

IWC # 19-21



**Town of Tolland
Inland Wetlands Commission
APPLICATION FOR PERMIT**

An incomplete application may be denied.

Applicant & Owner Information

53 MERROW RD

Site Address of Proposed Activity

STEPHEN D WILLIAMS

Applicant Name

36 BUFF CAP RD TOLLAND, CT 06084

Mailing Address

[REDACTED]

Phone Number

[REDACTED]

Email Address

SD WILLIAMS AND THE TOWN OF TOLLAND

Property Owner(s) Name *(if not the applicant)*

Mailing Address

Phone

Email Address

Applicant's Interest in the Land (if other than owner):

Proposed Activity

Describe the proposed activity:

SEE REPORT

What is the purpose of the proposed activity?

SITE GRADING

Wetland and Upland Review Area Information

Square feet of disturbance in wetland, watercourse or upland review area disturbance (list areas separately):

upland disturbance 37,500 s.f.

mitigation areas 8,960 s.f.

What is the total area of the wetlands in the parcel?

221,155 s.f.

List all wetlands of special interest (bogs, vernal pools, cedar swamps etc.):

SEE REPORT

Describe the primary functions of the wetland (water purification, wildlife habitat, flood storage etc.):

SEE REPORT

Alternatives

List all alternatives in detail and why the proposal to alter wetlands was chosen:

Abutters

List the names and addresses of adjacent property owners and add extra pages if necessary. You can find this information using <https://tollandct.mapgeo.io>

1. MELANIE YOUNG ET AL PO BOX 268 TOLLAND, CT 06084
2. STEVEN R & LAURIE A TOMPKINS 15 OLD POST RD TOLLAND, CT 06084
3. PACHECO REALTY LLC 65 MERROW RD TOLLAND, CT 06084
4. ALLIANCE ENERGY LLC 15 NORTH EAST INDUSTRIAL RD BRANFORD, CT 06405
5. DANIEL J & KRISTEN M GRONDIN 7 MERROW RD TOLLAND, CT 06084
6. WENDY S JOHNSON 52 WOODFIELDS DRIVE TOLLAND, CT 06084
7. JKG PROPERTIES 14 KATE LANE TOLLAND, CT 06084
8. MICHAEL K & LINDA S BYAM 70 WOODFIELDS DRIVE TOLLAND, CT 06084
9. GARY N & EILEEN P BENTON 44 WOODFIELDS DR TOLLAND, CT 06084
10. REGAN FAMILY PROPERTY LLC 4280 TIDEWATER DRIVE ORLANDO, FL 32812
11. MATTHEW J SEXTON 75 WOODFIELDS DRIVE TOLLAND, CT 06084
12. VICTOR & MAUREEN ROSSI 69 WOODFIELDS DRIVE TOLLAND, CT 06084

Additional Information

Supply any other information that would help in the understanding of the proposed activity:

SUBMITTAL REQUIREMENTS

1. Site plan of the existing and proposed conditions in relation to wetlands and watercourses (Scale of site plan should be 1" = 40', scale of location map 1" = 1000').
2. Filing fee.
3. **Eight (8) copies** of the application and all application materials shall be submitted to comprise a complete application or as otherwise directed in writing by the Inland Wetland Commission. (If within 500 feet of an adjoining municipality, and a public hearing has been scheduled, nine (9) copies must be submitted.)

Signature and Authorization

I, as the applicant, do hereby certify that I am familiar with all the information provided in the application and I am aware of the penalties for obtaining a permit through deception or through inaccurate or misleading information.

I, as the owner, do hereby authorize the members and designated agents of the Inland Wetlands Commission and professionals hired by the Commission for the purpose of reviewing this application to inspect the property from this date forward until the permitted activity is completed or the application is denied.

