Workforce Housing Development (WHD) Zone

Proposed Text Amendment – August 6th, 2020

METRO REALTY

Proposed changes to text

- Correct discrepancy between minimum building distances to provide a consistent standard **(20 ft.)**
- Reduce minimum parking ratio from **2.25** per unit to **1.5** per unit
- Increase maximum area of private outdoor space from **150** sf to **175** sf
- Add “walking paths” as allowable passive recreation space
- Reduce front yard, for parking only, from **20 ft.** to **15 ft.**
- Modify definition of alternative eligible location

Minimum Distance Between Buildings

- The existing regulation lists two minimum distances – 75 ft. and 20 ft.
- Fieldstone Crossings (WHD Zone development):

Parking

- Proposed reduction of minimum parking requirement from 2.25 spaces per unit to 1.5 spaces per unit.
- Newer multifamily zones in similar, suburban towns are reducing parking requirements to reflect changing driving habits:
    - Farmington - Midpoint Development District (1.25 spaces per dwelling unit)
    - Southington – Redevelopment Overlay District (1.5 spaces per dwelling unit)
    - Wethersfield – Any multifamily development (1.5 spaces per dwelling unit)
- Have performed parking counts at our family apartments:
    - Fieldstone (Berlin) – average: 85 cars, (1.18/unit); highest = 92 cars, (1.28/unit)
    - Residences at Colt (Farmington) – average: 157 cars (1.31/unit); highest = 101 cars (1.34/unit)
    - Residences at Steele (West Hartford) – average: 201 cars (1.26/unit); highest = 208 cars (1.30/unit)

Private Outdoor Space

- Increase from **150 ft.** maximum to **175 ft.** maximum

- Evolving needs of residents, including an expected increase in work-from-home arrangements, have led to a demand for greater amounts of space, both indoor and outdoor.

Reduce Front Parking Setback

- WHD generally refers to a certain geographic location in town
- Often 10’+ right-of-way
- Properties adjacent to other WHD developments:
  - CVS on the corner of Deming and Berlin Turnpike has 10 ft. parking setback in front yard
- Many zones in town have shorter front yard parking setbacks
  - PS-A, PS-B, GC, BT-1, BT-2, CCD-1, CCD-2, all 10 ft. parking setback in front yard

Alternative eligible locations and standards

- Underlying zone – now R-43 **or part R-43 and part OT**
- Reduce required frontage to **900 feet**
- Increase maximum units per gross acre from **1.5 to 8**
  - Still less than the units per gross acre **(15)** allowed in the base regulation

823, 833 & 0 DEMING ROAD

Proposed 88-Unit Multifamily Development

August 4th, 2020

Berlin Planning & Zoning, Application for
Zone Change, Site Plan Approval & Special Permit

METROREALTY

WHO IS METRO?

- Farmington, Connecticut Based
- Fully Integrated Land Developer
- Long-Term Approach
- 30+ Assets – 8 towns

AFFORDABLE HOUSING PORTFOLIO

- Ground-up development of 1,380 apartments across 17 properties
- In Berlin, 5 properties, 402 apartments

CONDO-STYLE DESIGN

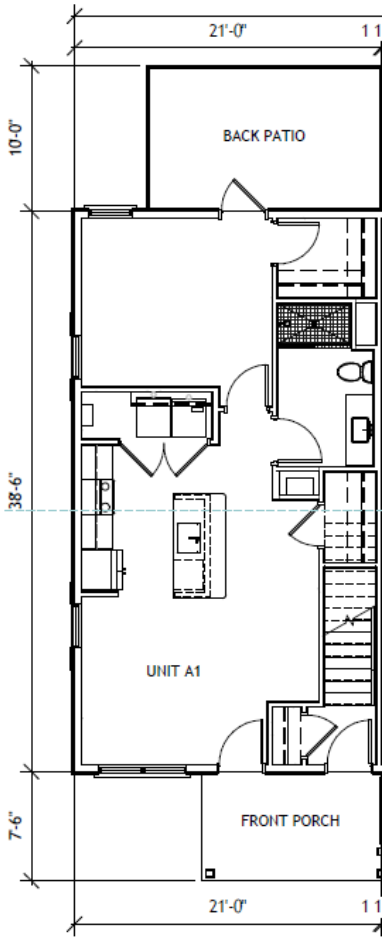
- Traditional Exterior
- Contemporary Interior

CONDO-STYLE DESIGN

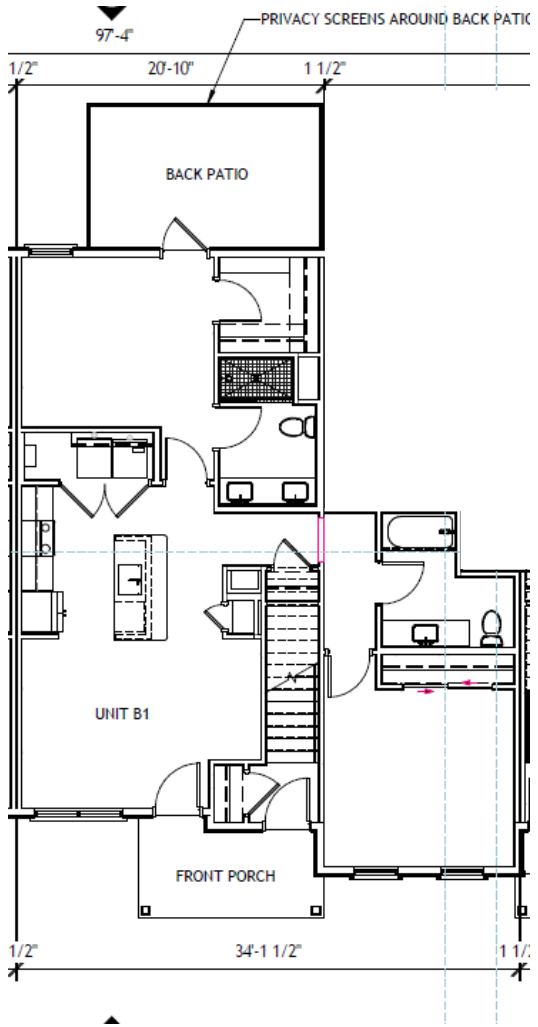
- Traditional Exterior
- Contemporary Interior

METROREALTY

One-Bedroom Layout



Two-Bedroom Layout



METROREALTY

823, 833 & 0 DEMING ROAD

Proposed 88-Unit Multifamily Development

August 4th, 2020

Berlin Planning & Zoning, Application for
Zone Change, Site Plan Approval & Special Permit

METROREALTY

METRO REALTY

July 2, 2020

Maureen Giusti
Acting Town Planner & Zoning Enforcement Official
Town of Berlin
240 Kensington Road
Berlin, CT 06037

Re: Amendment of the Workforce Housing Development (WHD) zone – Section XI, Paragraph BB of the Town of Berlin Zoning Regulations

Dear Ms. Giusti:

This letter shall serve as an application by The Metro Realty Group, Ltd. ("Applicant") for amendment to the text of the Workforce Housing Development ("WHD") zone in the Town of Berlin's zoning regulations.

Proposed amendments to the text include an increase in the maximum allowable private outdoor space for each dwelling unit, a reduction in the required parking ratio for a development, a reduction of the front yard setback for parking, and an expansion of the qualifying underlying zone for parcels that meet certain requirements of the WHD zone.

The application proposes additional amendments to the text as well. All of the proposed amendments to the text will be detailed and supported by the applicant via testimony at public hearing.

I can be reached at 860.674.5624 or btripp@metro-realty.com if you have any questions or require anything further.

Very truly yours,

THE METRO REALTY GROUP, LTD.

Benjamin Tripp, Director

BB. Workforce Housing Development (WHD)

1. Definition. Workforce Housing Development. A multi-family housing development that qualifies as an “assisted housing” development as defined in Connecticut General Statutes §8-30g (a)(3).

2. Purpose and standards. The purposes of this section are to provide standards for development or redevelopment, on a cooperative basis between the Town and an identified development entity with experience in mixed-income, multifamily workforce housing, on parcels identified by the Town as appropriate for such housing; and to provide dimensional and design standards that will ensure a high-quality residential environment that is compatible with adjacent and neighboring commercial and residential uses.

3. Zoning requirements. A WFD housing site development plan shall be approved only on land that has been zoned and for which a site plan has been filed that complies with Section XIII of these regulations and the following conditions and design requirements:

a. Eligible location. A workforce housing development may be located only on a parcel of land at least five but not more than seven acres; currently zoned BT-1; having access to public water and sewer; having no less than 500 feet of frontage on an existing public street other than the Berlin Turnpike.

b. Density. The number of dwelling units in the development shall not exceed fifteen (15) units per gross acre, with fractional coverage rounded down to a whole number.

c. Accessory building. A WHD site development plan may include one accessory building not to exceed 1,500 square feet, one story/20 feet in height, as a resident services building.

d. Grouping. Each development plan shall group the building in such a manner as to reflect the existing topography and preserve as much of the natural features as possible. The minimum distance between any two residential structures, excluding decks or patios, shall be ~~75~~**20** feet.

e. Architectural style. Buildings shall be designed to achieve a residential appearance. All buildings shall have pitched roofs and architectural projections per unit. Vertical and horizontal roof articulation is encouraged. Rooftop mechanical equipment, other than solar energy panels, shall be concealed, inconspicuous, and architecturally integrated into the structure. Buildings shall be designed and located on the site so as to retain the existing topography and natural features of the land to the greatest extent possible. All accessory buildings shall have the same architectural style and character as the principal buildings. The architectural style of the

development shall be approved by the Planning and Zoning Commission.

f. Building size. Each residential building shall contain no more than 16 dwelling units and shall be no more than two stories in height, with the interior dimensions of the footprint not to exceed 20,000 square feet. The exterior elevation of each residential building shall not be continuous horizontal planes and shall be broken with setbacks in all instances, to the satisfaction of the Planning and Zoning Commission.

g. Unit size. The living area of each dwelling unit, inclusive of bathrooms and exclusive of building corridors, if any, shall contain a maximum of 1,200 square feet.

h. Setbacks from interior roads. All residential buildings shall be set back a minimum of 10 feet from the edge of pavement of interior roads, which shall be private. For the purposes of this section, interior roads are those to be constructed within and as part of developments within the WHD zone.

i. Landscaped buffers. A WHD site development plan shall include a plan for landscape buffering within the minimum front yard, side yard, and rear yard set forth in Section XI.BB.3.p. of these regulations, in accordance with Section IX.C of these regulations. The applicant shall demonstrate to the satisfaction of the Commission that the proposed landscaping adequately screens mechanicals, dumpsters, parking and ground-level utilities and lighting glare.

j. Phasing. The Planning and Zoning Commission may approve a development plan to be completed in phases. If so, minimum yard and setback requirements shall not apply to the common line between phases of development.

k. Fire hydrants. Fire hydrants shall be installed in locations acceptable to the Fire Marshal.

l. Parking and circulation requirements.

i. There shall be at least ~~2.25~~**1.5** parking spaces for each dwelling unit. ~~No parking shall be allowed within a minimum yard.~~

ii. Interior road standards. All interior roads shall have a minimum paved width of 24 feet.

iii. Adequate pedestrian circulation, including a sidewalk on at least one side, shall be required along the interior roads of the development.

iv. Parking facilities for both passenger and vehicles shall be convenient to building entrances, adequately graded, drained, paved, and maintained in all seasons to prevent dust, excessive

water flow and congestion of driveways, and to promote the safety of residents and visitors.

v. Driveways shall be arranged in a suitable and convenient traffic pattern and adequately graded, drained, and maintained in all seasons to accommodate traffic and to afford satisfactory access to police, firefighting and snow removal equipment.

m. Private open space. Each residential unit shall be provided with a patio or deck with a maximum of ~~150~~ **175** square feet that is directly accessible to the residential unit.

n. Recreation. A minimum of 10,000 square feet of the total site shall be lawn or landscaping~~.~~ **, which may include walking paths,** suitable for passive recreation.

o. Workforce housing requirements. With its site plan application, the developer shall file an Affordability Plan that demonstrates how the Workforce Housing Development will qualify as "assisted housing" in compliance with Connecticut General Statutes §8-30g(a)(3) and sets forth:

i. a draft of the covenants and restrictions that will be recorded on the Berlin Land Records and will govern maximum household incomes, maximum rental, and the administration of the Workforce Housing program;

ii. identification of the person or entity responsible for administration of the Workforce Housing program;

iii. standard for tenant eligibility and calculations of rental amounts for the Workforce Housing Units; and,

iv. standards for the issuance of notice of availability of rental units, including an affirmative fair housing marketing plan.

p. Area and bulk requirements: The following area and bulk requirements shall apply to a workforce housing development:

Minimum front yard, excluding patio 50 feet
Minimum side yard 20 feet
Minimum rear yard 25 feet
Minimum parking space setback from property line:
~~20~~ **15** feet, in front **yard**
20 feet ~~and~~ **in** side yards,
15 feet in rear yard
Maximum building height 35 feet
Maximum building stories 2.0
Minimum building to building separation 20 feet
Maximum building coverage 25 percent
Maximum impervious coverage 60 percent

Minimum street frontage 500 feet
Minimum lot size 5 acres
Maximum lot size 8 acres

q. Approval criteria. In determining whether to approve a WHD site development plan, the Planning and Zoning Commission shall consider the following criteria:

i. The proposed use of the subject site is consistent with the purpose, intent, and provisions of the Town's adopted land use plan, and the proposed use is one which is permitted to be established within the zoning district in which the subject site is located.

ii. The development and its utilities shall be suitably located, adequately designed, and properly installed to serve the proposed uses, and to protect the environment from adverse air, water, or land pollution.

iii. The development of the site shall preserve, to the maximum extent possible sensitive, environmental land features such as steep slopes, wetlands, and large rock outcroppings; shall attempt to preserve public scenic views or historically significant features; and, shall be designed to ensure visual compatibility with structures within view of the site.

iv. The location and size of the use, the nature and intensity of the operations involved in or conducted in connection with it, the size of the site in relation to it, and the location of the site with respect to streets giving access to it, shall be such that it will be in harmony with appropriate and orderly development of the area including all adjacent zoning districts in which it is located.

v. Loading and parking areas shall be of adequate size for the particular use, and attractively screened from adjoining residential uses, and shall be laid out so as to prevent traffic hazards provided that, at a minimum, the specific provisions of Section IX.B shall be met.

vi. As demonstrated by a traffic study, the use shall not have a significant adverse effect on safety in the streets nor unreasonably increase traffic congestion in the area, nor interfere with the pattern of highway circulation.

vii. The subject property is suited environmentally for its intended use.

4. Alternative eligible location and standards. In addition to the foregoing regulation, a WHD housing site development plan may be located on a parcel **or contiguous parcels** of land at least 11 but not more than 13 acres; currently zoned R-43 **or part OT and part R-43**; having access to public sewer and water; and having no less than ~~1000~~ **900** feet of

frontage on State Route 160/Deming Road. On such an eligible parcel, all regulations and requirements set forth in Section XI.BB.3 above shall apply, with the exception that density shall not exceed ~~1.5~~ **8** units per gross acre.

fsemnosk

FILE COPY

From: Ben Tripp <BTripp@metro-realty.com>
Sent: Thursday, July 23, 2020 5:47 PM
To: mgiusti; jmahoney
Cc: fsemnosk; Wendy Cswerko
Subject: WHD Text Amendment - additional comments
Attachments: WHD Reg - most recent working copy 7.23.2020.docx

Hi Maureen,

As discussed previously, I went through the proposed text amendment with Tim Hollister and he suggested an additional adjustment – see attached.

The only change is in the first sentence of paragraph 3. He recommended that the language which reads "that has been zoned" be removed, as it is a bit unclear what the phrase is referring to.

Ultimately I defer to you and Jim regarding whether you want this language in or out of the regulation.

Thanks,

Ben Tripp
Director of Development
The Metro Realty Group, Ltd.
6 Executive Drive, Suite 100
Farmington, CT 06032
T 860.674.5624 · M 860.978.4293
Email: btripp@metro-realty.com

METROREALTY

Affirmative Action / Equal Opportunity Employer

July 22, 2020
Updated July 27, 2020 (Police Chief/Board of Police Commissioners)
(Updated July 29, 2020 – Health District)
(Updated July 30, 2020 – Town Engineer)

TOWN OF BERLIN
PLANNING & ZONING DEPARTMENT
STAFF COMMENTS

APPLICATION: Proposed Amendment to Berlin Zoning Regulations Section XI.BB Workforce Housing Development

APPLICANT: Metro Realty

AGENDA DATE: August 6, 2020

To the Applicant:

- *These are the comments received to date, additional comments may be forthcoming.*
- *Please submit any written response to Maureen Giusti, Acting Town Planner/Zoning Enforcement Officer at mgiusti@town.berlin.ct.us or revised plans directly to the Planning & Zoning Department in Room 121. We will forward your comments or distribute materials to the relevant departments.*

Inland Wetlands
Wetlands Public Hearing on August 4, 2020

Conservation Commission
Received at Conservation Commission on 7/14/2020

Berlin Water Control
No comment

Building Official
No comment

Police Chief
No comment

Board of Police Commissioners
No comment

Health District
No comment

Town Engineer
No comment
Emailed to Applicant: *July 30, 2020*

July 16, 2020

PLANNING & ZONING DEPARTMENT
PROJECT REVIEW SHEET

APPLICATION: Proposed Amendment to Zoning Regulations
Section XI.BB Workforce Housing (WFD)

APPLICANT: The Metro Group

AGENDA DATE: August 6, 2020

Department/District:

___ Town Planner
___ Assistant Town Planner/ZEO
___ Engineering
___ Kensington Fire District
___ Worthington Fire District
___ Board of Education
___ Conservation Commission
___ Building Official
___ Berlin Water Control
___ Health District
___ Fire Marshal
___ Board of Police Commissioners
___ Inland Wetlands
___ Police Chief

☑ No Comment

☐ Comments:

7/24/2020
Signature/Date

Town of Berlin
Received
JUL 08 2020
Planning & Zoning Department
Berlin, Connecticut

PLANNING AND ZONING COMMISSION
ZONE CHANGE REQUEST

APPLICANT

Name 833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC

Address 6 Executive Drive, #100 - Farmington, CT 06032

Telephone 860.674.5624 Fax 860.677.6919

OWNER (IF NOT THE APPLICANT)

Name Same

Address _____

Telephone _____

WITH THE SIGNING OF THIS APPLICATION, I GIVE MY CONSENT THAT ANY TOWN OFFICIAL AND/OR EMPLOYEE THAT THE TOWN DEEMS NECESSARY MAY ENTER MY PROPERTY TO VERIFY INFORMATION SUBMITTED FOR THIS APPLICATION.

Signature _____ Date July 6, 2020

I hereby make application dated July 6, 2020 requesting a zone change from the currently designated zone of R-43 & OT to WHD at Lot No. ~~5-4-122~~ 10, 11-1, 11-2 Block No. ~~10,11-1,11-2~~ 122 Located on the

☐ north ☐ south ☒ east ☐ west side of _____

☐ street ☐ road ☐ avenue ☐ other (_____)

100 feet distant ☐ north ☐ south ☐ east ☐ west side

from the intersection of Deming

☐ street ☒ road ☐ avenue ☐ other (_____) with

Bacon ☐ street ☐ road ☐ avenue ☒ other (Lane)

- Is the subject property within 500' of another municipality? No

Attach fifteen copies of the map of the property and fifteen copies of the deed description.

CORRESPONDENCE SHOULD BE DIRECTED TO

Name Ben Tripp

Address The Metro Realty Group, Ltd., 6 Executive Drive #100-Farmington, CT 06032

Telephone 860.674.5624 **Fax** 860.677.6929

Email btripp@metro-realty.com

FEE: **$250 plus $60 for the State of Connecticut Solid Waste Management Fund**
Note: One check made payable to "Town of Berlin" in the proper amount may be submitted.

Zoning Change Request Fee Paid

$ 250.-

Received by

State of Connecticut Solid Waste Management Fund Fee Paid

$ 60-

Received by

PROPERTY OWNERS WITHIN 500 FT.

ASSESSOR'S PARCEL ID #	ADDRESS	OWNERS NAME AND ADDRESS
5-3-123-2B	0 DEMING ROAD	ROCKY RIVER REALTY CO. P.O. BOX 270 HARTFORD, CT 06141
5-4-122-9	0 DEMING ROAD	TOWN OF BERLIN 240 KENSINGTON ROAD BERLIN, CT 06037
5-3-122-12A	773 DEMING ROAD	ROCKY RIVER REALTY CO. P.O. BOX 270 HARTFORD, CT 06141
5-4-122-8A	925 DEMING ROAD	FILLMORE & SHIRLEY OLSON 925 DEMING ROAD BERLIN, CT 06037
5-4-122-8	937 DEMING ROAD	DEBORAH J & PAUL TARDIF 937 DEMING ROAD BERLIN, CT 06037
5-4-122-7	963 DEMING ROAD	MICHAEL CHRISTENSEN 963 DEMING ROAD BERLIN, CT 06037
5-2-122-6-4435	979 DEMING ROAD	CSBF, LLC 979 DEMING ROAD BERLIN, CT 06037
5-2-122-6-4436	979 DEMING ROAD	CSBF, LLC 979 DEMING ROAD BERLIN, CT 06037
5-3-127-5	0 RIVER'S EDGE	332 DEMING ROAD ASSOCIATION LIMITED PARTNERSHIP 6 EXECUTIVE DRIVE FARMINGTON, CT 06032
5-4-130-4-2	0 STONEBRIDGE WAY #2	STONEBRIDGE BERLIN II ASSOCIATION 6 EXECUTIVE DRIVE FARMINGTON, CT 06032
5-1-122-1-7867	107 SELDEN STREET	ROCKY RIVER REALTY CO. P.O. BOX 270 HARTFORD, CT 06141
5-3-122-13	31 ELM STREET	ROCKY RIVER REALTY CO. P.O. BOX 270 HARTFORD, CT 06141
5-3-124-1	37 BACON LANE	STEVEN M FICARA 37 BACON LANE BERLIN, CT 06037
5-3-127-6	643 WETHERSFIELD ROAD	AGNES WINALSKI 643 WETHERSFIELD ROAD BERLIN, CT 06037
5-4-124-4	675 WETHERSFIELD ROAD	RONALD M & STEPHANIE A LAMONTAGNE 675 WETHERSFIELD ROAD BERLIN, CT 06037
5-4-124-3	687 WETHERSFIELD ROAD	SUSAN GULICK 687 WETHERSFIELD ROAD BERLIN, CT 06037

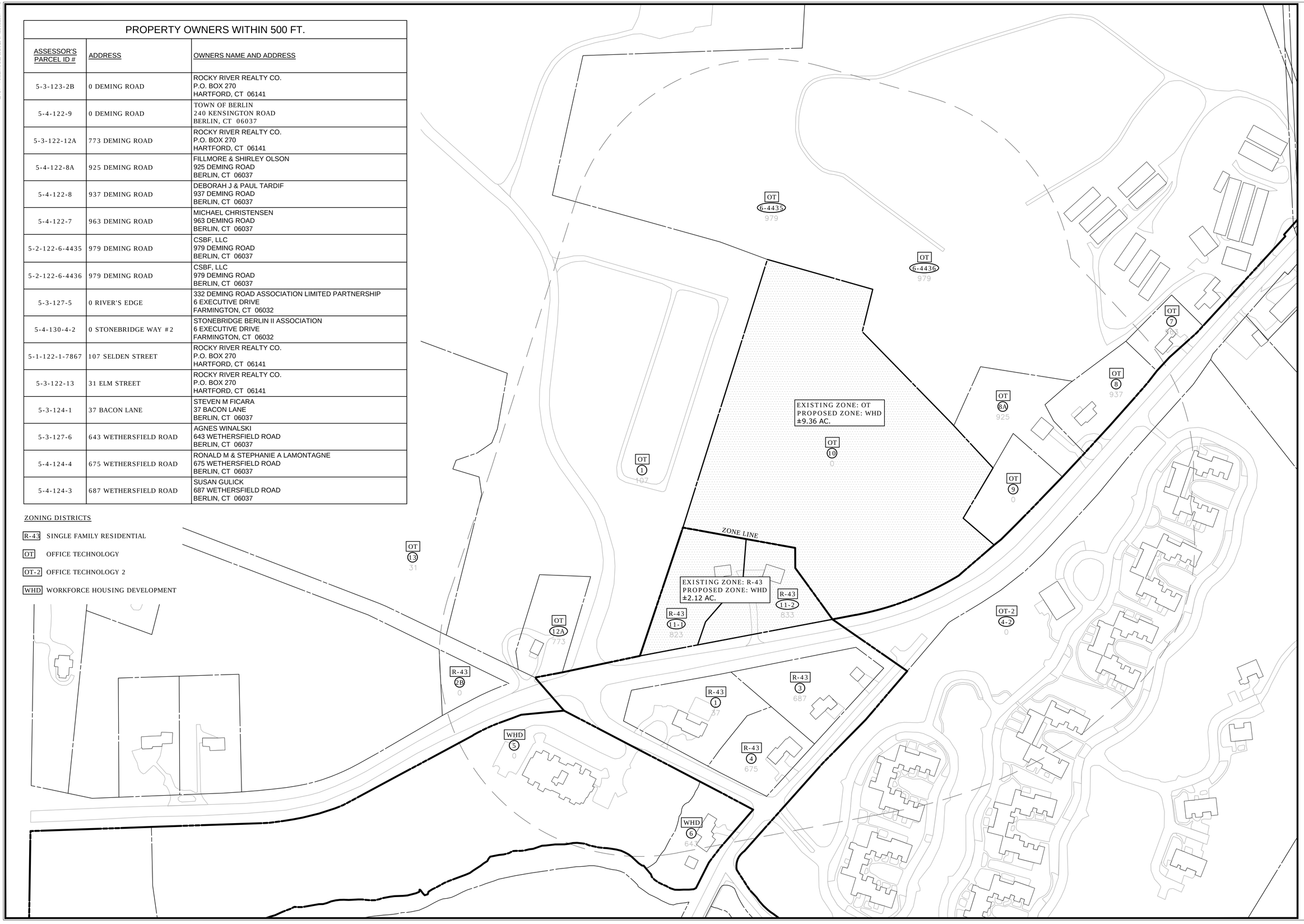
ZONING DISTRICTS

R-43 SINGLE FAMILY RESIDENTIAL

OT OFFICE TECHNOLOGY

OT-2 OFFICE TECHNOLOGY 2

WHD WORKFORCE HOUSING DEVELOPMENT



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION | DATE | BY

ZONE CHANGE MAP

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

DESIGNED	DRAWN	CHECKED
AWG	AWG	TD

SCALE: 1"=100'

DATE: JULY 1, 2020

PROJECT NO.: 3571-40

SHEET NO.: 1 OF 1

SHEET NAME: ZC

July 22, 2020
Updated July 27, 2020 (Police Chief, Board of Police Commissioners)
Updated July 29, 2020 (Health District)
Updated July 30, 2020 (Town Engineer)

TOWN OF BERLIN
PLANNING & ZONING DEPARTMENT
STAFF COMMENTS

APPLICATION: Zone Change
APPLICANT: 833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC
LOCATION: Lots 10, 11-1, 11-2, Block 122 – Deming Road/Bacon Lane

AGENDA DATE: August 6, 2020

To the Applicant:

- *These are the comments received to date, additional comments may be forthcoming.*
- *Please submit any written response to Maureen Giusti, Acting Town Planner/Zoning Enforcement Officer at mgiusti@town.berlin.ct.us or revised plans directly to the Planning & Zoning Department in Room 121. We will forward your comments or distribute materials to the relevant departments.*

Inland Wetlands
No comment

Conservation Commission
No comment

Berlin Water Control
We will require detail for potential water and sewer service to the proposed development.

Building Official
No comment

Police Chief
No comment

Board of Police Commissioners
No comment

Health District
No comment

Town Engineer
No comment
Emailed to Applicant: July 30, 2020

July 16, 2020

PLANNING & ZONING DEPARTMENT
PROJECT REVIEW SHEET

APPLICATION: Zone Change

APPLICANT: The Metro Group

AGENDA DATE: August 6, 2020

NOTE: If possible, please return the plans with your comments. Thank you.

Department/District:

___ Town Planner
___ Assistant Town Planner/ZEO
___ Engineering
___ Kensington Fire District
___ Worthington Fire District
___ Board of Education
___ Conservation Commission
___ Building Official
___ Berlin Water Control
___ Health District
___ Fire Marshal
___ Board of Police Commissioners
___ Inland Wetlands
___ Police Chief

☑ No Comment

☐ Comments:

Signature/Date

833 Deming Road, LLC

TOWNBERLIN Town of Berlin

DATE	INVOICE NO	DESCRIPTION	INVOICE AMOUNT	
6-30-20	833-SPECIA	Special Permit	280.00	

CHECK DATE	7-01-20	CHECK NUMBER	216	TOTAL >	280.00	

PLEASE DETACH AND RETAIN FOR YOUR RECORDS

WARNING - THIS CHECK IS PROTECTED BY SPECIAL SECURITY FEATURES

833 Deming Road, LLC
6 Executive Drive, Ste 100
Farmington CT 06032
860-674-5620

People's United Bank
Hartord, CT 06103

51-7218/2211

216

DATE 07/01/2020

Pay **********Two hundred eighty dollars and no cents

$ ****280.00

TO THE ORDER OF
Town of Berlin
240 Kensington Rd
Berlin, CT 06037

SECURITY FEATURES INCLUDE MICROPRINTING - VOID PANTOGRAPH - ENDORSEMENT BACKER - BROWNSTAIN CHEMICAL REACTANT

⑈000000216⑈ ⑆221172186⑆6500880188⑈

Town of Berlin

Planning and Zoning Department

240 Kensington Road
Berlin, Connecticut 06037
www.town.berlin.ct.us

SPECIAL PERMIT APPLICATION

(Any Special Permit Application shall be submitted simultaneously with a Site Plan Application)

Project Name: 833 Deming Road

Property Owner(s): 833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC

Project Address*: 0, 823 & 833 Deming Road

Map: 5-4 Block: 122 Lot: 10,11-1,11-2 Zone(s): R-43, OT Lot Area: 11.4 acres

Applicant Information

Name: Ben Tripp

Firm Name: 833 Deming Road, LLC & Berlin Remnant Land Parcels, LLC

Street Address: 6 Executive Drive #100

City: Farmington ST: CT Zip: 06032

Email: btripp@metro-realty.com

Phone: 860.674.5624

Signature: [signature]

Date: July 6, 2020

Property Owner(s) Information (If Not the Applicant)

Name: Same

Principal: _____

Street Address: _____

City: _____ ST: _____ Zip: _____

Email: _____

Phone: _____

*Letter of Authorization Required

Special Permit required pursuant to section(s):

_____

_____

***Any town official and/or employee that the town deems necessary may enter the property to verify information submitted with this application.**

To be completed by P&Z staff only:

Fee Paid $_____ (Refer to current Fee Schedule)

Received by: _____

Town of Berlin

Planning and Zoning Department
240 Kensington Road
Berlin, Connecticut 06037
www.town.berlin.ct.us

SPECIAL PERMIT APPLICATION CHECKLIST

Project Name: 833 Deming Road

Project Address: 0, 823 and 833 Deming Road

All applications shall be submitted to Planning and Zoning staff during regular office hours.

Items To Be Submitted:

☑ 1. One original completed special permit application form with original applicant signature.

☑ 2. All items #1-12 listed on the Site Plan Application Checklist shall be submitted with the site plan application and it will be incorporated in the record of this special permit application. A duplicate submission will not be required.

☑ 3. One original written narrative, signed by the applicant and by the owner if different from the applicant describing in sufficient detail:

a. The nature and extent of the proposed use or occupancy
b. The number of persons to occupy or visit the premise on a daily basis, including the parking and loading requirements for their use, and
c. An estimate of the amount and type of vehicular traffic to be generated on a daily basis at peak hours.

The narrative also should include discussion addressing each special permit consideration listed in Section XII.D.1 of the Zoning Regulations.

☑ 4. A list of the names and mailing addresses of the owners of all land included within the application and of all properties 500 feet or less distant therefrom, all as shown on the most recent records on file in the town tax assessor's office.

