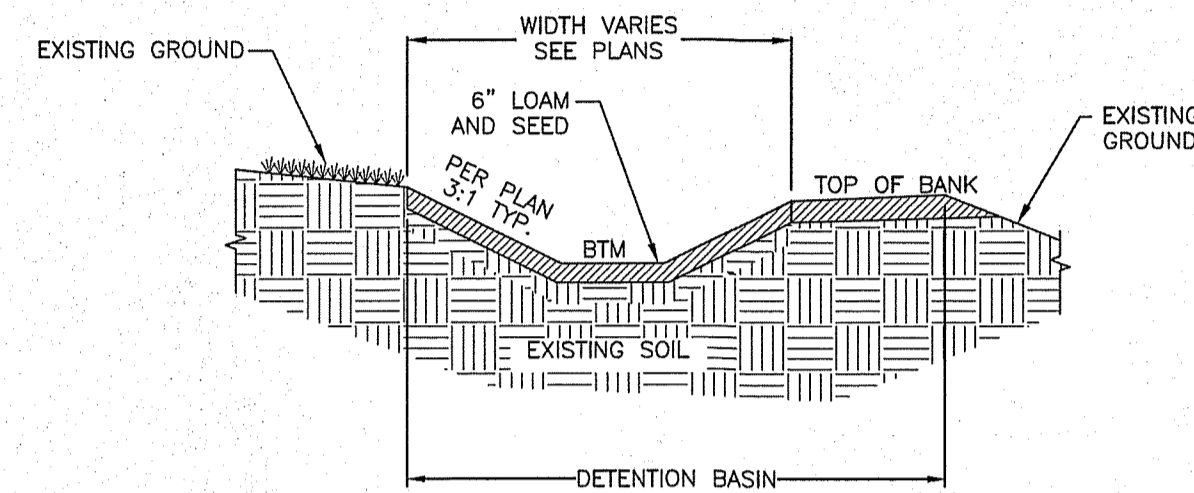


**GENERAL NOTES**

- STORM DRAIN MANHOLE SHALL BE SUPPLIED BY CONCRETE SYSTEMS, INC., HUDSON, NH OR EQUAL.
- REINFORCING STEEL SHALL CONFORM TO THE LATEST ASTM SPECIFICATION: 0.12 SQIN./LINEAR FT. AND 0.12 SQIN. (BOTH WAYS) BASE BOTTOM.
- CONCRETE COMPRESSIVE STRENGTH - 4000 PSI MINIMUM.
- TYPICAL SECTION JOINT SHALL BE SEALED WITH BUTYL RUBBER AND SHALL CONFORM TO ASTM C443 SPEC. AND FED SPEC. SS-S-210A.
- MANHOLE DESIGN SPECIFICATIONS SHALL CONFORM TO THE LATEST ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS".
- ALL PIPING SHALL BE SEALED WITH NON SHRINK GROUT.
- ALTERNATIVE TOP SLAB IS TO BE STEEL REINFORCED TO MEET OR EXCEED H-20 LOADING.
- INLET GRATE AND FRAME IS TO BE NEEHAH MODEL R-3405 FOR SINGLE GRATE AND MODEL R-3405-A FOR A DOUBLE GRATE STRUCTURE, OR EQUAL.
- INLET FRAME IS TO BE ADJUSTED TO GRADE WITH A MINIMUM OF TWO (2) COURSES OF BRICK OR ONE SOLID CONCRETE RING AND GROUT. SEALED IN PLACE WITH NON SHRINK GROUT.
- STORM DRAIN MANHOLE IS TO BE SET ON 6" OF 3/4" STONE BEDDING.
- THE 48" DIAMETER STORM DRAIN MANHOLE SHALL BE RESTRICTED TO PIPES OF 24" IN DIAMETER OR LESS. THE 60" DIAMETER STORM DRAIN SHALL BE RESTRICTED TO PIPES OF 36" IN DIAMETER OR LESS.
- ALL DRAINAGE STRUCTURES SHALL CONFORM TO NHDOT STANDARDS.

**CATCH BASIN**

SCALE: NONE **2**  
D-2



- CONSTRUCTION NOTES:**
- THE BOTTOM OF THE EXCAVATION SHALL BE SHAPED PER PLAN AND MODERATELY COMPACTED PRIOR TO INSTALLATION OF 6" SILTY LOAM LAYER.
  - THE SIDES AND OF THE DETENTION BASIN SHALL HAVE 6" OF LOAM AND TYPE C SEED FOR ESTABLISHMENT OF VEGETATION.

**NOTES:**

- DO NOT PLACE DETENTION BASINS INTO SERVICE UNTIL THE CONTRIBUTING AREA HAS BEEN COMPLETELY STABILIZED.

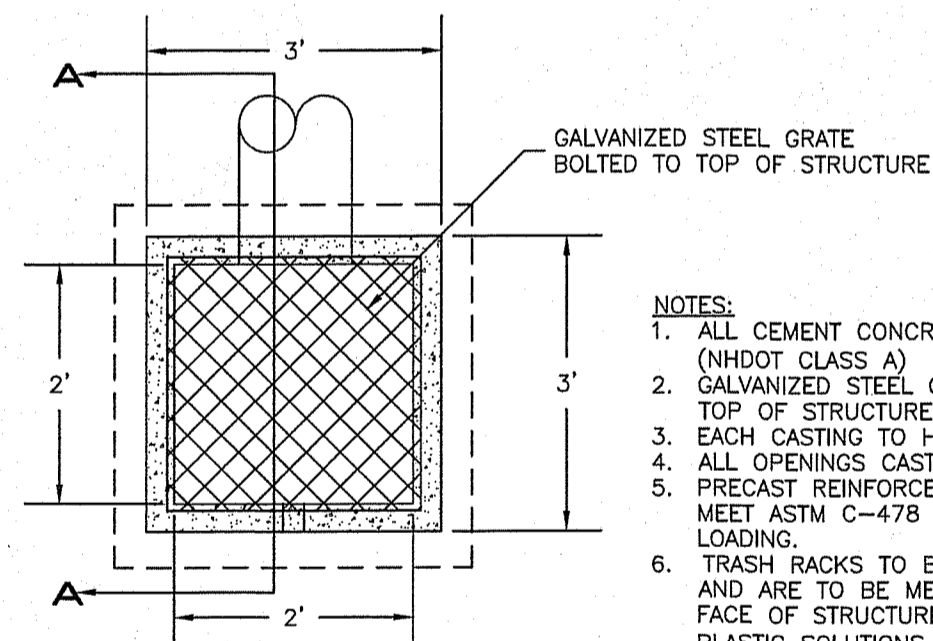
**MAINTENANCE REQUIREMENTS:**

- PERIODIC MOWING OF EMBANKMENTS.
- REMOVAL OF WOODY VEGETATION FROM FILL EMBANKMENTS.
- REMOVAL OF DEBRIS FROM OUTLET STRUCTURES.
- REMOVAL OF ACCUMULATED SEDIMENT FOR THE FOREBAY AND DETENTION BASIN.
- INSPECTION AND REPAIR OF EMBANKMENTS, INLET AND OUTLET STRUCTURES AND APPURTENANCES.

LOCATION	BOTTOM ELEVATION	RIM ELEVATION
DB1	287.5	290.0

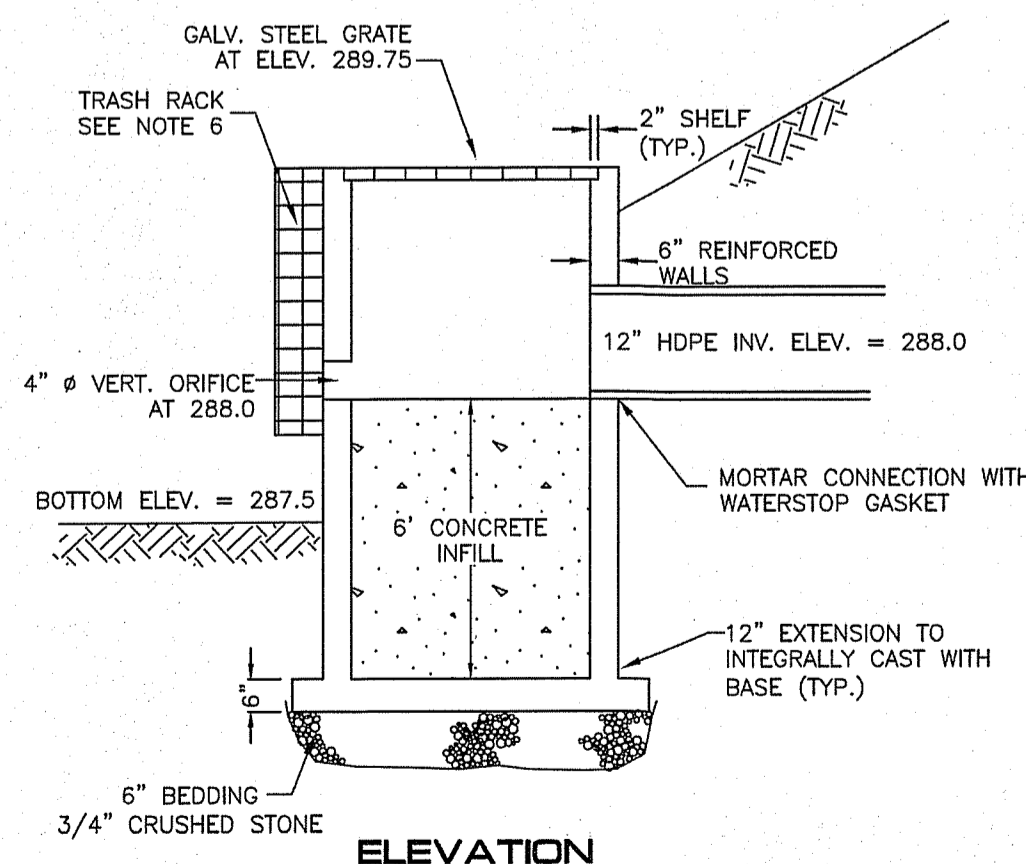
**DETENTION BASIN - TYPICAL CROSS-SECTION**

SCALE: NONE **3**  
D-2



**NOTES:**

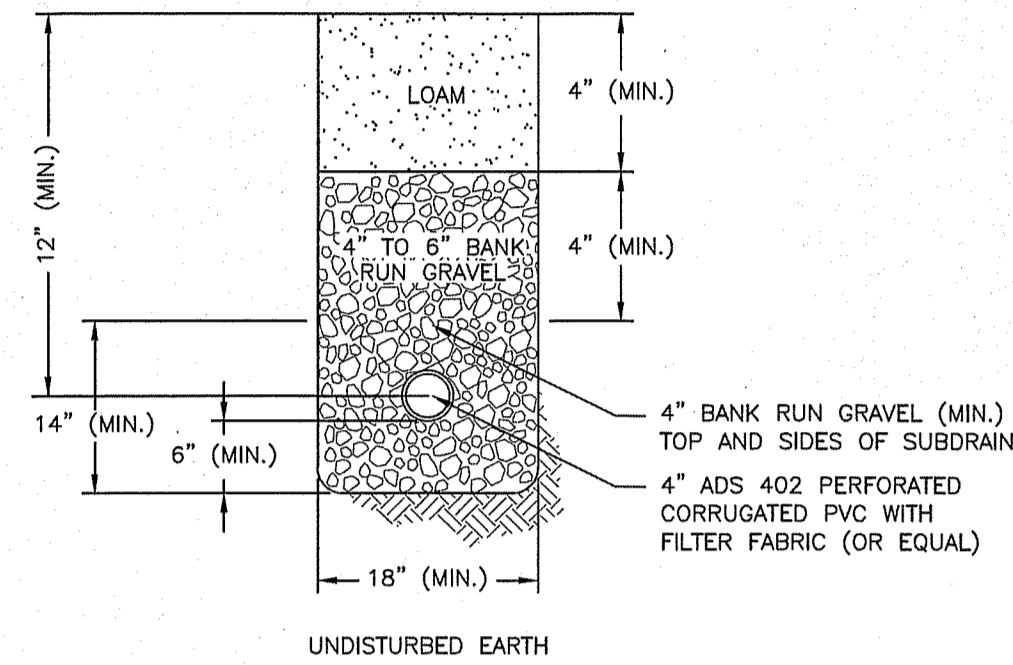
- ALL CEMENT CONCRETE TO BE 4000 PSI (NHDOT CLASS A)
- GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE.
- EACH CASTING TO HAVE LIFTING HOLES CAST IN MEET ASTM C-478 DESIGNATION AND H-20 LOADING.
- PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478 DESIGNATION AND H-20 LOADING.
- TRASH RACKS TO BE OF HDPE CONSTRUCTION AND ARE TO BE MECHANICALLY FASTENED TO FACE OF STRUCTURE. TRASH RACKS TO BE BY PLASTIC SOLUTIONS, INC. (OR EQUAL)



**ELEVATION**

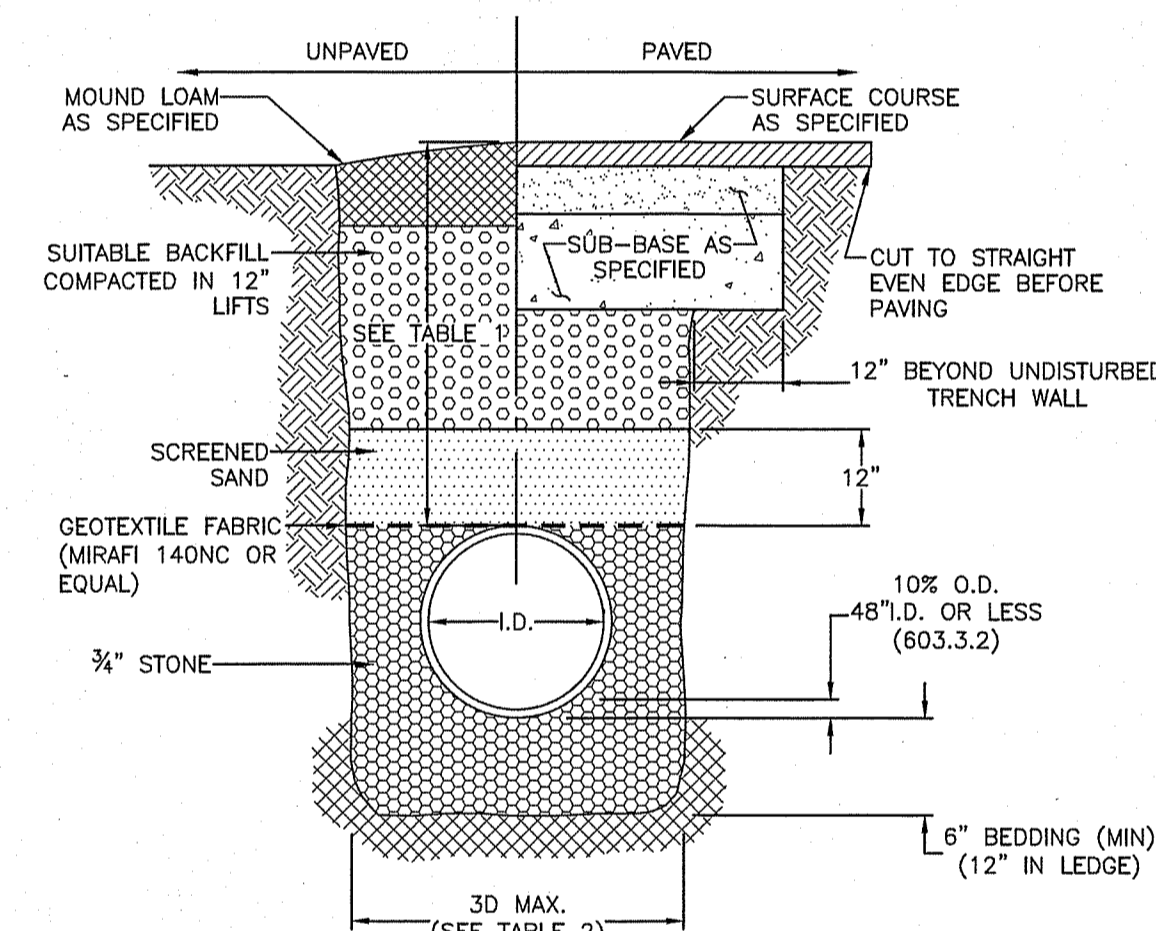
**OUTLET STRUCTURE**

SCALE: NONE **4**  
D-2



**4" UNDERDRAIN**

SCALE: NONE **5**  
D-2



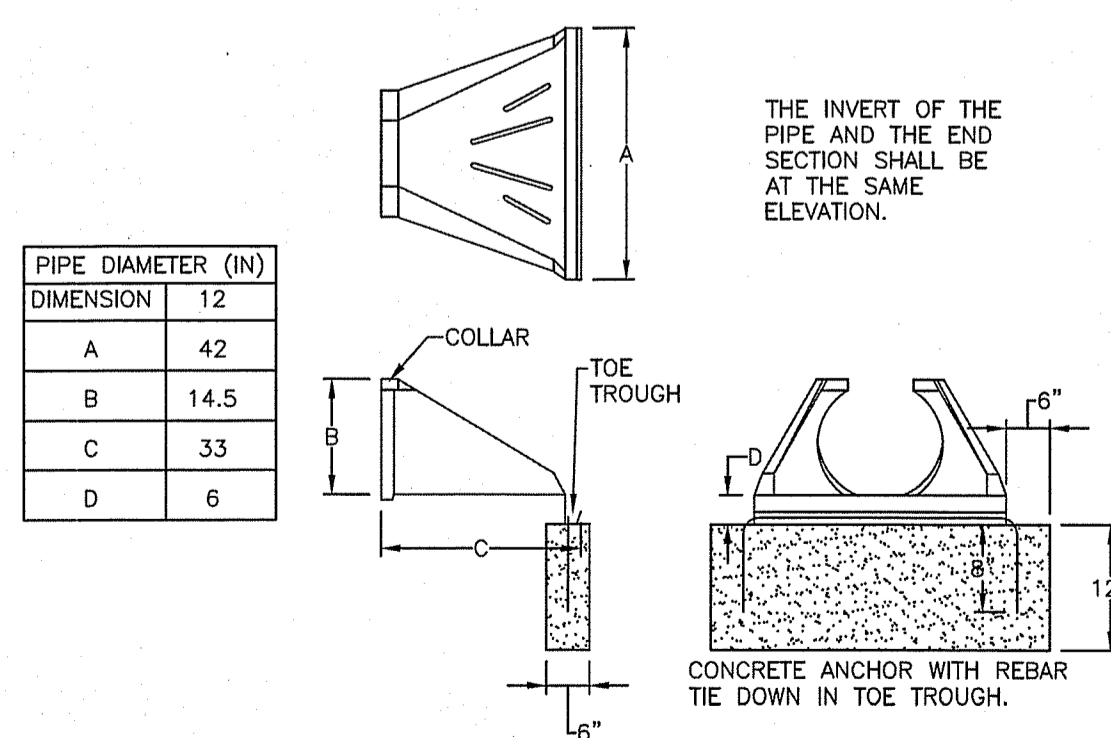
LOCATION	PIPE MATERIAL	MINIMUM COVER
PAVED ROADS	ALL	3 FT.
UNPAVED ROADS	ALL	3 FT.
DRIVEWAYS	ALL	1 FT.
UNPAVED AREAS	ALL	2 FT.