 12/16/19
Signature of Applicant Date

Signature of Owner (if different) Date

For Office Use	
Fees	
Amount:	260.00
Paid:	
Date:	12/16/19

RECEIVED
DEC 16 2019

SITE GRADING PLAN

53 MERROW RD · TOLLAND · CONNECTICUT
INLAND WETLANDS PERMIT SUBMISSION

DECEMBER 16, 2019

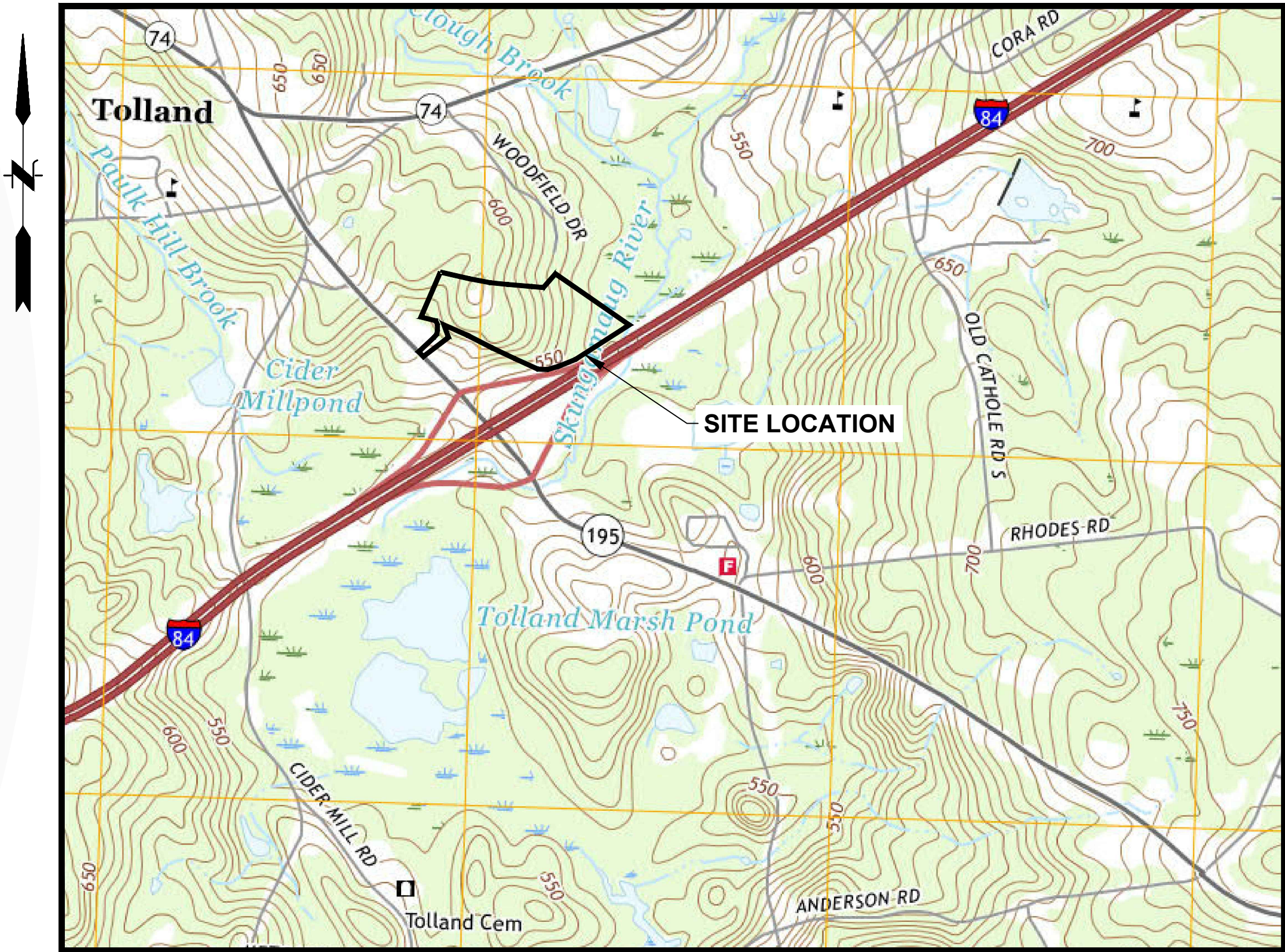
PREPARED FOR
STEPHEN D. WILLIAMS
36 BUFF CAP ROAD
TOLLAND CT



PREPARED BY
FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

SHEET INDEX

<u>SHEET No.</u>	<u>SHEET TITLE</u>
GI-001	COVER SHEET
GI-002	GENERAL NOTES
CG-100	OVERALL PLAN
CG-101	GRADING AND EROSION & SEDIMENT CONTROL PLAN
CG-102	GRADING AND EROSION & SEDIIMENT CONTROL PLAN
CD-501	EROSION & SEDIMENT CONTROL DETAILS