☑ 5. Proof of mailing in the form of United States Post Office Certificates of Mailing of notification of said pending application to owners of each such property on the list no more than seven (7) days prior to submitting the application and in no case less than ten (10) days before the opening of the public hearing.

☑ 6. Acknowledgement that a posting of a sign providing notice of a public hearing will be required in compliance with Section XII.C.F of the Zoning Regulations.

☑ 7. Letter of Authorization to act on behalf of the certified property owner(s) for matters related to this application if required and not included with letter of authorization submitted for the site plan application. N/A

☐ 8. Three copies of a traffic study in compliance with Section XII.B.4 of the Zoning Regulations for applications involving the construction of more than 50 dwelling units, 100 parking spaces, or 25,000 square feet of gross floor area, or any development which, in the Commission's judgement, would generate high levels of traffic, if applicable.

☐ 9. Three copies of an environmental impact study in compliance with Section XII.B.5 of the Zoning Regulations for applications involving the construction of more than 50 dwelling units, 100 parking spaces, or 25,000 square feet of gross floor area, or any other development the Commission deems appropriate

☐ 10. Required fee submitted at time of application (see fee schedule).

☐ 11. **To be completed by Planning and Zoning staff:**

☐ It is the belief of staff that this application is incomplete because of the failure of the applicant to provide the materials referred to above. This application will be reviewed by the PZC and a decision made as to whether it is complete or incomplete.

Items missing include:

Applicant Signature: _____ Date July 6, 2020

Staff Signature: _____ Date _____

METROREALTY

NARRATIVE

Site Plan & Special Permit
0, 823 & 833 Deming Road

The 11.3-acre subject property that is subject to this application consists of three parcels located at 823 and 833 Deming Road in Berlin, Connecticut. Cold Spring Brook Farm abuts the property to the north, an Eversource Energy property lies to the west, and single- and multifamily residential homes are located to the south of Deming Road. The subject parcels are currently zoned R-43 and OT.

The applicant is proposing to develop the property and construct 11 residential apartment buildings totaling 88 units. Each of the proposed buildings are two stories and contain eight apartments (with four one-bedroom and four two-bedroom apartments per building). Access to the site is proposed via a single access driveway off Deming Road.

The site is proposed to be developed under the town's Workforce Housing (WFD) zone. The proposed apartment buildings will be served by municipal water and sanitary sewer. A traffic impact study was completed by Fuss & O'Neil regarding the proposed development's and is included as part of this application.

833 Deming Road, LLC and
Berlin Remnant Land Parcels, LCL

Benjamin Tripp, Director

TOWN OF BERLIN, CONNECTICUT

500' abutters for Application at 0, 823 and 833 Deming Road

	In relation to	Parcel ID	Site Address	Owner Name	Mailing Address	Mailing City	Mailing State	Mailing Zip
1	0 Deming	5-4-122-10	0 DEMING RD	BERLIN REMNANT LAND PARCELS LLC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
	823 Deming	5-4-122-10	0 DEMING RD	BERLIN REMNANT LAND PARCELS LLC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
	833 Deming	5-4-122-10	0 DEMING RD	BERLIN REMNANT LAND PARCELS LLC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
2	0 Deming	5-4-122-9	0 DEMING RD	BERLIN TOWN OF	240 KENSINGTON RD	BERLIN	CT	06037- 0000
	833 Deming	5-4-122-9	0 DEMING RD	BERLIN TOWN OF	240 KENSINGTON RD	BERLIN	CT	06037- 0000
3	823 Deming	5-3-123-2B	0 DEMING RD	ROCKY RIVER REALTY C	P O BOX 270	HARTFORD	CT	06141- 0000
	833 Deming	5-3-123-2B	0 DEMING RD	ROCKY RIVER REALTY C	P O BOX 270	HARTFORD	CT	06141- 0000
4	823 Deming	5-3-127-5	0 RIVER'S EDGE	332 DEMING ROAD ASSOC LTD PARNERSHIP	6 EXECUTIVE DRIVE	FARMINGTON	CT	06032- 0000
	833 Deming	5-3-127-5	0 RIVER'S EDGE	332 DEMING ROAD ASSOC LTD PARNERSHIP	6 EXECUTIVE DRIVE	FARMINGTON	CT	06032- 0000
5	0 Deming	5-4-130-4-2	0 STONEBRIDGE WAY #2	STONEBRIDGE BERLIN II ASSOC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
	823 Deming	5-4-130-4-2	0 STONEBRIDGE WAY #2	STONEBRIDGE BERLIN II ASSOC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
	833 Deming	5-4-130-4-2	0 STONEBRIDGE WAY #2	STONEBRIDGE BERLIN II ASSOC	6 EXECUTIVE DR	FARMINGTON	CT	06032- 0000
6	0 Deming	5-1-122-1-7867	107 SELDEN ST	ROCKY RIVER REALTY C	P O BOX 270	HARTFORD	CT	06141- 0000
	823 Deming	5-1-122-1-7867	107 SELDEN ST	ROCKY RIVER REALTY C	P O BOX 270	HARTFORD	CT	06141- 0000
	833 Deming	5-1-122-1-7867	107 SELDEN ST	ROCKY RIVER REALTY C	P O BOX 270	HARTFORD	CT	06141- 0000
7	823 Deming	5-3-122-13	31 ELM ST	ROCKY RIVER REALTY CORP	P O BOX 270	HARTFORD	CT	06141- 0000
8	0 Deming	5-3-124-1	37 BACON LN	FICARA STEVEN M	37 BACON LN	BERLIN	CT	06037- 0000
	823 Deming	5-3-124-1	37 BACON LN	FICARA STEVEN M	37 BACON LN	BERLIN	CT	06037- 0000
	833 Deming	5-3-124-1	37 BACON LN	FICARA STEVEN M	37 BACON LN	BERLIN	CT	06037- 0000
9	823 Deming	5-3-127-6	643 WETHERSFIELD RD	WINALSKI AGNES	643 WETHERSFIELD RD	BERLIN	CT	06037- 0000
	833 Deming	5-3-127-6	643 WETHERSFIELD RD	WINALSKI AGNES	643 WETHERSFIELD RD	BERLIN	CT	06037- 0000
10	0 Deming	5-4-124-4	675 WETHERSFIELD RD	LAMONTAGNE RONALD M & STEPHANIE A	675 WETHERSFIELD RD	BERLIN	CT	06037- 0000
	823 Deming	5-4-124-4	675 WETHERSFIELD RD	LAMONTAGNE RONALD M & STEPHANIE A	675 WETHERSFIELD RD	BERLIN	CT	06037- 0000
	833 Deming	5-4-124-4	675 WETHERSFIELD RD	LAMONTAGNE RONALD M & STEPHANIE A	675 WETHERSFIELD RD	BERLIN	CT	06037- 0000
11	0 Deming	5-4-124-3	687 WETHERSFIELD RD	GULICK SUSAN	687 WETHERSFIELD ROAD	BERLIN	CT	06037- 0000
	823 Deming	5-4-124-3	687 WETHERSFIELD RD	GULICK SUSAN	687 WETHERSFIELD ROAD	BERLIN	CT	06037- 0000
	833 Deming	5-4-124-3	687 WETHERSFIELD RD	GULICK SUSAN	687 WETHERSFIELD ROAD	BERLIN	CT	06037- 0000
12	0 Deming	5-3-122-12A	773 DEMING RD	ROCKY RIVER REALTY CO	PO BOX 270	HARTFORD	CT	06141- 0000
	823 Deming	5-3-122-12A	773 DEMING RD	ROCKY RIVER REALTY CO	PO BOX 270	HARTFORD	CT	06141- 0000
	833 Deming	5-3-122-12A	773 DEMING RD	ROCKY RIVER REALTY CO	PO BOX 270	HARTFORD	CT	06141- 0000
13	0 Deming	5-4-122-11-1	823 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
	823 Deming	5-4-122-11-1	823 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
	833 Deming	5-4-122-11-1	823 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
14	0 Deming	5-4-122-11-2	833 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
	823 Deming	5-4-122-11-2	833 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
	833 Deming	5-4-122-11-2	833 DEMING RD	833 DEMING ROAD LLC	6 EXECUTIVE DRIVE SUITE 100	FARMINGTON	CT	06032- 0000
15	0 Deming	5-4-122-8A	925 DEMING RD	OLSON FILLMORE & SHIRLEY	925 DEMING RD	BERLIN	CT	06037- 0000
16	0 Deming	5-4-122-8	937 DEMING RD	TARDIF DEBORAH J & PAUL	937 DEMING RD	BERLIN	CT	06037- 0000
17	0 Deming	5-4-122-7	963 DEMING RD	CHRISTENSEN MICHAEL	963 DEMING RD	BERLIN	CT	06037- 0000
18	0 Deming	5-2-122-6-4435	979 DEMING RD	CSBF LLC	979 DEMING ROAD	BERLIN	CT	06037- 0000
	0 Deming	5-2-122-6-4436	979 DEMING RD	CSBF LLC	979 DEMING ROAD	BERLIN	CT	06037- 0000

Town of Berlin

Planning and Zoning Department
240 Kensington Road
Berlin, Connecticut 06037
www.town.berlin.ct.us

Town of Berlin
Received
JUL 08 2020
Planning & Zoning Department
Berlin, Connecticut

SITE PLAN APPLICATION

☒ Site Plan ☐ Site Plan Amendment

Project Name: 833 Deming Road
Property Owner(s): 833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC
Project Address*: 0, 823 and 833 Deming Road
Map: 5-4 Block: 122 Lot: 10,11-1,11-2 Zone(s): _____ Lot Area: 11.4 acres

Please select all relevant items below:

☒ Special Permit – Also complete special permit application form
☐ Property is within 500 feet of a Municipal Boundary of _____
☐ Amendment to Zoning Regulations – Section(s) _____
☐ Amendment to Zoning Map – Zone(s) affected _____
☐ Zoning Board of Appeals review needed
☐ Inland Wetlands and Water Course Commission review needed

Applicant Information

Name: Ben Tripp
Firm Name: 833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC
Street Address: 6 Executive Drive #100
City: Farmington ST: CT Zip: 06032
Email: btripp@metro-realty.com
Phone: 860.674.5624
Signature: _____
Date: July 6, 2020

Property Owner(s) Information (If Not the Applicant)

Name: Same
Principal: _____
Street Address: _____
City: _____ ST: _____ Zip: _____
Email: _____
Phone: _____

*Letter of Authorization Required

***Any town official and/or employee that the town deems necessary may enter the property to verify information submitted with this application.**

This Site Plan Involves:

☐ Additions ☐ Alterations ☒ Demolition ☒ New Construction

Description of Project*: See separate narrative

*If more space is needed, then please provide separate narrative document.

SITE PLAN ZONING STATISTICS

	EXISTING	PROPOSED	REQUIRED
USE(S)	R-43 (823)	WHD	
	R-43 (833)	WHD	
	OT (0)	WHD	
COMMERCIAL			
Gross Floor Area	0	0	
Parking Spaces	0	0	
INDUSTRIAL			
Gross Floor Area	0	0	
Parking Spaces	0	0	
RESIDENTIAL			
Number of Units		88	
Number of Bedrooms			
Gross Floor Area		72,490	
Parking Spaces			
OTHER USES			
Gross Floor Area			
Parking Spaces			

To be completed by P&Z staff only:

Fee Paid $ 2,000.- (Refer to current Fee Schedule)

Received by: fms

July 22, 2020
Updated July 28, 2020 (Police Commission and Police Chief)
Updated July 29, 2020 (Health District)
Updated July 30, 2020 (Town Engineer)

TOWN OF BERLIN
PLANNING & ZONING DEPARTMENT
STAFF COMMENTS

APPLICATIONS: Special Permit/Site Plan
APPLICANT: Metro Realty
(833 Deming Road, LLC and Berlin Remnant Land Parcels, LLC)
LOCATION: 0, 823 AND 833 Deming Road
AGENDA DATE: August 6, 2020

To the Applicant:

- *These are the comments received to date, additional comments may be forthcoming.*
- *Please submit any written response to Maureen Giusti, Acting Town Planner/Zoning Enforcement Officer at mgiusti@town.berlin.ct.us or revised plans directly to the Planning & Zoning Department in Room 121. We will forward your comments or distribute materials to the relevant departments.*

Inland Wetlands
IWWCC permits pending

Conservation Commission
1. Additional information regarding the Turtle Management Plan, including any DEEP recommendation and who is responsible for its management be provided to the satisfaction of the Planning and Zoning Commission.
2. The applicant must have a long term management plan to maintain the drainage and filtration systems, as described.

Berlin Water Control
Berlin's Water Control is the service which provides for water and service. Detail is needed for water and sewer service, if it likely a Developer's Agreement will be necessary. BWCC water main needs to be extended in order to service the development for potable water and fire protection.

Building Official
Will require complete sets of architectural/M.E.P/ with structural, fire, unit type, etc. ---Ratings – third party – Testing on some elements

Board of Police Commissioners
See Chief's Comments

Police Chief
See attached traffic recommendations

Health District
Area shows two houses. If demo is forthcoming, must notify the DPH and septic tanks and wells must be property abandoned.

Town Engineer
See attached, and revise Stormwater Design/Analysis as required.

Emailed to Applicant: *July 30, 2020*

BERLIN POLICE DEPARTMENT

Officer Thomas Bobok ~ Traffic Bureau
Email: tbobok@Berlinpd.org Phone: 860-828-7082

7/27/2020

To: Chief J. Klett

From: Officer Tom Bobok

Re: 833 Deming Road proposal

I have reviewed the proposed development at 833 Deming Road and determined the following:

A traffic impact study was submitted to supplement the proposal and that study assumed a design speed of 45 mph. in that section of Deming Road to determine a 500 ft. Intersection Sight Distance (ISD). For reference, ISD should be measured looking in each direction from a point 15 feet back from the curb and about 3 ½ feet high, to simulate a driver in a car exiting the proposed road or driveway. In this case, it is not possible to use 15 feet back from the roadway because the wood line will not permit it. The distances used by the study, and by me, are taken from only about 10 feet back. The posted speed limit is 40 mph. which calls for a more forgiving 445 ft. Using the design speed may be more realistic. Using either, I concur with the findings of the study which include a recommendation to trim vegetation along Rt. 160 to improve upon the 502' currently available to the east.

A 24-hour traffic study showing Average Daily Traffic in 2018 at approximately 9,200 vehicles per day is not significantly different than my own study in the area in 2019 which revealed approximately 9,700 ADT over a 5-day period.

The proposed plans appropriately indicate that a stop sign and stop bar will be placed at the exit from the development.

The only item of concern is the exact placement of the driveway to the development and the trimming of vegetation, as necessary, to achieve a desired 500' ISD to the east.

Cc: Sgt. AM Haas

7/30/20

Sub-catchment or Area 1A includes grass or landscaping, sidewalks, and paved areas associated with building units 1 and 2. Area 1B is a small sloped area adjacent to Detention Pond 1 and along Deming Road. Area 2A includes grass or landscaping, sidewalks, and paved areas associated with building units 3, 4, and 5. Area 3A includes grass or landscaping, sidewalks, and paved areas associated with building units 6 and 11. Area 3B is a small area of grass and woods from the eastern edge of proposed driveway extending down to and including Detention Pond 3. Sub-catchment Area 4A includes grass or landscaping, sidewalks, and paved areas associated with building units 7, 8, 9, and 10.

Additional detailed HydroCAD modeling parameters and input data for each major catchment or sub-catchment, including areas, ground covers or Curve Numbers (CN), slopes, etc. for the proposed conditions scenario can be reviewed within Appendix D.

Peak Runoff Rate (cfs)*

24-hour Rain Event (years)	**2**	**10**	**25**	**50**	**100**
Existing Conditions	1.45	5.44	9.98	14.07	18.96
Proposed Conditions	1.12	5.51	8.99	11.77	14.95

*cfs = cubic feet per second

Conclusion is inconsistent w/ these

The summary of results above shows that no increases in peak rates of runoff are anticipated for any of the modeled statistical rain events and summary design points. Rather than simply matching or equaling the rates of runoff for the proposed conditions, a decrease in peak rates of runoff or flow can be anticipated for all the modeled storm events. Therefore, the proposed stormwater management system as designed, will prevent increases in peak runoff rates from the developed site and minimizes impacts to the existing wetlands, drainage systems, and areas downstream of the site or project.

8.0 WATER QUALITY MANAGEMENT

As part of the overall stormwater management system design, water quality improvement measures or Best Management Practices (BMPs) are incorporated into the stormwater or drainage system. The treatment measures described in this section and included in the system configuration will help maintain water quality of the stormwater runoff from the proposed site. As such, the proposed stormwater management systems for this site have been designed utilizing Connecticut Best Management Practices (BMPs) to provide water quality management while attenuating peak flows for post-development condition or scenario.

The proposed detention basins were sized following recommendations set forth in the CTDEEP *2004 Stormwater Quality Manual*. The manual (Chapter 7) recommends methods for sizing stormwater treatment measures with the Water Quality Volume (WQV) computations. The WQV addresses the initial stormwater runoff, also commonly referred to as the "first flush" runoff. The WQV provides adequate volume to store the initial 1-inch of runoff which tends to contain the highest concentrations of potential pollutants. The WQV has been provided within the retention volume below the first outlet discharge from the outlet control structure.

July 16, 2020

PLANNING & ZONING DEPARTMENT
PROJECT REVIEW SHEET

APPLICATION: Site Plan/Special Permit
Eleven Residential Apartment Buildings (Total of 88 Units)

APPLICANT: The Metro Group

LOCATION: 0, 823 and 833 Deming Road

AGENDA DATE: August 6, 2020

NOTE: If possible, please return the plans with your comments. Thank you.

Department/District:

___ Town Planner
___ Assistant Town Planner/ZEO
___ Engineering
___ Kensington Fire District
___ Worthington Fire District
___ Board of Education
___ Conservation Commission
___ Building Official
___ Berlin Water Control
___ Health District
___ Fire Marshal
___ Board of Police Commissioners
___ Inland Wetlands
___ Police Chief

☐ No Comment

☒ Comments:

1. Need proposed fire hydrant layout
2. Interior roadway layout to meet specifications of ~~attached~~ fire apparatus turning radius requirements. (see Attached)

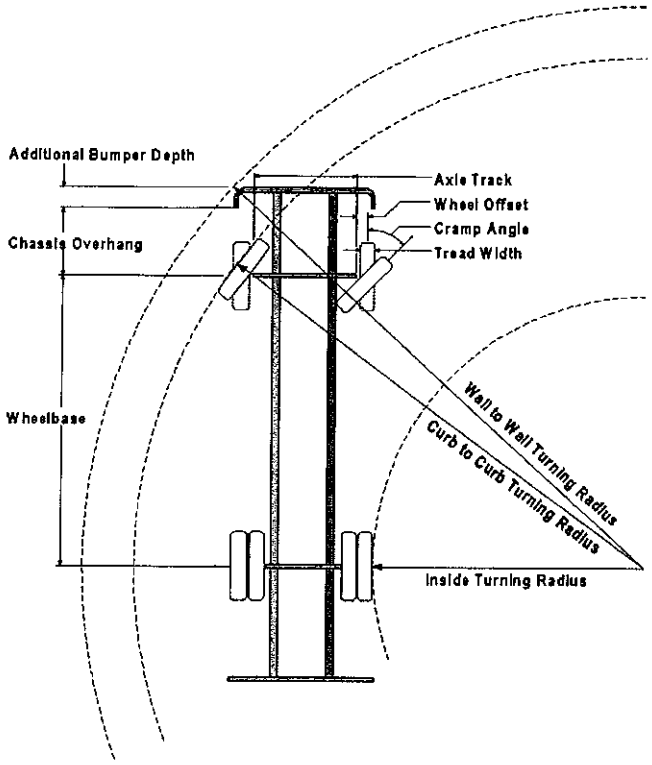
[signature] 8/4/2020
Signature/Date

Turning Performance Analysis

12/23/2018

Bid Number: 8
Department: Berlin

Chassis: Quantum Chassis, Aerials/Tankers Tandem, 2010
Body: Aerial, Platform, 95', Mid-Mount, Alum Body



Parameters:

*Inside Cramp Angle:	40°
Axle Track:	82.92 in.
Wheel Offset:	5.3 in.
Tread Width:	17.8 in.
Chassis Overhang:	82.44 in.
Additional Bumper Depth:	10 in.
Front Overhang:	92.44 in.
Wheelbase:	270.25 in.

Calculated Turning Radii:

Inside Turn:	25 ft. 7 in.
Curb to curb:	41 ft. 8 in.
Wall to wall:	46 ft. 1 in.

Comments:

KENSINGTON MIDMOUNT PLATFORM

Category	Option	Description
Axle, Front, Custom	0090913	Axle, Front, Oshkosh TAK-4, Non Drive, 24,000 lb, Qtm/AXT/DCF
Wheels, Front	0019618	Wheels, Front, Alcoa, 22.50" x 13.00", Aluminum, Hub Pilot
Tires, Front	0078245	Tires, Front, Michelin, XZY3 (wb), 445/65R22.50, 20 ply
Bumpers	0550053	Bumper, 10" Extended, Quantum
Aerial Devices	0592911	Aerial, 95' Pierce PAP, Mid Mount

Notes:

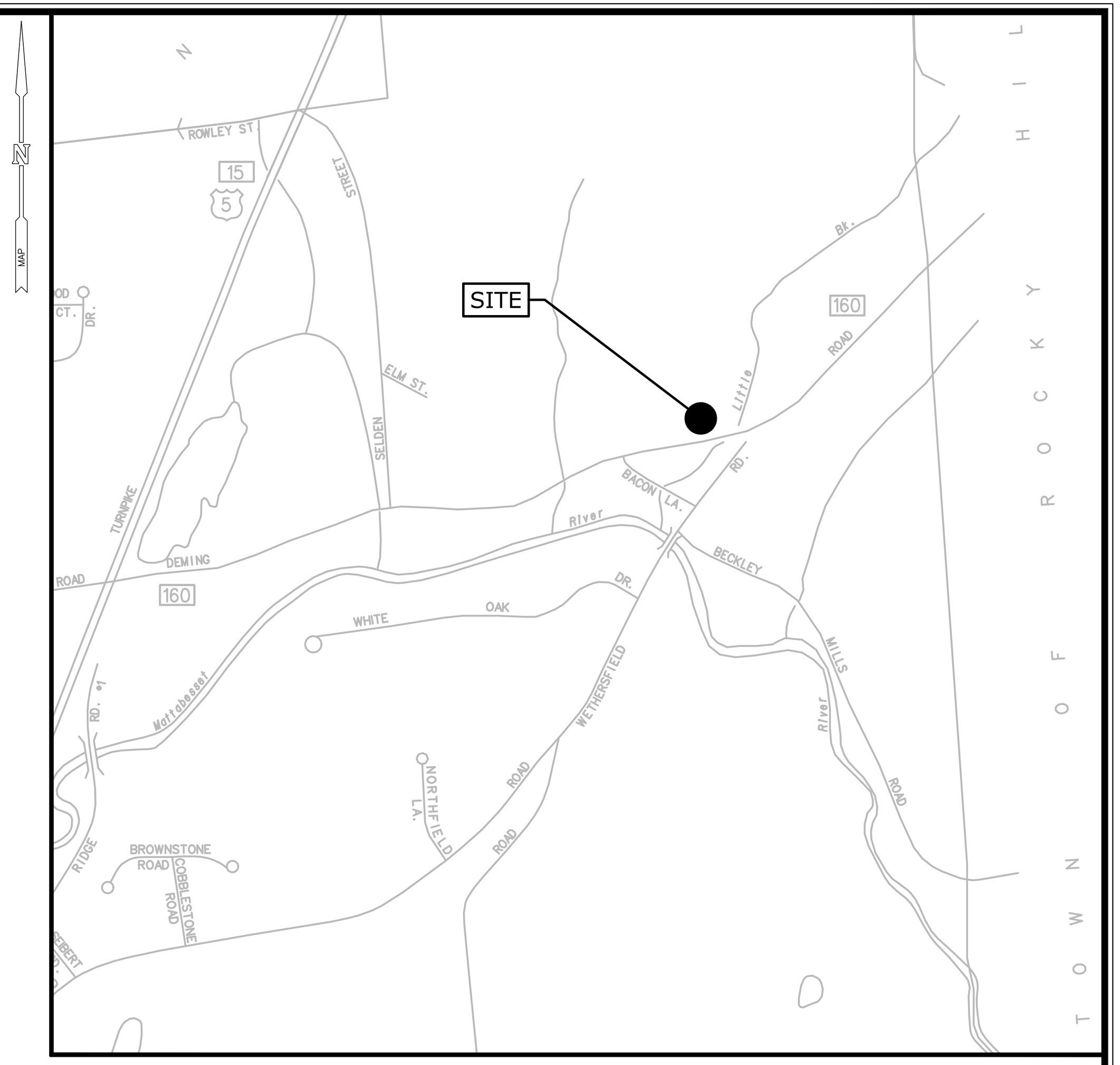
*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

MMI #3571-40
JUNE 22, 2020
REVISED: JULY 1, 2020 (PLANNING AND ZONING SUBMISSION)



LOCATION MAP:

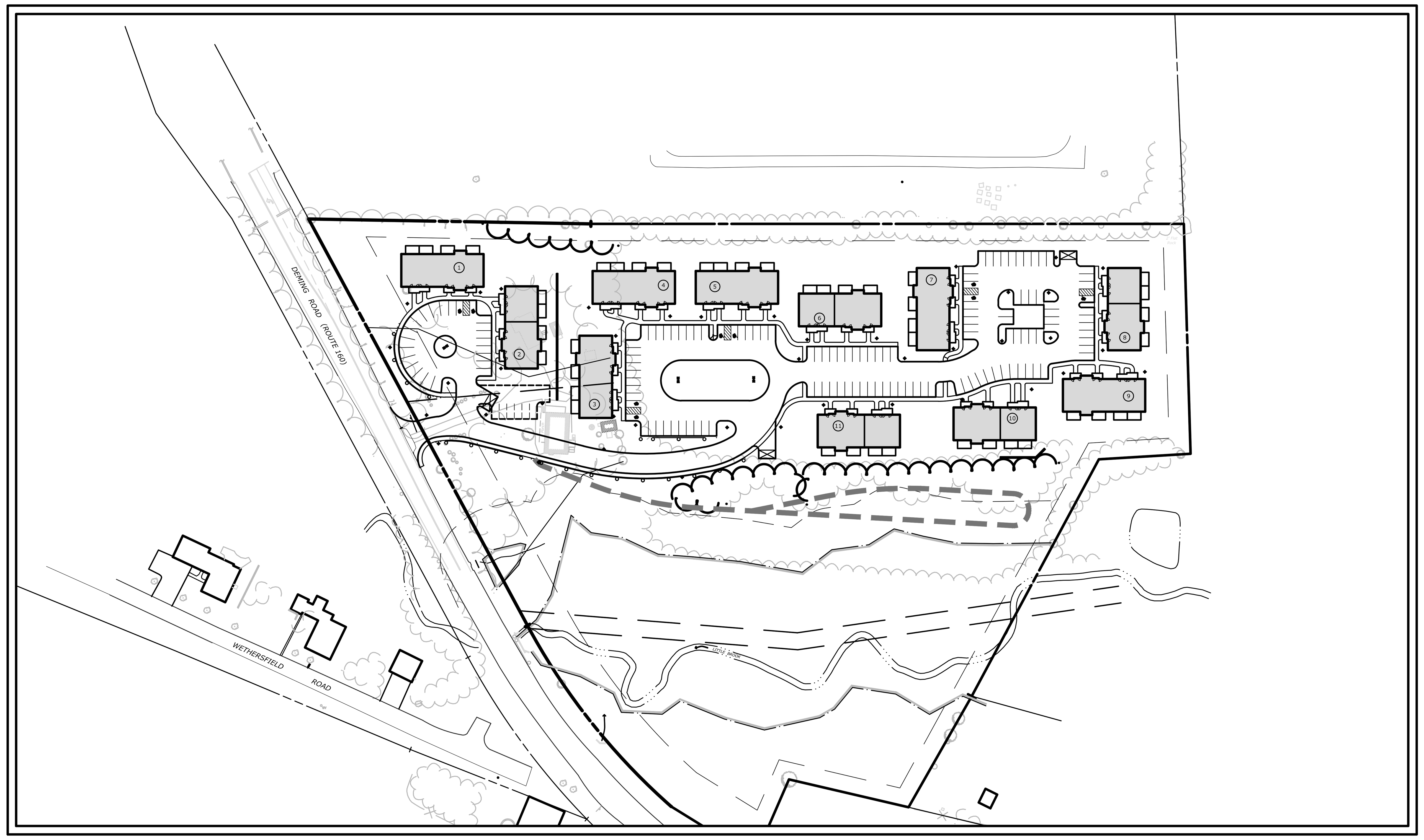
SCALE 1" = 1000'

GENERAL NOTES

1. BOUNDARY AND TOPOGRAPHIC INFORMATION IS BASED UPON FIELD SURVEY CONDUCTED BY: MILONE & MACBROOM, INC., TAKEN FROM A MAP ENTITLED "PROPERTY/TOPOGRAPHIC SURVEY, PREPARED FOR METRO REALTY GROUP, DEMING ROAD, BERLIN, CONNECTICUT," AT A SCALE OF 1"=40', DATED: JULY 9, 2019.
2. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
3. MILONE & MACBROOM, INC. ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA WHICH HAVE BEEN SUPPLIED BY OTHERS.
4. ALL UTILITY SERVICES ARE TO BE UNDERGROUND. THE EXACT LOCATION, MEANS OF CONSTRUCTION, AND SIZE OF ELECTRIC, TELEPHONE, AND CABLE TELEVISION ARE TO BE DETERMINED BY THE RESPECTIVE UTILITY COMPANIES.
5. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
6. SEDIMENT AND EROSION CONTROL MEASURES AS DEPICTED ON THESE PLANS AND DESCRIBED WITHIN THE SEDIMENT AND EROSION CONTROL NARRATIVE SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT COVER AND STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, CONNECTICUT - 2002". AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL
7. ALL DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 6" TOPSOIL, AND BE SEEDED WITH GRASS, AS SHOWN ON THE PLANS.
8. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATE FINISHED GRADE.
9. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE TOWN OF BERLIN REQUIREMENTS AND TO THE APPLICABLE SECTIONS OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817 AND ADDENDUMS.
10. THE PLANS REQUIRE A CONTRACTOR'S WORKING KNOWLEDGE OF LOCAL, MUNICIPAL, WATER AUTHORITY, AND STATE CODES FOR UTILITY SYSTEMS. ANY CONFLICTS BETWEEN MATERIALS AND LOCATIONS SHOWN, AND LOCAL REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE EXECUTION OF WORK. THE ENGINEER WILL NOT BE HELD LIABLE FOR COSTS INCURRED TO IMPLEMENT OR CORRECT WORK WHICH DOES NOT CONFORM TO LOCAL CODE.
11. ALL FUEL, OIL, PAINT, OR OTHER HAZARDOUS MATERIALS USED DURING CONSTRUCTION SHOULD BE STORED IN A SECONDARY CONTAINER AND REMOVED TO A LOCKED INDOOR AREA WITH AN IMPERVIOUS FLOOR DURING NON-WORK HOURS.
12. COMPLIANCE WITH THE PERMIT CONDITIONS IS THE RESPONSIBILITY OF BOTH THE CONTRACTOR AND THE PERMITTEE.