INSIDE DIAMETER	TOTAL WIDTH
UP TO 12"	36"
12" TO 24"	I.D. + 24"
OVER 24"	2 x I.D.

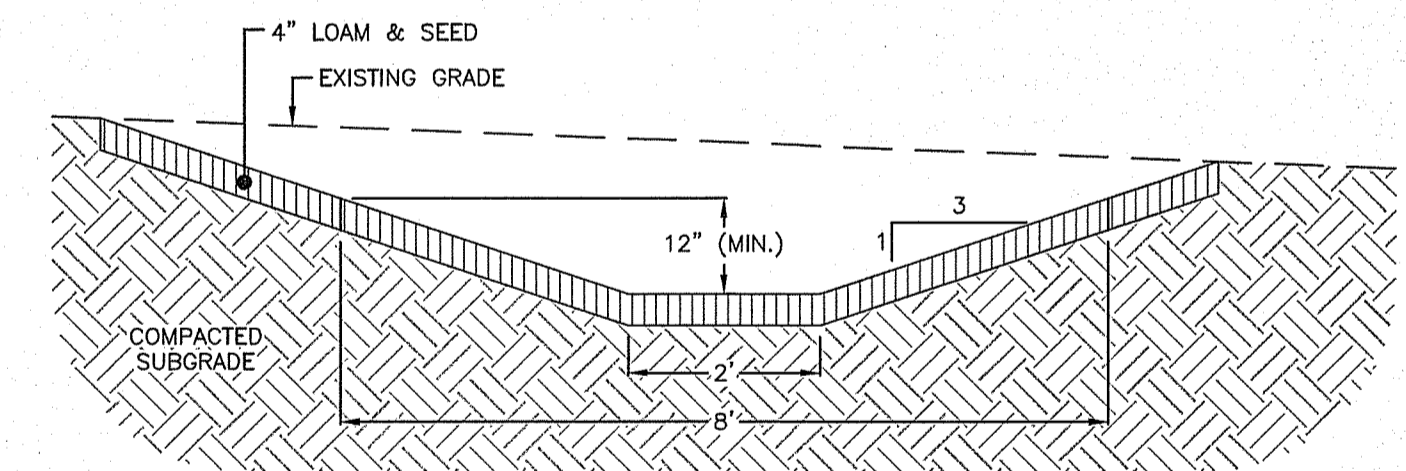
**TYPICAL DRAINAGE TRENCH - HDPE**

SCALE: NONE **6**  
D-2



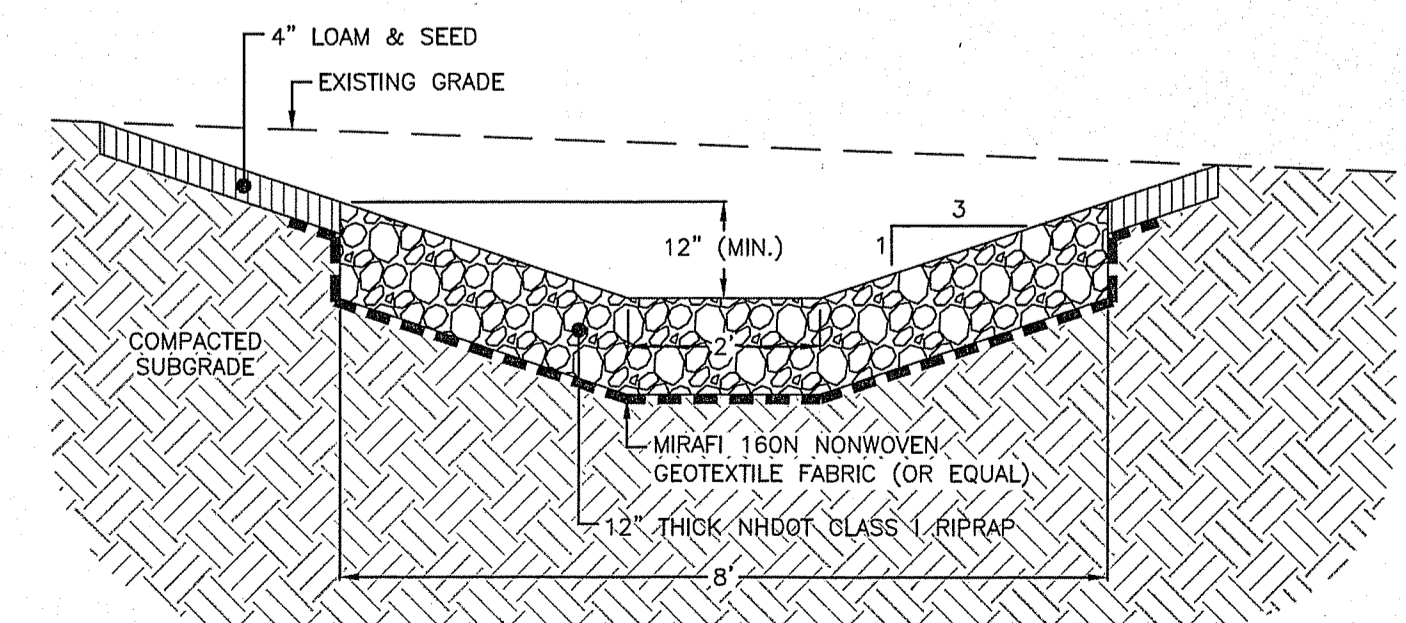
**FLARED END SECTION - HDPE**

SCALE: NONE **7**  
D-2



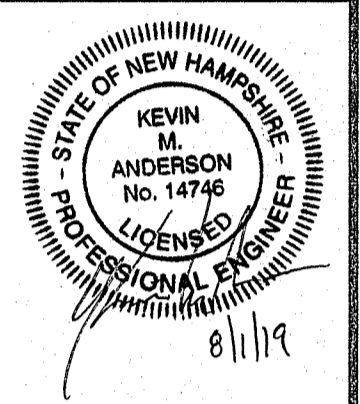
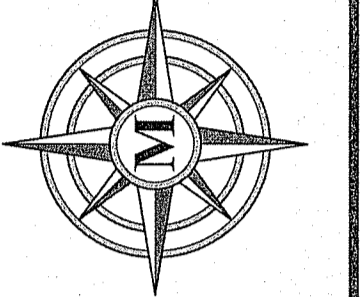
**GRASS LINED SWALE (DS1, DS2, DS3 & DS4)**

SCALE: NONE **8**  
D-2



**RIPRAP LINED SWALE (DS5)**

SCALE: NONE **9**  
D-2



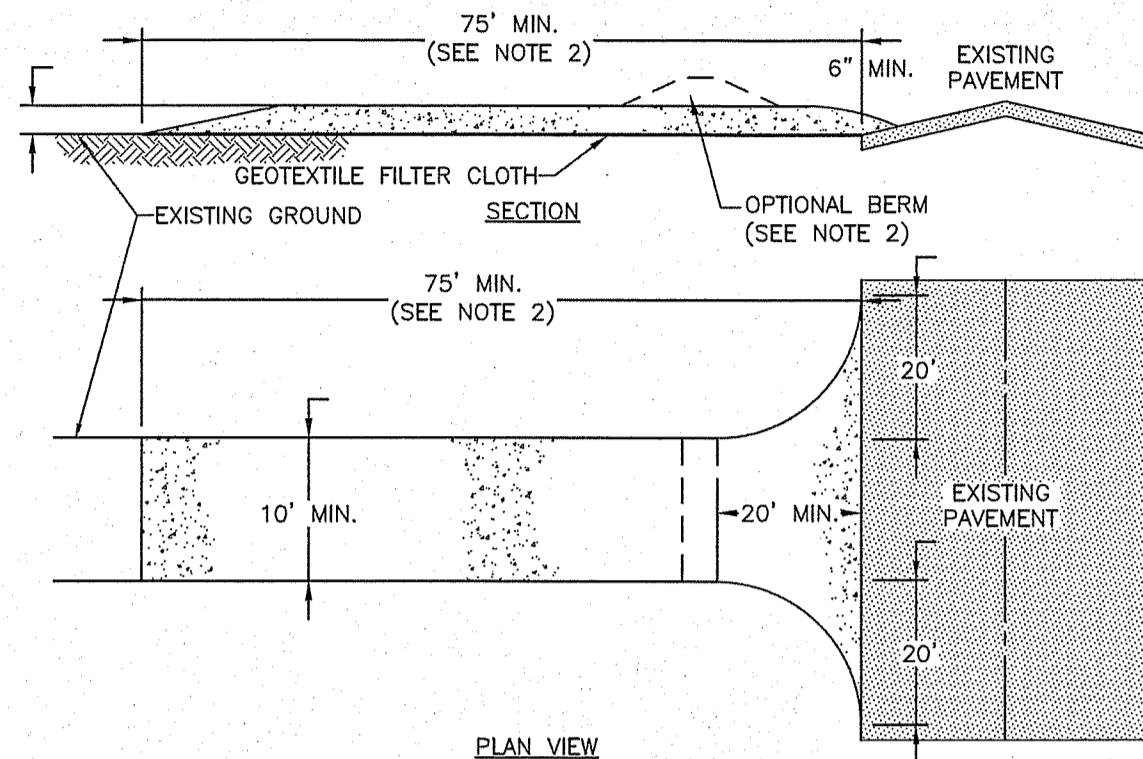
REV.	DATE	DESCRIPTION	DR	CK
A	5/29/19	PLANNING BOARD SUBMISSION	CK	
B	6/29/19	INITIAL TOWN STAFF COMMENTS	CK	
C	8/17/19	REVISE DRAINAGE LAYOUT	CK	

**DRAINAGE DETAILS**

RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

**D-2**  
SHEET





- STONE FOR STABILIZED CONSTRUCTION EXIT SHALL BE 3 INCH CRUSHED STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 6-INCH HIGH BERM IS INSTALLED AT THE EXIT OF THE PROJECT SITE.
- THE THICKNESS OF THE STONE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE EXIT SHALL NOT BE LESS THAN THE FULL WIDTH OF THE EXISTING POINT OF INGRESS/EGRESS OR 10 FEET, WHICHEVER IS GREATER.
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
- ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION EXIT SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
- WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO EXIT ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

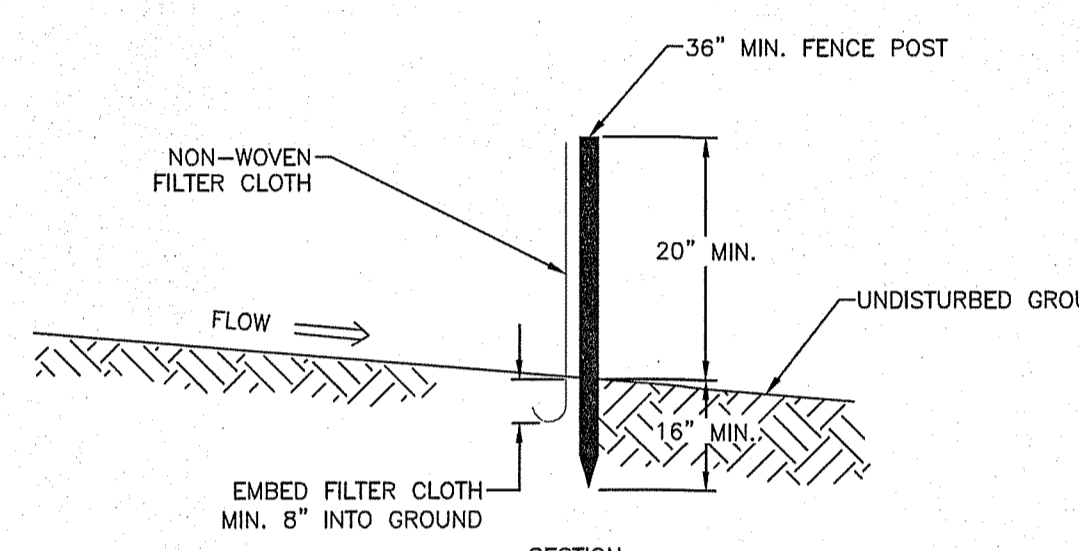
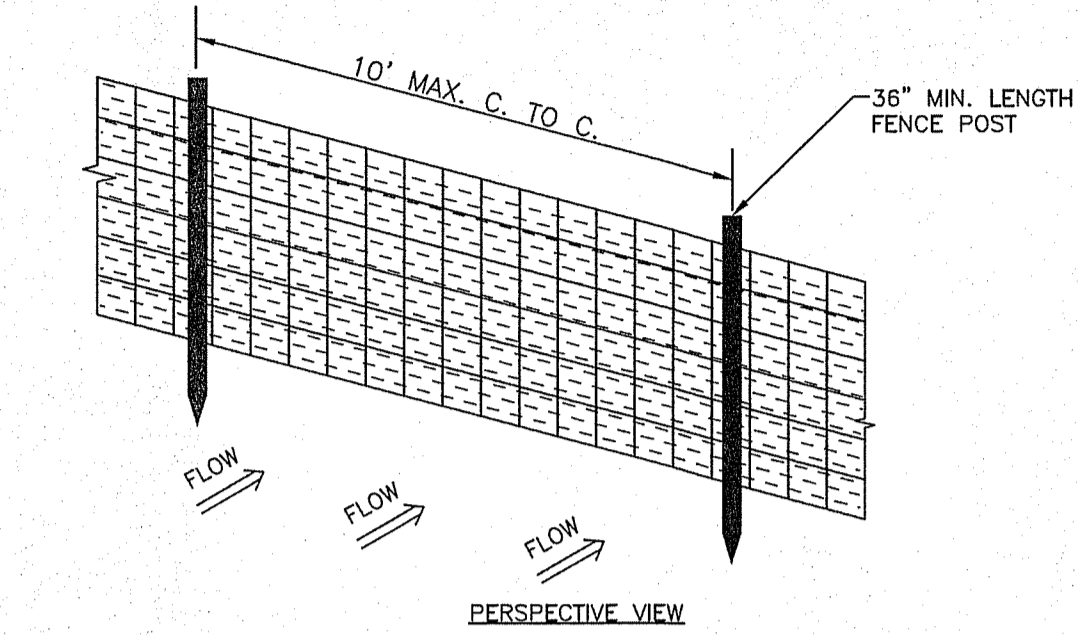
**STABILIZED CONSTRUCTION EXIT**