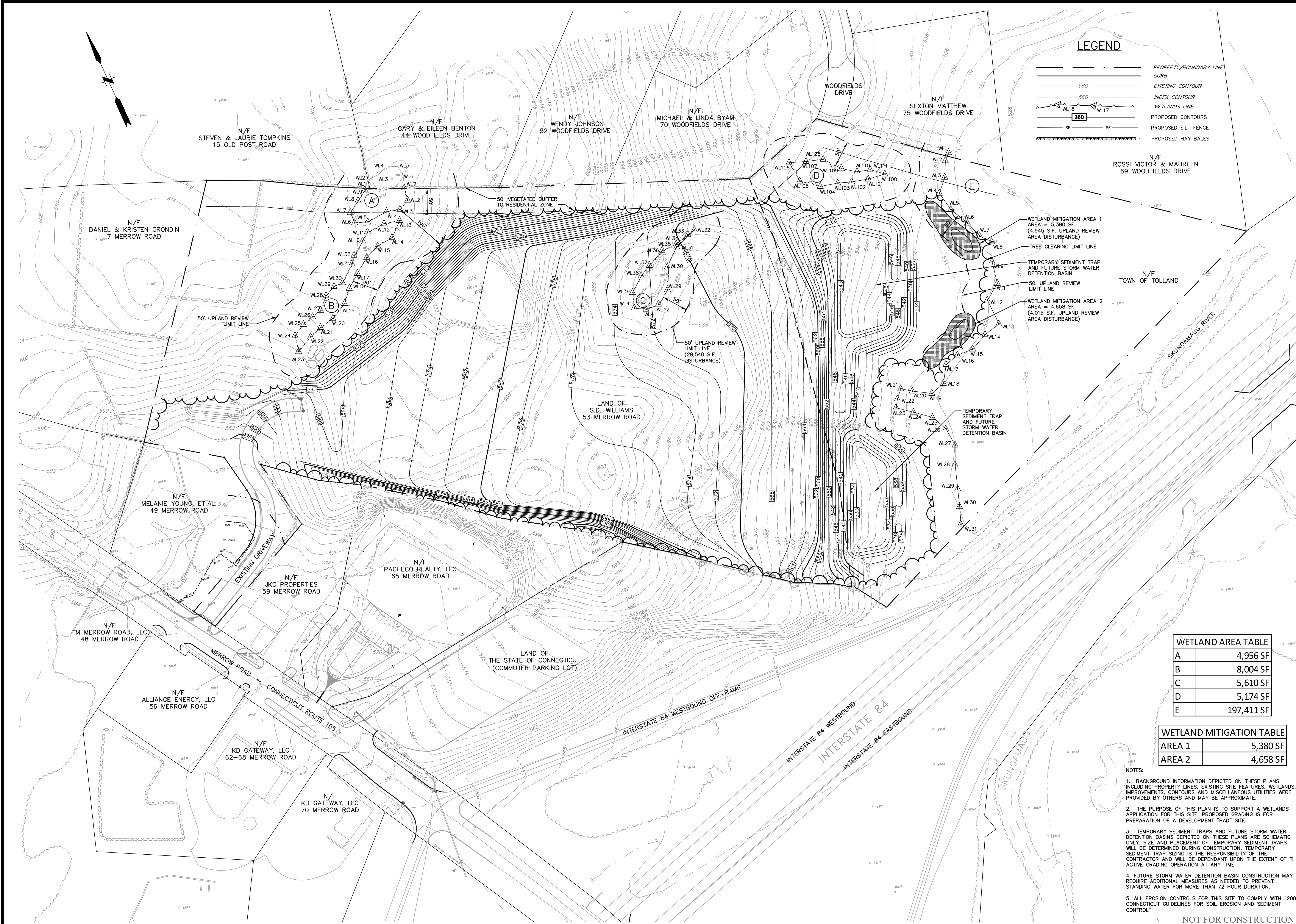
LOCATION MAP
SCALE: 1" = 1000'