LEGEND

EXISTING / PROPOSED
STREET LINE
PROPERTY LINE
SETBACK LINE
MAJOR CONTOUR
MINOR CONTOUR
SPOT GRADE
TREE LINE
TREE/ SHRUB
STONEWALL
SITE LIGHT
HYDRANT
WATER VALVE
GAS VALVE
CATCH BASIN
MANHOLE/YARD DRAIN
SANITARY SEWER W/MANHOLE
STORM DRAIN
WATER MAIN
GAS MAIN
ELECTRIC LINE
ELECTRIC, TELEPHONE, CABLE
UTILITY POLE
TRAFFIC SIGN
IRON PIPE
MONUMENT
EDGE OF PAVEMENT W/CURB
GUARD RAIL
CHAIN LINK FENCE
WATERCOURSE
WETLAND



PROJECT SITE VICINITY MAP:

SCALE 1" = 100'

ZONING DATA TABLE

WORKFORCE HOUSING DEVELOPMENT

	REQUIRED	PROPOSED
LOT AREA*	11-13 ACRES	11.48 ACRES
FRONTAGE*	900 FEET MIN.	940 FEET
FRONT YARD	50 FEET MIN.	58 FEET
SIDE YARD	20 FEET MIN.	34 FEET
REAR YARD	25 FEET MIN.	50 FEET
PARKING FRONT YARD*	15 FEET MIN.	16 FEET
PARKING SIDE YARD*	20 FEET MIN.	32 FEET
PARKING REAR YARD	15 FEET MIN.	107 FEET
BUILDING HEIGHT	35 FEET (2 STORIES) MAX.	2 STORIES
UNIT DENSITY*	8 UNITS/ACRE MAX.	7.7 UNITS/ACRE
BUILDING SEPARATION*	20 FEET MIN.	24 FEET
BUILDING COVERAGE	25% MAX.	9%
IMPERVIOUS SITE COVERAGE (%)	60% MAX.	29%
BUILDING SETBACK FROM INTERNAL ROADS	10 FEET MIN.	12 FEET
INTERIOR ROAD WIDTH	24 FEET MIN.	24 FEET
RECREATION AREA	10,000 SQUARE FEET	11,380 SQUARE FEET

*PER PROPOSED TEXT AMENDMENT

PARKING DATA

	REQUIRED	PROPOSED
STANDARD SPACES		137
HANDICAP/ VAN ACCESSIBLE PARKING SPACES	9	9
TOTAL PARKING SPACES	132**	146

**88 UNITS X 1.5 SPACES/UNIT=132 SPACES

PREPARED BY:

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

PREPARED FOR:

METRO REALTY
6 EXECUTIVE DRIVE, SUITE 100
FARMINGTON, CT 06032

811
Know what's below.
Call before you dig.
www.cbyd.com

LIST OF DRAWINGS

SHEET NAME	EX
SHEET NO.	02 OF 10
PROJECT NO.	3571-40
DATE	JUNE 22, 2020
SCALE	1"=40'
DESIGNED	AWG
DRAWN	AWG
CHECKED	TD

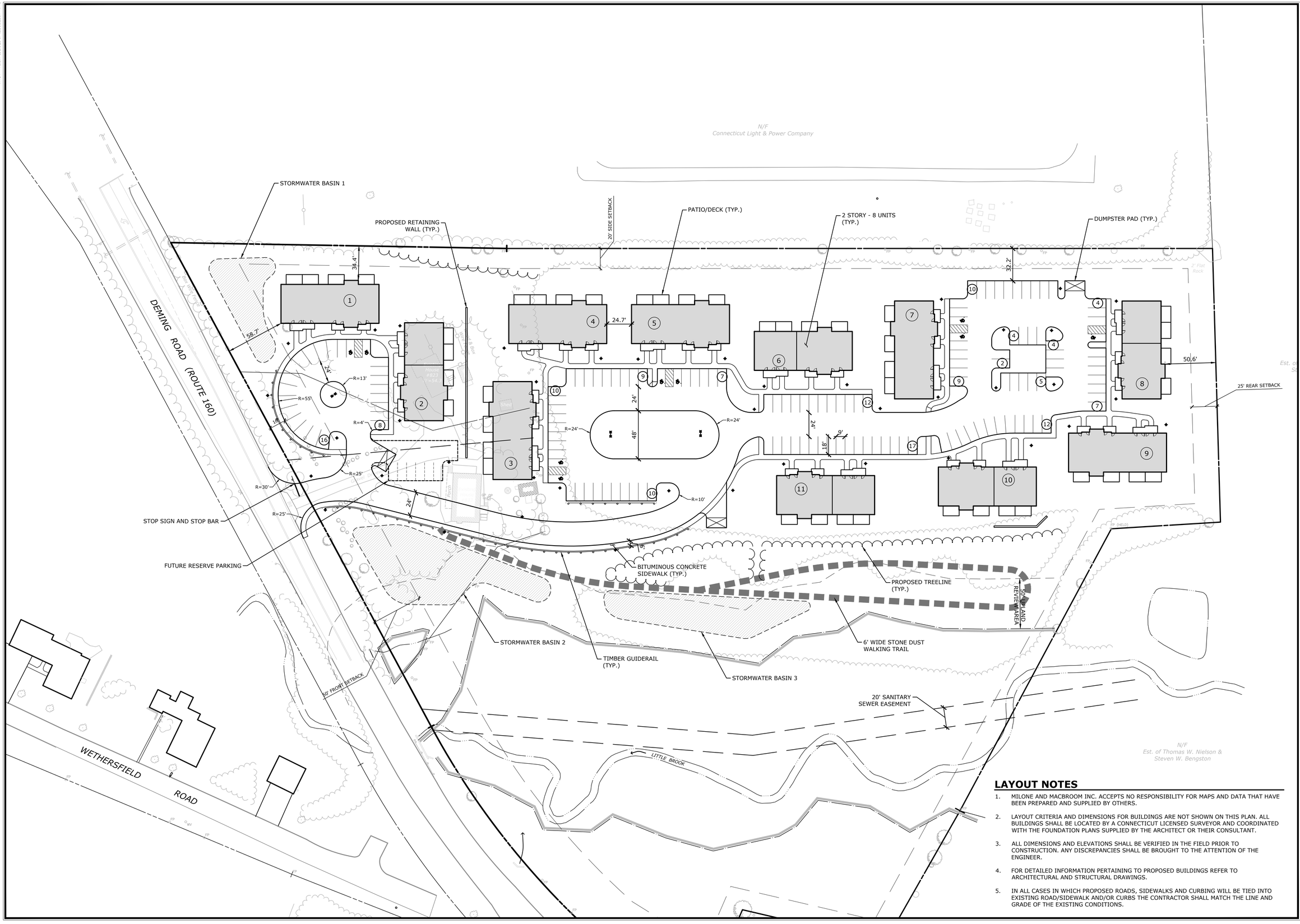
EXISTING CONDITIONS

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/01/2020	AWG

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM



LAYOUT NOTES

1. MILONE AND MACBROOM INC. ACCEPTS NO RESPONSIBILITY FOR MAPS AND DATA THAT HAVE BEEN PREPARED AND SUPPLIED BY OTHERS.
2. LAYOUT CRITERIA AND DIMENSIONS FOR BUILDINGS ARE NOT SHOWN ON THIS PLAN. ALL BUILDINGS SHALL BE LOCATED BY A CONNECTICUT LICENSED SURVEYOR AND COORDINATED WITH THE FOUNDATION PLANS SUPPLIED BY THE ARCHITECT OR THEIR CONSULTANT.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. FOR DETAILED INFORMATION PERTAINING TO PROPOSED BUILDINGS REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS.
5. IN ALL CASES IN WHICH PROPOSED ROADS, SIDEWALKS AND CURBING WILL BE TIED INTO EXISTING ROAD/SIDEWALK AND/OR CURBS THE CONTRACTOR SHALL MATCH THE LINE AND GRADE OF THE EXISTING CONDITIONS.

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/01/2020	AWG

SITE PLAN - LAYOUT

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

AWG	AWG	TD
DESIGNED	DRAWN	CHECKED

1"=40'
SCALE

JUNE 22, 2020
DATE

3571-40
PROJECT NO.

03 OF 10
SHEET NO.

LA
SHEET NAME

STORM WATER MAINTENANCE PROGRAM

UPON SITE DEVELOPMENT, THERE WILL BE A NEED TO PERIODICALLY MAINTAIN STORMWATER SYSTEMS ON THE PROPERTY. THE STORMWATER SYSTEM CONSISTS OF PIPING AND CATCH BASINS.

IN ORDER TO ENSURE OPTIMAL PERFORMANCE OF THE SYSTEM, THE FOLLOWING STORMWATER MAINTENANCE PROGRAM HAS BEEN ESTABLISHED. THE PROPERTY OWNER WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THIS PROGRAM. A LOG OF ALL INSPECTIONS, CLEANING AND REPAIRS SHALL BE MAINTAINED BY THE PROPERTY OWNER AND BE AVAILABLE FOR REVIEW.

A. CATCH BASINS/YARD DRAINS

CATCH BASINS ARE DESIGNED WITH 4-FOOT MINIMUM DEPTH SUMPS FOR THE PURPOSE OF COLLECTING COARSE SEDIMENT. ALL CATCH BASINS SHOULD BE INSPECTED TWO TIMES PER YEAR, TYPICALLY WHEN THE SITE IS SWEPT IN THE SPRING AFTER WINTER SANDING AND IN THE FALL AFTER ALL THE LEAVES HAVE FALLEN. SITE SWEEPING SHALL BE PROVIDED BETWEEN APRIL 15 AND MAY 15 EACH SPRING.

SEDIMENT SHOULD BE REMOVED WHEN IT EXTENDS TO WITHIN 6 INCHES OF THE OUTLET PIPE INVERT OR NOT LESS THAN ONCE PER YEAR. CLEANOUT WITH A VACUUM TRUCK IS GENERALLY THE BEST AND MOST CONVENIENT METHOD. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF-SITE LOCATION IN ACCORDANCE WITH TOWN AND STATE REQUIREMENTS.

B. PAVEMENT SWEEPING

THE PARKING AREA AND ROADWAY SHALL BE SWEPT ANNUALLY. SWEEPING SHOULD OCCUR IN THE SPRING AFTER WINTER SANDING, BETWEEN APRIL 15 AND MAY 15. SALT ALTERNATIVES SHALL BE USED DURING WINTER MONTHS FOR DEICING.

C. STORMWATER BASINS

INSPECTIONS: BASINS SHOULD BE INSPECTED TWICE PER YEAR(SPRING AND FALL) TO ENSURE THAT THE STRUCTURE OPERATES IN THE MANNER ORIGINALLY INTENDED. WHEN POSSIBLE, INSPECTIONS SHOULD BE CONDUCTED DURING WET WEATHER TO DETERMINE IF THE BASIN IS MEETING THE TARGETED DETENTION TIMES PER APPROVED DESIGN. IN PARTICULAR, THE OUTLET CONTROL DEVICE SHOULD BE REGULARLY INSPECTED FOR EVIDENCE OF CLOGGING OR, CONVERSELY, FOR TOO RAPID A RELEASE, AND THE FLOW PATH SHOULD BE CHECKED FOR EROSION PROBLEMS. OTHER PROBLEMS THAT SHOULD BE CHECKED FOR INCLUDE SUBSIDENCE, OUTLET WATER TURBIDITY, BANK/BED/OUTLET EROSION, CRACKING, OR TREE GROWTH ON THE EMBANKMENT; THE ACCUMULATION OF SEDIMENT AROUND THE OUTLET; THE ADEQUACY OF UPSTREAM/DOWNSTREAM CHANNEL EROSION CONTROL MEASURES; AND MODIFICATIONS TO THE BASIN OR ITS CONTRIBUTING WATERSHED THAT MAY INFLUENCE BASIN PERFORMANCE. INSPECTIONS SHOULD BE CARRIED OUT WITH DESIGN PLANS IN HAND.

DEBRIS AND LITTER REMOVAL: DEBRIS AND LITTER WILL ACCUMULATE NEAR THE OUTLET CONTROL DEVICE AND SHOULD BE REMOVED DURING REGULAR INSPECTION AND/OR MOWING OPERATIONS. PARTICULAR ATTENTION SHOULD BE PAID TO FLOATABLE DEBRIS THAT COULD EVENTUALLY CLOG THE CONTROL DEVICE OR RISER.

1) SEDIMENT REMOVAL: WHEN PROPERLY DESIGNED, DETENTION/WATER QUALITY BASINS WILL ACCUMULATE SEDIMENT OVER TIME. HOWEVER, MOST OF THE SEDIMENT WILL BE TRAPPED IN THE SEDIMENT CHAMBERS AND CATCH BASIN SUMP UNITS BEFORE REACHING THE BASIN. THE REMAINDER WILL ACCUMULATE IN THE STORMWATER POND. ACCUMULATED SEDIMENT MUST BE REMOVED FROM THE BASIN EVERY 5 YEARS AFTER ONE HALF(12"±) OF THE SEDIMENT STORAGE CAPACITY IN THE FOREBAY HAS BEEN FILLED, AFTER 4 INCHES OF SEDIMENT HAS ACCUMULATED IN THE MAIN PORTION OF THE BASIN, OR WHEN SIGNIFICANT ALGAL GROWTH IS OBSERVED. A PERMANENT MEASURING DEVICE SHALL BE INSTALLED IN THE MIDDLE OF EACH FOREBAY AND IN THE MAIN PORTION OF THE BASIN. THE MARKER SHALL DELINEATE INCHES UP FROM THE BOTTOM OF THE BASIN SO THE DEPTH OF SEDIMENT CAN EASILY BE MEASURED. MORE FREQUENT SPOT CLEANOUTS MAY BE NEEDED AROUND THE OUTLET CONTROL DEVICE OR THE SEDIMENT FOREBAY. SEDIMENT REMOVAL OPERATIONS ARE RELATIVELY SIMPLE. FRONT-END LOADERS, BACKHOES, OR VACUUM TRUCKS CAN BE USED TO REMOVE THE ACCUMULATED SEDIMENT FOLLOWED BY MANUAL REMOVAL OF SEDIMENT DEPOSITED AROUND THE OUTLET CONTROL DEVICE. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF-SITE LOCATION IN ACCORDANCE WITH TOWN AND STATE REQUIREMENTS. THE DISTURBED AREA SHOULD BE IMMEDIATELY SEEDED WITH APPROPRIATE GRASS SEED AND MULCHED WITH HAY AFTER REMOVAL OPERATIONS ARE COMPLETED TO PREVENT THE OUTLET CONTROL DEVICE FROM CLOGGING.

D. PROPRIETARY HYDRODYNAMIC SEPARATOR

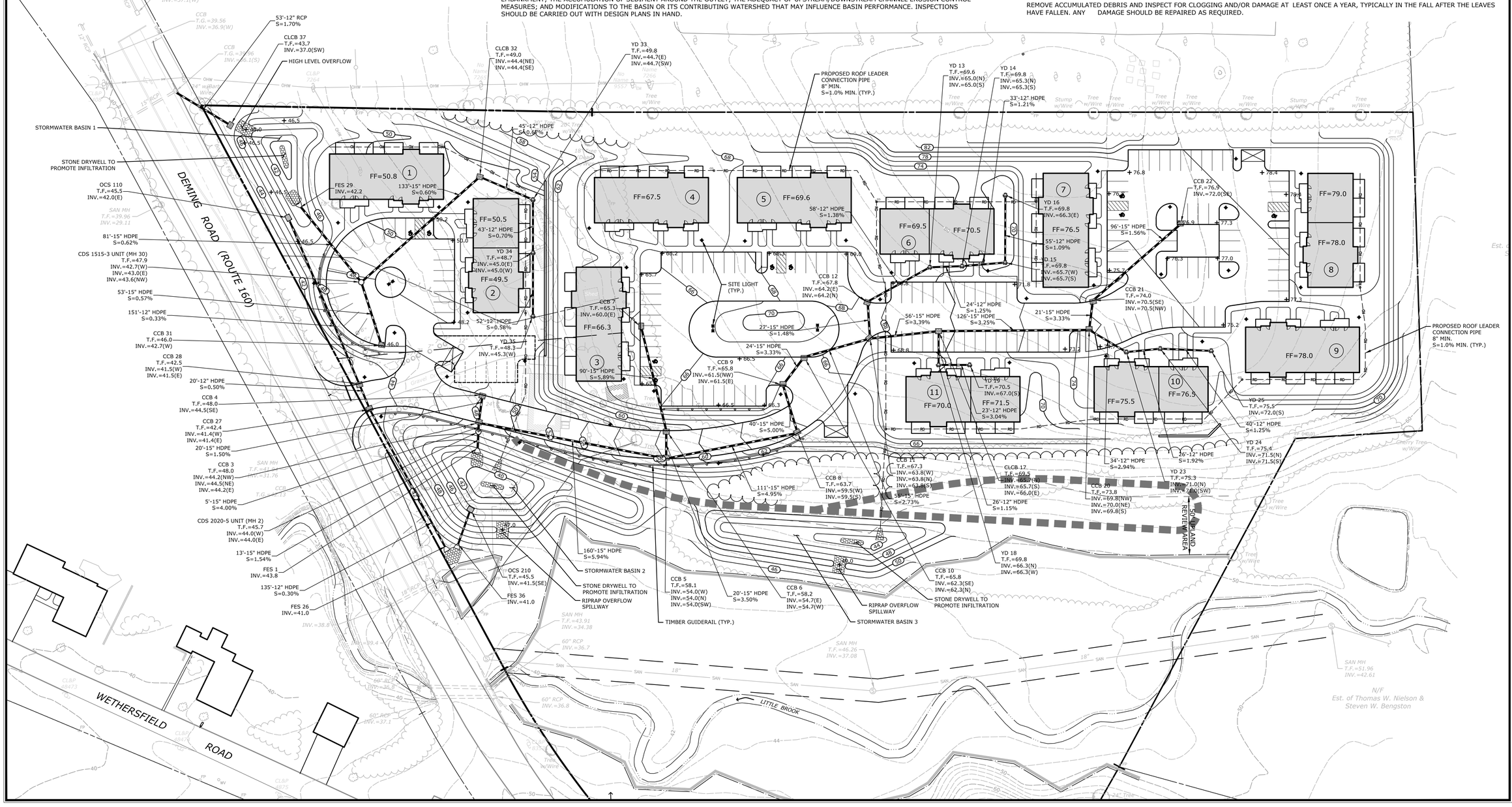
BEFORE BEING DISCHARGED TO THE UNDERGROUND GALLERIES, STORMWATER RUNOFF FROM THE ROADWAY AND BUILDING WILL BE DIRECTED TO A HYDRODYNAMIC SEPARATOR. THIS STRUCTURE WILL REMOVE SUSPENDED SOLIDS, DEBRIS AND FLOATABLES CONSTITUENTS FROM STORMWATER. OIL, SCUM, AND SEDIMENT WILL EVENTUALLY ACCUMULATE AND CAN BE REMOVED THROUGH A MANHOLE LOCATED AT THE TOP OF THE SEPARATOR. THIS STRUCTURE WILL BE MAINTAINED YEARLY, OR MORE FREQUENTLY AS REQUIRED. THE UNIT SHOULD BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. WASTE MATERIAL WILL BE PROPERLY DISPOSED OF OFF THE SITE.

E. LAWN AND VEGETATED AREAS

VEGETATED COVER SHALL BE MAINTAINED ON ALL EARTH SURFACES TO MINIMIZE SOIL EROSION. USE IF FERTILIZER SHOULD BE MINIMIZED AND APPLIED USING PRUDENT APPLICATION PROCESSES.

F. ROOF GUTTERS

REMOVE ACCUMULATED DEBRIS AND INSPECT FOR CLOGGING AND/OR DAMAGE AT LEAST ONCE A YEAR, TYPICALLY IN THE FALL AFTER THE LEAVES HAVE FALLEN. ANY DAMAGE SHOULD BE REPAIRED AS REQUIRED.



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DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/07/2020	AWG

SITE PLAN - GRADING AND UTILITIES

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

DESIGNED	DRAWN	CHECKED
AWG	AWG	TD

SCALE	1"=40'
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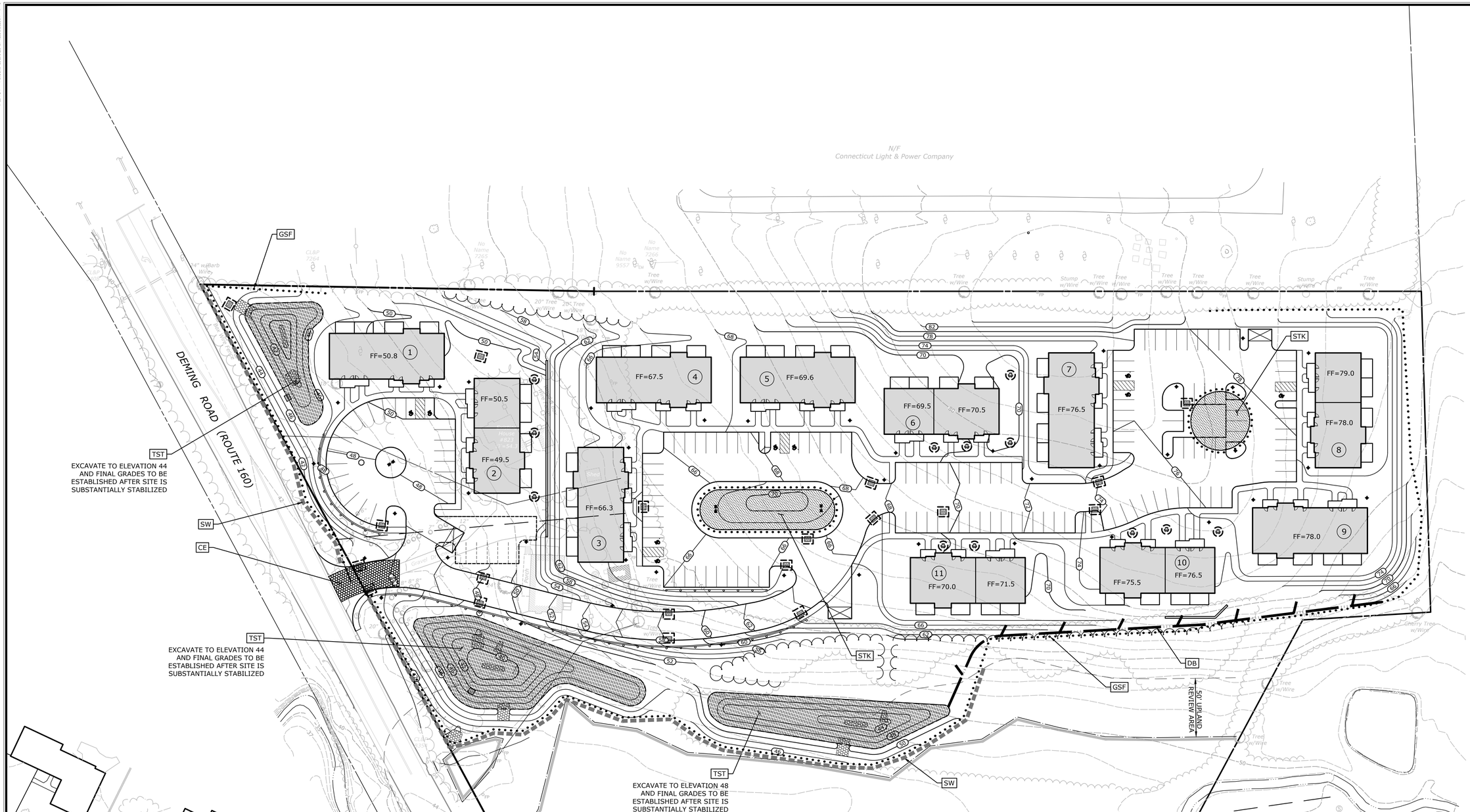

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

SEDIMENT AND EROSION CONTROL MEASURES AS DEPICTED ON THESE PLANS AND DESCRIBED WITHIN THE SEDIMENT AND EROSION CONTROL NARRATIVE SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT COVER AND STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, CONNECTICUT - 2002, TOWN OF BERLIN STANDARDS, AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL.

1.PURPOSE AND DESCRIPTION OF PROJECT
A.) CONSTRUCTION OF A MULTI-FAMILY DEVELOPMENT.
B.) DISTURBED AREA: ±6.9 AC.

2.IDENTIFICATION OF EROSION AND SEDIMENT CONTROL CONCERNS
A.) CUTS AND FILLS ASSOCIATED WITH CONSTRUCTION.
B.) PROTECTION OF ONSITE WETLANDS.

3.IDENTIFICATION OF OTHER POSSIBLE PERMITS
THE PERMITS REQUIRED FOR THE PROJECT ARE LOCAL INLAND WETLANDS, AND PLANNING AND ZONING PERMITS, AND DEPARTMENT OF ENVIRONMENTAL PROTECTION STORMWATER GENERAL PERMIT.

EROSION CONTROL NOTES
CONTRACTOR RESPONSIBILITIES

1. SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCH OR GREATER. A LOG OF SUCH INSPECTIONS SHALL BE MAINTAINED AT THE SITE.
2. THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MODIFIED BY THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER AND THE TOWN'S DESIGNATED REPRESENTATIVE AS NECESSITATED BY CHANGING SITE CONDITIONS
3. INSPECTION OF THE SITE FOR EROSION SHALL CONTINUE FOR A PERIOD OF THREE MONTHS AFTER COMPLETION WHEN RAINFALLS OF ONE INCH OR MORE OCCUR.
4. ALL DEWATERING WASTE WATERS SHALL BE DISCHARGED IN A MANNER WHICH MINIMIZES THE DISCOLORATION OF THE RECEIVING WATERS.
5. THE SITE SHOULD BE KEPT CLEAN OF LOOSE DEBRIS, LITTER, AND BUILDING MATERIALS SUCH THAT NONE OF THE ABOVE ENTER WATERS OR WETLANDS.
6. A COPY OF ALL PLANS AND REVISIONS, AND THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MAINTAINED ON-SITE AT ALL TIMES DURING CONSTRUCTION.
7. ALL CATCH BASIN SUMPS SHOULD BE INSPECTED AFTER CONSTRUCTION COMPLETION AND SEDIMENT REMOVED. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED LOCATION.

EROSION CONTROL LEGEND

- CE — CONSTRUCTION ENTRANCE
- IP — INLET PROTECTION (TYP. OF ALL INLETS)
- GSF — SEDIMENT FILTER FENCE
- SW — STRAW WATTLES
- STK — TEMPORARY SOIL STOCKPILE AREA SURROUNDED WITH SEDIMENT FILTER FENCE
- DB — TEMPORARY DIVERSION BERM WITH STONE CHECK DAMS 75' O.C.
- TST — TEMPORARY SEDIMENT TRAP

TURTLE MANAGEMENT PLAN

EASTERN BOX TURTLE: EASTERN BOX TURTLES INHABIT OLD FIELDS AND DECIDUOUS FORESTS, WHICH CAN INCLUDE POWER LINES AND LOGGED WOODLANDS. THEY ARE OFTEN FOUND NEAR SMALL STREAMS AND PONDS. SOME TURTLES MAY BE KILLED DIRECTLY BY CONSTRUCTION ACTIVITIES, BUT MANY MORE ARE LOST WHEN IMPORTANT HABITAT AREAS FOR SHELTER, FEEDING, HIBERNATION, OR NESTING ARE DESTROYED.

RECOMMENDED PROTECTION STRATEGIES FOR TURTLES

- HIRE A HERPETOLOGIST TO ENSURE PROTECTION GUIDELINES REMAIN IN EFFECT THROUGH CONSTRUCTION.
- WORK SHOULD NORMALLY OCCUR WHEN TURTLES ARE ACTIVE (APRIL 1ST TO OCTOBER 30TH).
- WORKERS WILL BE APPRISED OF THE POSSIBLE PRESENCE OF TURTLES, AND WILL BE PROVIDED WITH A DESCRIPTION OF THE EASTERN BOX TURTLE.
- UTILIZE EXCLUSIONARY FENCING TO PREVENT TURTLE ACCESS INTO CONSTRUCTION AREAS.
- EXCLUSIONARY FENCING MUST BE AT LEAST 20 INCHES TALL AND BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND AND BE REGULARLY MAINTAINED (A MINIMUM OF BI-WEEKLY OR AFTER MAJOR WEATHER EVENTS). NO PLASTIC OR NETTED FENCING ARE TO BE USED.
- AFTER EXCLUSIONARY FENCING IS INSTALLED AND PRIOR TO CONSTRUCTION, THE HERPETOLOGIST WILL INSPECT THE ENCLOSED WORK AREA FOR TURTLES AND OTHER WILDLIFE.
- ONCE CONSTRUCTION IS UNDERWAY, THE CONTRACTOR WILL SEARCH THE WORK AREA EACH MORNING PRIOR TO BEGINNING WORK.
- ANY TURTLE THAT IS DISCOVERED DURING SWEEPS OR DURING CONSTRUCTION WILL BE MOVED, UNHARMED, TO AN AREA IMMEDIATELY OUTSIDE OF THE FENCED AREA, AND POSITIONED IN THE SAME DIRECTION THAT IT WAS TRAVELING. EXCLUSIONARY FENCING WILL BE INSPECTED TO DETERMINE HOW THE TURTLE MAY HAVE ENTERED THE WORK AREA.
- ALL STAGING AND STORAGE AREAS, OUTSIDE OF PREVIOUSLY PAVED AREAS, MUST BE ROUTINELY INSPECTED TO REMOVE INDIVIDUALS AND EXCLUDE THEM FROM RE-ENTRY.
- ANY CONFIRMED SIGHTINGS OF BOX, WOOD, OR SPOTTED TURTLES WILL BE REPORTED AND DOCUMENTED WITH NDDB.
- ALL EXCLUSIONARY FENCING WILL BE REMOVED AFTER WORK IS COMPLETED AND SOILS ARE STABLE SO THAT REPTILE AND AMPHIBIAN MOVEMENT BETWEEN UPLANDS AND WETLANDS IS NOT RESTRICTED.
- ENCROACHMENTS BEYOND PERMITTED LIMIT OF DISTURBANCE ARE PROHIBITED.

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SEDIMENT AND EROSION CONTROL PLAN

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

AWG	AWG	TD
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SHEET NO.: 05 OF 10
SHEET NAME: SE-1

SEDIMENT AND EROSION CONTROL SPECIFICATIONS

GENERAL:

THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT. IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

LAND GRADING

GENERAL:

1. THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
   a. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
   b. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
   c. THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO FOUR VERTICAL (1:4).
   d. PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
   e. EXCAVATIONS SHOULD NOT BE MADE SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTY WITHOUT PROTECTING SUCH PROPERTY FROM EROSION, SLIDING, SETTLING, OR CRACKING.
   f. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE PREMISES OF ANOTHER OWNER OR UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.
   g. PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOILING

GENERAL:

1. TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.
2. UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.
3. REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.
4. APPLY SOIL AMENDMENTS AS FOLLOWS:
   LIME: ACCORDING TO SOIL TEST OR AT THE RATE OF 2 TONS PER ACRE.

   ROCK DUST: ACCORDING TO SOIL TEST OR AT THE RATE OF 2 TONS PER ACRE

MATERIAL:

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.
2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.
3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF LARGE STONES , LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF ROOTS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.
4. AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL.
5. SOLUBLE SALT CONTENT OF LESS THAN 400 PPM IS REQUIRED.
6. THE TOPSOIL SHALL BE WARRANTED BY SELLER TO BE FREE OF DETECTABLE RESIDUES OF CHEMICAL PESTICIDES, HERBICIDES, PETROLEUM PRODUCTS, OR OTHER UNSUITABLE TOXINS.

APPLICATION:

1. AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.
2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST FOUR INCHES (4"), OR TO THE DEPTH SHOWN ON THE LANDSCAPING PLANS.

TEMPORARY VEGETATIVE COVER

TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEEDED BY SEPTEMBER 1.

GENERAL:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. APPLY SOIL AMENDMENTS AS FOLLOWS:
   LIME: ACCORDING TO SOIL TEST OR AT THE RATE OF 1 TONS PER ACRE.
   ROCK DUST: ACCORDING TO SOIL TEST OR AT THE RATE OF 1 TONS PER ACRE
4. UNLESS HYDROSEEDED, WORK IN LIME TO A DEPTH OF 4 INCHES WITH A DISK OR ANY SUITABLE EQUIPMENT. DO NOT WORK FINISHED COMPOST INTO THE SOIL - APPLY IT EVENLY TO SOIL SURFACE AS A SEED BED.
5. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

SITE PREPARATION:

1. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING)
2. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
3. UNLESS HYDROSEEDED, COVER RYEGRASS SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
4. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW.) APPLY STRAW AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE NEEDED.