SCALE: NONE **1** D-3

- INSTALL STABILIZED CONSTRUCTION ENTRANCE(S).
- CUT AND CLEAR TREES; DISPOSE OF DEBRIS.
- INSTALL PERIMETER EROSION AND SEDIMENTATION CONTROLS IN LOCATIONS SHOWN ON PLANS. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATION.
- PULL STUMPS AND REMOVE FROM SITE OR MULCH TO USE ON-SITE FOR EROSION CONTROL. REMOVE TOPSOIL AND STOCKPILE AWAY FROM ANY WETLAND. STABILIZE STOCKPILE IMMEDIATELY BY SEEDING. PLACE SILT FENCE AROUND THE DOWN SLOPE SIDE OF EARTH STOCKPILES.
- CONSTRUCT PONDS, SWALES AND LEVEL SPREADERS DURING INITIAL PORTION OF CONSTRUCTION, PRIOR TO ROUGH GRADING THE SITE. STABILIZE IMMEDIATELY WITH LOAM AND SEED PER THE EROSION CONTROL NOTES. DO NOT DIRECT STORM WATER RUNOFF TO PONDS, SWALES OR LEVEL SPREADERS UNTIL A HEALTHY VEGETATIVE COVER IS ESTABLISHED.
- ROUGH GRADE THE SITE INCLUDING ROADS AND DITCHES. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION OF ROUGH GRADING PER THE EROSION CONTROL NOTES.
- EXCAVATE FOR AND CONSTRUCT THE FOUNDATION OF THE PROPOSED BUILDING(S). CONSTRUCT BUILDING(S).
- INSTALL DRAINAGE PIPES AND STRUCTURES; PLACE SEDIMENT FILTERS IN CATCH BASINS UNTIL ALL NON-PAVED DISTURBED AREAS HAVE A HEALTHY VEGETATIVE COVER.
- INSTALL UNDERGROUND UTILITIES: WATER, SEWER, TELEPHONE, ELECTRICAL.
- INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER ANY RAINFALL OF 0.50" OR MORE.
- AS REQUIRED, CONSTRUCT TEMPORARY BERMS, CULVERTS, DITCHES, SILT BARRIERS, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
- FINISH GRADING THE SITE. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- BASE PAVE ACCESS DRIVE AND PARKING AREAS. INSTALL CURBING AND FINISH PAVE DRIVE, PARKING, AND SIDEWALKS.
- APPLY LOAM. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WHEN ALL DISTURBED AREAS HAVE BEEN STABILIZED.
- LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

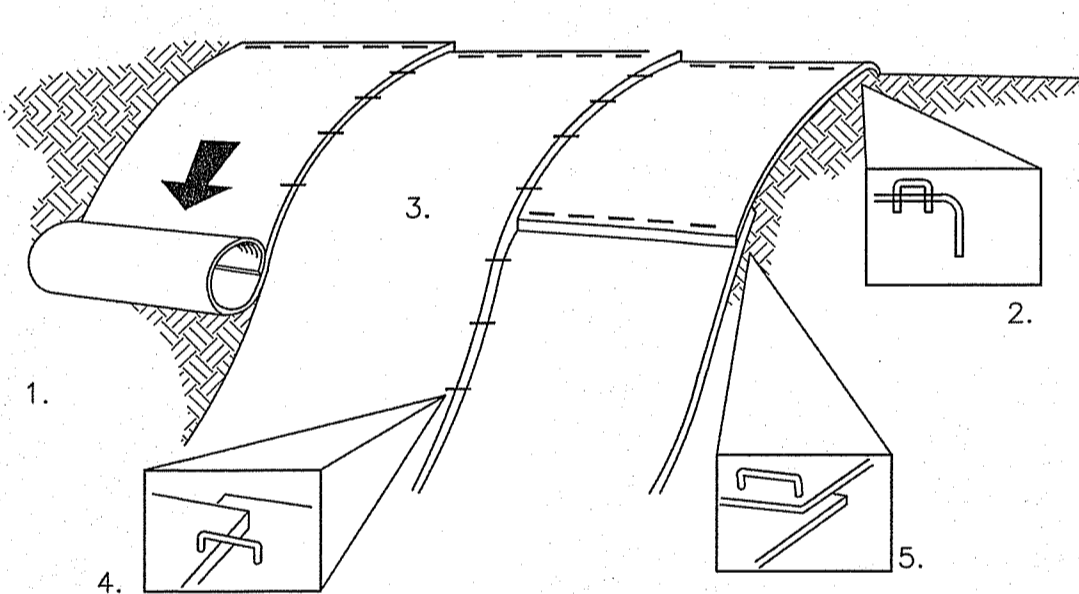
**CONSTRUCTION SEQUENCE**

SCALE: NONE **2** D-3



**SILTATION FENCE**

SCALE: NONE **3** D-3



ALL 2H:1V OR STEEPER SLOPES ARE TO BE CONSTRUCTED WITH SC250 STRAW/COCONUT FIBER EROSION MAT CONTROL TURF REINFORCEMENT MAT AND ALL 3H:1V TO <2H:1V SLOPES TO BE CONSTRUCTED WITH S150 STRAW FIBER EROSION CONTROL TURF REINFORCEMENT MAT BY NORTH AMERICAN GREEN OR EQUAL.

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".

**CONSTRUCTION REQUIREMENTS AND SLOPE APPLICATIONS:**

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- 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.
- 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 MANUFACTURER'S STAPLE GUIDE FOR CORRECT STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OF OVERLAP DEPENDING ON THE BLANKET TYPE.
- 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.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE BLANKETS.

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-3

- ALL POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING. ELSEWHERE, THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE RIPRAP OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITION.
- AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.

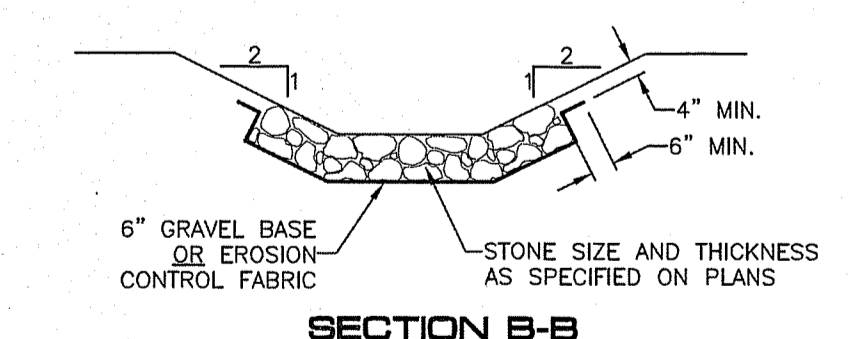
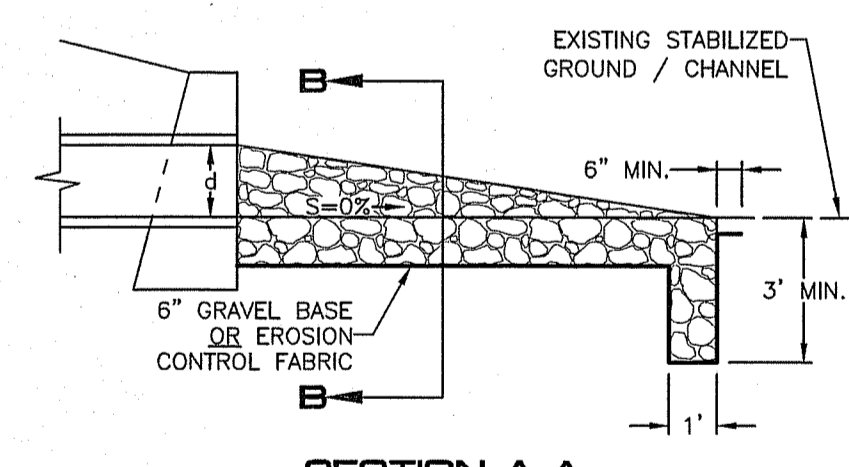
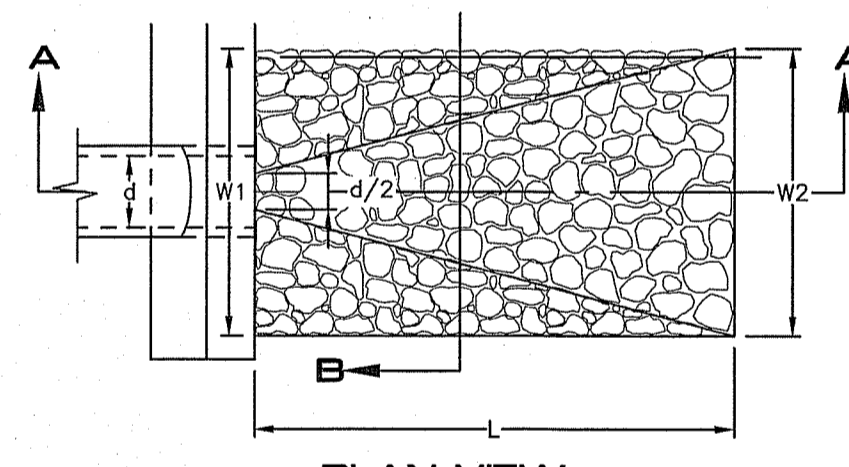
**WINTER CONSTRUCTION**

SCALE: NONE **5** D-3

- ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OF MILFORD. OTHERWISE, ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS AND SHALL VERIFY THAT ALL THE INFORMATION SHOWN HEREON IS CONSISTENT, COMPLETE, ACCURATE, AND CAN BE CONSTRUCTED PRIOR TO AND/OR DURING CONSTRUCTION. MERIDIAN LAND SERVICES, INC., AS DESIGN ENGINEER, SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES, ERRORS, OMISSIONS, OR EXISTING UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION SO THAT REMEDIAL ACTION MAY BE TAKEN BEFORE PROCEEDING WITH THE WORK.
- THE OWNER AND/OR CONTRACTOR SHALL VERIFY ALL ZONING SETBACK REQUIREMENTS FOR CONFORMANCE PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT "DIGSAFE" (811) 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
- COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND SPECIAL CONDITIONS OF TOWN/CITY AGENCIES, SUCH AS THE PLANNING BOARD, CONSERVATION COMMISSION, AND OTHERS, IS MANDATORY AND IS THE RESPONSIBILITY OF THE OWNER.
- ANY ALTERATION OF THIS DESIGN OR CHANGE DURING CONSTRUCTION MAY REQUIRE APPROVAL OF VARIOUS TOWN BOARDS OR AGENCIES AND SHALL BE DISCUSSED WITH THE OWNER AND MERIDIAN LAND SERVICES, INC. PRIOR TO CONSTRUCTION.
- IF APPLICABLE, ALL DRAINAGE STRUCTURES SHALL CONFORM TO NHDOT STANDARDS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE APPROPRIATE TOWN DEPARTMENT PRIOR TO CONSTRUCTION TO ARRANGE FOR INSPECTIONS OF THE CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCURATE AS-BUILT INFORMATION OF ALL WORK, ESPECIALLY UNDERGROUND CONSTRUCTION OF UTILITY LINES, SERVICES, CONNECTIONS, ETC. AND APPROPRIATE TIES TO ABOVE GROUND PERMANENT STRUCTURES, FIELD SURVEY COORDINATES, OR SOME OTHER METHOD OF ESTABLISHING THE AS-BUILT CONDITION OF ALL CONSTRUCTION.

**CONSTRUCTION NOTES**

SCALE: NONE **6** D-3



LOCATION	LENGTH (FT)	WIDTH 1 (FT)	WIDTH 2 (FT)	STONE SIZE 450 (IN)	THICKNESS (IN)
RA1	9	3	12	4	8
RA2	8	3	11	4	8
RA3	10	3	13	4	8
RA4	9	3	11	4	8

**RIPRAP OUTLET PROTECTION**

SCALE: NONE **7** D-3

- TEMPORARY PROTECTION OF DISTURBED AREAS SHALL BE IMPLEMENTED WHERE A TEMPORARY STAND OF GRASS OR SMALL GRAINS WILL NORMALLY PRODUCE SUFFICIENT COVER TO RETARD EROSION AND REDUCE SEDIMENT.
- USE OF TEMPORARY SEEDING SHALL BE IMPLEMENTED WHEN A DISTURBED AREA OR MATERIAL STOCKPILE WILL BE INACTIVE FOR A PROLONGED PERIOD OF TIME.
- ALL ESSENTIAL GRADING SUCH AS DIVERSIONS, DAMS, DITCHES, AND DRAINS NEEDED TO PREVENT GULLYING AND REDUCE SILTATION SHALL BE COMPLETED PRIOR TO SEEDING.
- PREPARE SEEDBED BY REMOVING ALL STONES, TRASH AND STUMPING DEBRIS THAT WILL INTERFERE WITH SEEDING AREA. WHERE FEASIBLE, TILL THE SOIL TO A DEPTH OF ABOUT 3 INCHES TO PREPARE SEEDBED AND MIX FERTILIZER INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATIONS SHOULD BE PERFORMED ACROSS THE SLOPE.
- A MINIMUM OF 300 POUNDS PER ACRE (7 LBS. PER 1,000 SQ.FT.) OF 10-10-10 FERTILIZER, OR ITS EQUIVALENT, SHALL BE UNIFORMLY SPREAD OVER THE AREA PRIOR TO BEING INCORPORATED INTO THE SOIL.
- THE SEED SHALL BE SPREAD UNIFORMLY OVER THE AREA. AFTER SEEDING, THE SOIL SHOULD BE FIRMED BY ROLLING OR PACKING. WHERE ROLLING OR PACKING IS NOT FEASIBLE, THE SEED SHALL BE COVERED LIGHTLY BY RAKING, DISKING, OR DRAGGING.
- HAY OR STRAW MULCH MAY BE NECESSARY TO PROMOTE SEED GERMINATION IN DRY AND/OR INFERTILE CONDITIONS.
- PLANT SELECTION AND APPLICATION RATES:

SPECIES	RATE 1 (LBS./AC.)	RATE 2 (LBS./1,000 S.F.)	REMARKS
WINTER RYE	112	2.5	FALL, 8/15 TO 9/15 PLANT 1.0 INCH DEEP
OATS	80	2.0	SPRING PRIOR TO 5/15 PLANT 1.0 INCH DEEP
ANNUAL RYEGRASS	40	1.0	QUICK, SHORT DURATION GOOD APPEARANCE EARLY SPRING & FALL PLANT 0.25 INCH DEEP
PERENNIAL RYEGRASS	30	0.7	LASTS LONGER THAN ANNUAL LATE SPRING & FALL MULCHING WILL ALLOW USE ALL SEASON PLANT 0.5 INCH DEEP

**SEEDING FOR TEMPORARY PROTECTION OF DISTURBED AREAS**

SCALE: NONE **8** D-3

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

- INSTALLATION OF SILT SOCKS AND SILTATION FENCE WHERE INDICATED SHALL BE COMPLETED PRIOR TO THE START OF SITE WORK IN ANY GIVEN AREA.
- SILT SOCKS AND SILTATION FENCES SHALL BE KEPT CLEAN DURING CONSTRUCTION AND REMOVED WHEN ALL DISTURBED AREAS HAVE A HEALTHY STANDING VEGETATIVE COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EVERY 0.5" OR GREATER RAINFALL.
- EXISTING VEGETATION IS TO REMAIN UNDISTURBED WHEREVER POSSIBLE.
- 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.
- 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 45 DAYS OF DISTURBANCE. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS AFTER FINAL GRADING.
- ALL DITCHES, SWALES AND DRAINAGE BASINS SHALL BE CONSTRUCTED DURING THE INITIAL PHASE OF CONSTRUCTION AND SHALL BE STABILIZED PRIOR TO DIRECTING STORM WATER FLOW TO THEM.
- AN AREA MAY BE CONSIDERED STABILIZED WHEN ONE OF THE FOLLOWING HAS OCCURRED:

- BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
- A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
- EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

ALL DISTURBED AREAS SHALL BE COVERED WITH A MINIMUM OF 4" OF LOAM. LOAM SHALL BE COVERED WITH THE APPROPRIATE SEED MIXTURE AS INDICATED BELOW. 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 TREFOLI 0.18 LBS.

- 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-P205-K20) 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).
- 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.

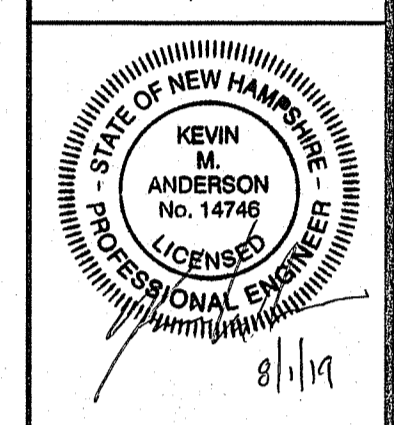
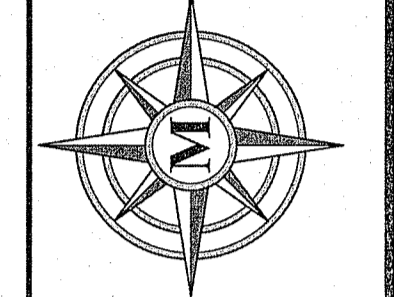
FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 FEET AND 250 FEET FROM A SURFACE WATER BODY AS SPECIFIED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT (SLOW RELEASE FERTILIZERS MUST BE AT LEAST 50% SLOW RELEASE NITROGEN COMPONENT). NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER. THESE LIMITATIONS ARE REQUIREMENTS.