PROJ. No.: 20140060.A30
DATE: DECEMBER 2019

GI-001

NOT FOR CONSTRUCTION

GI-002



STEPHEN D. WILLIAMS
OVERALL PLAN
53 MERROW ROAD

FUSS & O'NEILL
146 HARTFORD ROAD
NORWALK, CONNECTICUT 06040
www.fandoo.com

PROJ. No.: 20140060A30
DATE: DECEMBER 16, 2019

CG-100

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

SCALE: HORIZ.: 1" = 80'
VERT.: 1" = 40'
DATUM: NAD 83
HORIZ.: 1" = 80'
VERT.: 1" = 40'

GRAPHIC SCALE

TOLLAND
CONNECTICUT



- NOTES:
1. BACKGROUND INFORMATION DEPICTED ON THESE PLANS INCLUDING PROPERTY LINES, EXISTING SITE FEATURES, WETLANDS, IMPROVEMENTS, CONTOURS AND MISCELLANEOUS UTILITIES WERE PROVIDED BY OTHERS AND MAY BE APPROXIMATE.
 2. THE PURPOSE OF THIS PLAN IS TO SUPPORT A WETLANDS APPLICATION FOR THIS SITE. PROPOSED GRADING IS FOR PREPARATION OF A DEVELOPMENT "PAD" SITE.
 3. TEMPORARY SEDIMENT TRAPS AND FUTURE STORM WATER DETENTION BASINS DEPICTED ON THESE PLANS ARE SCHEMATIC ONLY. SIZE AND PLACEMENT OF TEMPORARY SEDIMENT TRAPS WILL BE DETERMINED DURING CONSTRUCTION. TEMPORARY SEDIMENT TRAP SIZING IS THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE DEPENDANT UPON THE EXTENT OF THE ACTIVE GRADING OPERATION AT ANY TIME.
 4. FUTURE STORM WATER DETENTION BASIN CONSTRUCTION MAY REQUIRE ADDITIONAL MEASURES AS NEEDED TO PREVENT STANDING WATER FOR MORE THAN 72 HOUR DURATION.
 5. ALL EROSION CONTROLS FOR THIS SITE TO COMPLY WITH "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL"

STEPHEN D. WILLIAMS

GRADING AND EROSION & SEDIMENT CONTROL PLAN

53 MERROW ROAD

TOLLAND

CONNECTICUT

PROJ. No.: 20140060.A30

DATE: DECEMBER 16, 2019

CG-101

SCALE: HORIZ.: 1" = 40'

VERT.: 1" = 4'

DATUM: NAD 83

HORIZ.: 1" = 40'

VERT.: 1" = 4'