PERMANENT VEGETATIVE COVER

GENERAL:

PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.
4. APPLY TOPSOIL AS INDICATED ELSEWHERE HEREIN.
5. APPLY SOIL AMENDMENTS AS FOLLOWS:
   LIME: ACCORDING TO SOIL TEST OR AT THE RATE OF 1 TONS PER ACRE.
   ROCK DUST: ACCORDING TO SOIL TEST OR AT THE RATE OF 1 TONS PER ACRE
6. UNLESS HYDROSEEDED, WORK IN LIME TO A DEPTH OF 4 INCHES WITH A DISK OR ANY SUITABLE EQUIPMENT. DO NOT WORK FINISHED COMPOST

VEGETATED COVER SELECTION AND MULCHING

TEMPORARY VEGETATIVE COVER:

PERENNIAL RYEGRASS 5 LBS./1,000 SQ.FT. (LOLIUM PERENNE)
DUTCH WHITE CLOVER (TRIFOLIUM REPENS) 1/4 LBS PER 1000 SF. OR 6LBS/AC.

* PERMANENT VEGETATIVE COVER:

DUTCH WHITE CLOVER 30%
BARON KENTUCKY BLUEGRASS 30%
JAMESTOWN II CHEWINGS FESCUE 20%
PALMER PERENNIAL RYEGRASS 20%

NEW ENGLAND EROSION CONTROL/R3ESOTRATION MIX FOR MOIST SITES AT 1/8 LB PER 1000 S.F. FOR 5 LBS/AC.

NEW ENGLAND SHOWY WILD FLOW MIX AT 1/16 LB PER 1000 S.F. OR 2 LBS/AC

* LOFTS - "TRIPLEX GENERAL" MIX OR APPROVED EQUAL. RECOMMENDED RATE/TIME SEEDING.
SPRING SEEDING: 4/1 to 5/31
FALL SEEDING: 8/16 to 10/15

TEMPORARY MULCHING:

STRAY 70-90 LBS./1,000 SQ.FT. (TEMPORARY VEGETATIVE AREAS) WOOD FIBER IN HYDROMULCH SLURRY 25-50 LBS./1,000 SQ. FT.

ESTABLISHMENT:
1. SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).
2. SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).
3. APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
4. COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).
5. MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).
6. USE PROPER INOCULAT ON ALL LEGUME SEEDLINGS, USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.
7. USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

MAINTENANCE:

1. TEST FOR SOIL ACIDITY EVERY THREE (3) YEARS AND LIME AS REQUIRED.

EROSION CHECKS

GENERAL:

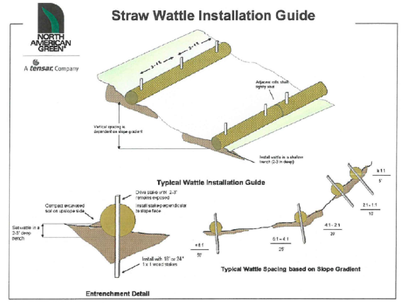
1. TEMPORARY PERVIOUS BARRIERS USING BALES OF HAY OR STRAW, HELD IN PLACE WITH STAKES DRIVEN THROUGH THE BALES AND INTO THE GROUND OR GEOTEXTILE FABRIC FASTENED TO A FENCE POST AND BURIED INTO THE GROUND, SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

CONSTRUCTION:

1. BALES SHOULD BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED INTO THE SOIL A MINIMUM OF FOUR (4") INCHES.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY WOOD STAKES OR REINFORCEMENT BARS DRIVEN THROUGH THE BALES AND INTO THE GROUND. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. GEOTEXTILE FABRIC SHALL BE SECURELY ANCHORED AT THE TOP OF A THREE FOOT (3') HIGH FENCE AND BURIED A MINIMUM OF FOUR INCHES (4") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF TWO FEET (2').

INSTALLATION AND MAINTENANCE:

1. BALED HAY EROSION BARRIERS SHALL BE INSTALLED AT ALL STORM SEWER INLETS.
2. BALED HAY EROSION BARRIERS AND GEOTEXTILE FENCE SHALL BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN AND IN ADDITIONAL AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.
3. ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
4. INSPECTION SHALL BE FREQUENT (AT MINIMUM MONTHLY AND BEFORE AND AFTER HEAVY RAIN) AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.



1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP-SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18-24" (457-61 CM) STAKES EVERY 3-4' (0.9 - 1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO SLOPE FACE.

North American Green Straw Wattles are a Best Management Practice (BMP) that offers an effective and economical alternative to silt fence and straw bales for sediment control and storm water runoff.

Guidelines are provided to assist in design, installation, and structure spacing. The guidelines may require modification due to variation in soil type, rainfall intensity or duration, and amount of runoff affecting the application site.

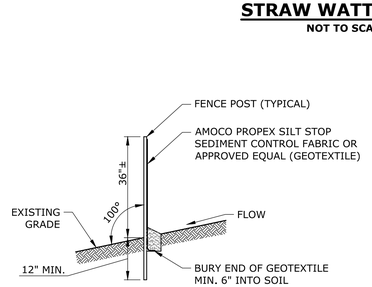
To maximize sediment containment with the Straw Wattle, place the initial structure at the toe/crest of the slope at significant runoff is expected from above. If no runoff from above is expected, the initial Straw Wattle can be installed at the appropriate distance downhill from the toe/crest of the slope. The final structure should be installed at or just beyond the bottom/toe of the slope. Wattles should be installed perpendicular to the primary direction of overland flow.

Straw Wattles are a temporary sediment control device and are not intended to replace most erosion control products (RECPs) or hydraulic erosion control products (HECPs). If vegetation is desired for permanent erosion control, North American Green recommends that RECPs or HECPs be used to provide effective immediate erosion control until vegetation is established. Straw Wattles may be used in conjunction with blankets, mats, and mulches as supplemental sediment and runoff control for these applications. Like all sediment control devices, the effectiveness of the Straw Wattle is dependent on storage capacity.

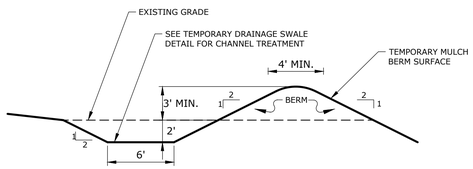
For additional installation assistance, please contact North American Green's Technical Services Department at 1-800-772-2040

14649 Highway 41 North, Evansville, Indiana 47725
1-800-772-2040 www.nagreen.com Rev. 1/2008

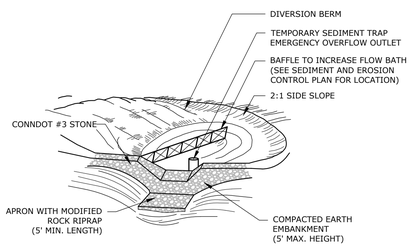
STRAW WATTLE (SW)
NOT TO SCALE



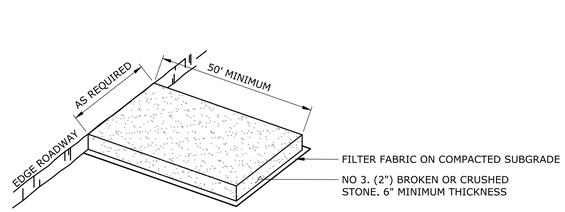
SEDIMENT FILTER FENCE
NOT TO SCALE



TEMPORARY DIVERSION BERM/SWALE (DB)
NOT TO SCALE



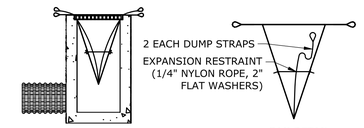
TEMPORARY SEDIMENT TRAP (TST)
NOT TO SCALE

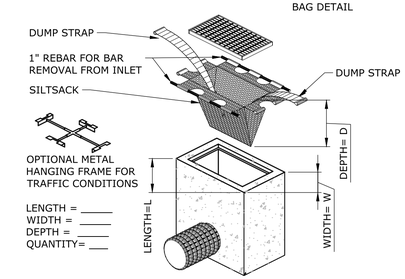


NOTES:

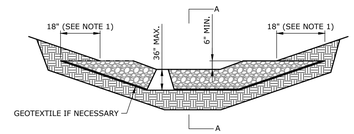
1. CONSTRUCTION ENTRANCE PAD SHALL BE INSTALLED AND MAINTAINED DURING OPERATIONS WHICH GENERATE VEHICULAR TRACKING OF MUD.

CONSTRUCTION ENTRANCE PAD
NOT TO SCALE

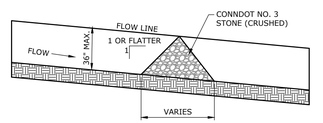




INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE

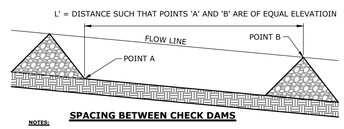


STONE CHECK DAM UPSTREAM



SECTION A-A

L' = DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATIOIN



SPACING BETWEEN CHECK DAMS

NOTES:

1. KEY STONE INTO THE DITCH BANKS AND EXTEND INTO THE ABUTMENTS A MINIMUM OF 18" TO PREVENT FLOW FROM FLANKING THE CHECK DAM.
2. THE MINIMUM DESIGN CAPACITY SHALL CONVEY A 2 YEAR-24 HOUR PEAK FLOW.
3. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN ON THE PLAN.
4. SET SPACING OF CHECK DAMS TOP ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
5. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.

STONE CHECK DAM
NOT TO SCALE

EROSION CONTROL MAINTENANCE INTERVALS

EROSION CONTROL MEASURE	CONTROL OBJECTIVE	INSPECTION/MAINTENANCE	FAILURE INDICATORS	REMOVAL
SILT FENCE (SF) AND STRAW WATTLES (SW) (RELATED: IP, STK)	- INTERCEPT, AND REDIRECT/DETAIN SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS. - DECREASE VELOCITY OF SHEET FLOW. - PROTECT SENSITIVE SLOPES OR SOILS FROM EXCESSIVE WATER FLOW.	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL OF 0.5 INCHES OR MORE. ACCUMULATED SEDIMENT MUST BE REMOVED ONCE ITS DEPTH IS EQUAL TO ⅓ THE TRENCH HEIGHT. INSPECT FREQUENTLY DURING PUMPING OPERATIONS IF USED FOR DEWATERING OPERATIONS.	- PHYSICAL DAMAGE OR DECOMPOSITION - EVIDENCE OF OVERTOPPED OR UNDERCUT FENCE - EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE - REPETITIVE FAILURE	SILT FENCE MAY BE REMOVED AFTER UPHILL AND SENSITIVE AREAS HAVE BEEN PERMANENTLY STABILIZED.
CONSTRUCTION ENTRANCE (CE)	- REDUCE THE TRACKING OF SEDIMENT OFF-SITE ONTO PAVED SURFACES.	INSPECT AT THE END OF EACH WORK DAY AND IMMEDIATELY REPAIR DAMAGES. PERIODIC ADDITION OF STONE, OR LENGTHENING OF ENTRANCE MAY BE REQUIRED AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES AS A RESULT OF INEFFICIENCY OF CONSTRUCTION ENTRANCE SHALL BE IMMEDIATELY REMOVED.	- SEDIMENT IN ROADWAY ADJACENT TO SITE	CONSTRUCTION ENTRANCE MAY BE REMOVED ONCE THE SITE HAS BEEN PERMANENTLY STABILIZED, AND ALL OTHER SECTIONS OF ROADWAY HAVE BEEN PERMANENTLY PAVED.
INLET PROTECTION (IP)	- PROHIBIT SILT IN CONSTRUCTION-RELATED RUNOFF FROM ENTERING STORM DRAINAGE SYSTEM.	INSPECT AFTER ANY RAIN EVENT. IF FILTER BAG INSIDE CATCH BASIN CONTAINS MORE THAN 6˝ OF SEDIMENT, REMOVE SEDIMENT FROM BAG. CHECK SURROUNDING SILT FENCE AND HAY BALES PER NOTED ABOVE.	- RIPPED BAG - FAILED HAY BALES / SILT FENCE - SIGNIFICANT SILT PRESENCE IN STORM DRAINAGE SYSTEM OUTFLOW.	INLET PROTECTION MAY BE REMOVED ONCE THE SITE HAS BEEN PERMANENTLY STABILIZED, AND ALL SECTIONS OF ROADWAY HAVE BEEN PERMANENTLY PAVED.
TEMPORARY SEDIMENT TRAP (TST)	- DETAIN SEDIMENT-LADEN RUNOFF FROM SMALL DISTURBED AREAS LONG ENOUGH TO ALLOW A MAJORITY OF THE SEDIMENT TO SETTLE OUT.	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL OF 0.5 INCHES OR MORE. STONE OUTLET SHOULD BE AT LEAST 1 FOOT BELOW CREST OF EMBANKMENT. SEDIMENT MUST BE REMOVED WHEN ACCUMULATION REACHES ½ OF THE REQUIRED WET STORAGE.	- TURBID WATER - EXCESSIVE SEDIMENT ACCUMULATION - OVERTOPPING EVIDENCE	TST MAY BE REMOVED ONCE THE CONTRIBUTING DRAINAGE AREA IS PERMANENTLY STABILIZED.
TEMPORARY DIVERSION BERM/SWALE (DB)	- MINIMIZE VELOCITY AND CONCENTRATION OF SHEET FLOW ACROSS CONSTRUCTION SITE TO A SEDIMENT TRAPPING FACILITY. - DIVERT WATER ORIGINATING FROM UNDISTURBED AREA AWAY FROM CONSTRUCTION.	WHEN LOCATED WITHIN CLOSE PROXIMITY TO ONGOING CONSTRUCTION ACTIVITIES, INSPECT AT THE END OF EACH WORK DAY AND IMMEDIATELY REPAIR DAMAGES. OTHERWISE INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL OF 0.5 INCHES OR MORE. REPAIR THE TEMPORARY MEASURE AND ANY OTHER ASSOCIATED MEASURES WITHIN 24 HOURS.	- PHYSICAL DAMAGE - EXCESSIVE SCOURING/EROSION - REPETITIVE FAILURE	TEMPORARY DIVERSIONS MAY BE REMOVED ONCE CONSTRUCTION HAS CEASED AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/01/2020	

SEDIMENT AND EROSION CONTROL SPECIFICATIONS AND DETAILS

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

AWG	AWG	TD
DESIGNED	DRAWN	CHECKED

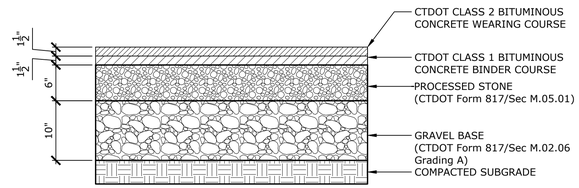
AS NOTED
SCALE

JUNE 22, 2020
DATE

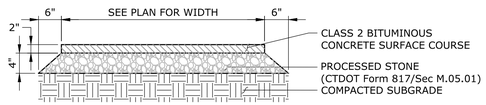
3571-40
PROJECT NO.

06 OF 10
SHEET NO.

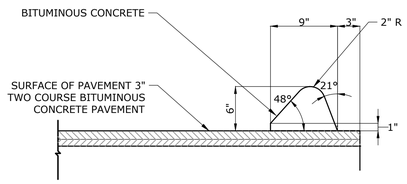
SE-2
SHEET NAME



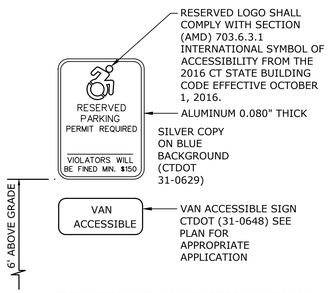
BITUMINOUS CONCRETE
NOT TO SCALE



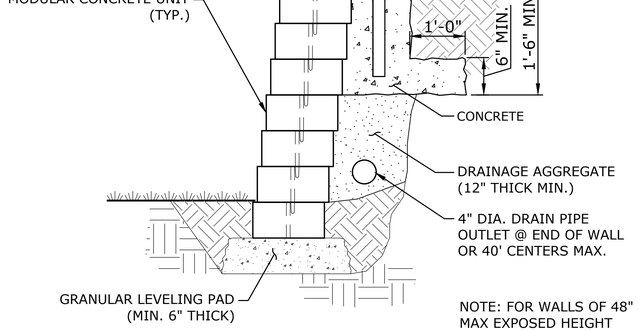
BITUMINOUS CONCRETE WALKS
NOT TO SCALE



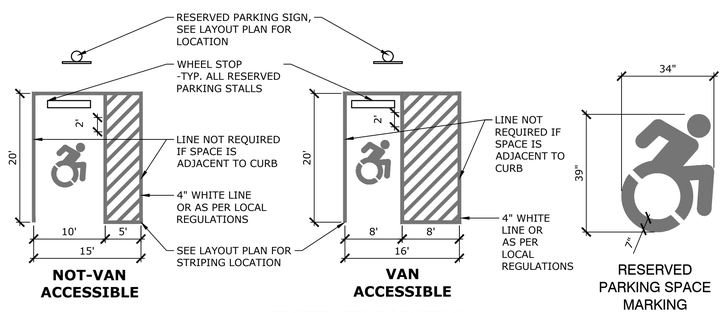
BITUMINOUS CONCRETE CURB
NOT TO SCALE



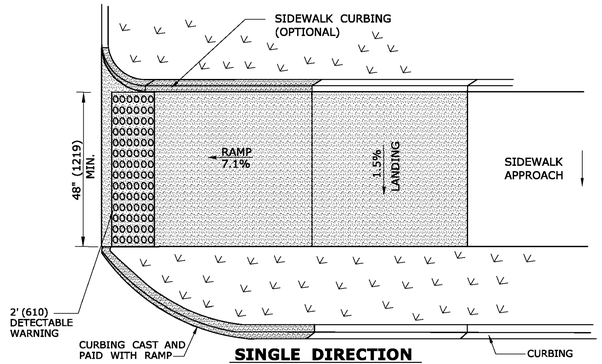
RESERVED PARKING SIGN
NOT TO SCALE



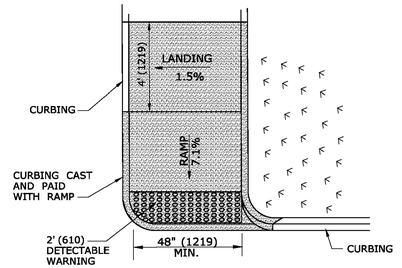
UNREINFORCED RETAINING WALL
NOT TO SCALE



RESERVED PARKING
NOT TO SCALE

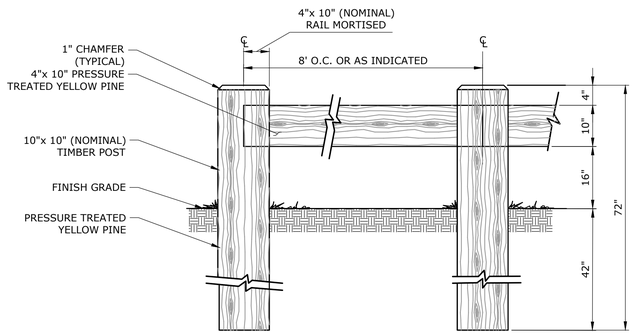


SINGLE DIRECTION PERPENDICULAR SIDEWALK RAMP W/ UTILITY GRASS STRIP (TYPE 4e)

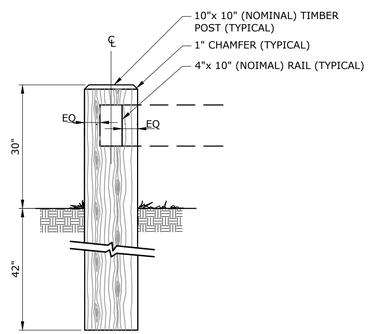


SINGLE DIRECTION PERPENDICULAR SIDEWALK RAMP NO / UTILITY GRASS STRIP (TYPE 4a)

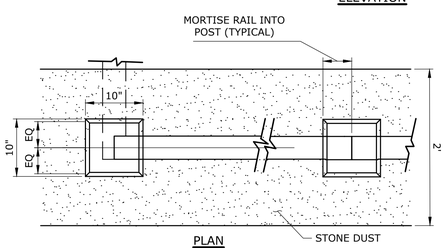
TYPICAL BITUMINOUS CONCRETE RAMPS
NOT TO SCALE



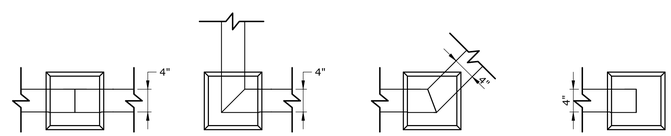
ELEVATION



SECTION



PLAN



NOTES:

1. CONTRACTOR TO PROVIDE 90°, 45° OR END POSTS WHERE REQUIRED.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ENTIRE SYSTEM.

TIMBER POST GUIDE RAIL MOROISE & TENON 10x10 POSTS
NOT TO SCALE

NOTES:

THE DETECTABLE WARNING STRIP SHALL BE A PREFABRICATED DETECTABLE WARNING SURFACE TILE THAT IS CAST IN PLACE AND REPLACEABLE SUCH AS MANUFACTURED FROM ALERTTILE DETECTABLE WARNING SYSTEMS, ADA SOLUTIONS, OR APPROVED EQUAL. THE TILE SHALL HAVE A BRICK RED HOMOGENEOUS COLOR IN COMPLIANCE WITH FEDERAL STANDARD 595A COLOR #2144 OR APPROVED EQUAL

DETECTABLE WARNING STRIP
NOT TO SCALE

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/07/2020	AWG

SITE DETAILS

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

DESIGNED	DRAWN	CHECKED
AWG	AWG	TD

SCALE: AS NOTED

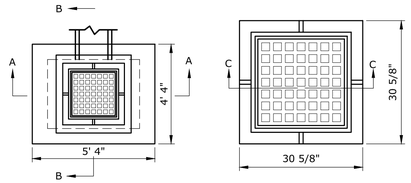
DATE: JUNE 22, 2020

PROJECT NO.: 3571-40

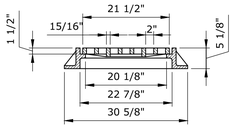
SHEET NO.: 07 OF 10

SHEET NAME: SD-1

WATER MAIN CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE TOWN OF BERLIN WATER CONTROL COMMISION STANDARDS



PLAN



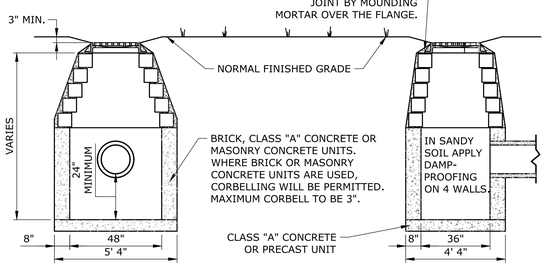
SECTION C-C

NOTES:

1. YARD DRAIN FRAMES & GRATES SHALL BE PATTERN #R-3404 AS MANUFACTURED BY THE "NEENAH FOUNDRY COMPANY" OF NEENAH, WISCONSIN, OR APPROVED EQUAL.

YARD DRAIN FRAME & GRATE

NOT TO SCALE



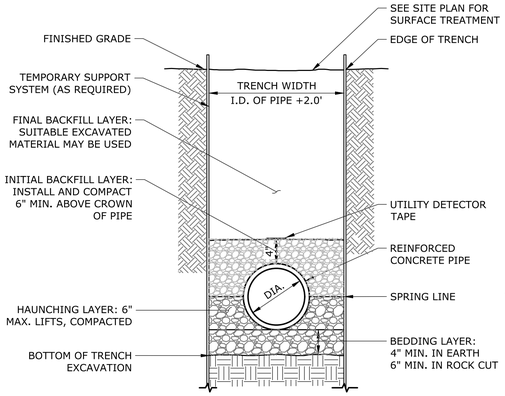
SECTION A-A **SECTION B-B**

NOTES:

1. WHERE PRECAST CONCRETE UNIT IS USED FOR SUMP, THE TOP OF THE UNIT SHALL BE AT LEAST 6" BELOW THE BOTTOM OF THE PIPE OUTLETTING FROM THE CATCH BASIN.

YARD DRAIN

NOT TO SCALE

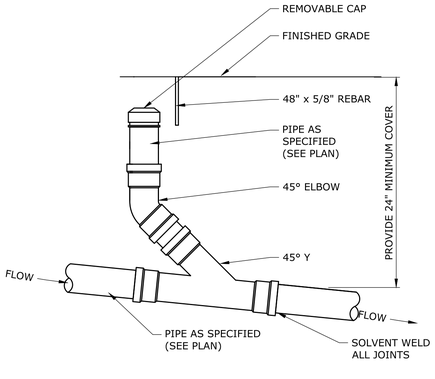


NOTES:

1. BACKFILL MATERIAL USED IN BEDDING, HAUNCHING, AND INITIAL BACKFILL LAYERS SHALL BE 3/4" CRUSHED STONE.
2. PAYMENT LIMIT FOR ROCK IN TRENCH TO BE PIPE DIAMETER + 3.0'

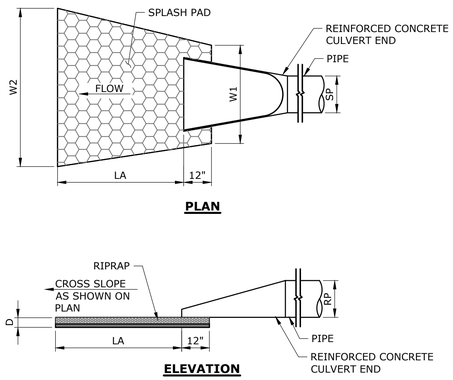
STORM DRAINAGE TRENCH

NOT TO SCALE



ROOF LEADER CLEAN OUT

NOT TO SCALE

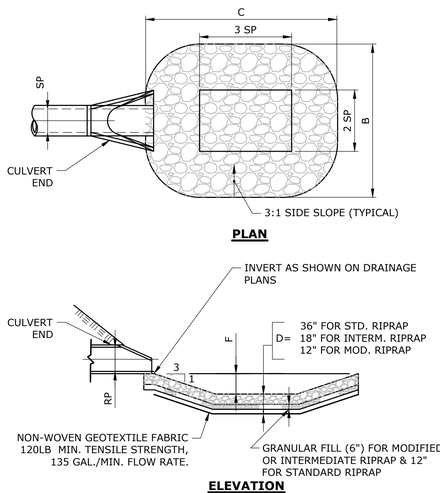


PLAN

ELEVATION

FLARED END WITH RIP RAP SPLASH PAD

NOT TO SCALE

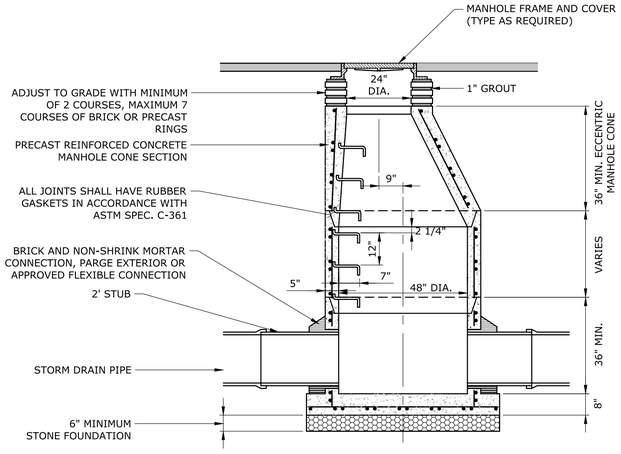


PLAN

ELEVATION

PREFORMED SCOUR HOLE

NOT TO SCALE

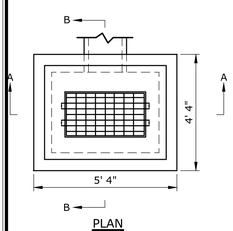


NOTES:

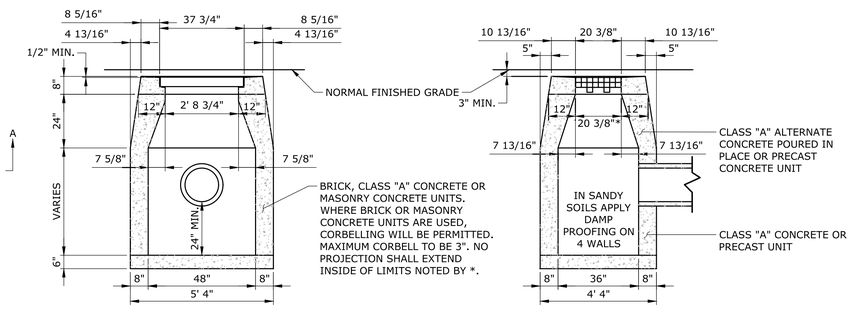
1. 5' OR 6' DIAMETER PRECAST BASES MAY BE REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE. PRECAST REDUCERS WILL BE PLACED ABOVE THE 5' OR 6' BASES AS DIRECTED BY THE ENGINEER. WALL THICKNESS TO INCREASE BY 1" FOR EACH 1'-0" OF INSIDE DIAMETER.

PRECAST CONCRETE STORM DRAINAGE MANHOLE

NOT TO SCALE



PLAN



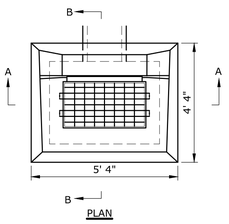
SECTION A-A SECTION B-B

NOTES:

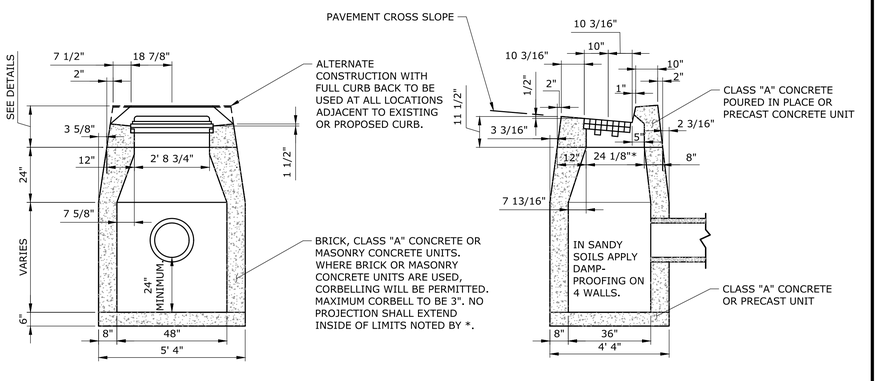
1. WHERE PRECAST CONCRETE UNIT IS USED FOR SUMP, THE TOP OF THE UNIT SHALL BE AT LEAST 6" BELOW THE BOTTOM OF THE PIPE OUTLETTING FROM THE CATCH BASIN.

TYPE "C-L" CATCH BASIN

NOT TO SCALE



PLAN



SECTION A-A SECTION B-B

NOTES:

1. WHEN CATCH BASIN IS SET IN CONCRETE PAVEMENT. THE 1/2" SLOPE ON THE TOP SURFACE SHALL BE CHANGED TO MATCH ADJOINING PAVEMENT.
2. WHERE PRECAST CONCRETE UNIT IS USED FOR SUMP, THE TOP OF THE UNIT SHALL BE AT LEAST 6" BELOW THE BOTTOM OF THE PIPE OUTLET FROM THE CATCH BASIN.

TYPE "C" CATCH BASIN

NOT TO SCALE

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/01/2020	AWG

SITE DETAILS

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

AWG	AWG	TD
DESIGNED	DRAWN	CHECKED

AS NOTED — SCALE

JUNE 22, 2020 — DATE

3571-40 — PROJECT NO.

08 OF 10 — SHEET NO.

SD-2 — SHEET NAME

FORMATION OF EMBANKMENTS FOR STORMWATER BASINS

1. MATERIALS

ALL FILL MATERIALS SHALL BE OBTAINED FROM REQUIRED EXCAVATIONS OR DESIGNATED BORROW AREAS. FILL MATERIAL SHALL CONTAIN NO FROZEN MATERIAL, SOD, BRUSH, ROOTS, OR OTHER ORGANIC MATERIAL. EARTH EMBANKMENTS SHALL CONTAIN NO STONES OR ROCK PARTICLES OVER THREE INCHES IN DIAMETER.

THE MATERIAL USED IN THE CENTER PORTION OF THE EMBANKMENT SHALL BE THE MOST IMPERVIOUS MATERIAL OBTAINED FROM THE BORROW AREAS IF REQUIRED. THE MORE PERVIOUS MATERIALS SHALL BE USED IN THE OUTER PORTION OF THE EMBANKMENT AS SHOWN ON THE PLANS.