- 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.
- 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.

**EROSION CONTROL**

SCALE: NONE **9** D-3

**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
31 OLD NASHUA ROAD, AMHERST, NH 0381  
TEL: 603-673-1441  
FAX: 603-673-1584  
MERIDIANLANDSERVICES.COM



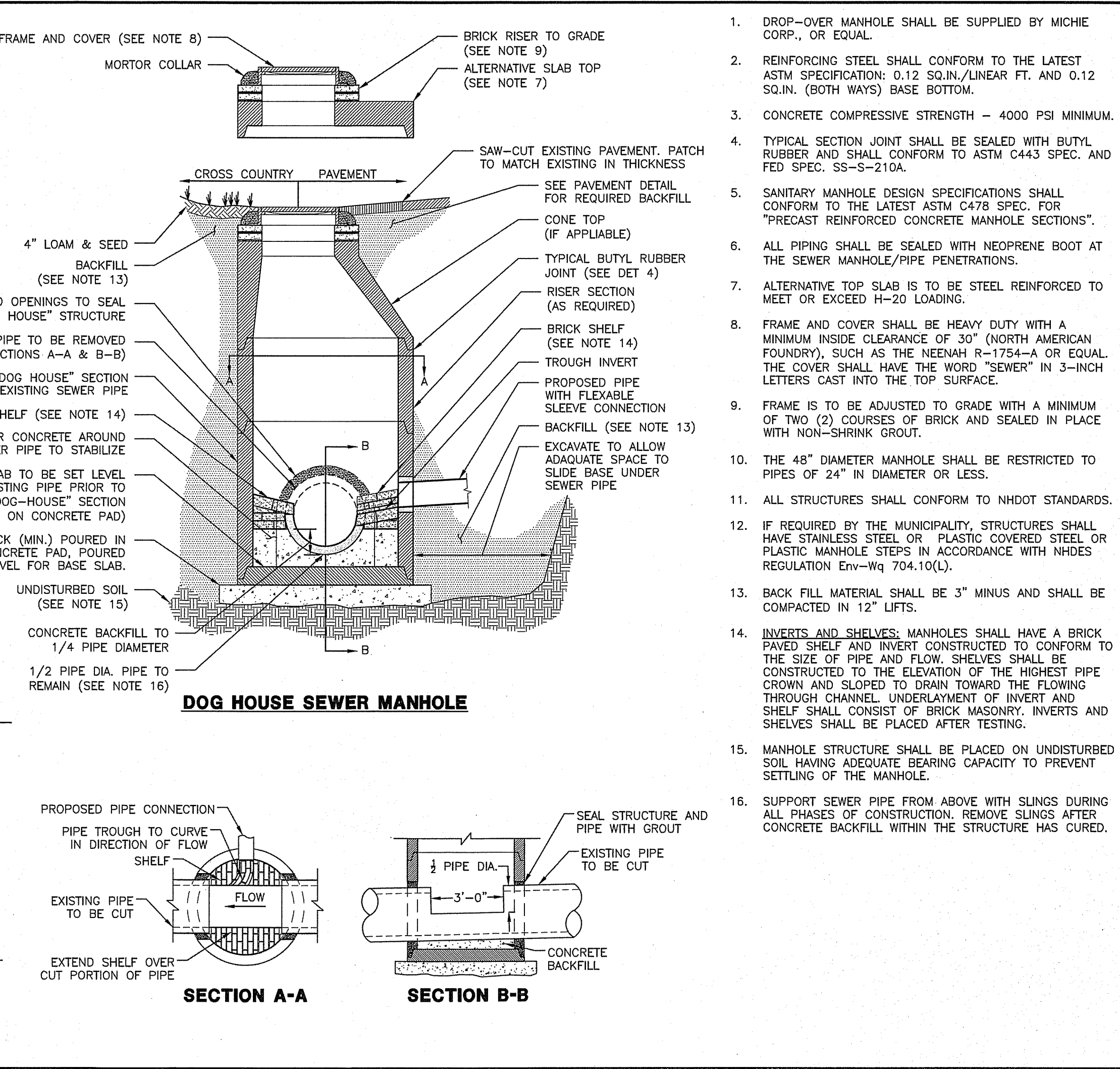
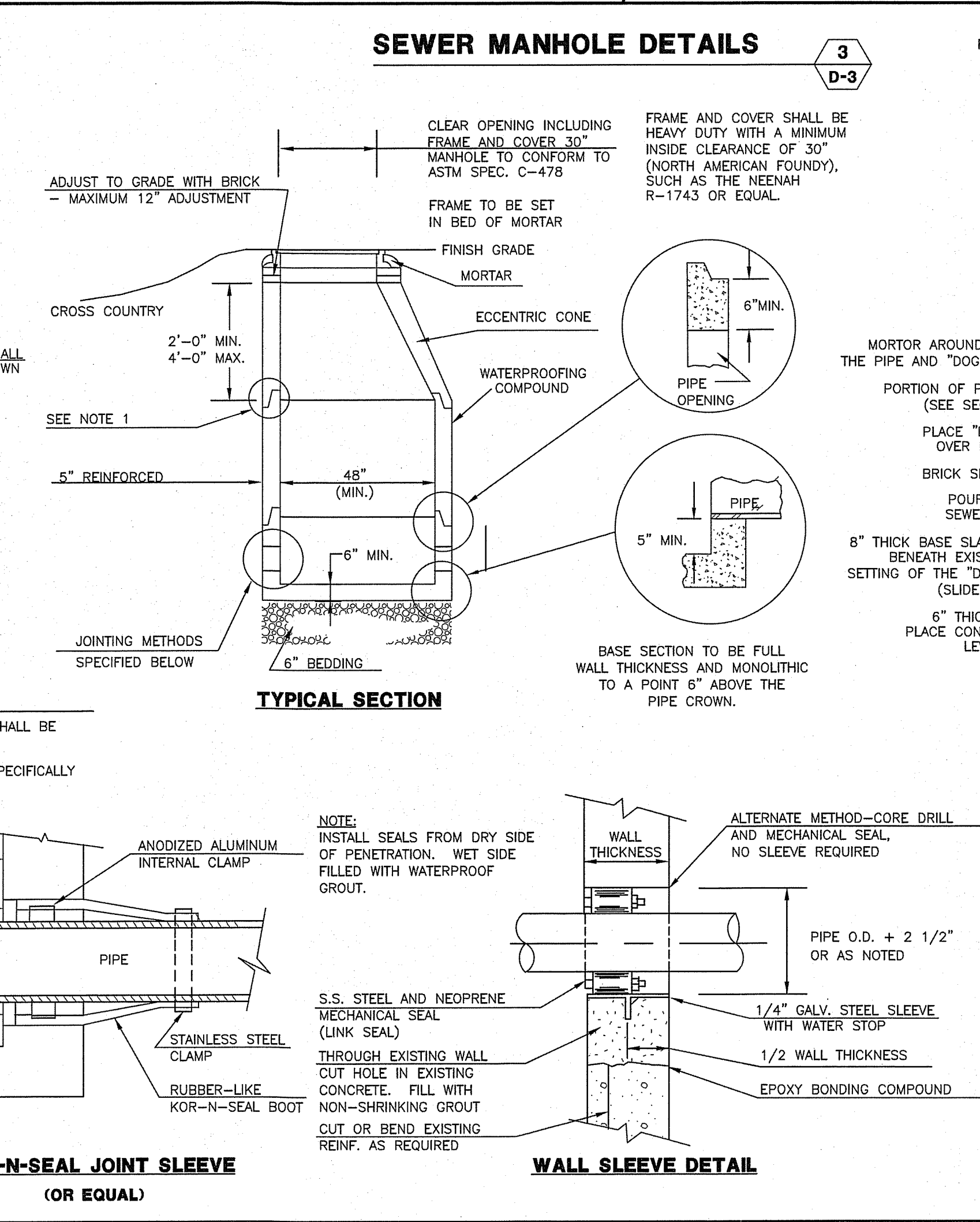
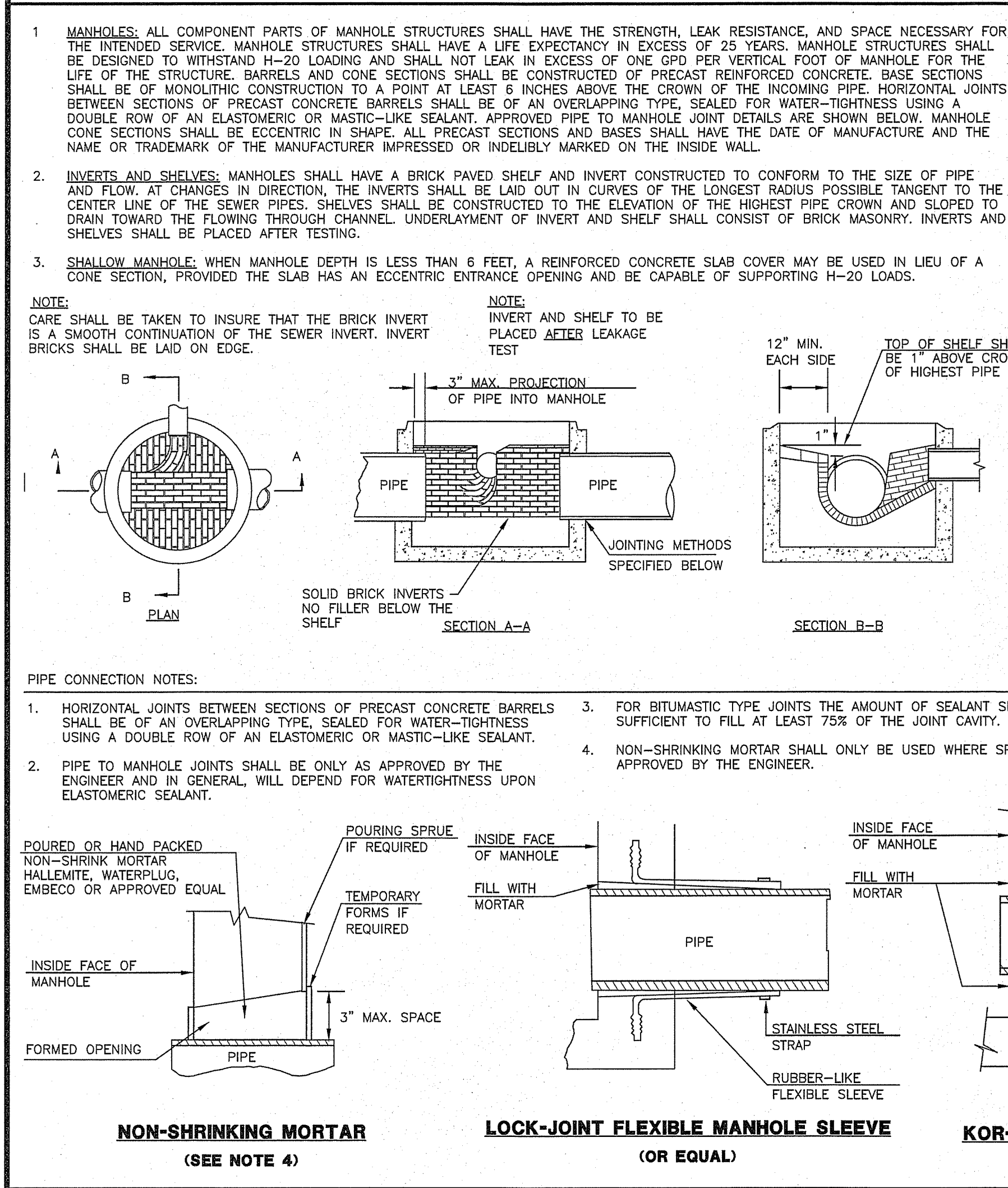
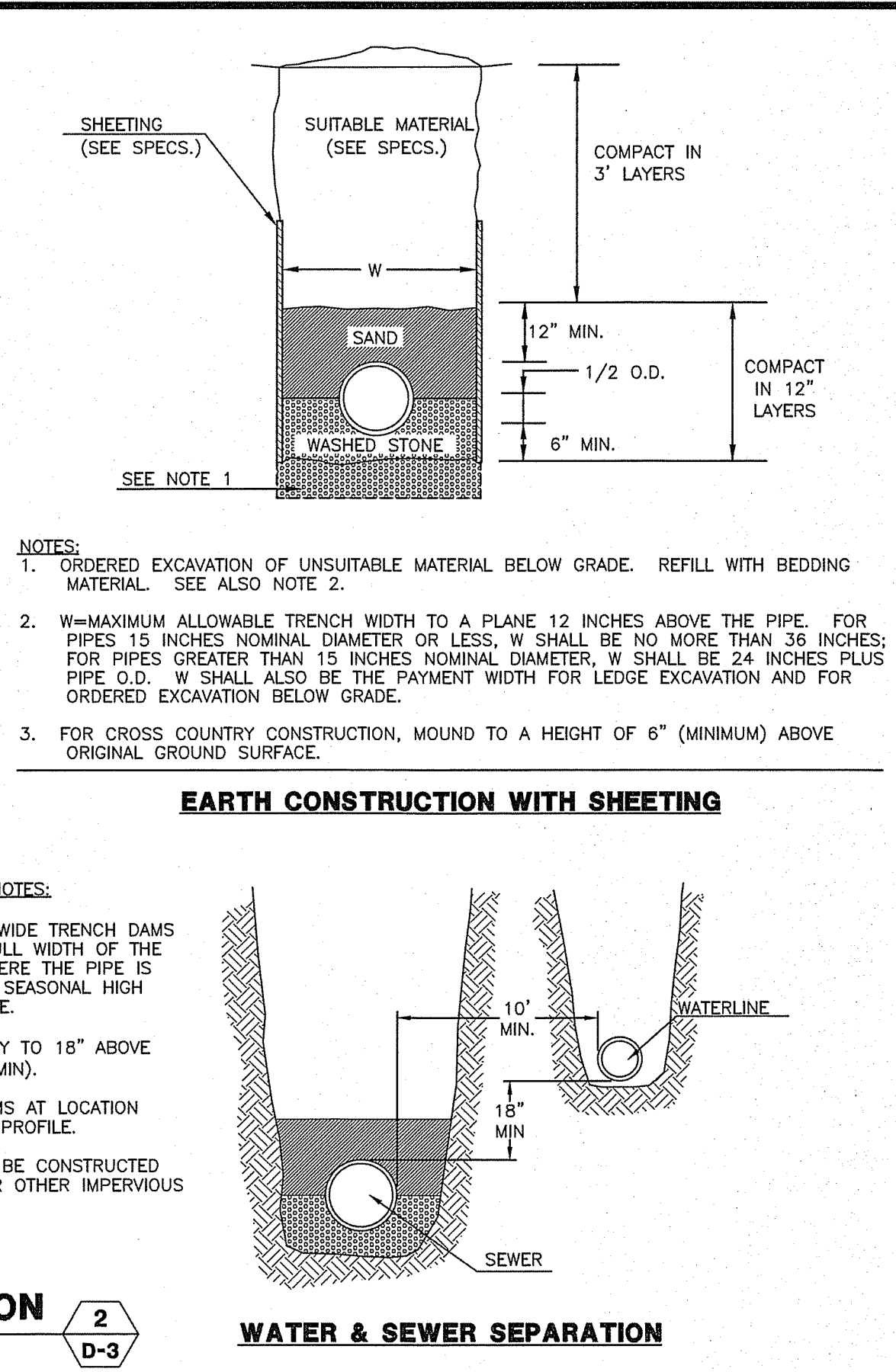
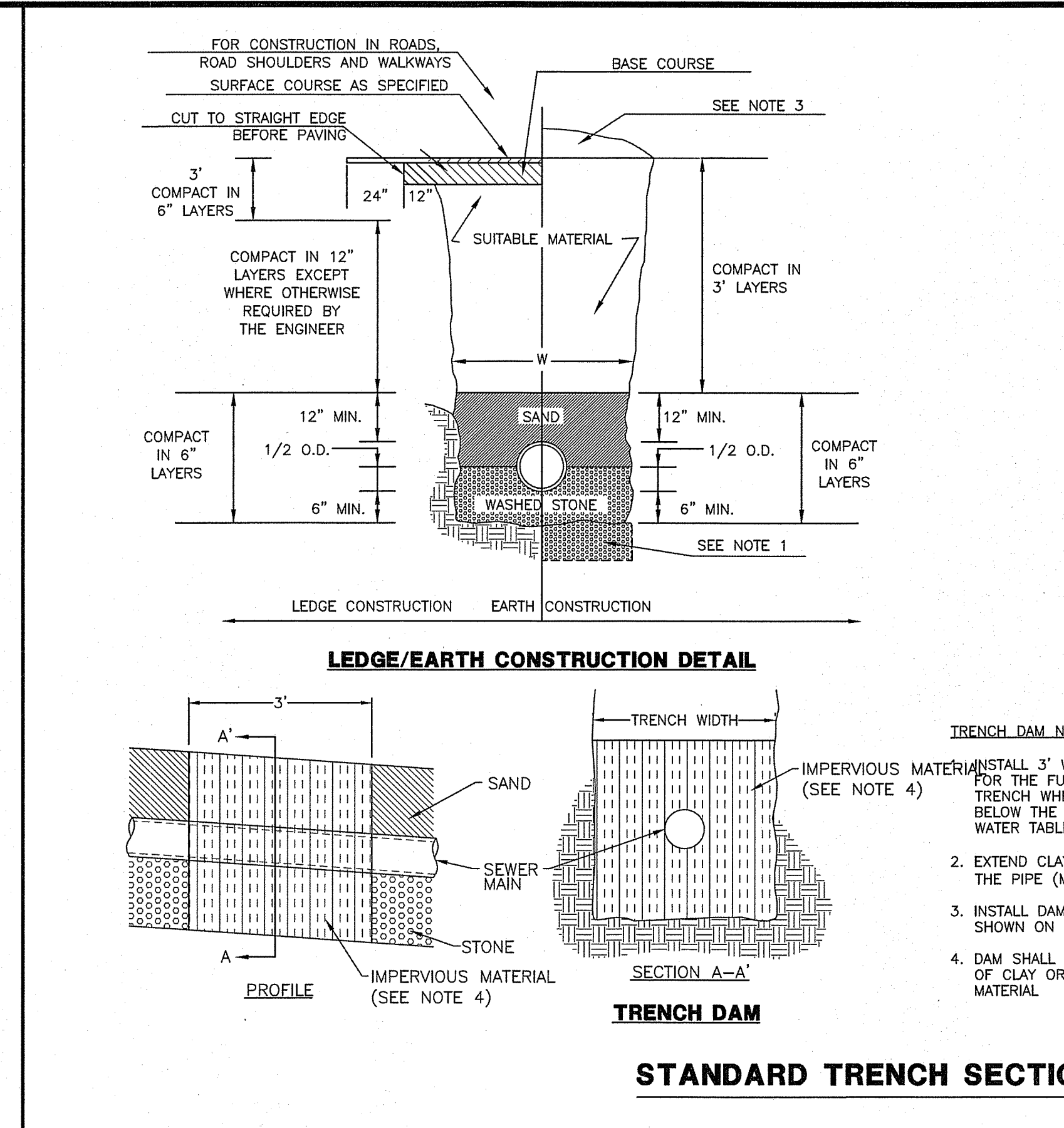
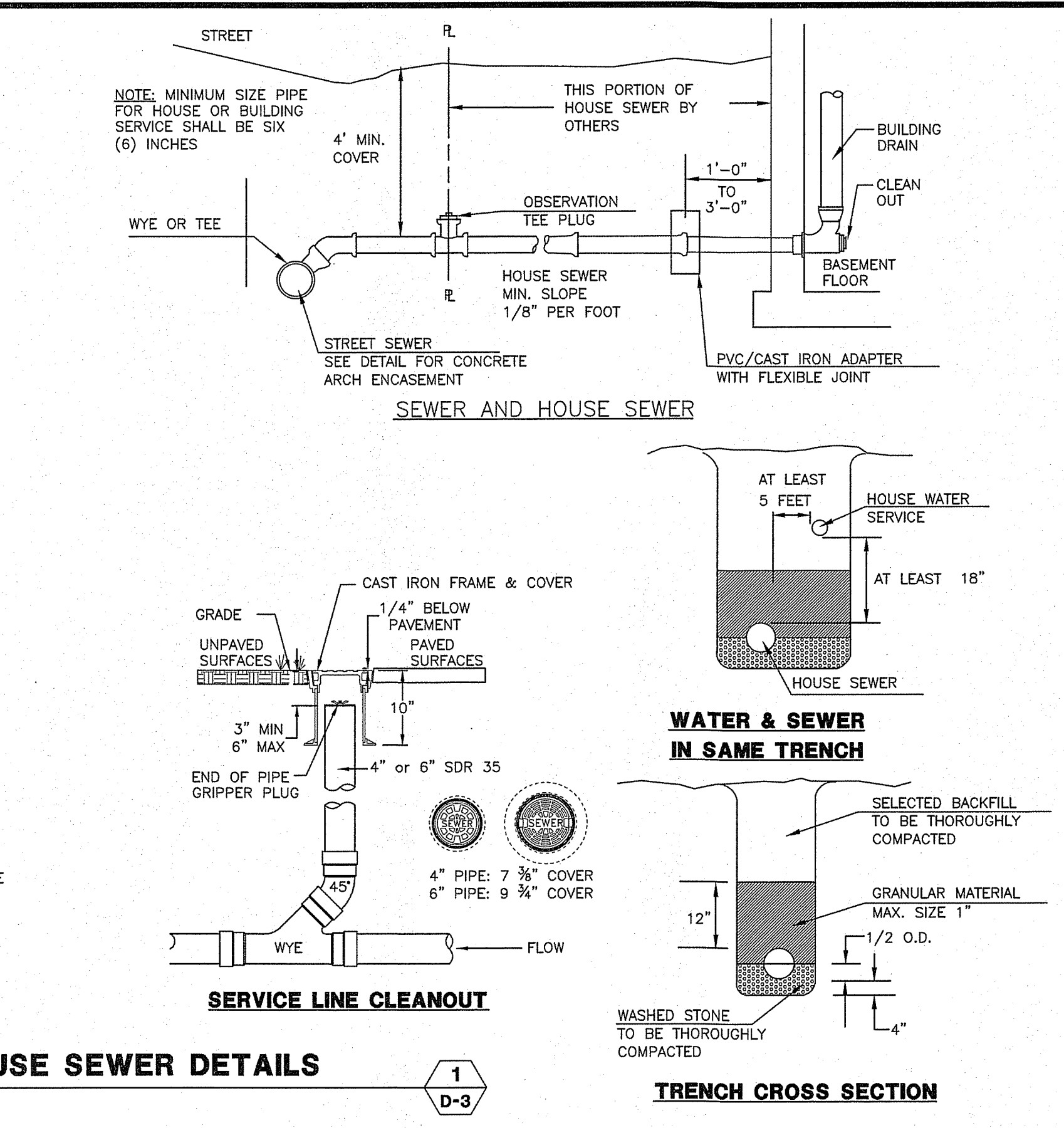
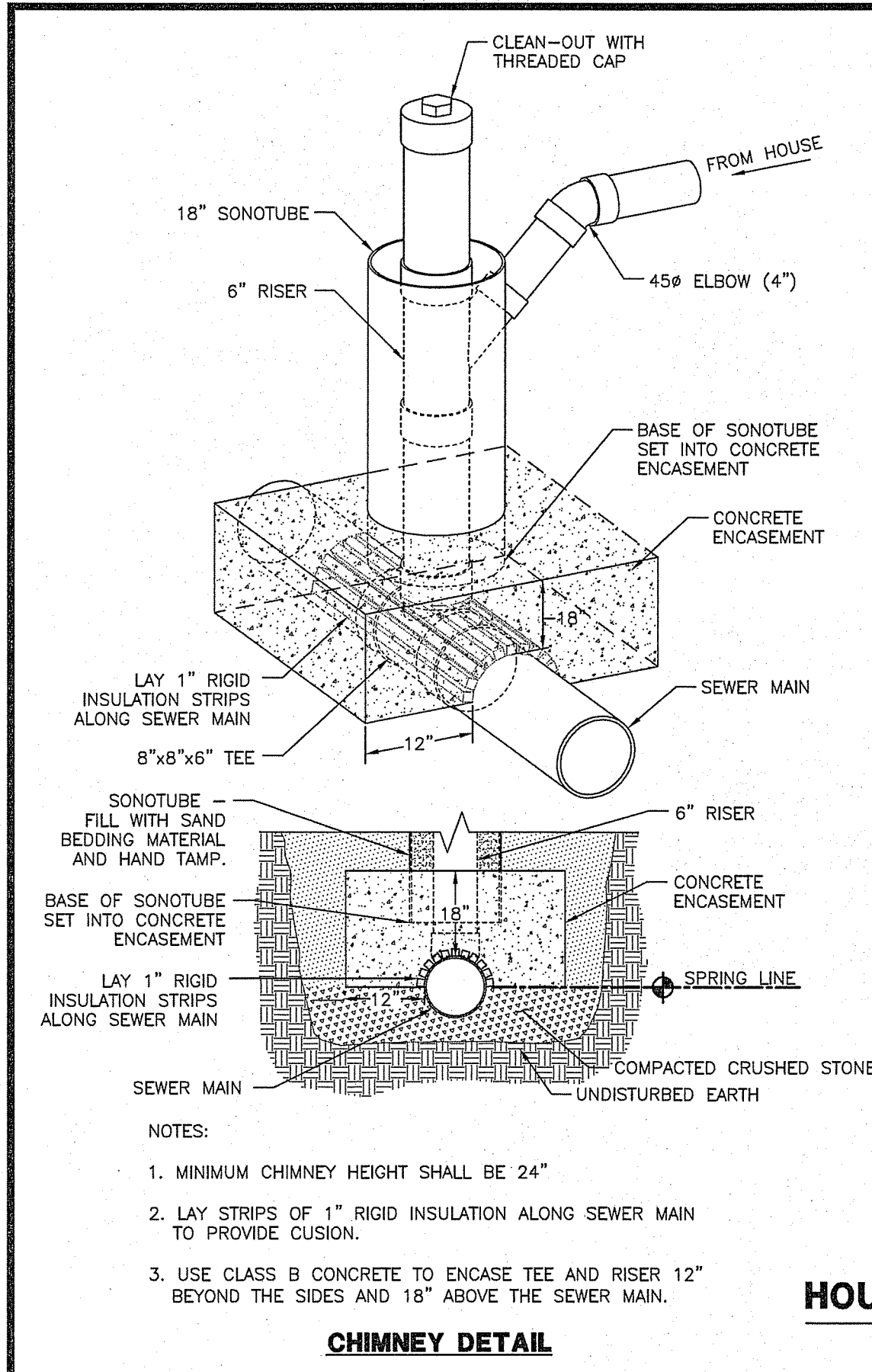
REV	DATE	DESCRIPTION	DR	CK
A	1/28/19	PLANNING BOARD SUBMISSION	BUC	KVA
B	5/28/19	INITIAL TOWN STAFF COMMENTS	BUC	KVA
C		REVISE DRAINAGE LAYOUT	BUC	KVA
D	8/17/19		BUC	KVA