A. IMPERVIOUS FILL MATERIALS

IMPERVIOUS FILL SHALL BE A GLACIAL TILL, AND TO BE PROVIDED FROM AN OFFSITE SOURCE IN THE QUANTITIES REQUIRED FOR COMPLETION. FILL TO BE APPROVED BY THE ENGINEER. GLACIAL TILL SHALL CONSIST OF HARD AND DURABLE PARTICLES OR FRAGMENTS AND SHALL BE FREE FROM ORGANIC MATTER AND OTHER OBJECTIONABLE MATERIALS. GLACIAL TILL SHALL GENERALLY CONFORM TO THE FOLLOWING GRADATION LIMITS:

U.S. STANDARD SIEVE SIZE	PERCENTAGE PASSING BY WEIGHT
3 INCH	100
NO. 4	60-95
NO. 10	50-95
NO. 40	30-75
NO. 100	20-65
NO. 200	10-40

2. EMBANKMENT FOUNDATION PREPARATION

AREAS WHERE EMBANKMENTS ARE TO BE FORMED SHALL BE CLEARED AND GRUBBED OF ALL TOPSOIL AND OTHER ORGANIC MATERIALS TO A DEPTH OF AT LEAST 24 INCHES. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, FOUNDATION AREAS SHALL BE SCARIFIED TO A DEPTH OF THREE INCHES PRIOR TO PLACEMENT OF FILL MATERIAL.

3. PLACEMENT

NO FILL SHALL BE PLACED UNTIL THE FOUNDATION PREPARATION AND EXCAVATIONS IN THE FOUNDATION HAVE BEEN COMPLETED. NO FILL SHALL BE PLACED ON A FROZEN SURFACE NOR SHALL FROZEN MATERIAL BE INCORPORATED.

A. EMBANKMENT

MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS. THE THICKNESS OF LAYERS SHALL BE SIX INCHES. DURING CONSTRUCTION, THE SURFACE OF THE FILL SHALL HAVE A CROWN OR CROSS-SLOPE OF NOT LESS THAN TWO PERCENT. EACH LAYER OR LIFT SHALL EXTEND OVER THE ENTIRE AREA OF THE FILL.

THE FILL SHALL BE FREE FROM LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFERING SUBSTANTIALLY IN TEXTURE OR GRADATION FROM THE SURROUNDING MATERIAL. THE MORE PERVIOUS MATERIAL SHALL BE PLACED IN THE OUTSIDE PORTION OF THE EMBANKMENT OR AS INDICATED ON THE DRAWINGS. THE FINISHED FILL SHALL BE SHAPED AND GRADED TO THE LINES AND GRADE SHOWN ON THE DRAWINGS.

B. BACKFILL AT THE PIPE OUTLET

BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED THREE INCHES IN THICKNESS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE OUTLET PIPE AND FLARED END SECTION

4. MOISTURE CONTROL

THE MOISTURE CONTENT OF MATERIALS IN THE EMBANKMENT SHALL BE CONTROLLED TO MEET THE REQUIREMENTS OF SECTION 5, "COMPACTION OF EMBANKMENT." WHEN NECESSARY, MOISTURE SHALL BE ADDED BY USE OF APPROVED SPRINKLING EQUIPMENT. WATER SHALL BE ADDED UNIFORMLY AND EACH LAYER SHALL BE THOROUGHLY DISKED OR HARROWED TO PROVIDE ROPER MIXING. ANY LAYER FOUND TOO WET FOR PROPER COMPACTION SHALL BE ALLOWED TO DRY BEFORE ROLLING. PLACING OR ROLLING OF MATERIAL ON EARTH FILLS WILL NOT BE PERMITTED DURING OR IMMEDIATELY AFTER RAINFALLS WHICH INCREASE THE MOISTURE CONTENT BEYOND THE LIMIT OF SATISFACTORY COMPACTION. THE EARTH FILL SHALL BE BROUGHT UP UNIFORMLY AND ITS TOP SHALL BE KEPT GRADED AND SLOPED SO THAT A MINIMUM OF RAINWATER WILL BE RETAINED THEREON. COMPACTED EARTH FILL DAMAGED BY WASHING SHALL BE ACCEPTABLY REPLACED BY THE CONTRACTOR.

5. COMPACTION

A. EMBANKMENT

EMBANKMENT MATERIAL SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY AT NEAR OPTIMUM MOISTURE CONTENT AND BY THE COMPACTION EQUIPMENT SPECIFIED HEREIN. THE COMPACTION EQUIPMENT SHALL TRAVERSE THE ENTIRE SURFACE OF EACH LAYER OF FILL MATERIAL.

APPROVED TAMPING ROLLERS SHALL BE USED FOR COMPACTING ALL PARTS OF THE EMBANKMENTS WHICH THEY CAN EFFECTIVELY REACH. THE CONTRACTOR SHALL DEMONSTRATE THE EFFECTIVENESS OF THE ROLLER BY ACTUAL SOIL COMPACTION RESULTS OF THE SOIL TO BE USED IN THE EMBANKMENT WITH LABORATORY WORK PERFORMED BY AN APPROVED SOIL TESTING LABORATORY.

B. BACKFILL AT OUTLET CONDUIT

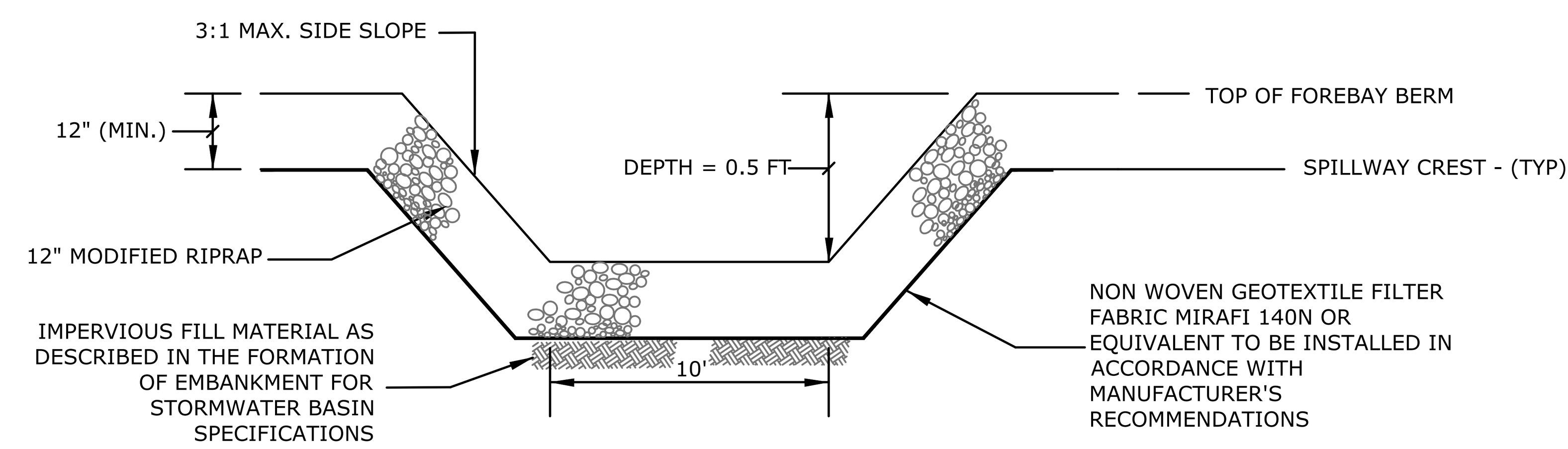
BACKFILL SHALL BE COMPACTED BY HAND TAMPING WITH MECHANICAL TAMPERS. HEAVY EQUIPMENT SHALL NOT BE OPERATED WITHIN TWO FEET OF ANY STRUCTURE. EQUIPMENT SHALL NOT BE ALLOWED TO OPERATE OVER THE OUTLET CONDUITS UNTIL THERE IS 24 INCHES OF FILL OVER THE PIPE CONDUITS.

6. FINISHING EMBANKMENTS

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE ELEVATIONS, LINES, GRADES AND CROSS-SECTIONS AS SHOWN ON THE DRAWINGS. THE EMBANKMENTS SHALL BE MAINTAINED IN A MANNER SATISFACTORY TO THE ENGINEER AND SURFACES SHALL BE COMPACT AND ACCURATELY GRADED BEFORE TOPSOIL IS PLACED ON THEM. THE CONTRACTOR SHALL CHECK THE EMBANKMENT SLOPES WITH STRING LINES TO INSURE THAT THEY CONFORM TO THE SLOPES GIVEN ON THE PLANS AND ARE UNIFORM FOR THE ENTIRE LENGTH OF THE SLOPE.

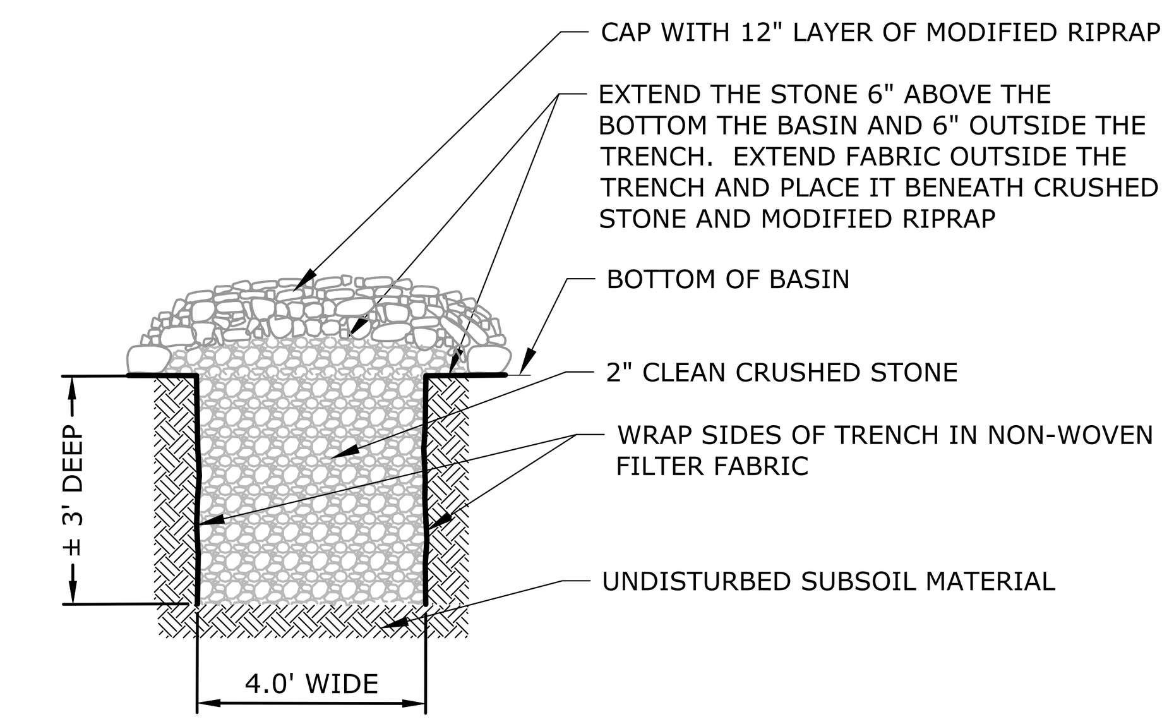
7. CONTROL OF WATER

THE PROJECT SITE IS SUBJECT TO HIGH WATER TABLE. THE CONTRACTOR SHALL USE TEMPORARY PIPES OR PUMPS TO ASSURE PLACEMENT OF SELECT FILL IN DRY CONDITIONS.



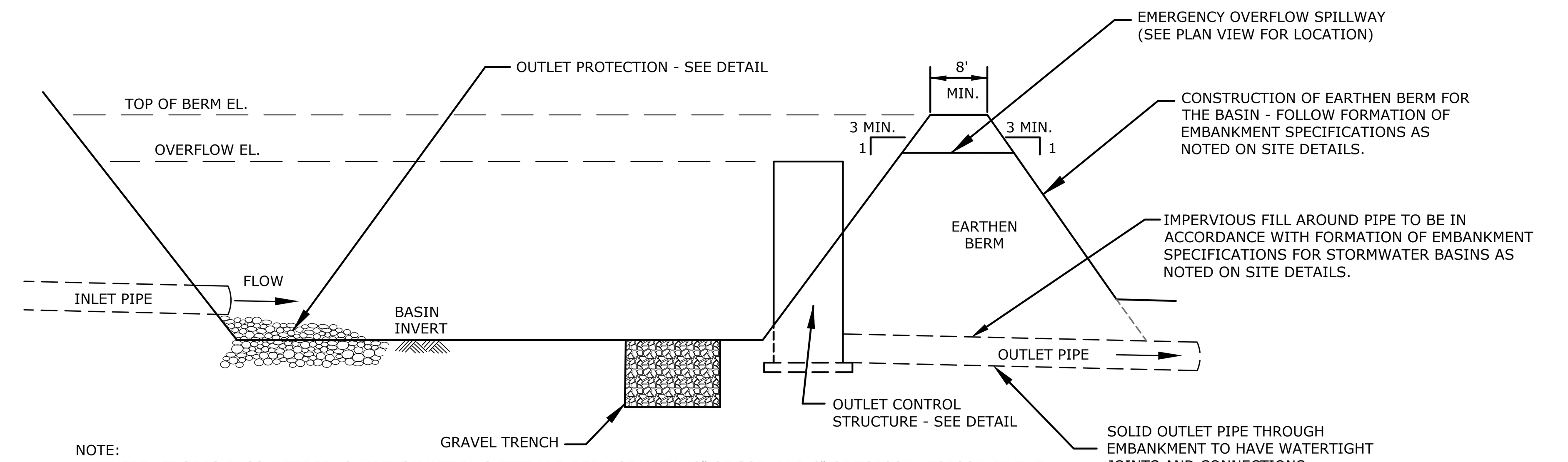
SEDIMENT FOREBAY OVERFLOW SPILLWAY

NOT TO SCALE



GRAVEL TRENCH WITHIN BASIN

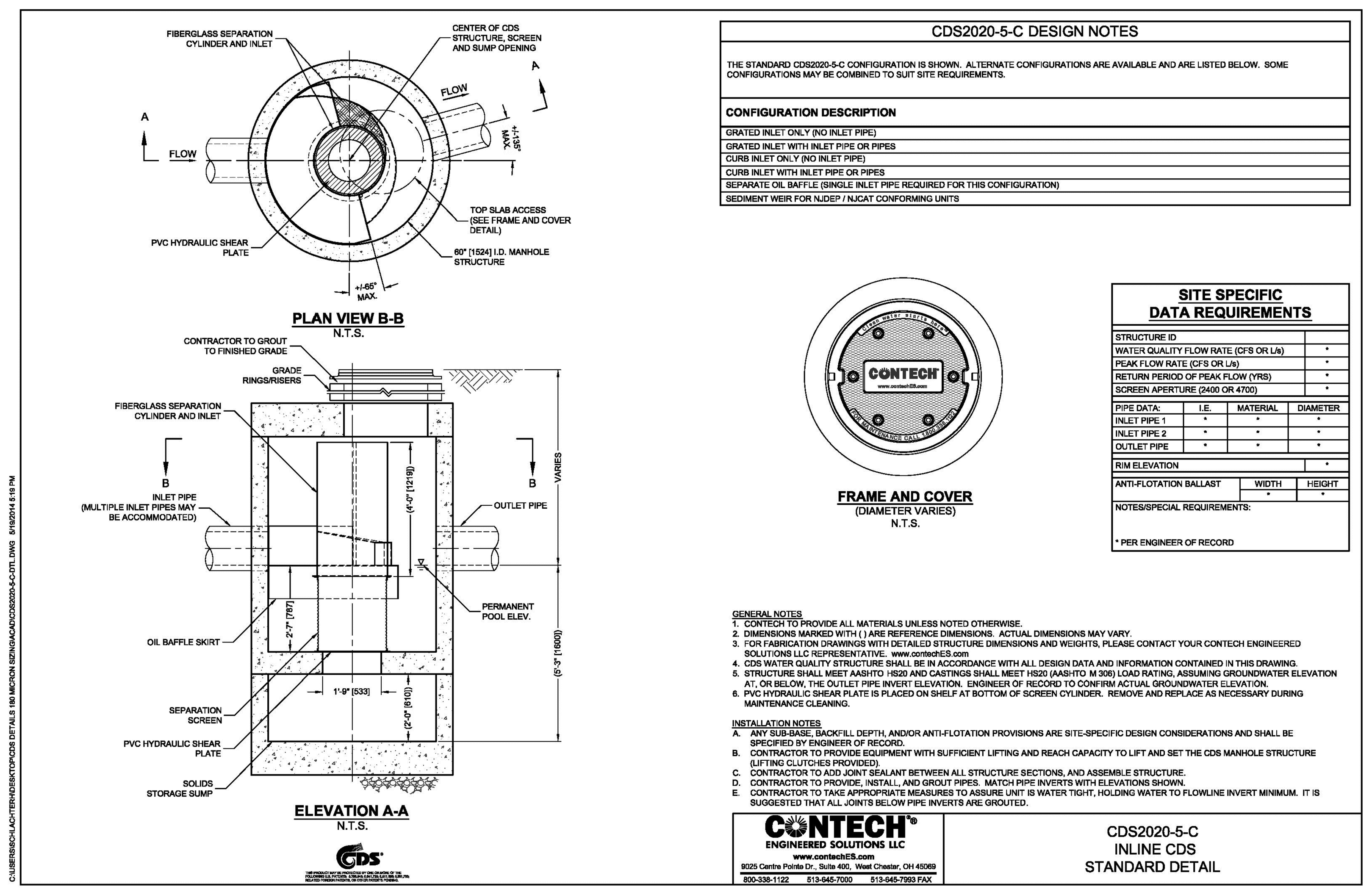
NOT TO SCALE

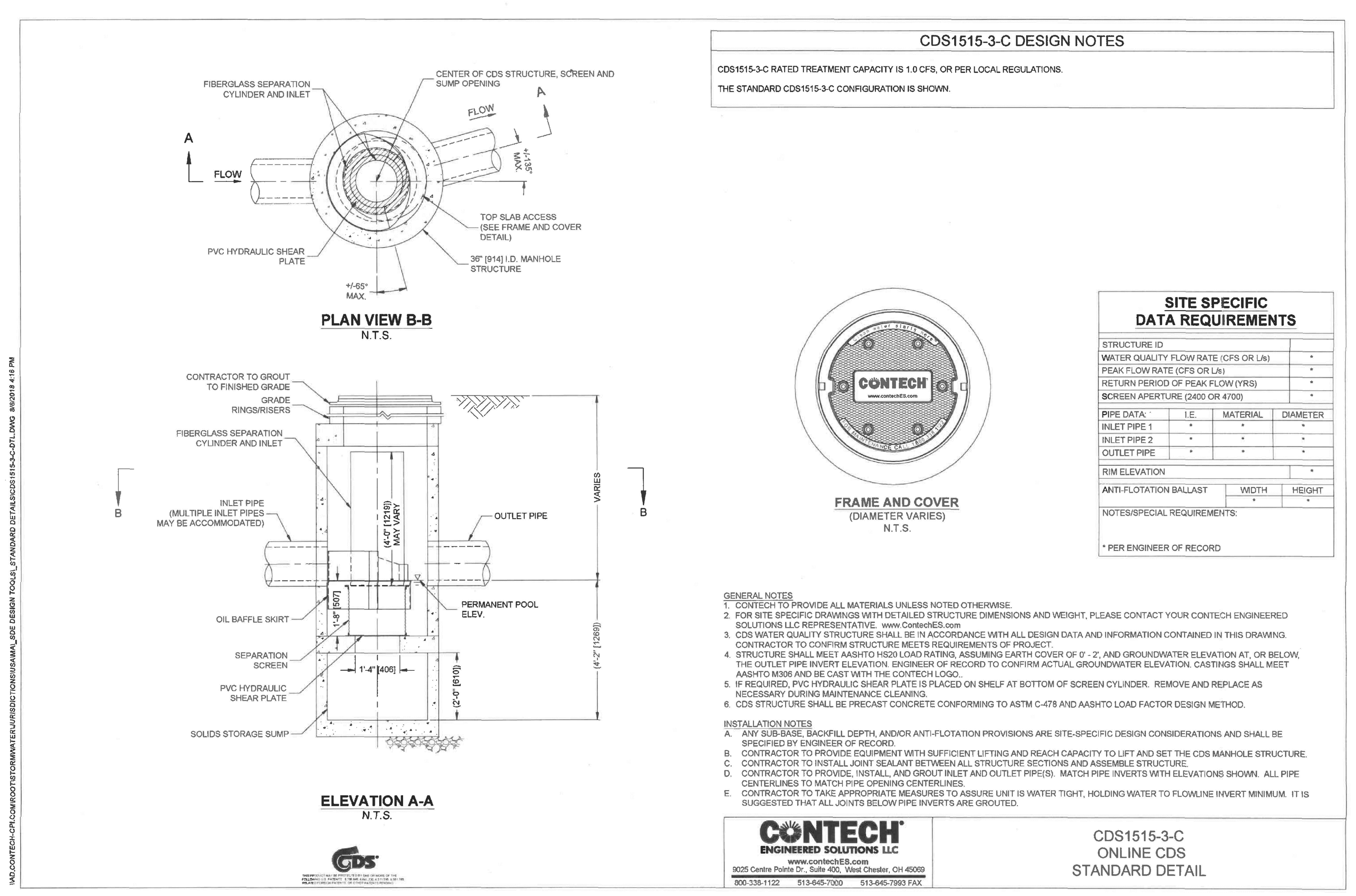


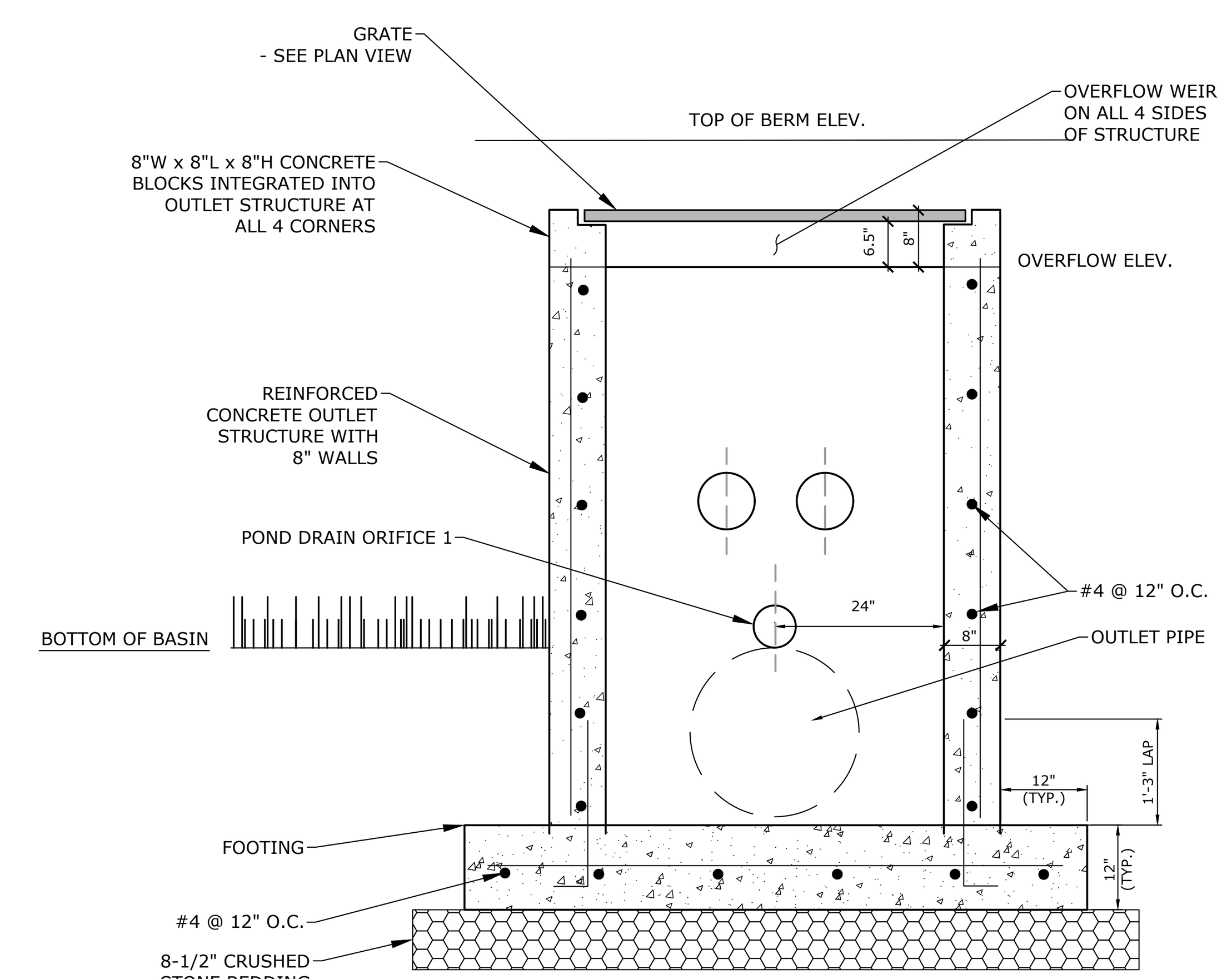
NOTE:
WHERE LEDGE IS ENCOUNTERED, OVEREXCAVATE BY 2 FEET AND REPLACE WITH 18" OF SOIL AND 6" OF TOPSOIL. TOPSOIL IN THE BOTTOM OF THE BASIN IS TO BE 6" DEEP AND 6% ORGANIC CONTENT MINIMUM.

TYPICAL DETENTION BASIN

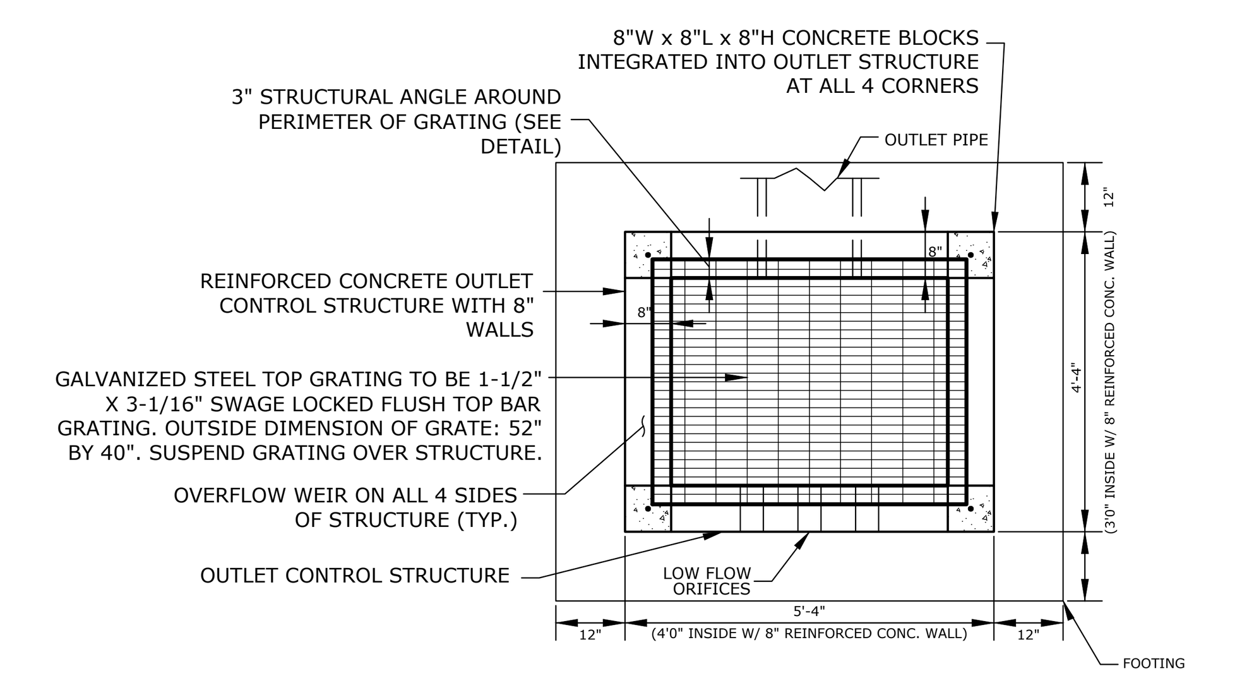
NOT TO SCALE



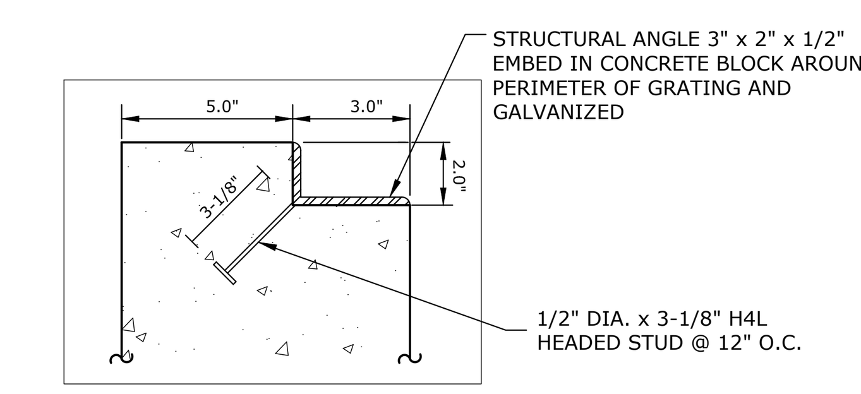




FRONT VIEW



PLAN VIEW



NOTCH DETAIL

	DET 110 (OCS 110)	DET 210 (OCS 210)
TOP OF BERM ELEVATION	46.5	48.0
GRATE ELEVATION	45.5	46.5
100-YEAR WATER SURFACE ELEV.	45.6	45.6
POND DRAIN ORIFICE 1 DIAMETER	1 ORIF. OF 2.0"	1 ORIF. OF 2.0"
POND DRAIN ORIFICE 1 INVERT	42.0	42.0
BASIN BOTTOM ELEVATION	40.0	40.0
OUTLET PIPE DIAMETER	12"	12"
OUTLET PIPE INVERT	40.0	40.0
EMERGENCY OVERFLOW SPILLWAY ELEV.	46.0	47.0

OUTLET CONTROL STRUCTURE

NOT TO SCALE

MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

DESCRIPTION	DATE	BY
PLANNING AND ZONING SUBMISSION	7/01/2020	AWG

SITE DETAILS

PROPOSED MULTI-FAMILY DEVELOPMENT

823, 833 AND 0 DEMING ROAD (ROUTE 160)
BERLIN, CONNECTICUT

AWG	AWG	TD
DESIGNED	DRAWN	CHECKED

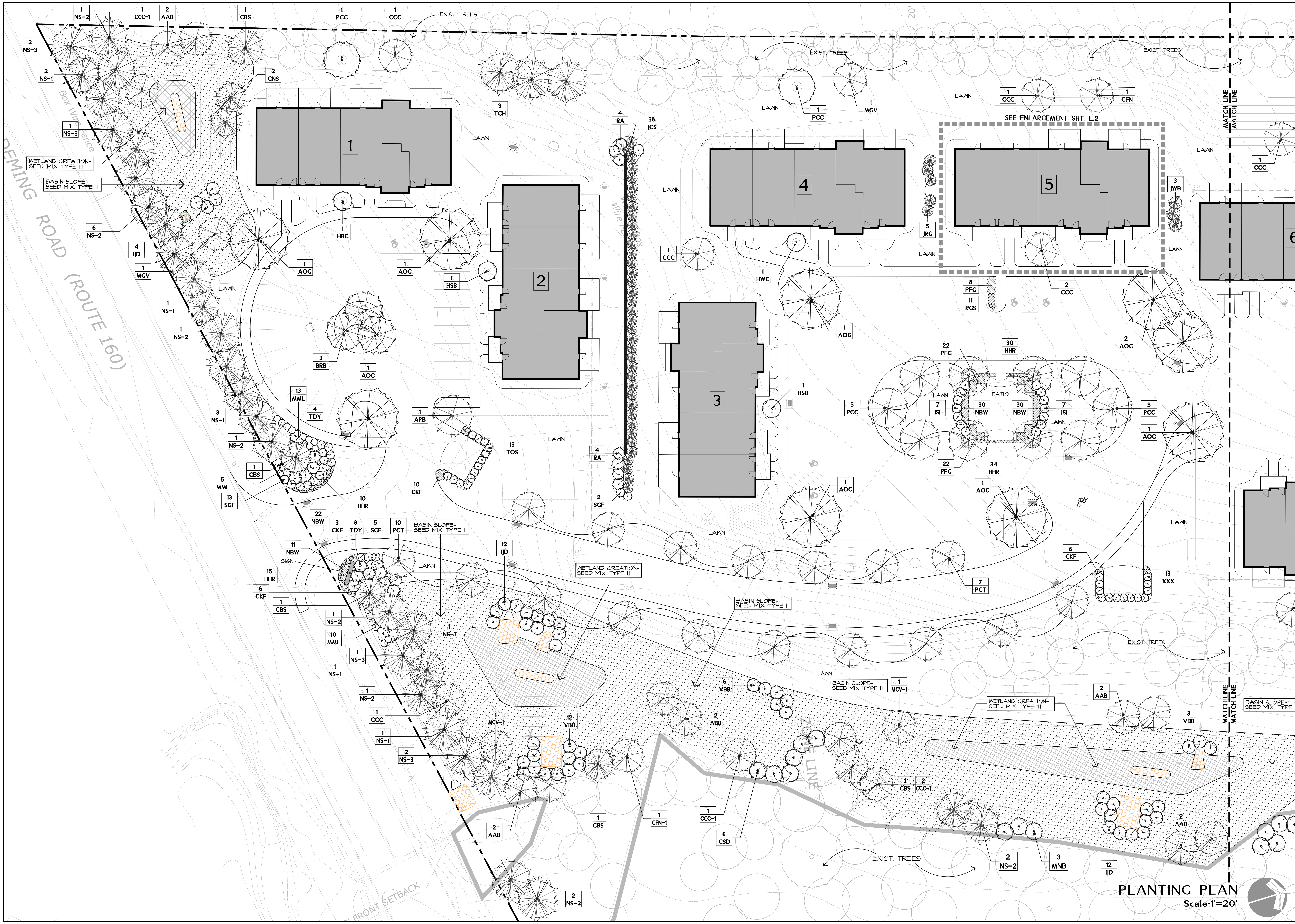
SCALE: AS NOTED

DATE: JUNE 22, 2020

PROJECT NO.: 3571-40

SHEET NO.: 09 OF 10

SHEET NAME: SD-3



PROPOSED WATER QUALITY BASINS AREA PLANTING PLAN

PROPOSED MULTI-FAMILY DEVELOPMENT
833 Deming Road (Route 160) - Berlin, Connecticut

PREPARED FOR:
METRO REALTY GROUP, Ltd.
6 Executive Drive - Suite 100 - Farmington, CT.

SCALE	COMM. NO.	DRAWN BY	DATE	APPROVED BY	DATE
1" = 20'		JGS	July 1, 2020	HWW	July 1, 2020

CR3 AT Loureiro STUDIO
LANDSCAPE ARCHITECTURE • SITE PLANNING
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8822
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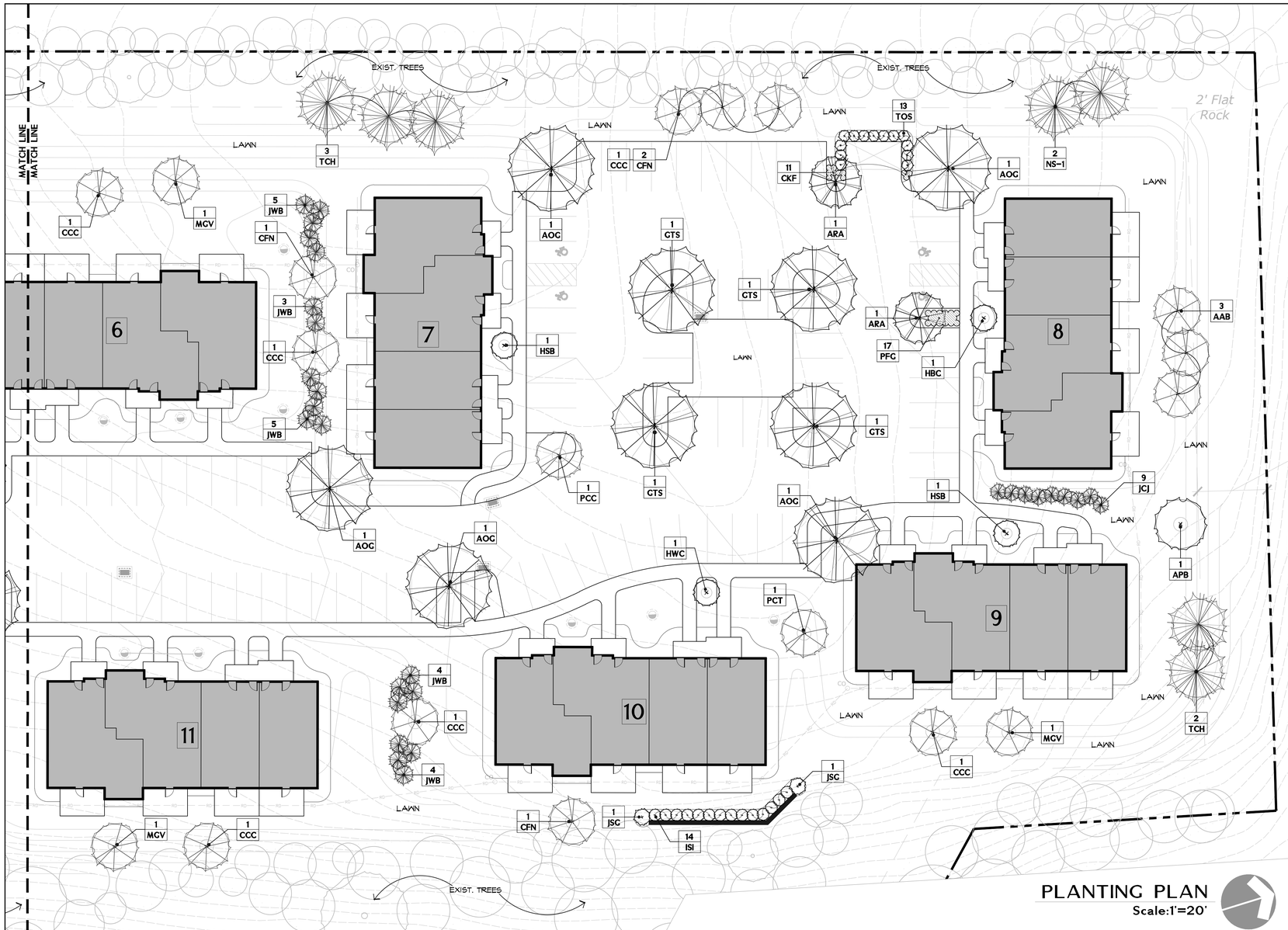
STAMP

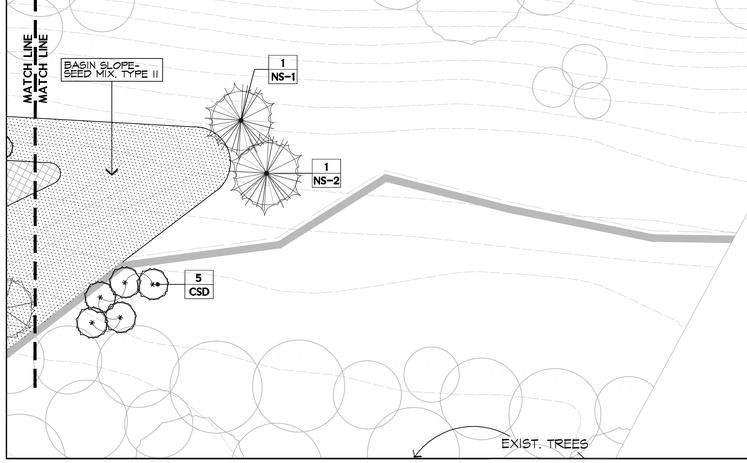
REV. | DESCRIPTION OF REVISION | DATE | APPR.

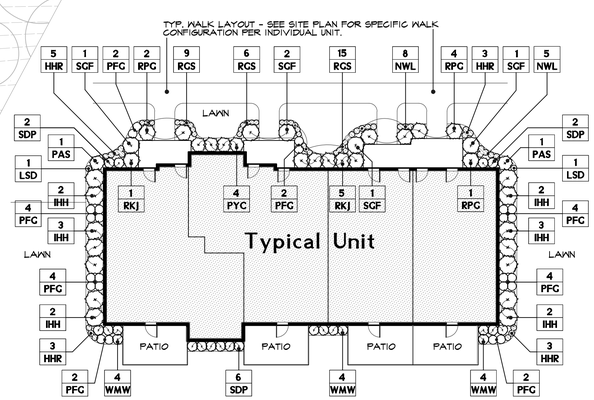
DRAWING
L.1

SHEET NO. | NO. OF SHEETS



PLANTING PLAN
Scale:1'=20'





Typical Unit Planting Plan
Not to Scale

PLANT LIST

SYM.	QTY.	TECHNICAL NAME	COMMON NAME	SIZE	COND.
DECIDUOUS TREES					
APB	2	ACER PALMATUN 'BLOODGOOD'	BLOODGOOD JAPANESE MAPLE	6'-8' HT.	B&B
ARA	1	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG' RED MAPLE	2½"-3" CAL.	B&B
AOG	14	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2½"-3" CAL.	B&B
AAB	13	AMELANCHIER GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SHADBLON (SINGLE STEM)	6'-8' HT.	B&B
BRB	3	BETULA NIGRA 'BMTF'	DURA HEAT RIVER BIRCH (MULTI STEM)	12'-14' HT.	B&B
CCC	10	CORNUS FLORIDA 'CHEROKEE CHIEF'	STELLAR PINK DOGWOOD	2"-2½" CAL.	B&B
CCC-1	4	CORNUS FLORIDA 'CHEROKEE CHIEF'	STELLAR PINK DOGWOOD	1½"-2" CAL.	B&B
CFN	5	CORNUS FLORIDA 'CLOUD NINE'	CELESTIAL DOGWOOD	2"-2½" CAL.	B&B
CFN-1	1	CORNUS FLORIDA 'CLOUD NINE'	CELESTIAL DOGWOOD	1½"-2" CAL.	B&B
GTS	4	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	2½"-3" CAL.	B&B
MGV	4	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	2"-2½" CAL.	B&B
MGV-1	2	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	1½"-2" CAL.	B&B
PCT	18	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD PLUM	2"-2½" CAL.	B&B
PCC	13	PYRUS CALLERYANA 'CHANTICLEER'	CHANTICLEER FLOWERIS PEAR	2"-2½" CAL.	B&B
EVERGREEN TREES					
NS-1	12	PICEA ABIES	NORWAY SPRUCE	6'-8' HT.	B&B
NS-2	14	PICEA ABIES	NORWAY SPRUCE	8'-10' HT.	B&B
NS-3	6	PICEA ABIES	NORWAY SPRUCE	10'-12' HT.	B&B
CNS	2	PICEA ABIES 'COLUMNARIS'	COLUMNAR NORWAY SPRUCE	8'-10' HT.	B&B
CBS	5	PICEA PUNGENS GLAUCA	COLORADO BLUE SPRUCE	8'-10' HT.	B&B
TOS	8	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	6'-7' HT.	B&B
TCH	8	TSUGA CANADENSIS	CANADIAN HEMLOCK	6'-7' HT.	B&B
EVERGREEN SHRUBS					
CSD	11	CORNUS AMOMUM	SILKY DOGWOOD	3'-4' HT.	CONT.
ISI	28	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3 GAL.	CONT.
IJD	28	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY WINTERBERRY	3 GAL.	CONT.
JRS	5	JUIPERUS CHINENSIS 'ROBUSTA GREEN'	ROBUSTA GREEN JUNIPER	4'-5' HT.	CONT.
JSS	38	JUIPERUS CHINENSIS 'SPARTAN'	SPARTAN JUNIPER	4'-5' HT.	CONT.
JWB	24	JUIPERUS SCOPULORUM 'WICHITA BLUE'	WICHITA BLUE JUNIPER	4'-5' HT.	CONT.
MNB	3	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	5 GAL.	CONT.
RA	8	RHODODENDRON 'ASLO'	ASLO RHODODENDRON	5 GAL.	CONT.
TDY	12	TAXUS CUSPIDATA 'DENSIFORMIS'	DENSE SPREADING YEW	18"-24" SPR.	B&B
DECIDUOUS SHRUBS					
HSB	4	HIBISCUS SYRIACUS 'MATHILDE'	BLUSH SATIN ROSE OF SHARON	4'-5' HT.	B&B
HBC	1	HIBISCUS SYRIACUS 'NOTWOODTREE'	BLUE CHIFFON ROSE OF SHARON	4'-5' HT.	B&B
HWC	2	HIBISCUS SYRIACUS 'NOTWOODTWO'	WHITE CHIFFON ROSE OF SHARON	4'-5' HT.	B&B
RKN	52	ROSA 'KNOCKOUT' WHITE ONL'	WHITE ONL KNOCKOUT ROSE	3 GAL.	CONT.
SBG	18	SPIREA BUMALDA 'GOLDMOUND'	GOLDMOUND SPIREA	3 GAL.	CONT.
SPP	44	SPIREA FRITSCHIANS 'PINK PARASOL'S'	PINK PARASOL'S SPIREA	3 GAL.	CONT.
SGF	20	SPIREA JAPONICA 'GOLDFLAME'	GOLDFLAME SPIREA	3 GAL.	CONT.
VBB	21	VIBURNUM DENTATUM 'BLUE BLAZE'	BLUE BLAZE ARROWWOOD VIBURNUM	5 GAL.	CONT.
PERENNIALS					
HHR	89	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	5 PNT.	CONT.
NBW	93	NEPETA RACEMOSA 'BLUE WONDER'	BLUE WONDER CATMINT	5 PNT.	CONT.
RGS	11	RUDBECKIA FULGIDA 'LITTLE GOLDSTAR'	DWARF BLACK EYED SUSAN STAINED GLASS HOSTA	5 PNT.	CONT.
GRASSES					
CKF	26	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	1 GAL.	CONT.
MML	28	MISCANTHUS SINENSIS 'MORNING LIGHT'	VARIEGATED MAIDEN GRASS	1 GAL.	CONT.
PFG	69	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	1 GAL.	CONT.

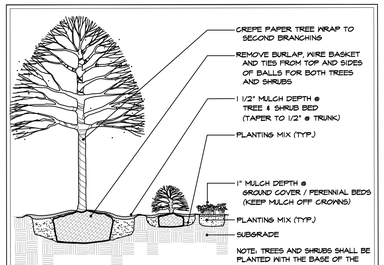
NOTE: SEE TYP. UNIT PLANTING PLAN AND PLANT LIST FOR INDIVIDUAL UNIT FOUNDATION PLANTINGS.

SEEDING NOTES:

1. SEED MIXTURE TYPE I (LAWN AREAS)
   BLUEGRASS BLEND (3 VARIETIES) 50% OF MIXTURE
   CHEWING RED FESCUE 50% OF MIXTURE
   PERENNIAL RYEGRASS 50% OF MIXTURE
   APPLICATION RATE: 4.50 LBS. PER 1000 S.F.
2. SEED MIXTURE TYPE II (BASIN SLOPES)
   RETENTION BASIN WILDLIFE MIX - ERNMX-127
   BY: ERNST CONSERVATION SEEDS, 9006 MERCER PIKE, MEADVILLE, PA. 16335 (800) 873-3321
   APPLICATION RATE: 0.50 LBS. PER 1000 S.F., 20 LBS. PER ACRE
3. SEED MIXTURE TYPE III (WETLAND CREATION AREA)
   OBL WETLAND MIX
   BY: ERNST CONSERVATION SEEDS, 9006 MERCER PIKE, MEADVILLE, PA. 16335 (800) 873-3321
   APPLICATION RATE: 0.50 LBS. PER 1000 S.F., 20 LBS. PER ACRE
4. BASIN SIDE SLOPES SHALL HAVE A MINIMUM OF 6" OF "TRACKED" TOPSOIL UNLESS OTHERWISE NOTED.
5. SEED MIXES IN AND AROUND DETENTION BASINS SHALL BE SUBSTANTIALLY ESTABLISHED PRIOR TO DISCHARGING RUNOFF FROM THE STORMWATER SYSTEM.
6. SEEDING OF BASIN SLOPES (SEEDING MIXTURE TYPE II) SHALL BE BY HYDROSEEDING AND HYDRO-MULCHING. ADD AN ADDITIONAL 15% TO SEEDING MIXTURE WHEN HYDO-SEEDING IS USED. HYDROMULCH SHALL BE EQUAL TO CONWED 2000 AND APPLIED AT THE RATE OF 1,400 LBS. PER ACRE.
7. THE CONTRACROR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SEEDED AREAS UNTIL SATISFACTORY GROWTH AS DETERMINED BY THE OWNER. REPLANT BARE ROOT AND REPAIR ERODED AREAS UNTIL END OF MAINTENANCE PERIOD.

GENERAL NOTES PLANTING:

1. AS CONSTRUCTION PROCEEDS, FINE GRADE AND SEED OR SOD AS SOON AS POSSIBLE TO REDUCE RUNOFF.
2. ALL PLANTING BEDS TO BE TOPSOILED TO A DEPTH OF 12".
3. IN ALL SHRUB BEDS TO RECEIVE MASS PLANTING, PROVIDE PINE BARK MULCH AS DETAILED. ESTABLISH A NEAT, SMOOTH EDGE BETWEEN MULCH AND LAWN.
4. ADJUSTMENTS IN THE LOCATIONS OF PLANT MATERIALS MAY BE NECESSARY DUE TO LOCATIONS OF UTILITIES. ADJUSTMENTS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
5. PROVIDE AND INSTALL ALL PLANTS SHOWN ON THE PLANTING PLAN DRAWINGS; THE QUANTITIES IN THE PLANT LIST ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF DISCREPANCIES OCCUR, THE DRAWING SYMBOLS PREVAIL OVER THE PLANT LIST QUANTITIES.



Planting Detail – Typ.
Not to Scale

APPR. | DATE | DESCRIPTION OF REVISION | REV.

STAMP

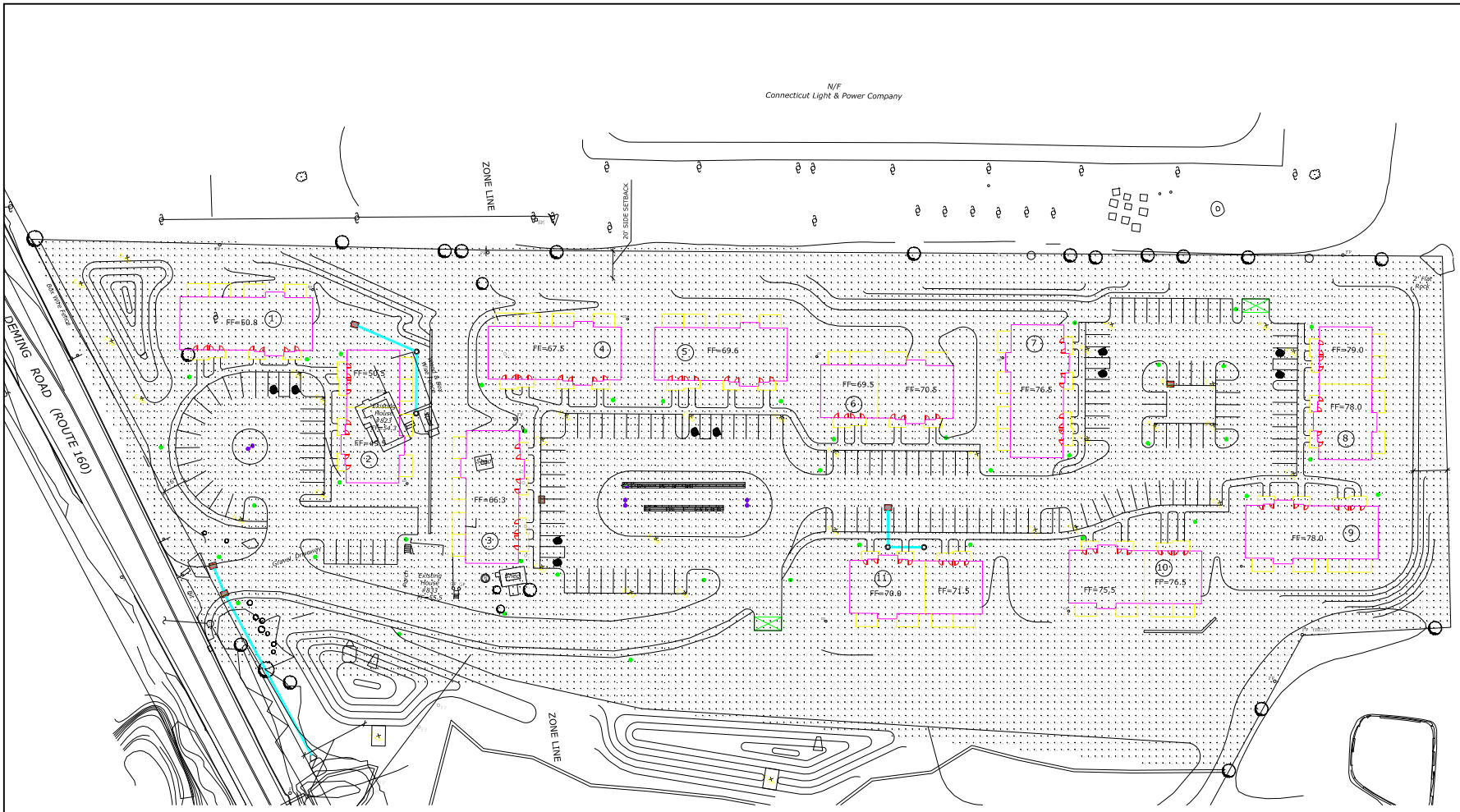
CR2 STUDIO AT Loureiro
LANDSCAPE ARCHITECTURE • SITE PLANNING
100 Northwest Drive • Plainville, Connecticut 06062
Phone: 860-747-6181 • Fax: 860-747-8522
An Equal Opportunity Employer • www.cr2studio.com

SCALE: 1" = 20'
COMM. NO.
DRAWN BY: JGS
APPROVED BY: HWW
DATE: July 1, 2020
DATE: July 1, 2020

PROPOSED WATER QUALITY BASINS AREA PLANTING PLAN

PROPOSED MULTI-FAMILY DEVELOPMENT
833 Deming Road (Route 160) - Berlin, Connecticut
PREPARED FOR:
METRO REALTY GROUP, Ltd.
6 Executive Drive - Suite 100 - Farmington, CT.

DRAWING **L.2**
SHEET NO. | NO. OF SHEETS



Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	41	AB40AC-CL_G2LED65-T5-40K	SINGLE	N.A.	0.900	65W
	3	AB40AC-CL_G2LED65-T5-40K	BACK-BACK	N.A.	0.900	65W

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Illuminance	Fc	0.73	8.2	0.0	N.A.	N.A.

Global Lighting Perspectives

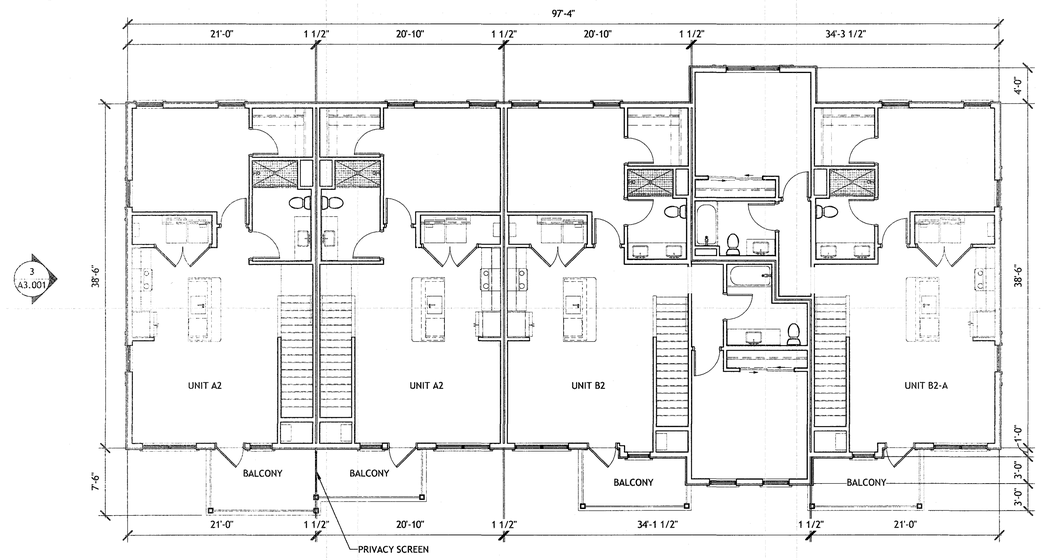
JOB NAME
METRO CONSTRUCTION

DATE
7/2/2020

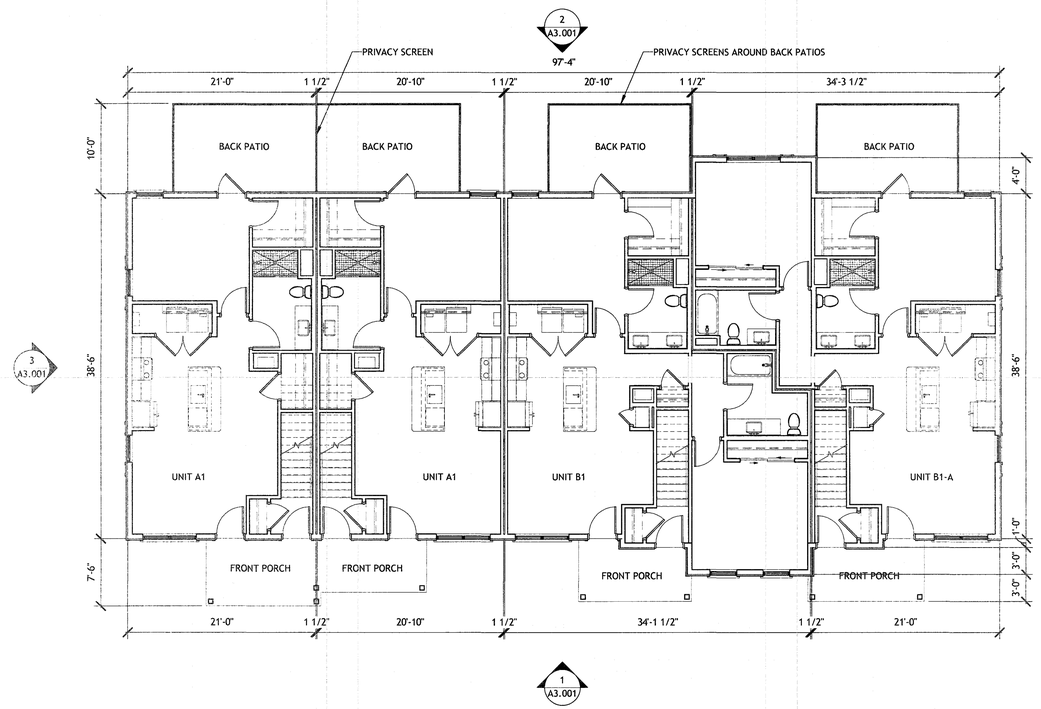
DRAWN BY
JS

REVISION
1

FLOOR PLAN NOTES



2 A1.010 FLOOR PLAN- LEVEL 2
1/8" = 1'-0"



1 A1.010 FLOOR PLAN- LEVEL 1
1/8" = 1'-0"

PROJECT NORTH

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PROJECT # : 120022.00
DRAWN BY: VAM
CHECKED BY: VAM

NILES BOLTON ASSOCIATES

07/06/20

NILES BOLTON ASSOCIATES
281

3060 Peachtree Rd. N.W.
Suite 600
Atlanta, GA 30305

T 404 365 7600

www.nilesbolton.com

No.	Description	Date

HUNTERS RIDGE
833 DEMING ROAD
BERLIN,CT, 06037

METRO REALTY LLC

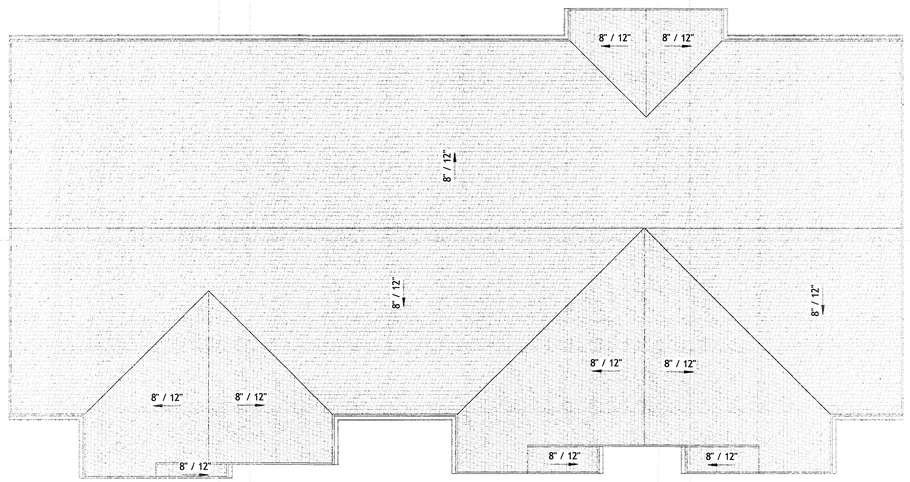
SHEET TITLE:
BUILDING PLAN- LEVELS 1 & 2

SHEET NUMBER:
A1.010

07-09-2020

NOT RELEASED FOR CONSTRUCTION

ROOF NOTES



1 / A1.R00 ROOF PLAN
1/8" = 1'-0"

PROJECT NORTH

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PROJECT # : 120022.00
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CHECKED BY: VAM

NILES BOLTON ASSOCIATES

07/06/20

NILES BOLTON ASSOCIATES
281

3060 Peachtree Rd. N.W.
Suite 600
Atlanta, GA 30305

T 404 365 7600

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No.	Description	Date

HUNTERS RIDGE
833 DEMING ROAD
BERLIN,CT, 06037

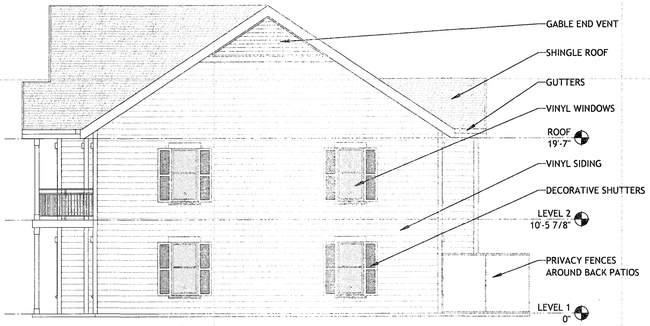
METRO REALTY LLC

SHEET TITLE:
ROOF PLAN

SHEET NUMBER:
A1.R00

07-09-2020

NOT RELEASED FOR CONSTRUCTION



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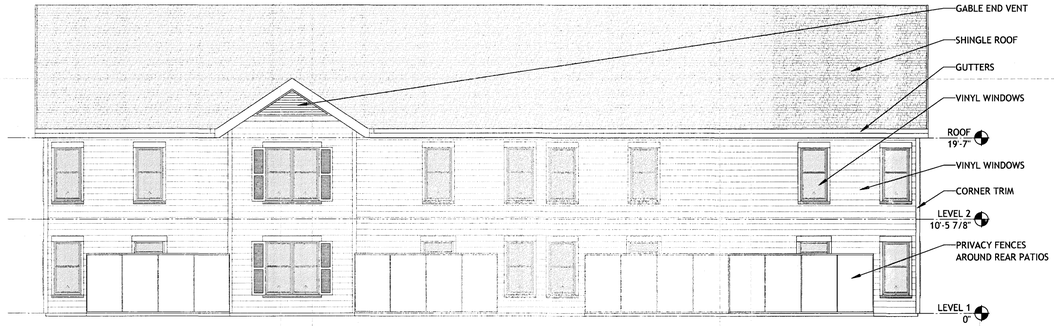
1/8" = 1'-0"



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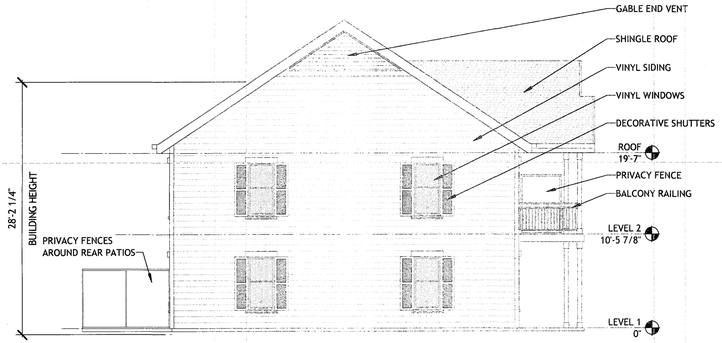

3 A3.001 ELEVATION- EXTERIOR- LEFT SIDE
1/8" = 1'-0"

1 A3.001 ELEVATION- EXTERIOR- FRONT
1/8" = 1'-0"

PROJECT # : 120022.00
DRAWN BY: VAM
CHECKED BY: VAM

NILES BOLTON ASSOCIATES

07/06/20

NILES BOLTON ASSOCIATES
281

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No.	Description	Date

HUNTERS RIDGE
833 DEMING ROAD
BERLIN,CT, 06037

METRO REALTY LLC

SHEET TITLE:
ELEVATIONS- EXTERIOR

SHEET NUMBER:
A3.001

07-09-2020

NOT RELEASED FOR CONSTRUCTION

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Traffic Impact Study

833 Deming Road Residential Development

Berlin, Connecticut

July 2020

Town of Berlin Land Use Applications
CTDOT District 1 Encroachment Permit Application

146 Hartford Road
Manchester, CT 06040

Prepared for:
Metro Realty Group, L.T.D
6 Executive Drive
Farmington, CT 06032

20200382.A10

FUSS & O'NEILL

Table of Contents

Traffic Impact Study
833 Deming Road Residential Development
Berlin, Connecticut

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(Continued)

Traffic Impact Study
833 Deming Road Residential Development
Berlin, Connecticut

Appendices **End of Report**

Summary Sheet

As an aid to reviewers, this Summary Sheet has been included to outline the various study parameters utilized in this report. Although a full explanation of the study methodologies is included in the text of the report, this summary can serve as a useful reference for reviewers.