**EROSION CONTROL DETAILS**

RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

**D-3**  
SHEET  
FILE: 3203P05C.dwg  
PROJECT: 3203.05  
SHEET NO. 13 OF 16





**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
31 OLD NASHUA ROAD, AMHERST, NH 03051  
TEL: 603-673-1841  
MERIDIANLANDSERVICES.COM  
FAX: 603-673-1584

STATE OF NEW HAMPSHIRE  
KEVIN M. ANDERSON  
No. 14749  
LICENSED PROFESSIONAL ENGINEER  
8/1/19

REV.	DATE	DESCRIPTION	DR.	CK.
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

**SEWER LINE DETAILS**

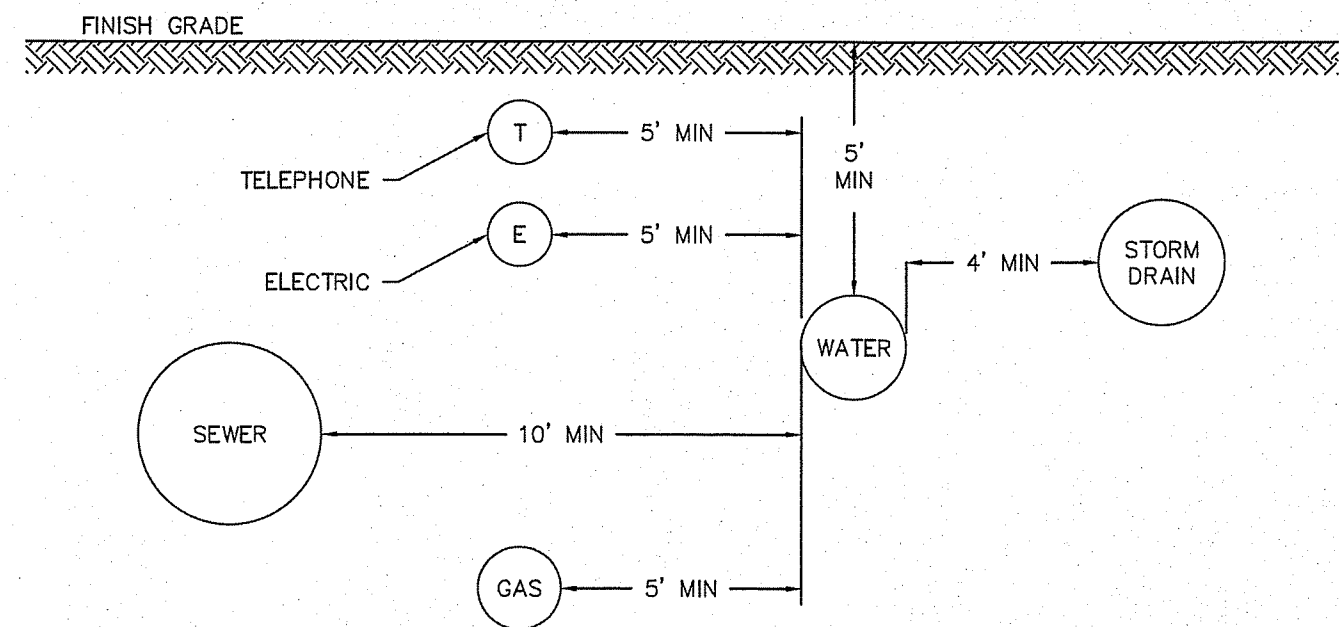
RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

SCALE: VARIES  
FEBRUARY 25, 2019

**D-4**  
SHEET

FILE: 3203P05C.dwg  
PROJECT: 3203.05  
SHEET NO. 14 OF 16

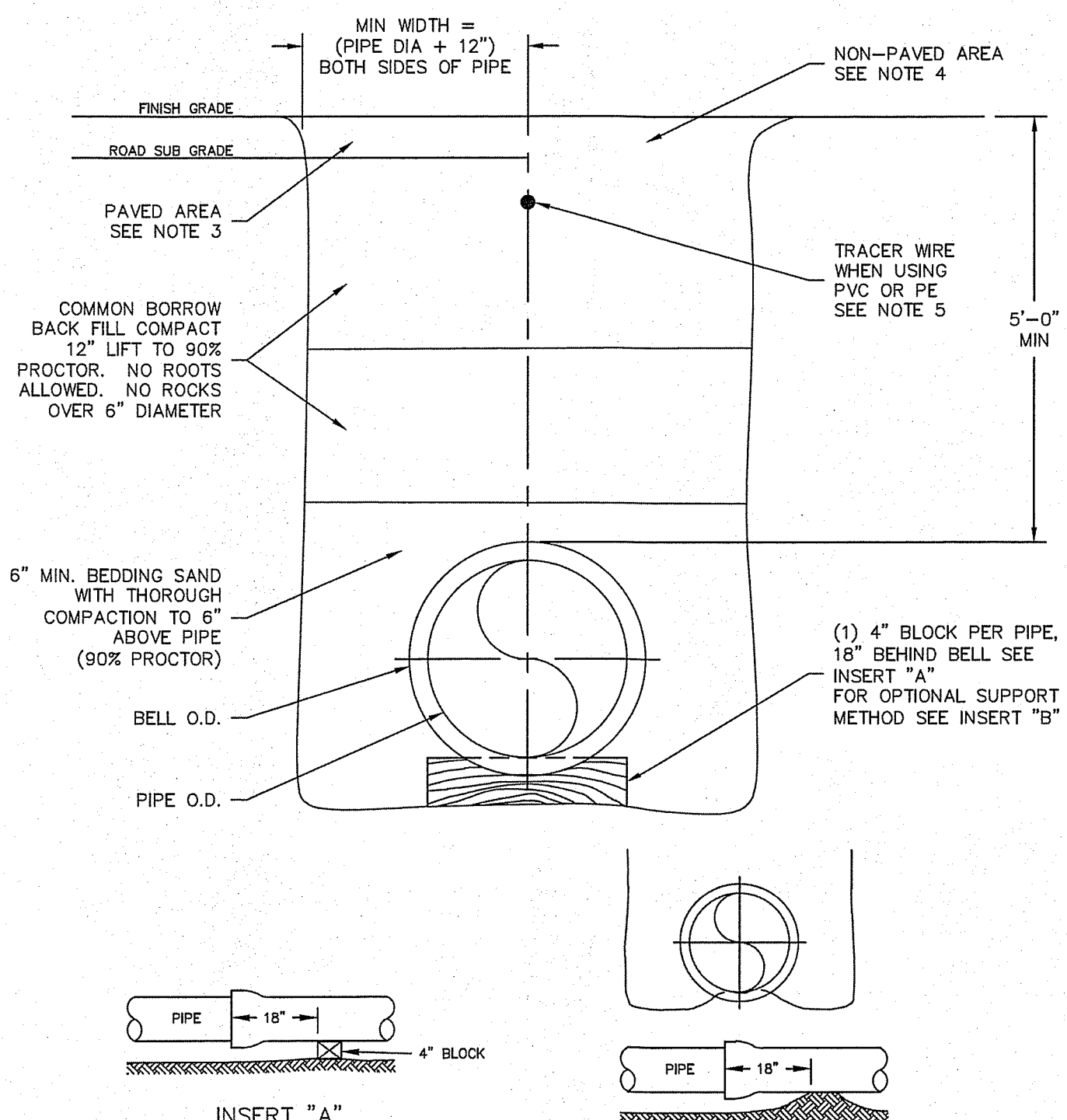




- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL WATER MAIN SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
  3. SEE DETAIL A-2 FOR TRENCH DETAIL.
  4. SEE DETAIL A-11 FOR OUTSIDE SERVICE ENTRANCE DETAIL.

**PENNICHUCK WATER**

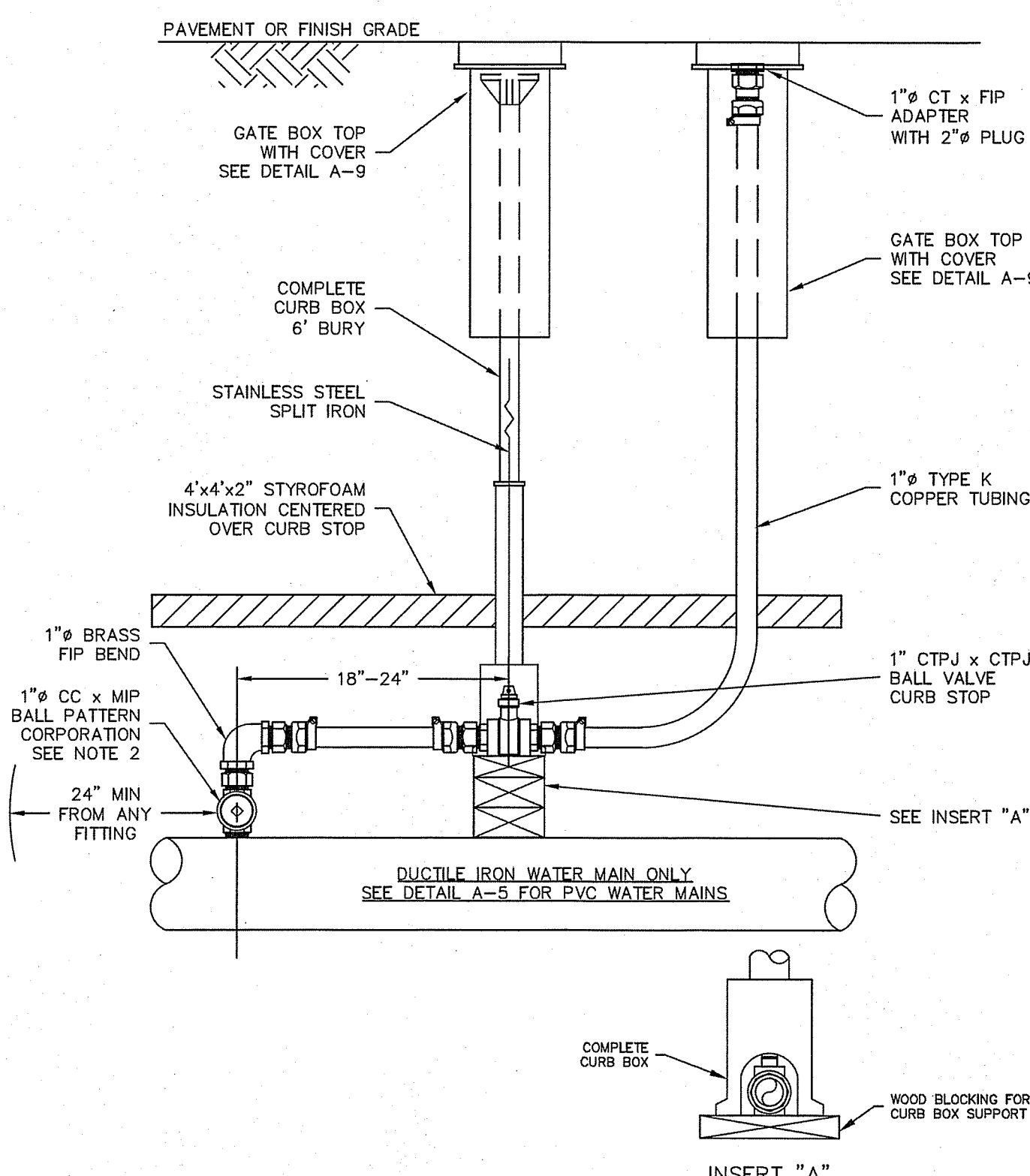
DETAIL A-1  
TYPICAL UTILITY SEPARATION  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
  3. REQUIREMENTS FOR SUBBASE AND BASE MATERIAL TYPE ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN PAVED AREAS.
  4. REQUIREMENTS FOR GRAVEL, LOAM AND/OR SEED ARE TO BE IN ACCORDANCE WITH LOCAL AUTHORITY HAVING LOCAL JURISDICTION IN NON-PAVED AREAS.
  5. 10 GAUGE TRACER WIRE AS MANUFACTURED BY BMS, DIVISION OF ALBEMASTER CORP., AVON, MA OR EQUIVALENT.

**PENNICHUCK WATER**

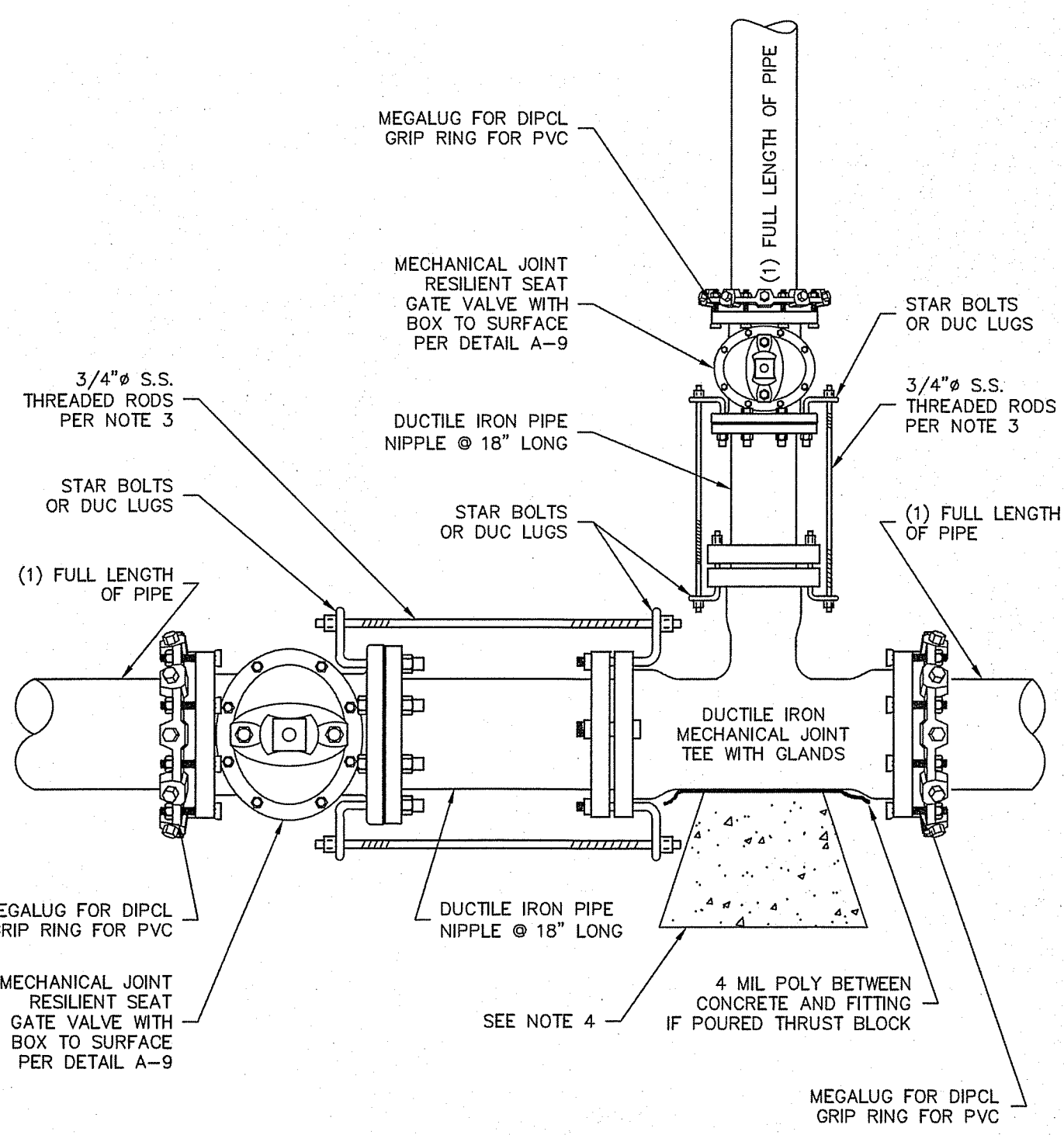
DETAIL A-2  
TYPICAL TRENCH DETAIL  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. WATER MAIN MAY BE DIRECT TAPPED WHEN IT IS 6" OR LARGER DUCTILE IRON.
  3. SEE DETAIL A-5 FOR INSTALLATION ON PVC WATER MAINS.

**PENNICHUCK WATER**

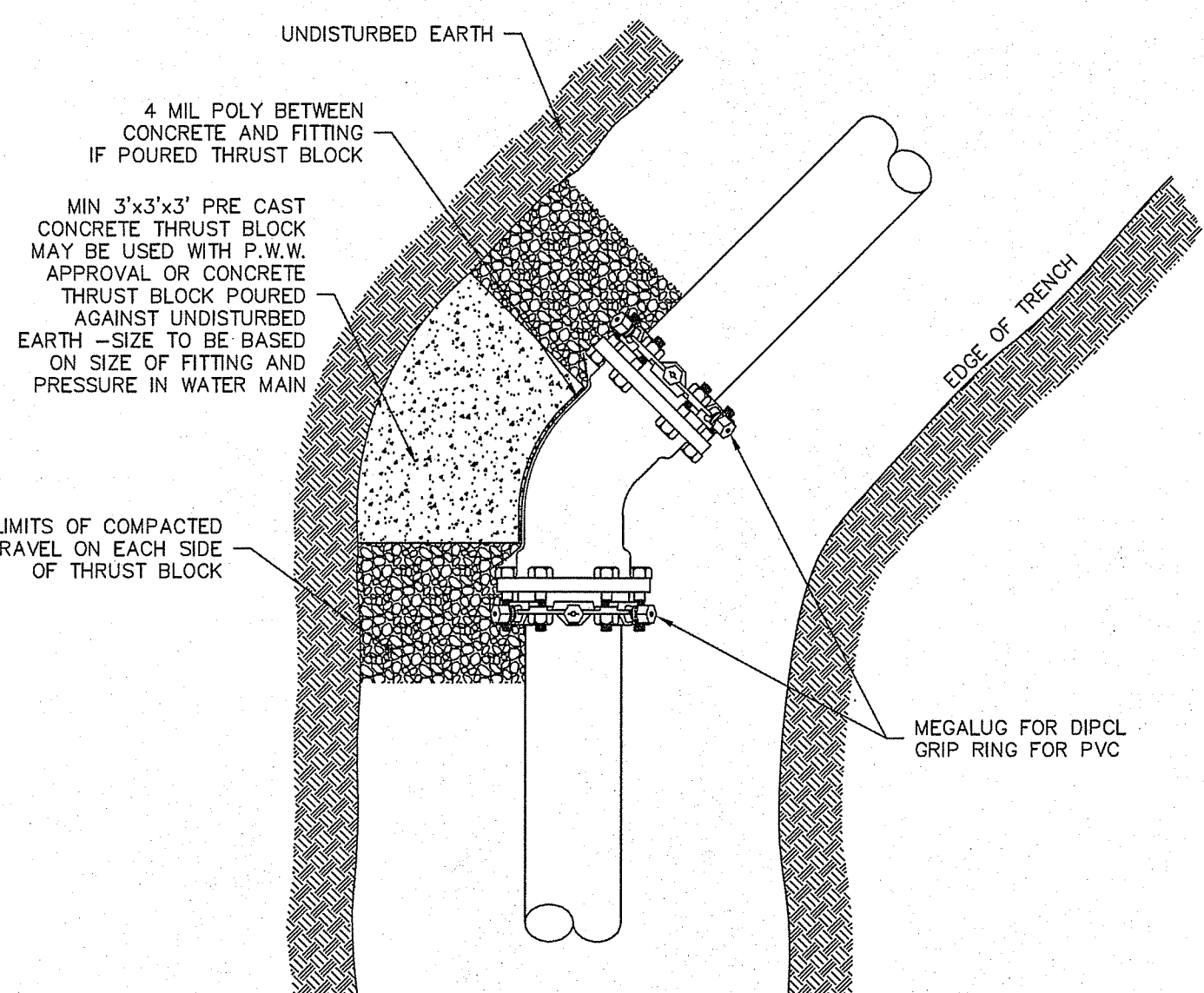
DETAIL A-3  
TYPICAL 1" RELEASE VALVE  
INSTALLATION ON DUCTILE IRON  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
  3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS. 10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE. 12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
  4. MIN 3"x3"x3" PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.

**PENNICHUCK WATER**

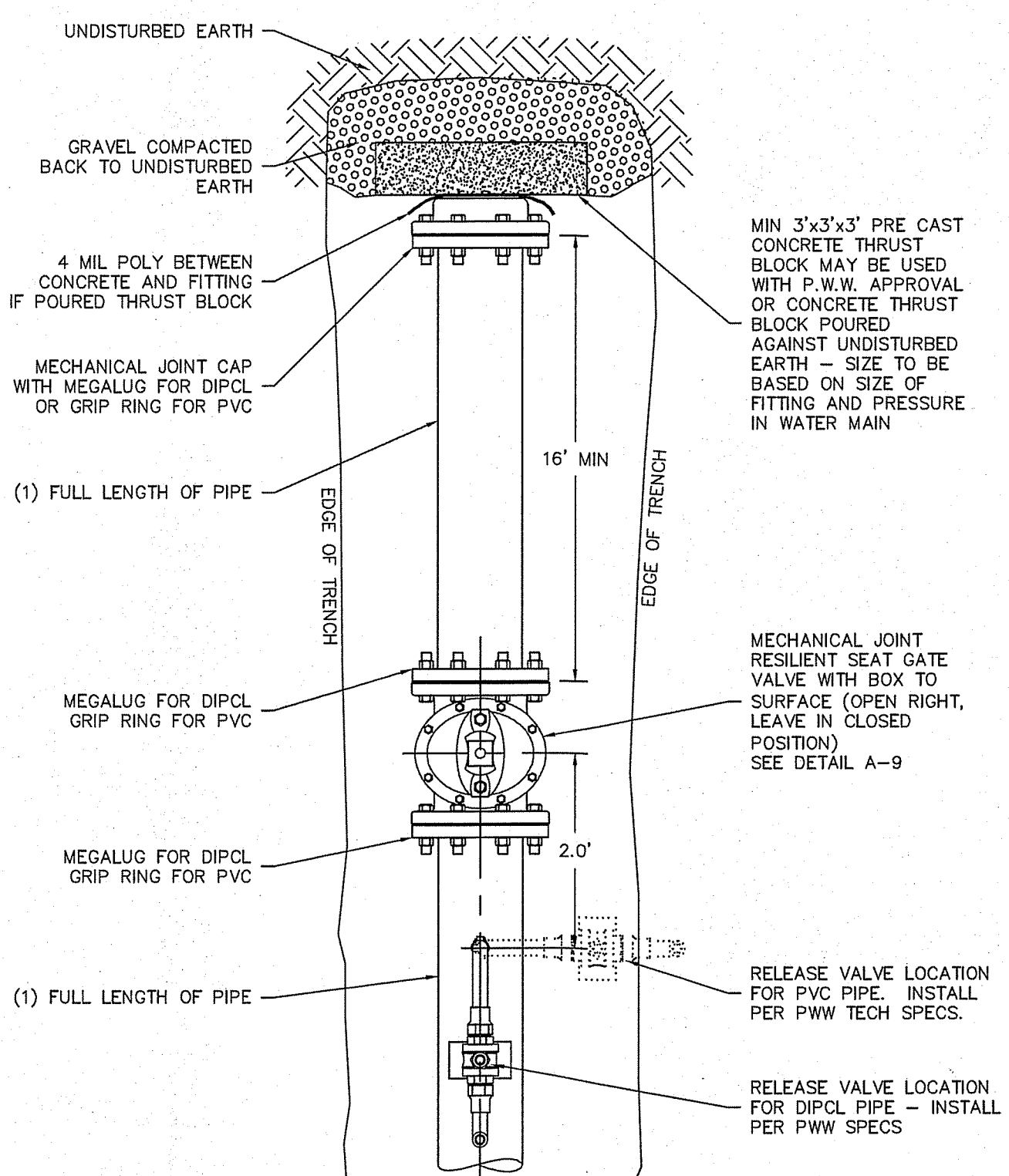
DETAIL A-6  
TYPICAL TEE INSTALLATION  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
  3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS. 10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE. 12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
  4. MIN 3"x3"x3" PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN.