Applicant:
Metro Realty Group, L.T.D.

Site Acreage:
11.40 acres

Development Size/Type:
88 Residential Units

Parking:
143 parking spaces, including 6 reserved if needed for future parking

Applications:
Town of Berlin Land Use Applications
CTDOT District 1 Encroachment Permit Application

Build Year:
2022

Background Traffic Growth Factor:
0.9% per year

Traffic Counts:
Connecticut Department of Transportation – November 2018 (Automatic Traffic Recorder Counts)

Peak Hours Analyzed:
Morning Peak Hour – 8:00 am to 9:00 am
Afternoon Peak Hour – 5:00 pm to 6:00 pm

Expected New Trip Generation:
Morning Peak Hour – 42 Trips (9 entering, 33 exiting)
Afternoon Peak Hour – 53 Trips (33 entering, 20 exiting)

Capacity Analysis:
Technique –Highway Capacity Manual 6th Edition
Execution – Synchro Professional Software, Version 10.0

1 Introduction

Metro Realty Group, L.T.D. proposes to construct 88 residential units in Berlin, Connecticut. The property is currently made up of three parcels with site access on Route 160 (Deming Road). These parcels are located on the north side of Route 160, east of Bacon Lane, and are bordered by Eversource property to the west, residential property to the east, and Cold Spring Brook Farm to the north. The proposed site location is depicted on the site location map, *Figure No.1* of *Appendix B*. A total of 143 parking spaces will be provided on site for the proposed residential development, six of which will be deferred for future use if needed. The development is expected to be completed in 2022.

Fuss & O'Neill has been retained to study the impact of the proposed development on traffic conditions on the adjacent roadway network. This report has been prepared to document the findings of the study and is being submitted to the Town of Berlin in support of the local approval process as well as CTDOT District 1 in support of an Encroachment Permit application.

2 Existing Condition

2.1 Site of Development

The existing site is currently made up of three parcels that will be combined to create a single 11.40 acre lot. The existing site includes two single family homes that will be removed during construction of the proposed development. The site is located on the north side of Deming Road and bordered by Eversource property to the west, agriculture property to the north, and residential property to the east.

2.2 Adjacent Roadway Network

The adjacent roadway network consists of the following roadways:

- Route 160 (Deming Road/New Britain Avenue)
- Bacon Lane

Route 160 (Deming Road/New Britain Avenue) generally runs east to west through the study area providing access to the Town of Rocky Hill to the east and Route 15 (Berlin Turnpike) to the west. Route 160 provides two lanes of travel, one in each direction, and is classified by CTDOT as an urban minor arterial roadway in the vicinity of the site. Route 160 widens for exclusive turn lanes at key intersections. The posted speed limit is 40 miles per hour and the travel lanes are 12 feet wide. The land use surrounding Deming Road is a mix of commercial, residential, and retail.

Bacon Lane is a short connector roadway, approximately one tenth of a mile in length that runs generally east/west between Route 160 and Wethersfield Road. Bacon Lane carries two lanes of travel, one in each direction, and is classified by CTDOT as an urban collector. The posted speed limit is 25 miles per hour and the travel lanes are 13 feet wide. The land use surrounding Bacon Lane is primarily residential and professional office.

2.3 Study Area Intersection

The following study intersection was reviewed:

- Route 160 (Deming Road/New Britain Avenue) at Site Driveway

The unsignalized intersection of Route 160 at the proposed Site Driveway will provide approaches from the east and west on Route 160 and from the north on the site driveway. The Route 160 approach from the east will provide a free moving combined through/right turn lane and the approach from the west will provide a free moving combined through/left turn lane. The site driveway approach from the north will be stop controlled and provide a combined left/right turn lane.

2.4 Traffic Volumes, Speeds and Counts

The greatest potential for traffic impact on the roadway network by the proposed development will occur during the morning and afternoon peak hours, the periods when commuter/residential related trips are at their highest levels. Peak hour traffic volumes were obtained from recent Automatic Traffic Recorder (ATR) counts performed by the Connecticut Department of Transportation on Wednesday, November 14, 2018 through Thursday, November 14, 2018 on Route 160 at the Berlin Town Line. The traffic count data collected indicates that the 48 hour traffic volume on Route 160 is approximately 9,200 vehicles per day. The morning peak hour of traffic is 8:00 a.m. to 9:00 a.m. and the afternoon peak hour is 5:00 p.m. to 6:00 p.m. These peak hours were subsequently analyzed for impacts.

The existing traffic volumes for these peak hours are shown in *Figure No. 2* of *Appendix B.* Copies of the ATR traffic data have been included in *Appendix E* of this report.

3 Background Traffic Conditions

3.1 Growth Rate

Upon consultation with the Connecticut Department of Transportation (CTDOT), the 2018 existing traffic volumes were projected to the 2022 design year using a 0.9 percent per year peak hour growth factor to account for normal traffic growth in the study area.

3.2 Other Developments

Fuss & O'Neill contacted the Connecticut Department of Transportation (CTDOT) Bureau of Planning and Development, the Town of Berlin Town Planner, and the Town of Rocky Hill Town Planner to identify any other pending or recently approved developments by the Planning and Zoning commission (PZC) having site related traffic in the study area. One such development was identified.

A mixed use development containing 15,022 square feet of retail space and 2,807 square feet of residential space is proposed at 104 Episcopal Road. This development has been included in the analysis

as it will create new site related traffic at the study area intersection. Expected site generated traffic volumes were obtained from the traffic impact study prepared by BL Companies in July 2019.

Traffic volumes from this development are depicted in *Figure 3 of Appendix B*. These volumes were added to the grown 2022 traffic volumes to obtain the 2022 Background traffic volumes which are defined as design year traffic without the proposed 833 Deming Road development. These projected Background traffic volumes are shown in *Figure No. 4 of Appendix B*.

3.3 Planned Roadway Improvement Projects

Fuss & O'Neill contacted the Connecticut Department of Transportation (CTDOT) District 1 office and the Town of Berlin Public Works Department to determine if any roadway improvements are planned in the area of the proposed development. An upgrade of the traffic signal at the intersection of Routes 5/15, Route 160, and Deming Road (Int. No. 007-208) to the west is planned and anticipated to begin construction in spring 2021. In addition, the replacement of signs and sign supports along various curves throughout Cromwell and Berlin is currently under design and is expected to begin construction in December 2022. These planned projects will provide safer and more efficient traffic operations at the intersection and serve to benefit the residents traveling to and from the proposed development.

4 Proposed Conditions

4.1 Development

Metro Realty Group, L.T.D. proposes to construct 88 residential units in Berlin, Connecticut on property currently made up of three parcels north of Route 160 (Deming Road) and east of the Eversource Drive and Bacon Lane intersection. The site location is shown on the site location map, *Figure No.1* of *Appendix B*. A total of 143 new parking spaces will be provided on site for the proposed residential development, six of which will be reserved for future use if needed. The development is expected to be completed in 2022.

4.2 Site Access and Circulation

One full access site driveway will be provided on Route 160 (Deming Road) approximately 430 feet east of the intersection of Deming Road at Bacon Lane and the Eversource Drive. This full access driveway will connect to all parking areas located throughout the development.

4.3 Trip Generation

The expected site generated traffic volumes were calculated using existing empirical data from the Institute of Transportation Engineers (ITE) publication Trip Generation, 10th edition, 2020. This publication is an industry-accepted resource for determining trip generation. Trip generation for the morning and afternoon peak hour was calculated using the ITE land use code 220 "Multifamily Housing

(Low-Rise)". The ITE manual indicates that the 88 unit development is expected to generate a total of 42 vehicle trips (9 entering, 33 exiting) during the morning peak hour, and a total of 53 vehicle trips (33 entering, 20 exiting) during the afternoon peak hour. A summary of the peak hour trip generation information for the proposed 88 unit development is provided in *Table 1* of *Appendix A*.

4.4 Trip Distribution

The distribution of traffic entering and exiting the proposed site was applied to the road network based on the existing regional traffic distributions and the layout of the adjacent roadway network. During the peak hours, the following arrival distributions of traffic are anticipated:

- 60 percent from Deming Road (Route 160) to the west
- 40 percent from Deming Road (Route 160) to the east

A regional arrival/departure distribution for the new site generated traffic traveling to and from the project site is shown in *Figure No. 5* of *Appendix B*.

4.5 Combined Volumes

The site generated traffic was distributed to the roadway system based on the arrival/departure distributions with the results shown in *Figure No. 6* of *Appendix B*. These volumes were then added to the background volumes to yield the year 2022 peak hour Combined traffic volumes shown in *Figure No. 7* of *Appendix B*.

5 Analyses

5.1 Crash Analysis

Crash data was gathered from the University of Connecticut Crash Data Repository for Route 160 (Deming Road) along the site frontage.

The records were gathered for the most recent three years of available data, January 1, 2017 through December 31, 2019. A summary of the crash data per intersection is provided in *Table 2* of *Appendix A*. A detailed tabulation of the crash data has been provided in *Appendix F*.

The site frontage along Deming Road experienced an average of 4.33 crashes per year during the three year study period. The majority of these crashes (6) were uncommon, involving collisions with animals, fallen trees, and other atypical collisions. The second highest frequency of collisions (3) were front to rear collisions mainly attributable to stopped traffic at the traffic signal at the Bacon Lane intersection to the west. Given the traffic volumes experienced on Deming Road and the presence of the traffic signal, the frequency and type of crashes reported is not considered abnormal.

5.2 Intersection Sight Distance Analysis

Intersection sight distances were measured at the proposed site driveway location in accordance with criteria set forth in the 2003 CTDOT *Highway Design Manual*. Intersection sight distance is measured from a point 15 feet back from the edge of traveled way at a height of 3.5 feet, the standard height of a driver's eye.

For a design speed of 45 miles per hour, 500 feet of intersection sight distance is required for a passenger car turning left or right out of the site driveway onto a two-lane roadway.

The intersection sight distance measured looking left (east) out of the driveway was 502' feet, when taken 10' back from the edge of traveled way, limited by roadside vegetation along the site frontage and the horizontal curvature in the roadway on Route 160 to the east. The intersection sight distance to the west was measured to be in excess of 600 feet.

It is recommended that clearing and trimming of vegetation be completed along the Route 160 (Deming Road) site frontage east and west of the proposed site driveway location within both the State right of way and the site property. Adequate intersection sight distances in excess of 500 feet when measured from 15 feet back from the traveled way will be provided for safe egress from the site upon completion of the required clearing of vegetation.

5.3 Intersection Capacity Analysis

Capacity analyses for unsignalized intersections were conducted using Synchro Professional Software, version 10.0.

In discussing unsignalized intersection capacity analyses results, the term level of service (LOS) is used as a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

The definition for LOS, as well as the methodology for conducting unsignalized intersection capacity analyses, are taken from the "Highway Capacity Manual 6th Edition" published by the Transportation Research Board.

Using the above referenced methodologies, the morning and afternoon peak hour capacity analyses were conducted at the Route 160 (Deming Road) intersection with the proposed Site Driveway.

Table No. 3 of *Appendix A* presents a summary of the levels of service at the unsignalized intersection for the combined conditions traffic volume. Copies of the analysis worksheets can be found in *Appendices C and D*, for the morning and afternoon peak hours respectively.

At the unsignalized intersection of Route 160 (Deming Road) at the proposed site driveway, the Deming Road eastbound approach left turn movement will operate efficiently at LOS A during both the morning and afternoon peak hours under combined conditions. The southbound site driveway approach will operate acceptably at LOS B and C during the morning and afternoon peak hours respectively under combined conditions. Based on these levels of service, drivers can expect to experience minimal levels of delay when traveling through this intersection.

5.4 Queue Analysis

Combined Condition 95th percentile (design) queue lengths were reviewed at the study intersection. The 95th percentile (design) vehicle queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study intersection. The queue lengths are provided in the Synchro capacity analysis worksheets, which are located in *Appendix C and D. Tables 4 & 5* of *Appendix A,* provide a summary of the queue lengths for the critical lanes at each intersection.

At the intersection of Route 160 (Deming Road) at the proposed site driveway, minimal queuing (averaging less than one vehicle length) is experienced on all approaches under combined conditions during the morning and afternoon peak hour.

6 Conclusions & Recommendations

The purpose of preparing a Traffic Impact Study is to identify the impact of the proposed residential development's site generated traffic. The study efforts have indicated that the proposed development will conservatively generate up to 42 vehicle trips (9 entering, 33 exiting) during the morning peak hour, and a total of 53 vehicle trips (33 entering, 20 exiting) during the afternoon peak hour.

The proposed residential development in Berlin, Connecticut will be located on 833 Deming Road. The property is currently made up of three parcels on the north side of Route 160 (Deming Road), just east of the intersection with Bacon Lane. Construction is expected to be completed in 2022. The proposed site location is shown on the site location map, *Figure No.1* of *Appendix B.* A total of 143 new parking spaces will be provided on site for the proposed residential development, six of which will be deferred for future use if necessary.

One full access site driveway will be provided on Route 160 (Deming Road) approximately 430 feet east of the intersection of Deming Road at Bacon Lane and the Eversource Drive.

Capacity analysis revealed that the proposed residential development site driveway and intersecting Deming Road approaches operate at an acceptable Level of Service in the combined conditions. In addition, queue lengths for critical approach movements at the study intersection will be insignificant and average less than one vehicle in length.

A review of crash data provided by the University of Connecticut Crash Data Repository indicated that there were no abnormal crash frequencies and crash patterns in the study area given the volume of traffic and roadway classification in the study area.

The location of the site access driveway on Deming Road will provide adequate intersection sight distance for passenger cars exiting the site driveway on Deming Road looking both east and west, following clearing and trimming of vegetation along the site frontage as part of the site construction.

Based on the results of this study, the following recommendation should be implemented to facilitate safe and efficient movement of traffic within the study area:

- Clear, trim, and maintain vegetation within the site property and state right of way along Route 160 (Deming Road) to maintain the required intersection sight distance (a minimum of 500 feet) looking east and west from the site driveway.

It should also be noted that existing conditions revealed the horizontal curve to the east of the site currently maintains proper curve warning signage along and before the curve. There was also reflective striping recently implemented along the curve to increase visibility of the curve. This curve is currently under review by the CTDOT for the removal/addition of curve warning signage under CTDOT project #0171-0440.

Based on the results of the foregoing analysis, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed development, along with the recommendations outlined above, will not have a significant impact to traffic operations within the study area.

Appendix A

Tables

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Table 1

Peak Hour Site Generated Traffic Volumes
833 Deming Road Residential Development
Berlin, Connecticut

Residential Development (88 Units)	Total Trips	Trips Entering	Trips Exiting
Morning Peak Hour	42	9	33
Afternoon Peak Hour	53	33	20

Note: Trip generation based on Rate per Land use Code 220 Multifamily Housing (Low-Rise), as published in *Trip Generation,* 10th Edition, 2020.

FUSS & O'NEILL

Table 2

Intersection Crash Data Summary
833 Deming Road Residential Development
Berlin, Connecticut

Intersections	Crashes Per Year			
	2017	2018	2019	Average/Year
Site Frontage Along Deming Road	4*	5	4	4.33

*Values indicated are number of crashes along the site frontage during the time period shown.
Data provided by the Connecticut Department of Transportation via the UConn repository.

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Table 3

Unsignalized Intersection Level of Service Summary
833 Deming Road Residential Development
Berlin, Connecticut

Unsignalized Intersection	2022 Morning Peak Hour		2022 Afternoon Peak Hour	
	Background	Combined	Background	Combined
Deming Road at Site Driveway				
EB Approach Left Turns	N/A	LOS A	N/A	LOS A
SB Approach	N/A	LOS B	N/A	LOS C

*Values indicated are approach LOS

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Table 4

Morning Peak Hour Queue Length Summary
833 Deming Road Residential Development
Berlin, Connecticut

Intersection	Approach Lane	2022 Background Queue	2022 Combined Queue
Deming Road at Site Driveway	EB Approach SB Approach	N/A N/A	0 Feet 5 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

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Table 5

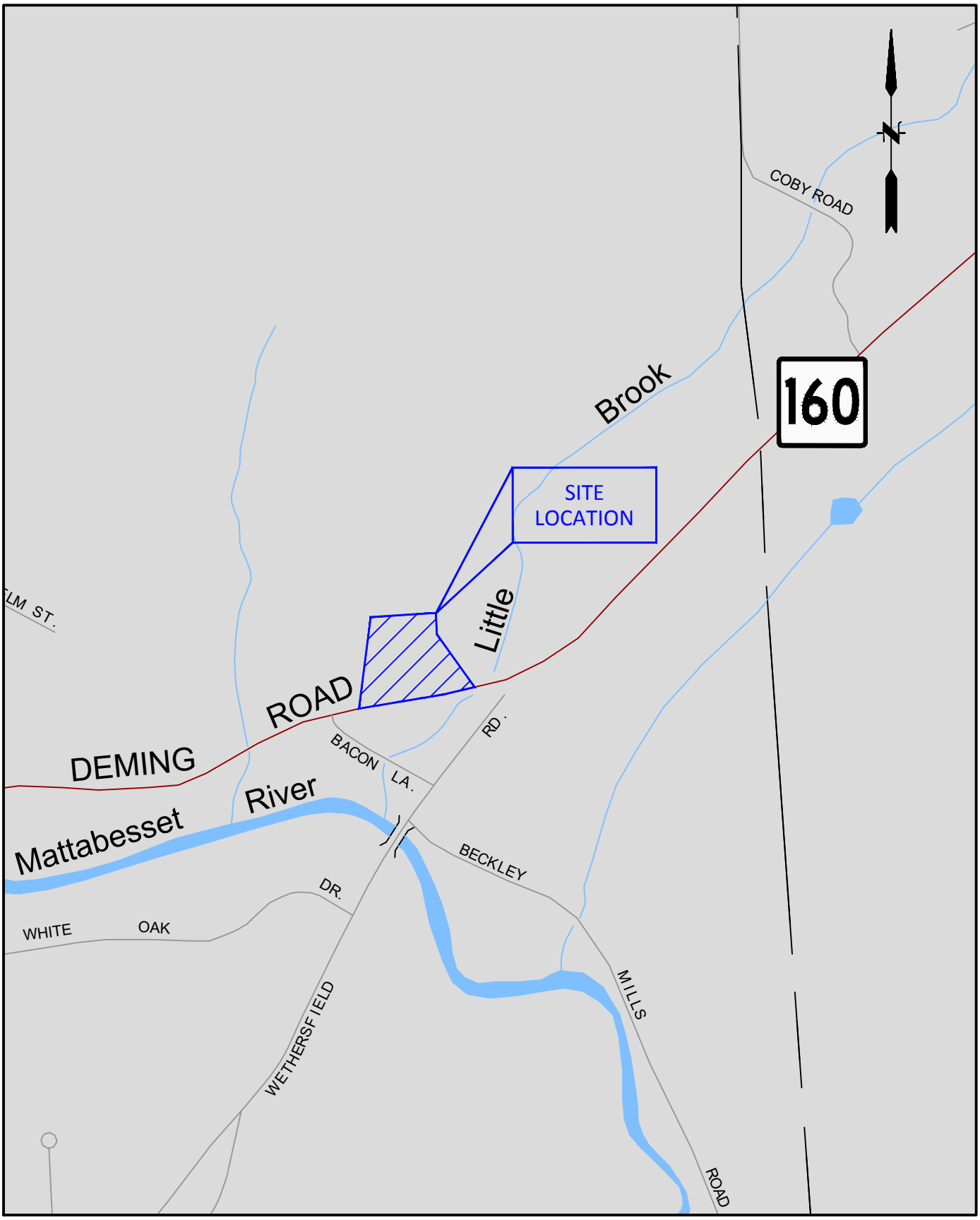
Afternoon Peak Hour Queue Length Summary
833 Deming Road Residential Development
Berlin, Connecticut

Intersection	Approach Lane	2022 Background Queue	2022 Combined Queue
Deming Road at Site Driveway	EB Approach SB Approach	N/A N/A	5 Feet 5 Feet

NOTE: Values indicated represent 95th percentile (design) vehicle queue lengths. Values are rounded to the nearest 5 feet.

Appendix B

Figures



0 300 600

SCALE: 1" = 600'

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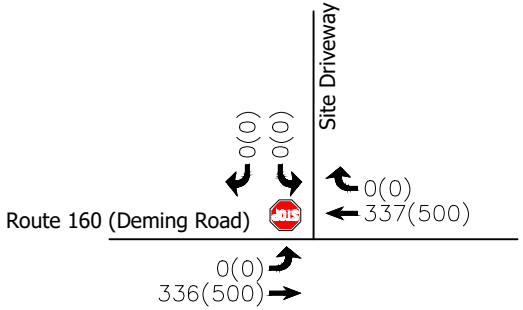
FIGURE 1: SITE LOCATION PLAN

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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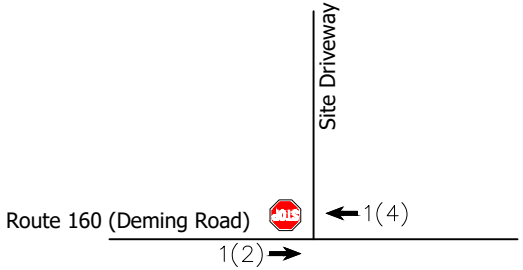
FIGURE 2: 2020 EXISTING TRAFFIC VOLUMES

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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FIGURE 3: BACKGROUND GENERATOR - 104 EPISCOPAL ROAD

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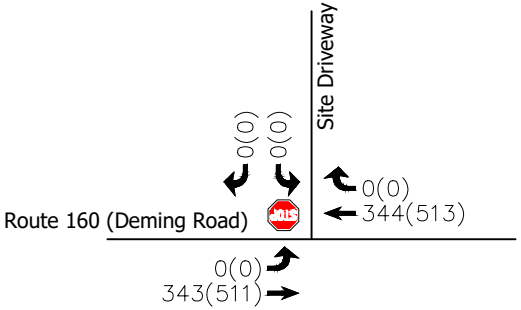

XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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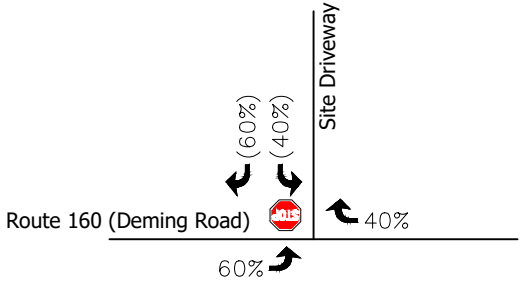
FIGURE 4: 2022 BACKGROUND TRAFFIC VOLUMES

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020



XX(XX) = ENTERING TRAFFIC (EXITING TRAFFIC)

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FIGURE 5: SITE GENERATED TRIP DISTRIBUTION

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020

SITE GENERATED TRAFFIC VOLUMES

	ENTER	EXIT	TOTAL
MORNING	9	33	42
AFTERNOON	33	20	53

XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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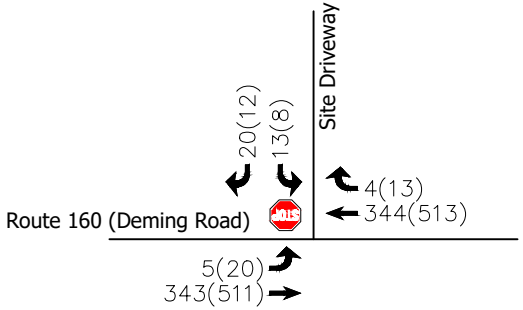
FIGURE 6: SITE GENERATED TRAFFIC VOLUMES

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)

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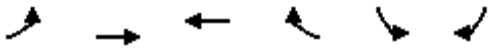
FIGURE 7: 2022 COMBINED TRAFFIC VOLUMES

PROJ. NO: 20200382.A10 | 833 DEMING ROAD RESIDENTIAL DEVELOPMENT - BERLIN, CT | JULY 2020

Appendix C

Intersection Capacity Analysis Worksheets
2022 Combined Traffic Volumes
Morning Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	343	344	4	13	20
Future Volume (vph)	5	343	344	4	13	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.917	
Flt Protected		0.999			0.981	
Satd. Flow (prot)	0	2109	1861	0	1676	0
Flt Permitted		0.999			0.981	
Satd. Flow (perm)	0	2109	1861	0	1676	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		381	313		215	
Travel Time (s)		8.7	7.1		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	373	374	4	14	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	378	378	0	36	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	343	344	4	13	20
Future Vol, veh/h	5	343	344	4	13	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	373	374	4	14	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	378	0	-	0	759	376
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1180	-	-	-	374	670
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1180	-	-	-	372	670
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	689	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1180	-	-	-	509
HCM Lane V/C Ratio	0.005	-	-	-	0.07
HCM Control Delay (s)	8.1	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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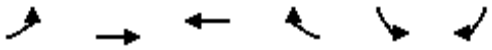
Appendix D

Intersection Capacity Analysis Worksheets
2022 Combined Traffic Volumes
Afternoon Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	511	513	13	8	12
Future Volume (vph)	20	511	513	13	8	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.920	
Flt Protected		0.998			0.980	
Satd. Flow (prot)	0	2107	1857	0	1679	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	2107	1857	0	1679	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		381	313		215	
Travel Time (s)		8.7	7.1		4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	555	558	14	9	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	577	572	0	22	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	511	513	13	8	12
Future Vol, veh/h	20	511	513	13	8	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	555	558	14	9	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	572	0	-	0	1164	565
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	599	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1001	-	-	-	215	524
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	549	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1001	-	-	-	208	524
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	549	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1001	-	-	-	326
HCM Lane V/C Ratio	0.022	-	-	-	0.067
HCM Control Delay (s)	8.7	0	-	-	16.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Appendix E

Automatic Traffic Recorder (ATR) Data

Status: OK

RKYH-027 - East & West

Route 160 - 1.09 mi At Berlin Town Line

Town.....Rocky Hill
Station.....27
Location..... 41.647362,-72.713947
2015-Minor Arterial 4.....2015-Urban
Start Report.....14-Nov-2018 07:00AM
End Report.....15-Nov-2018 07:00AM
Axle Correction Factor.....None
Annualized ADT.....9200
24-Hour Count.... 9828 * G4(0.94) = 9238.3
UnRounded AADT.....9238.3 / 1 = 9238.3

OK	2018 Wed 14-Nov -this report-...	9200
OK	2015 Thu 15-Oct	10700
OK	2012 Wed 24-Oct	8400
REV	2009 Mon 09-Nov	7300
OK	2006 Mon 30-Oct	8500

	14-Nov Wed	15-Nov Thu
12:00am	x	19
01:00am	x	10
02:00am	x	6
03:00am	x	9
04:00am	x	33
05:00am	x	131
06:00am	x	327
07:00am	660	x
08:00am	661	x
09:00am	540	x
10:00am	552	
11:00am	576	
12:00pm	653	
01:00pm	618	
02:00pm	692	
03:00pm	780	
04:00pm	955	
05:00pm	982	
06:00pm	623	
07:00pm	414	
08:00pm	255	
09:00pm	196	
10:00pm	95	
11:00pm	41	
Totals	9293	535

Appendix F

Crash Data

Uconn Crash Data

833 Deming Road
Berlin, Connecticut
1/1/2017-12/31/2019

Date Of Crash	Time of Crash	Severity	No. of Veh.	Town	Milage	Roadway	Intersecting Roadway	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances
1.) Site Frontage Along Deming Road												
2/14/2017	9:59:00	PDO	2	Berlin	0.63	DEMING RD	BACON LA	Angle	Clear	Daylight	Dry	None
3/16/2017	18:03:00	PDO	2	Berlin	0.96	DEMING RD/ROCKY HILL LINE	unknown	Front to front	Clear	Daylight	Dry	None
4/20/2017	17:02:00	PDO	2	Berlin	0.68	DEMING RD	unknown	Front to rear	Clear	Daylight	Dry	None
8/11/2017	14:25:00	PDO	1	Berlin	0.79	DEMING RD	unknown	Not Applicable	Clear	Daylight	Dry	None
4/5/2018	12:13:00	PDO	1	Berlin	0.63	160-E	BACON LA	Not Applicable	Clear	Daylight	Dry	None
4/14/2018	14:19:00	Injury - Suspected Serious	2	Berlin	0.74	160-E	unknown	Other	Clear	Daylight	Dry	None
7/25/2018	17:52:00	PDO	2	Berlin	0.63	160-E	BACON LA	Other	Cloudy	Daylight	Wet	None
11/20/2018	23:23:00	Injury - Possible	1	Berlin	0.63	160-E	BACON LA	Not Applicable	Clear	Dark-Lighted	Dry	None
12/26/2018	17:41:00	PDO	2	Berlin	0.63	160-E	unknown	Sideswipe, opposite direction	Clear	Dark-Not Lighted	Dry	None
4/3/2019	7:06:00	PDO	1	Berlin	0.73	160-E	unknown	Not Applicable	Clear	Daylight	Dry	Animal(s) in Roadway
10/17/2019	3:04:00	PDO	1	Berlin	0.67	160-E	unknown	Not Applicable	Rain	Dark-Not Lighted	Wet	Weather Conditions
11/5/2019	14:52:00	PDO	2	Berlin	0.97	160-E	unknown	Not Applicable	Clear	Daylight	Dry	None
11/22/2019	7:53:00	PDO	2	Berlin	0.63	160-E	BACON LA	Front to rear	Cloudy	Daylight	Dry	None

PDO - Property Damage Only

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

June 17, 2020

Megan B. Raymond
Milone and MacBroom Inc
195 Church St, 7th fl
New Haven, CT 06510
mraymond@mminc.com

Project: Multi-family residential subdivision, Hunters Ridge, 823 and 833 Deming Rd, Berlin, CT
NDDB Determination No.: 202007274

Dear Ms. Raymond,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the proposed multi-family residential subdivision at 823 and 833 Deming Rd in Berlin, Connecticut. According to our records, there are populations of State Special Concern Eastern box turtles in the vicinity, as well as Banded sunfish (*Enneacanthus obesus*) that occur in Cold Spring Brook (Little Brook) and Blueback herring (*Alosa aestivalis)* that occur in the adjacent Mattabesset River. I concur with your box turtle protection measures.