**PENNICHUCK WATER**

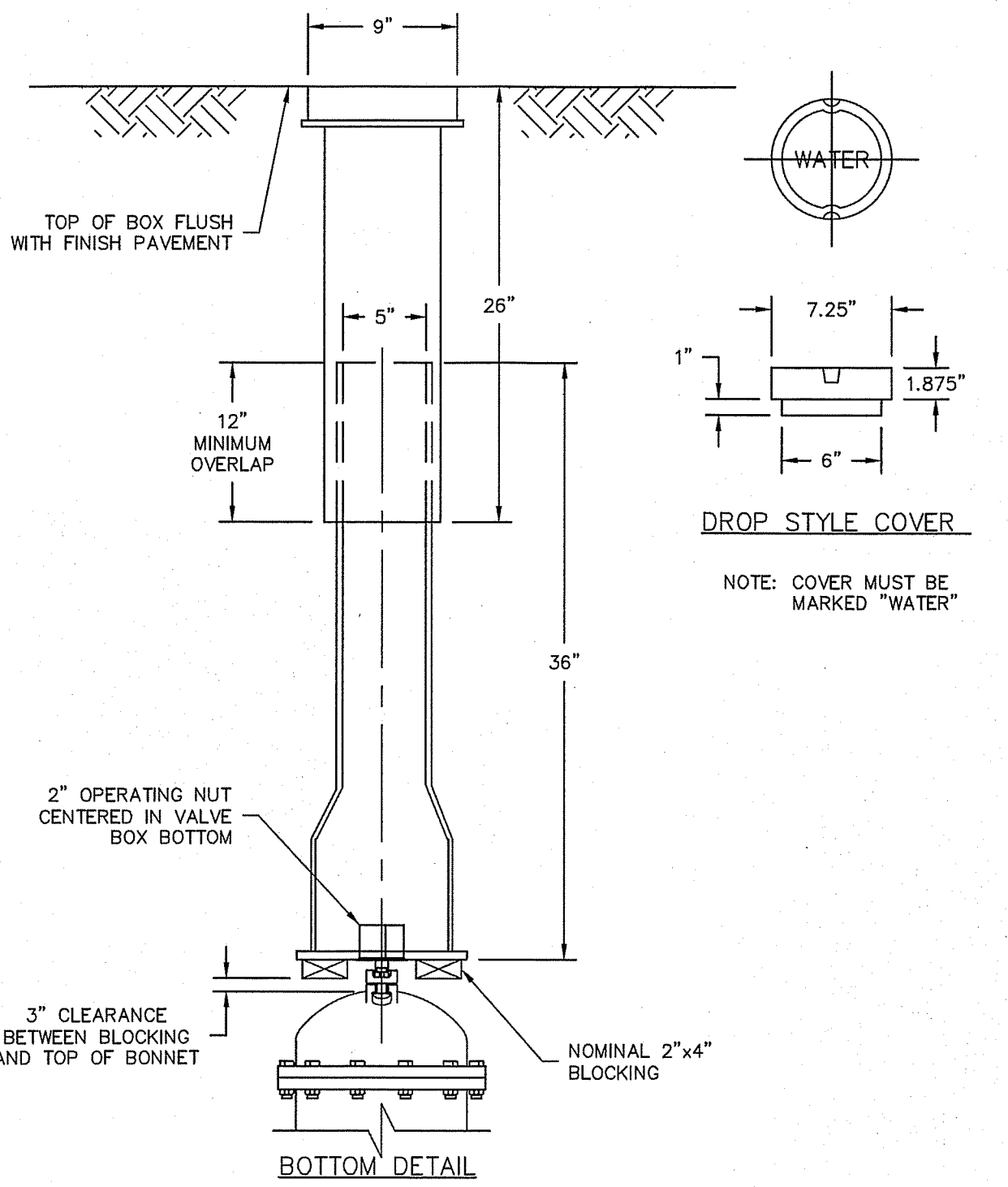
DETAIL A-7  
TYPICAL THRUST BLOCK BEHIND FITTINGS INSTALLATION  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.

**PENNICHUCK WATER**

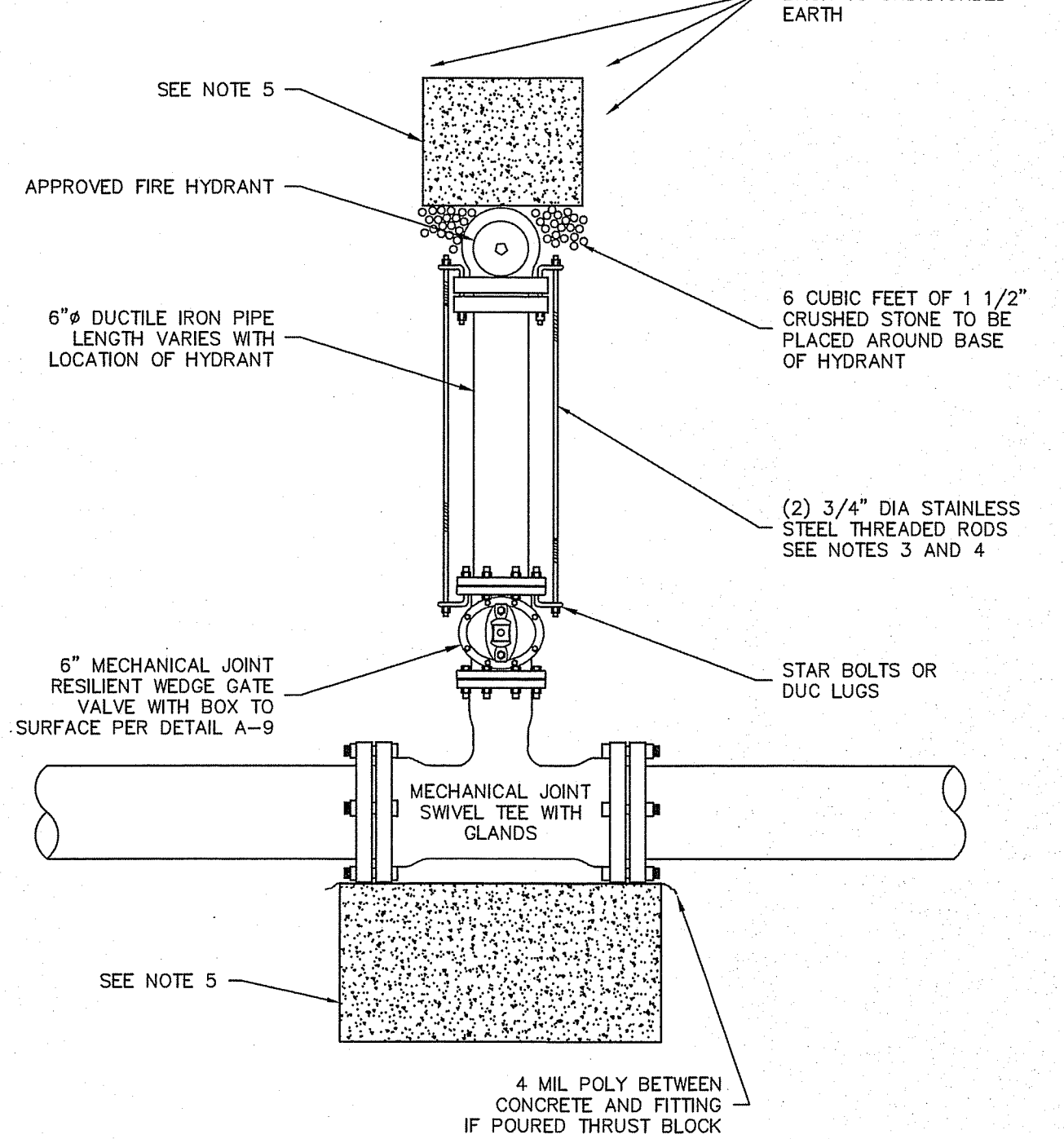
DETAIL A-8  
TYPICAL END OF MAIN  
INSTALLATION  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.

**PENNICHUCK WATER**

DETAIL A-9  
TYPICAL VALVE BOX DETAIL  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS



- NOTES:**
1. ALL MATERIAL AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
  2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5' FROM TOP OF PIPE TO FINISH GRADE.
  3. 3/4" S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS. 10" FITTING OR SMALLER = (2) 3/4" S.S. RODS & ASSOC. HARDWARE. 12" FITTING OR LARGER = (4) 3/4" S.S. RODS & ASSOC. HARDWARE.
  4. WHEN DISTANCE FROM WATER MAIN TO HYDRANT IS MORE THAN 10' SUBSTITUTE MEGALUGS (OR GRIP RINGS) IN LIEU OF THREADED RODS.
  5. MIN 3"x3"x3" PRE CAST CONCRETE THRUST BLOCK MAY BE USED WITH P.W.W. APPROVAL OR CONCRETE THRUST BLOCK POURED AGAINST UNDISTURBED EARTH - SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATER MAIN. SEE DETAIL A-7.

**PENNICHUCK WATER**

DETAIL A-10  
TYPICAL HYDRANT INSTALLATION  
PENNICHUCK WATER WORKS, INC.  
REV: 5-01 SCALE: NTS

**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
31 OLD NASBURY ROAD, AMHERST, NH 03051  
TEL: 603-673-1441  
MERIDIANLANDSERVICES.COM  
FAX: 603-673-1384

NO.	DATE	DESCRIPTION	DR	CK
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

**WATER LINE DETAILS (1)**

RICHARD KEOGH  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

SCALE: VARIES

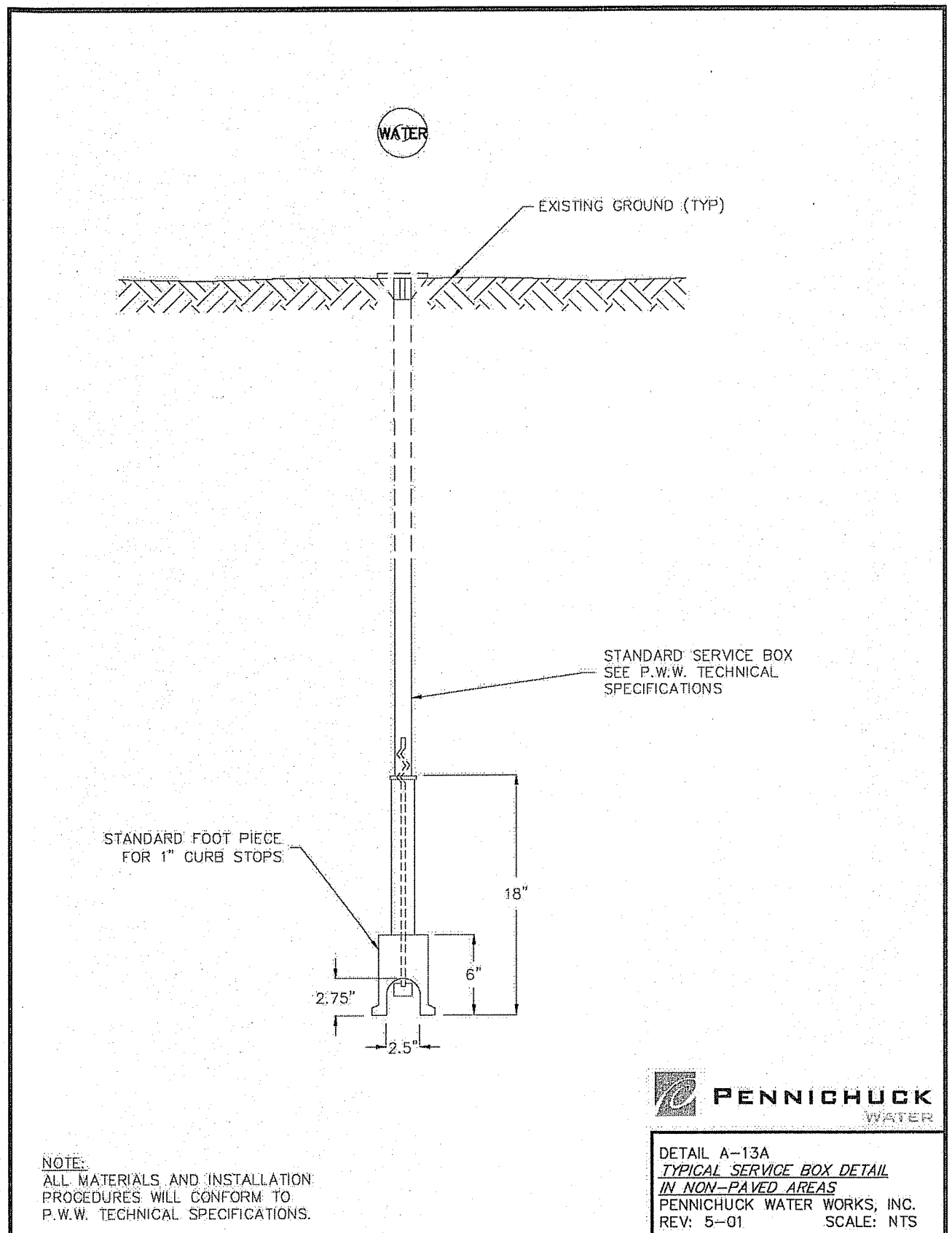
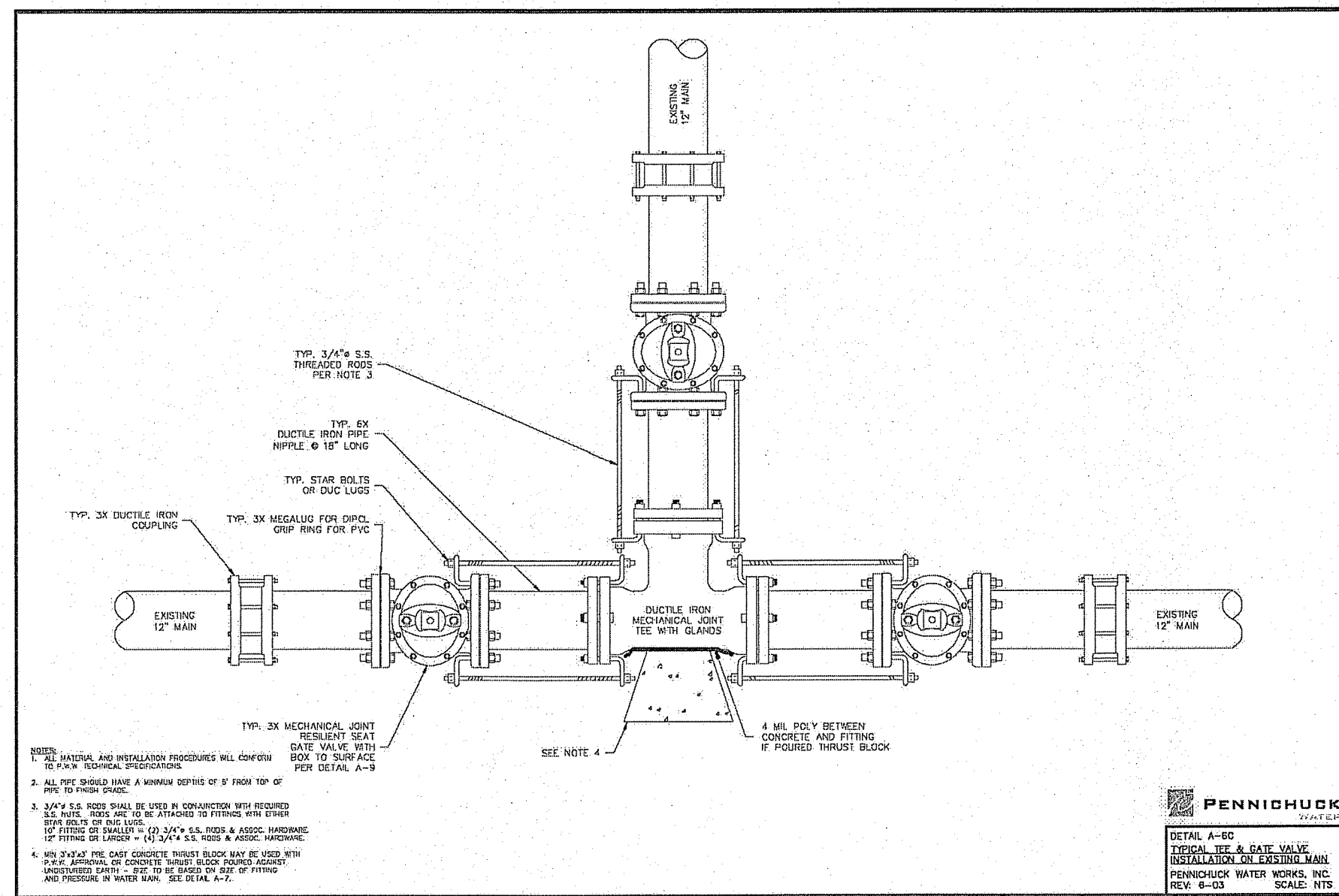
FEBRUARY 25, 2019

**D-5**

SHEET

FILE: 3203P05C.dwg  
PROJECT: 3203.05  
SHEET NO. 15 OF 16





GENERAL NOTES

ALL WATER MAINS 6" AND OVER IN DIAMETER SHALL BE CONSTRUCTED WITH DUCTILE IRON WATER MAIN MEETING OR EXCEEDING THE PRODUCT SPECIFICATIONS BELOW. 4" DIAMETER WATER MAINS SHALL BE CONSTRUCTED WITH DUCTILE IRON THAT MEETS OR EXCEEDS THE PRODUCT SPECIFICATIONS BELOW.

A. DUCTILE IRON WATER MAIN SHALL CONFORM TO AWWA STANDARD C151 AND BE DOUBLE CEMENT LINED AND SEALED COATED TO MEET AWWA STANDARD C104 JOINTS SHALL BE PUSH ON AND SHALL CONFORM TO AWWA C111.

B. CLASS 52 WALL THICKNESS, 4" DIAMETER THROUGH 10" DIAMETER INCLUSIVE.

C. CLASS 51 WALL THICKNESS, 12" & 16" DIAMETER.

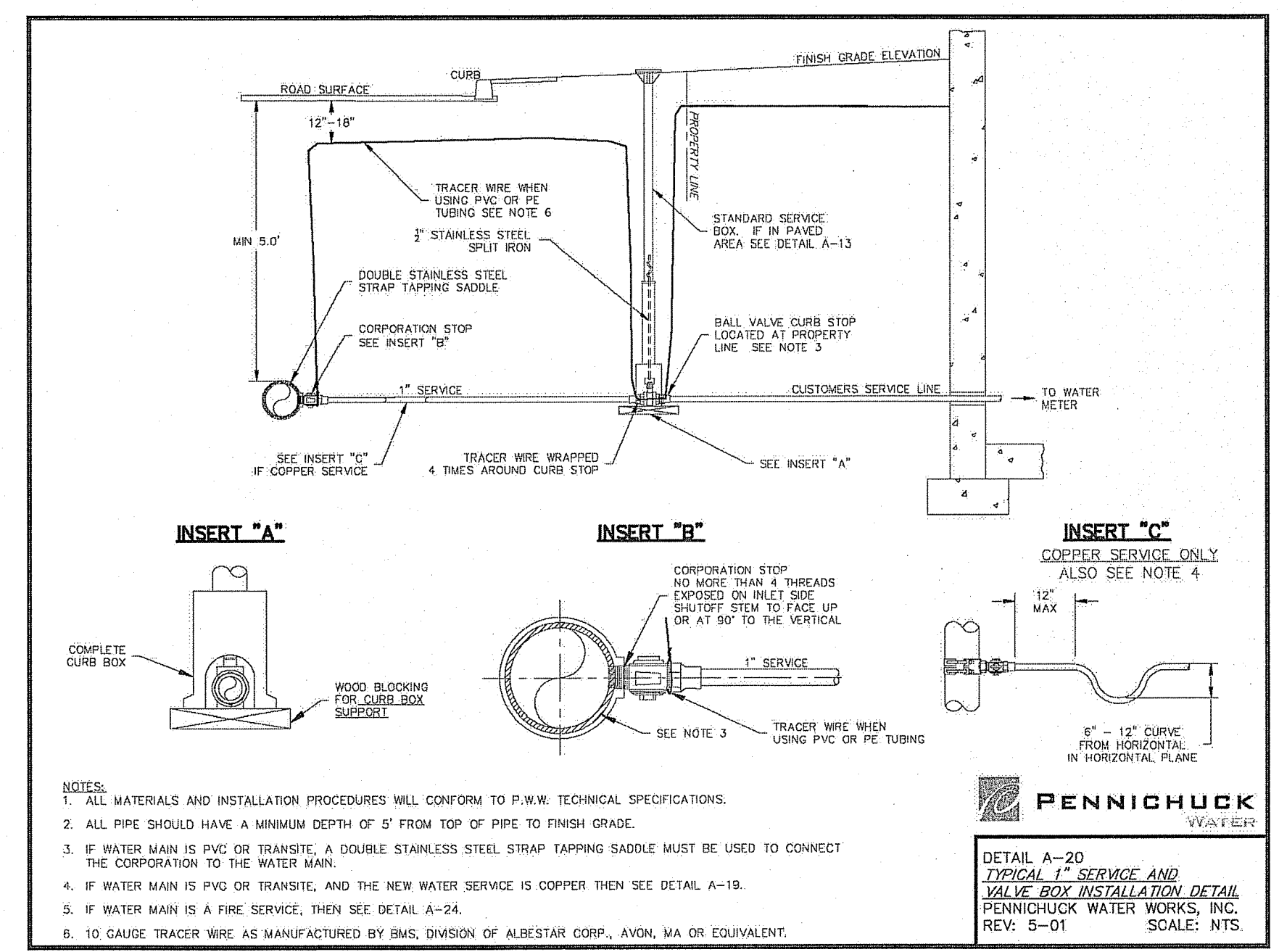
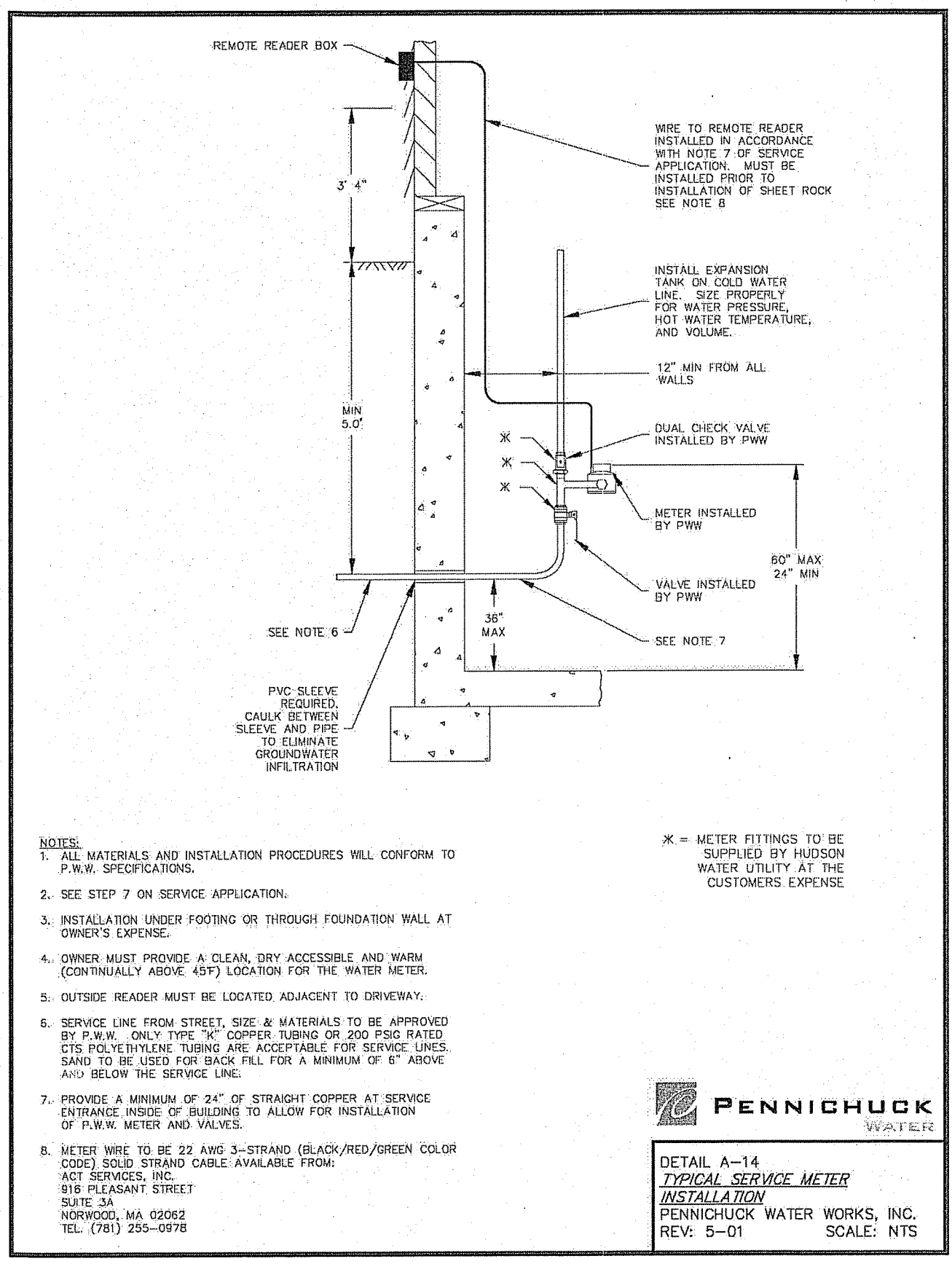
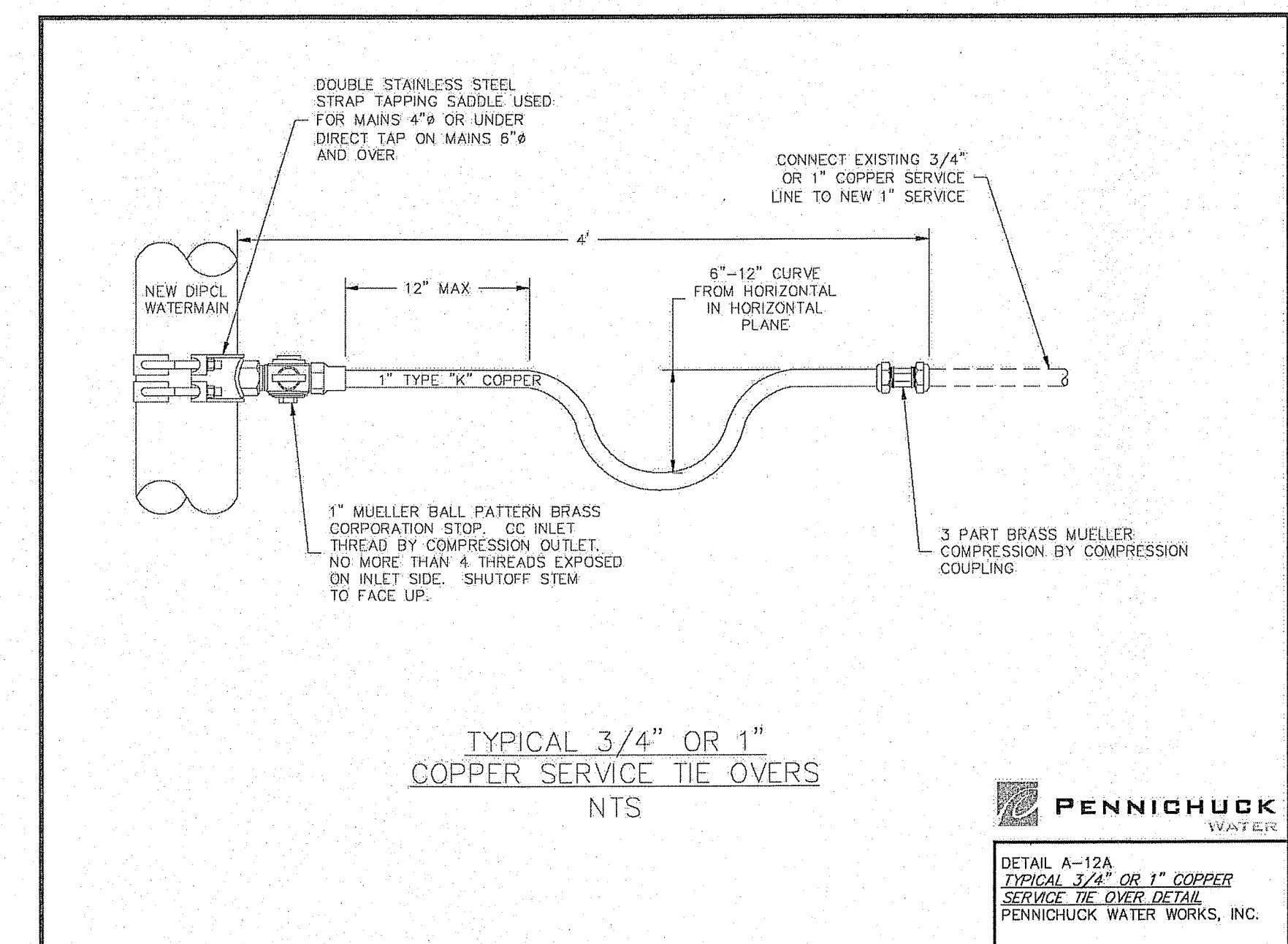
ALL MECHANICAL JOINT DUCTILE IRON FITTINGS 3" THROUGH 24" SHALL BE COMPACT DUCTILE IRON CLASS 350 IN ACCORDANCE WITH AWWA/ANSI C153/A-21.53 AND SHALL BE CEMENT LINED IN ACCORDANCE WITH AWWA/ANSI C104/A-21.40 OR BE FUSION BONDED MEETING OR EXCEEDING ANSI/AWWA C116/A21.16 STANDARDS.

ALL WATER MAINS AND APPURTENANCES SHALL BE SEPARATED FROM OTHER UTILITIES AND SEPTIC FIELDS IN ACCORDANCE WITH THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES ENV-WS 1000 AND ENV-WS 376. FURTHERMORE, THE SEPARATION SHALL BE IN ACCORDANCE WITH DETAIL A-1 IN THE STANDARD DETAILS.

IN THE ABSENCE OF A RECOGNIZED AND/OR APPROVED INDUSTRY STANDARD FOR SUCH HARDWARE, PENNICHUCK'S FIELD INSPECTORS WILL BE THE FINAL JUDGE AS TO THE ACCEPTABILITY OF MISCELLANEOUS HARDWARE USED IN THE INSTALLATION OF WATER MAINS.

ALL WATER MAINS AND FIRE SERVICES SHALL BE SUBJECTED TO PRESSURE AND LEAKAGE TESTING IN ACCORDANCE WITH THE LATEST VERSION OF AWWA STANDARD C600. ALLOWABLE LEAKAGE FOR EACH SECTION OF WATER MAIN TESTED SHALL BE COMPARED AGAINST THE CHART ATTACHED AT THE END OF THIS SECTION IN ORDER TO DETERMINE THE ACCEPTABILITY OF THE TEST.

THE CONTRACTOR SHALL CONDUCT FLUSHING OPERATIONS USING METHODS AND PROCEDURES CONFORMING TO AWWA C651. THE CONTRACTOR SHALL FLUSH THE WATER MAIN UNDER THE DIRECTION OF PENNICHUCK WATER WORKS' INSPECTOR. FLUSHING MAY BE REQUIRED DURING THE LATE EVENING HOURS IF IT IS DETERMINED THAT FLUSHING WILL RESULT IN OFF COLORED WATER TO PENNICHUCK WATER WORKS EXISTING CUSTOMERS.



**MERIDIAN LAND SERVICES, INC.**  
ENGINEERING | SURVEYING | PERMITTING  
SOIL & WETLAND MAPPING | SEPTIC DESIGN  
310 DUNDAS ROAD, ASHHERST, NH 03011  
TEL: 603-675-1541  
MERIDIANLANDSERVICES.COM FAX: 603-675-1584

**RICHARD KEOGH**  
AMHERST STREET  
MAP 23 LOT 2  
MILFORD, NEW HAMPSHIRE

SCALE: VARIES

FEBRUARY 25, 2019

**D-6**  
SHEET

FILE: 3203P05C.dwg  
PROJECT: 3203.05  
SHEET NO. 16 OF 16

REV.	DATE	DESCRIPTION	BY	CHK
A	5/29/19	PLANNING BOARD SUBMISSION	BUC	KMA
B	6/25/19	INITIAL TOWN STAFF COMMENTS	BUC	KMA
C	8/1/19	REVISE DRAINAGE LAYOUT	BUC	KMA
D				
E				
F				
G				
H				
I				

Plotter: 8/1/2019 10:39 AM By: BUC  
H:\MLS\03203\3203.05\Drawings\ENG\3203P05C.dwg