Please be advised that a DEEP Fisheries Biologist will review the permit applications you may submit to DEEP regulatory programs to determine if your project could adversely affect state listed fish. DEEP Fisheries Biologists are routinely involved in pre-application consultations with regulatory staff and applicants in order to identify potential fisheries issues and work with applicants to mitigate negative effects, including to endangered species. If you have not already talked with a Fisheries Biologist about your project, you may contact the Permit Analyst assigned to process your application for further information, including the contact information for the Fisheries Biologist assigned to review your application. This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by June 17, 2022.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and such new information is incorporated into the database as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3378, or deep.nddbrequest@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Karen Zyko
Environmental Analyst

Wetland Delineation and Impact Assessment

823 and 833 Deming Road
Berlin, Connecticut
June 23, 2020

Prepared for:
Metro Realty Group
6 Executive Drive, Suite 100
Farmington, Connecticut 06032

MMI #3571-40-05

Prepared by:
MILONE & MACBROOM, INC.
195 Church Street
New Haven, Connecticut 06510
(203) 344-7887
www.mminc.com

MILONE & MACBROOM
ENGINEERING | PLANNING | LANDSCAPE ARCHITECTURE | ENVIRONMENTAL SCIENCE

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1.0 INTRODUCTION

On behalf of Metro Realty Group, Milone & MacBroom, Inc. (MMI) has prepared the following report to describe the existing conditions of inland wetlands and watercourses and potential impacts to identified wetland resources resulting from a proposed multi-family residential development. MMI was retained to identify wetland resources on the property, evaluate potential impacts, and develop engineering drawings to facilitate proposed site improvements. The project will take place on three lots, two existing single-family dwelling parcels and a third undeveloped property, for a total of 11.3 acres. Proposed activities are depicted on the site plans entitled *Proposed Multi-Family Development* dated June 23, 2020.

MMI delineated inland wetlands on the properties in June 2019. Wetland resource areas are located on the eastern portion of the larger, undeveloped 9.36-acre site and consist of the Cold Spring Brook (also known as Little Brook) riparian corridor, which includes palustrine forested wetlands that border the perennial watercourse. The project has been designed to avoid impacts to Cold Spring Brook and abutting wetlands. No direct wetland disturbance is proposed and activities within the 50-foot upland review area are limited to 0.56 acre. The upland review area disturbance is necessitated for grading and stormwater management basins. The proposed stormwater basins will serve as an interface between the proposed hardscape and wetland corridor. The basins will provide functions such as sediment and toxicant retention and bioassimilation that will serve to buffer the wetland and watercourse from cumulative impacts over time.

As described in the following report, the proposed activities do not demonstrate the potential to adversely impact inland wetlands or affect their capacity to perform wetland functions. No direct wetland impact is proposed and indirect wetland impacts have been minimized in the short and long term. Sedimentation and erosion controls will provide wetland protection in the short term, while stormwater management is designed to minimize long-term impacts to on- and off-site wetland systems.

2.0 GENERAL SITE DESCRIPTION

The 11.3-acre subject property consists of three parcels located at 823 and 833 Deming Road in Berlin, Connecticut (Figure 1). The property lies northeast of downtown Berlin, in a moderately developed mixed-use area. Cold Spring Brook Farm abuts the property to the north, an Eversource Energy property lies to the west of the property, and single- and multi-family residential homes are located to the south of Deming Road.

Two single-family residences surrounded by mowed and maintained lawn exist adjacent to Deming Road in the southwest portion of the property and the undeveloped land extends north and east. The property slopes toward the Cold Spring Brook riparian corridor; Cold Spring Brook flows south through the site. The undeveloped portion of the site is dominated by hardwoods including red maple (*Acer rubrum*), black oak (*Quercus velvetina*), slippery elm (*Ulmus* sp.), and black walnut (*Juglans nigra*). Invasive shrubs and vines, including multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), Bell's honeysuckle (*Lonicera bella*), and oriental bittersweet (*Celastrus orbiculatus*), are scattered

throughout the forest. Groundcover also consists primarily of non-native herbs including garlic mustard (*Alliaria petiolata*), Japanese pachysandra (*Pachysandra terminalis*), dames rocket (*Hesperis matronalis*), mugwort (*Artemisia vulgaris*), poison ivy (*Toxicodendron radicans*), and goldenrod (*Solidago* sp.). Upland soils on the property are derived from glaciofluvial deposits, glaciolacustrine deposits, lodgment till, and eolian sands. Wetland soils are derived from alluvium.

Megan B. Raymond, a registered soil scientist and professional wetland scientist (PWS) with MMI, delineated inland wetlands and watercourses on the 11.3-acre site in June 2019 (Figure 2).

3.0 WETLAND DELINEATION

Inland wetlands on the subject property consist of palustrine forested broad-leaved deciduous wetlands surrounding Cold Spring Brook and a 0.03-acre depressional forested wetland located to the west of the riparian corridor.

Cold Spring Brook, a perennial watercourse, flows south across the east side of the subject property, is culverted beneath Deming Road, and enters the Mattabessett River approximately 800 feet south of Deming Road. Cold Spring Brook drains a watershed of approximately 1.18-square miles extending from northeastern Berlin across northwestern Rocky Hill. No Federal Emergency Management Act (FEMA) floodplains are mapped on the subject property. The sinuous channel provides riffle and glide habitat consisting primarily of fine sediments, though cobbles are scattered within the substrate near Deming Road. Well-vegetated, stable banks of approximately 3 feet tall confine the channel, which is approximately 5 feet wide with a water depth of approximately 1 foot.

Palustrine forested broad-leaved deciduous wetlands abut both sides of the watercourse. The wetlands are dominated by a red maple canopy with scattered black willows (*Salix nigra*) and speckled alder (*Alnus incana*). Patches of invasive shrubs including glossy buckthorn (*Frangula alnus*) and Japanese barberry are found throughout. Dense herbaceous vegetation covers the ground and consists primarily of jewelweed (*Impatiens capensis*), skunk cabbage (*Symplocarpus foetidus*), and sensitive fern (*Onoclea sensibilis*). Invasive herbs, including Japanese knotweed (*Polygonum cuspidatum*) and common reed (*Phragmites australis*), were observed adjacent to Cold Spring Brook. Wetland hydrology is supported by groundwater discharge and surface flow from Cold Spring Brook. A sanitary sewer line parallels the stream to the west.

A 0.03-acre depressional wetland dominated by a red maple canopy and dense herbaceous ground cover is located west of the riparian corridor, just north of Deming Road. Ground cover consists of jewelweed, dames rocket, Japanese pachysandra, and poison ivy. Two inlet pipes enter the wetland from the west, directing stormwater from the residential property. Stormwater is the primary hydrology source for this wetland.

3.1 Regulatory Definitions

The Inland Wetlands and Watercourses Act (Connecticut General Statutes §22a-38) defines inland wetlands as "land, including submerged land...which consists of any soil types designated as

poorly drained, very poorly drained, alluvial, and floodplain." Watercourses are defined in the act as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." The act defines intermittent watercourses as having a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Upland Review Area, per the Town of Berlin Inland Wetlands and Watercourses Regulations, includes any area within 50 feet of the boundary of any wetland or watercourse.

3.2 Methodology

A second-order soil survey in accordance with the principles and practices noted in the United States Department of Agriculture (USDA) publication *Soil Survey Manual* (1993) was completed within the wetland investigation area in June 2019. The classification system of the National Cooperative Soil Survey was used in this investigation. Soil map units identified at the project site generally correspond to those included in the *Soil Survey of the State of Connecticut* (USDA, 2005).

Wetland determinations were completed based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils and submerged land (e.g., a pond). Soil types were identified by observation of soil morphology (soil texture, color, structure, etc.). To observe the morphology of the property's soils, test pits and/or borings (maximum depth of 2 feet) were completed at the site.

Intermittent watercourse determinations were made based on the presence of a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Wetland boundaries were demarcated (flagged) with pink surveyor's tape (hung from vegetation) or small flags (on wire stakes) that are generally spaced a maximum of every 50 feet. Complete boundaries are located along the lines that connect these sequentially numbered flags. The wetland boundaries are subject to change until adopted by local, state, or federal regulatory agencies. Wetland boundaries are represented by wetland flags 1a through 16a, 100a through 116a, and 1b to 6b.

3.3 Soil Mapping

Eight soil map units were identified on the property (one wetland and seven upland; Figure 3). Each map unit represents a specific area on the landscape and consists of one or more soils for which the unit is named. Other soils (inclusions that are generally too small to be delineated separately) may account for 10 to 15 percent of each map unit. The mapped units are by name, symbol, and typical characteristics (parent material, drainage class, high water table, depth to bedrock, and slope) (Table 3-1). These characteristics are generally the primary characteristics to be considered in land use

planning and management. A description of each characteristic and its land use implications follows the table. A complete description of each soil map unit can be found in the *Soil Survey of the State of Connecticut* (USDA, 2005) and at *http://soils.usda.gov/technical/classification/osd/index*.

TABLE 3-1
Soil Unit Properties

Map Unit		Parent Material	Slope (%)	Drainage Class	High Water Table			Depth To Bedrock (inches)
Sym	Name				Depth (feet)	Kind	Months	
Upland Soil								
26B	Berlin silt loam	Glaciolacustrine deposits	3-8	Moderately well drained	1.0-2.5	Apparent	Jan-Apr; Oct-Dec	>80
30B	Branford silt loam	Eolian deposits over glaciofluvial deposits	3-8	Well drained	-	-	-	>80
33A	Hartford sandy loam	Glaciofluvial deposits	0-3	Somewhat excessively drained	-	-	-	>80
33B	Hartford sandy loam	Glaciofluvial deposits	3-8	Somewhat excessively drained	-	-	-	>80
37A	Manchester gravelly sandy loam	Glaciofluvial deposits	0-3	Excessively drained	-	-	-	>80
37E	Manchester gravelly sandy loam	Glaciofluvial deposits	15-45	Excessively drained	-	-	-	>80
87B	Wethersfield loam	Lodgment till	3-8	Well drained	1.5-2.5	Perched	Feb-Apr	20-40
Wetland Soil								
104	Bash silt loam	Alluvium	0-3	Somewhat poorly drained	0.5-6.0	Apparent	Jan-Dec	>80

3.4 Wetland Functional Assessment

A functional evaluation of on-site wetlands based on MMI field observations is summarized (Table 3-2 and 3-3). The first column lists the functions and values generally ascribed to wetlands while the second column summarizes the rationale used to determine whether these functions and values are being performed within the subject wetland and/or watercourse. The identified wetlands contribute to the majority of known wetland functions.

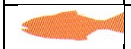
TABLE 3-2
Wetland Functions and Values Assessment – Cold Spring Brook Riparian Corridor

	Functions and Values	Comments
	Groundwater Recharge/Discharge	Yes – The wetland areas are supported by groundwater discharge and provide some recharge.
	Flood Flow Alteration (Storage & Desynchronization)	Yes – Though no mapped FEMA floodplain exists on the property, abutting wetlands provide some storage and attenuation of flood flows from Cold Spring Brook.
	Fish & Shellfish Habitat	Yes – The perennial hydrology of Cold Spring Brook may support fish habitat.
	Sediment/Toxicant Retention	Yes – Vegetated riparian wetlands provide mechanisms for sediment and toxicant retention.
	Nutrient Removal/Retention/ Transformation	Yes – Vegetated wetlands contribute to this function.
	Production Export (Nutrient)	Yes – Structural complexity and vegetative diversity allows for trophic level interaction within the wetland and watershed.
	Sediment/Shoreline/Watercourse Bank Stabilization	Yes – The landscape position and morphology of these wetlands contributes to bank stability.
	Wildlife Habitat	Yes – Structural complexity and native vegetative diversity across strata provide opportunities for wildlife habitat utilization.
	Recreation (Consumptive & Non-Consumptive)	No – These wetlands do not provide recreational opportunities.
	Educational Scientific Value	No – These wetlands do not provide educational opportunities.
	Uniqueness/Heritage	No – This area does not present unique attributes.
	Visual Quality/Aesthetics	No – The wetlands do not contain inherent visual quality or aesthetic value.
ES	Endangered Species	Yes – This area is mapped as Natural Diversity Data Base (NDDB) area as outlined by the Connecticut Department of Energy & Environmental Protection (CT DEEP) NDDB map dated December 2019, though no state listed flora or fauna was observed during the wetland delineation.

The principal functions of the wetlands include the following:

- Groundwater Recharge/Discharge
- Flood Flow Alteration
- Fish and Shellfish Habitat
- Sediment/Toxicant Retention
- Nutrient Removal/Transformation
- Production Export
- Bank Stabilization
- Wildlife Habitat

TABLE 3-3
Wetland Functions and Values Assessment – Depressional Wetland

	Functions and Values	Comments
	Groundwater Recharge/Discharge	No – The wetland does not provide groundwater recharge or discharge. The wetland is supported by stormwater runoff.
	Flood Flow Alteration (Storage & Desynchronization)	No – The wetland is not located within a mapped FEMA floodplain and its geomorphic position does not allow for contributions to this function.
	Fish & Shellfish Habitat	No – The wetland does not provide fish habitat.
	Sediment/Toxicant Retention	Yes – The vegetated nature of the wetland provides mechanisms for sediment and toxicant retention.
	Nutrient Removal/Retention/ Transformation	Yes – The vegetated nature of the wetland allows for contribution to this function.
	Production Export (Nutrient)	Yes – Structural complexity and vegetative diversity allows for trophic level interaction within the wetland.
	Sediment/Shoreline/Watercourse Bank Stabilization	No – The landscape position of the wetland does not allow for contribution to bank stability.
	Wildlife Habitat	Yes – Structural complexity and native vegetative diversity across strata provide opportunities for wildlife habitat utilization. However, the small size and proximity to the roadway limits use.
	Recreation (Consumptive & Non-Consumptive)	No – The wetland does not provide recreational opportunities.
	Educational Scientific Value	No – The wetland does not provide educational opportunities.
	Uniqueness/Heritage	No – This area does not present unique attributes.
	Visual Quality/Aesthetics	No – The wetland does not contain inherent visual quality or aesthetic value.
ES	Endangered Species	Yes – This area is mapped as NDDB area as outlined by the CT DEEP NDDB map dated December 2019, though no state listed flora or fauna was observed during the wetland delineation.

The principal functions of the wetlands include the following:

- Sediment/Toxicant Retention
- Nutrient Removal/Transformation

4.0 PROPOSED PROJECT

Connecticut regulates activities in and adjacent to wetlands and watercourses due to the potential for land development to result in short- and long-term direct and indirect impacts to wetlands and watercourses. This project has been designed to avoid direct and indirect impacts to wetlands and watercourses from a short- and long-term perspective. No direct wetland impacts are proposed. Work within the upland review area has been designed to avoid indirect wetland impacts.

The proposed project involves construction of 11 multi-family residential units and associated appurtenances in the western portion of the 11.3-acre site. The dwellings will be accessed to the north from Deming Road and arranged around the periphery of the development envelope, with vehicle access and parking located internal. In addition to the dwelling, recreational amenities are proposed, such as a swimming pool and walking trail. Portions of the proposed activities, 0.56 acre, are located within the 50-foot upland review area.

Proposed work within the upland review area involves site grading and installation of stormwater management basins. No impervious area is proposed within the upland review area. The creation of basins within the interface between the proposed development and the wetland corridor will provide a number of benefits related to water quality. The basins will be seeded with a wetland mix consisting of herbs and forbs and planted with native shrubs and saplings around the perimeter. The stormwater basins will allow renovation of stormwater through bioassimilation, infiltration, and evaporation. The vegetated features are intended to provide localized wildlife habitat for insects and song birds. The creation of wetlands within the upland review area will serve to protect and maintain the physical characteristics of the wetland corridor in the long term.

Portions of the subject property is mapped by NDDB as potential habitat for state listed flora and fauna. Correspondence with NDDB have determined that the site may provide habitat for Eastern box turtles (*Terrapene carolina carolina*). Cold Spring Brook and its receiving stream, the Mattabesset River, may provide fisheries habitat. To avoid impairment to these species, turtle protection protocols are provided on the plan set. These protections include hiring a biologist to perform sweeps of the site following silt fence installation and to make contractors aware of potential encounters with the species. Fish protections will be in place by maintaining the forested cover to the watercourse as well as protecting water quality.

4.1 Sediment and Erosion Control Measures

A Sediment and Erosion (S&E) Control Plan has been developed to mitigate any potential short-term impacts of development during construction. The S&E Control Plan includes descriptive specifications concerning land grading, topsoiling, temporary and permanent vegetative cover, and erosion checks. Details have been provided for all erosion controls with corresponding labels on the S&E Control Plan. All S&E controls provided are in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*.

4.2 Stormwater Management and Water Quality Protection

The project includes a stormwater management system that has been designed and will be installed and maintained in accordance with town and state standards. The system design and components employ standard engineering practices that are regularly used throughout the town and the northeast to prevent stormwater pollution.

The majority of on-site drainage will be directed via catch basins and yard drains through high density polyethylene (HDPE) storm drains into one of three proposed stormwater management basins, two located east of the proposed dwellings and one to the south, adjacent to Deming Road. The basins will treat stormwater generated by the site and outlet via an outlet control structure or high-level overflow riprap splash pad. The stormwater management basins will provide stormwater quality and quantity functions. The basins will be seeded and planted and serve as an interface between proposed improvements and the wetland corridor.

The project maintains consistency with state standards with the proposed central stormwater feature sized to accommodate the water quality volume (WQV). The *2004 Connecticut Stormwater Quality Manual* recommends methods for sizing stormwater treatment measures with WQV computations. The WQV addresses the initial stormwater runoff commonly referred to as the "first flush," which is the runoff generated by the first 1" of rainfall and tends to contain the highest concentrations of pollutants.

5.0 CONCLUSION

The proposed project includes construction of a multi-family residential development at 823 and 833 Deming Road in Berlin, Connecticut. Portions of the proposed activities, 0.56 acre, will take place within the upland review area to on-site wetlands. These activities consist of site grading and stormwater management measures. No impervious material is proposed within the upland review area. No direct wetland impacts are proposed. Indirect impacts will be managed by sediment and erosion control measures in the short term and stormwater management in the long term. Due to the implementation of short- and long-term site protections, the proposed project will not impact or affect the physical characteristics of the adjacent inland wetland system associated with Cold Spring Brook.

If there are any questions regarding this report or the wetlands and watercourses on this site, I may be reached at (203) 344-7889 or mraymond@mminc.com.

Very truly yours,

MILONE & MACBROOM, INC.

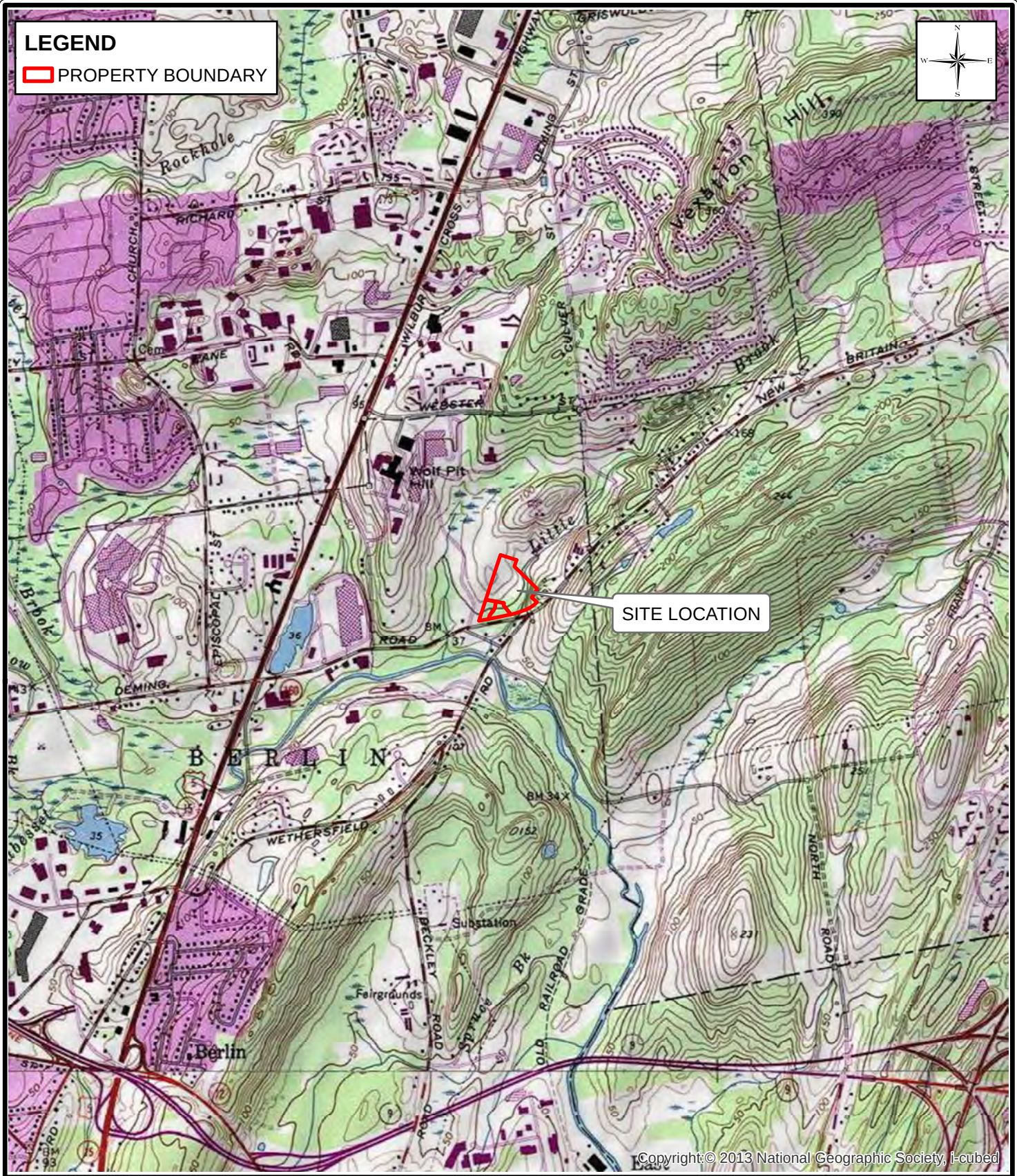
Megan B. Raymond, MS, PWS, CFM
Senior Project Manager, Environmental Science

3571-40-05-jn2220-rpt

APPENDIX A

NATURAL RESOURCE MAPS

MXD: Y:\3571-40\Maps\3571_40_OVERVIEW.mxd



MILONE & MACBROOM
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VICINITY MAP

HUNTERS RIDGE

823 & 833 DEMING ROAD
BERLIN, CONNECTICUT

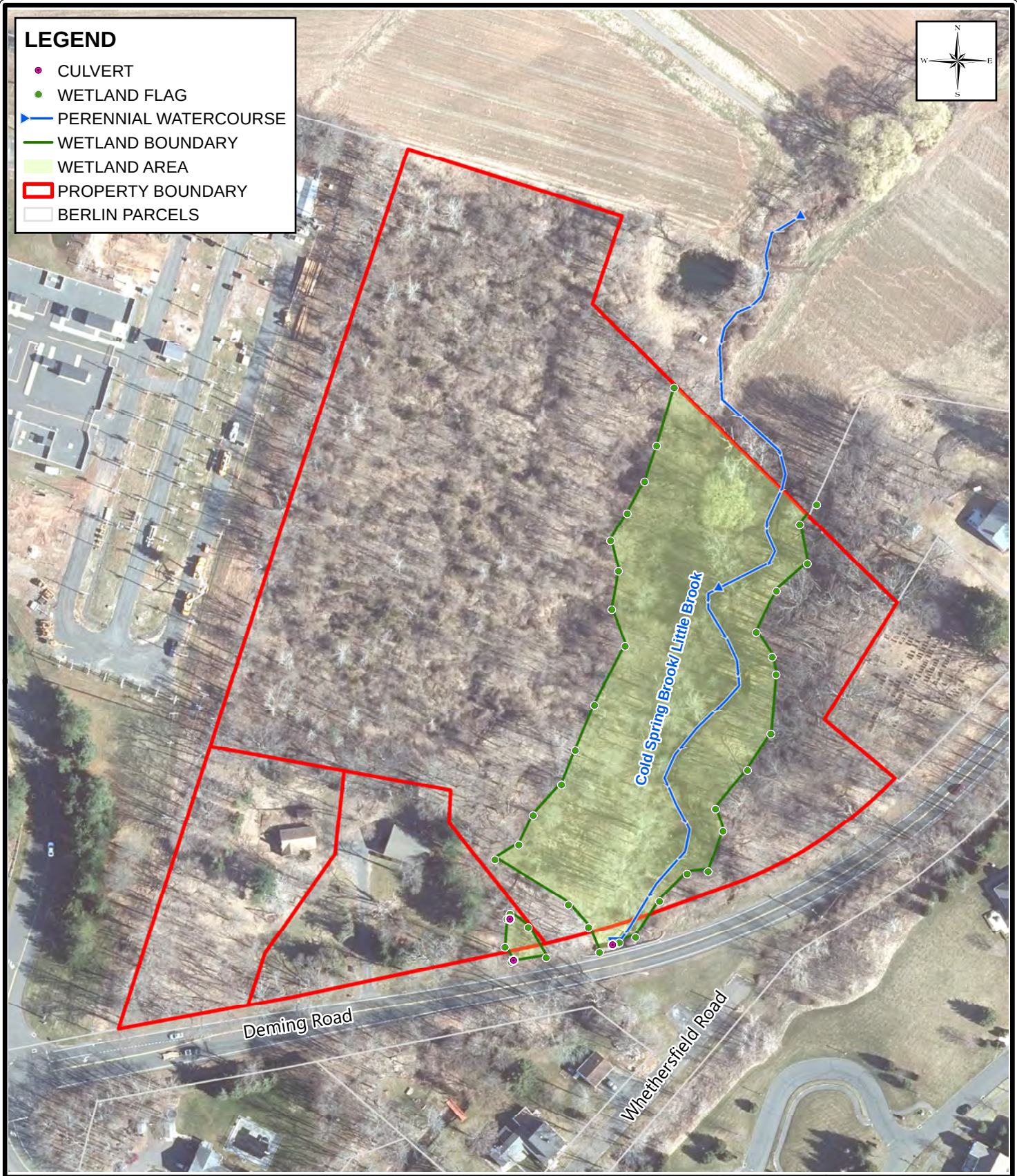
SOURCE: 2013 TOPOGRAPHIC MAP, NATIONAL GEOGRAPHIC SOCIETY

DATE: APRIL 8, 2020		
SCALE: 1 " = 2,000 '		
PROJ. NO.: 3571-40		
DESIGNED AYO	DRAWN AYO	CHECKED MBR

DRAWING NAME:

FIG. 1

MXD: Y:\3571-40\Maps\3571_40wetlands_.mxd



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WETLAND DELINEATION

HUNTERS RIDGE

823 & 833 DEMING ROAD
BERLIN, CONNECTICUT

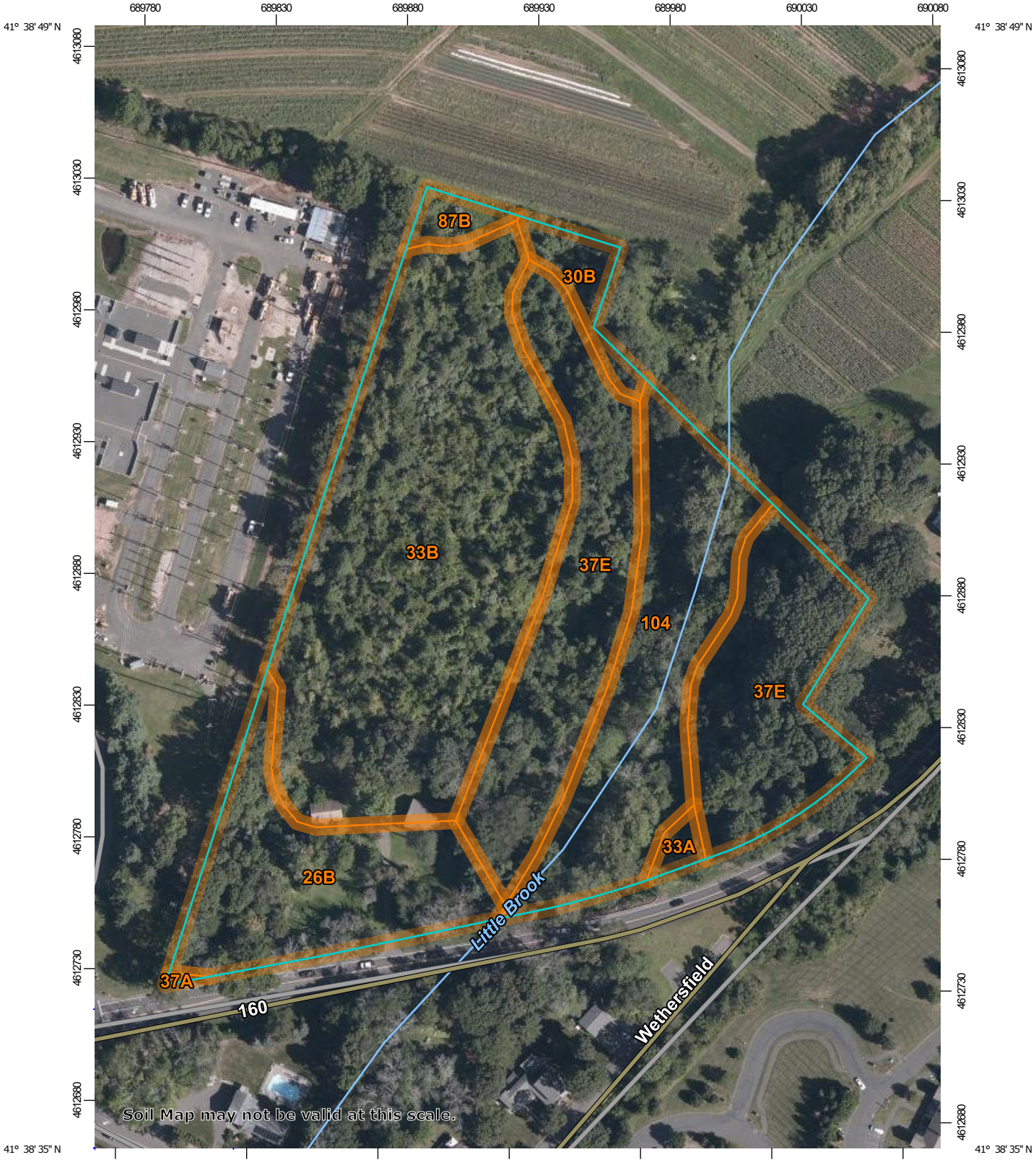
SOURCE: 2019 AERIAL PHOTO, CT DEEP

DATE: APRIL 8, 2020		
SCALE: 1 " = 150 '		
PROJ. NO.: 3571-40		
DESIGNED AYO	DRAWN AYO	CHECKED MBR

DRAWING NAME:

FIG. 2

Soil Map—State of Connecticut
(Deming Road)



Map Scale: 1:2,080 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 19, Sep 13, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 30, 2019—Oct 15, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26B	Berlin silt loam, 3 to 8 percent slopes	1.5	13.4%
30B	Branford silt loam, 3 to 8 percent slopes	0.3	2.2%
33A	Hartford sandy loam, 0 to 3 percent slopes	0.1	0.7%
33B	Hartford sandy loam, 3 to 8 percent slopes	4.3	38.1%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	0.0	0.1%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	3.2	28.0%
87B	Wethersfield loam, 3 to 8 percent slopes	0.1	1.2%
104	Bash silt loam	1.8	16.2%
Totals for Area of Interest		**11.3**	**100.0%**