GRAPHIC SCALE

FUSS & O'NEILL

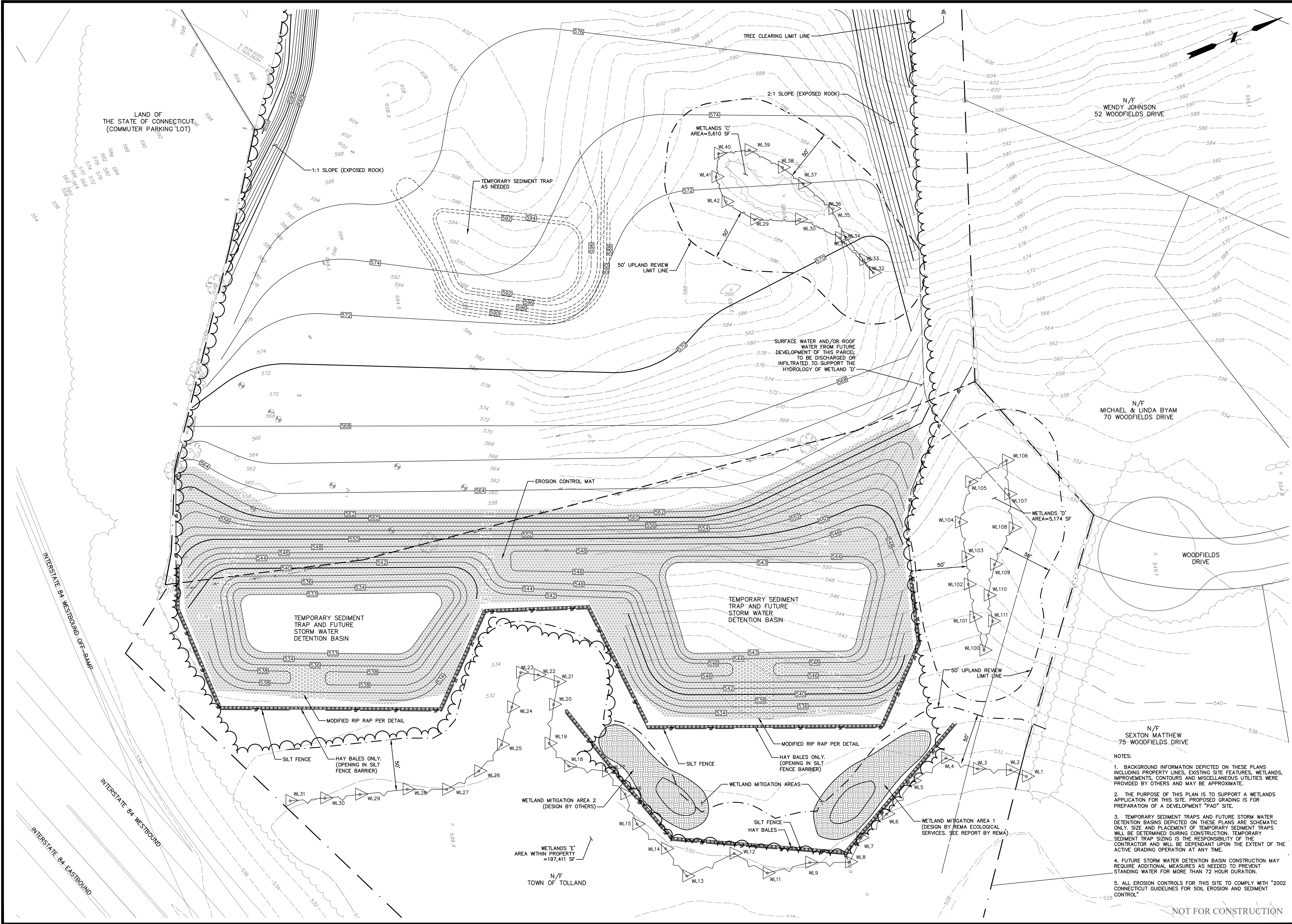
146 HARTFORD ROAD

NORWICH, CONNECTICUT 06040

860.640.2460

www.fussandoneill.com

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



- NOTES:
1. BACKGROUND INFORMATION DEPICTED ON THESE PLANS INCLUDING PROPERTY LINES, EXISTING SITE FEATURES, WETLANDS, IMPROVEMENTS, CONTOURS AND MISCELLANEOUS UTILITIES WERE PROVIDED BY OTHERS AND MAY BE APPROXIMATE.
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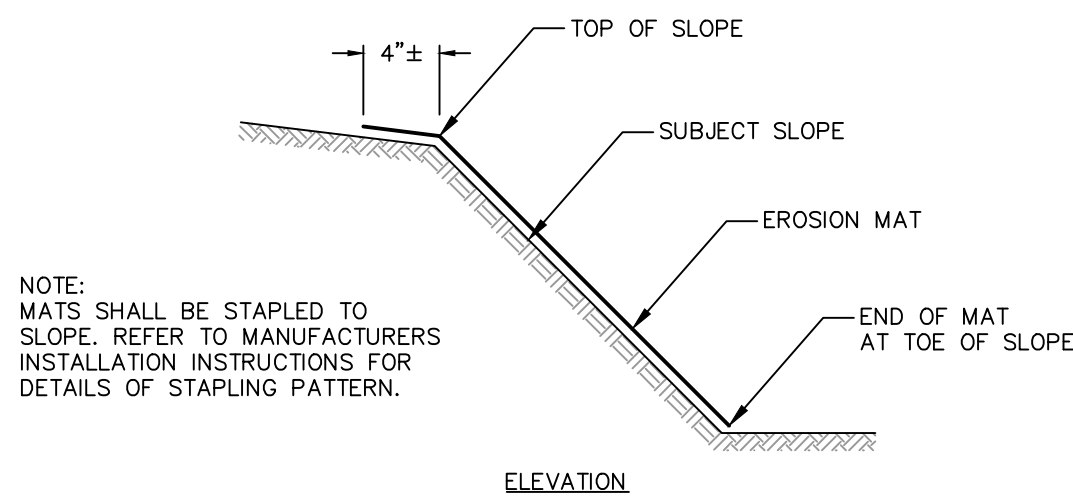
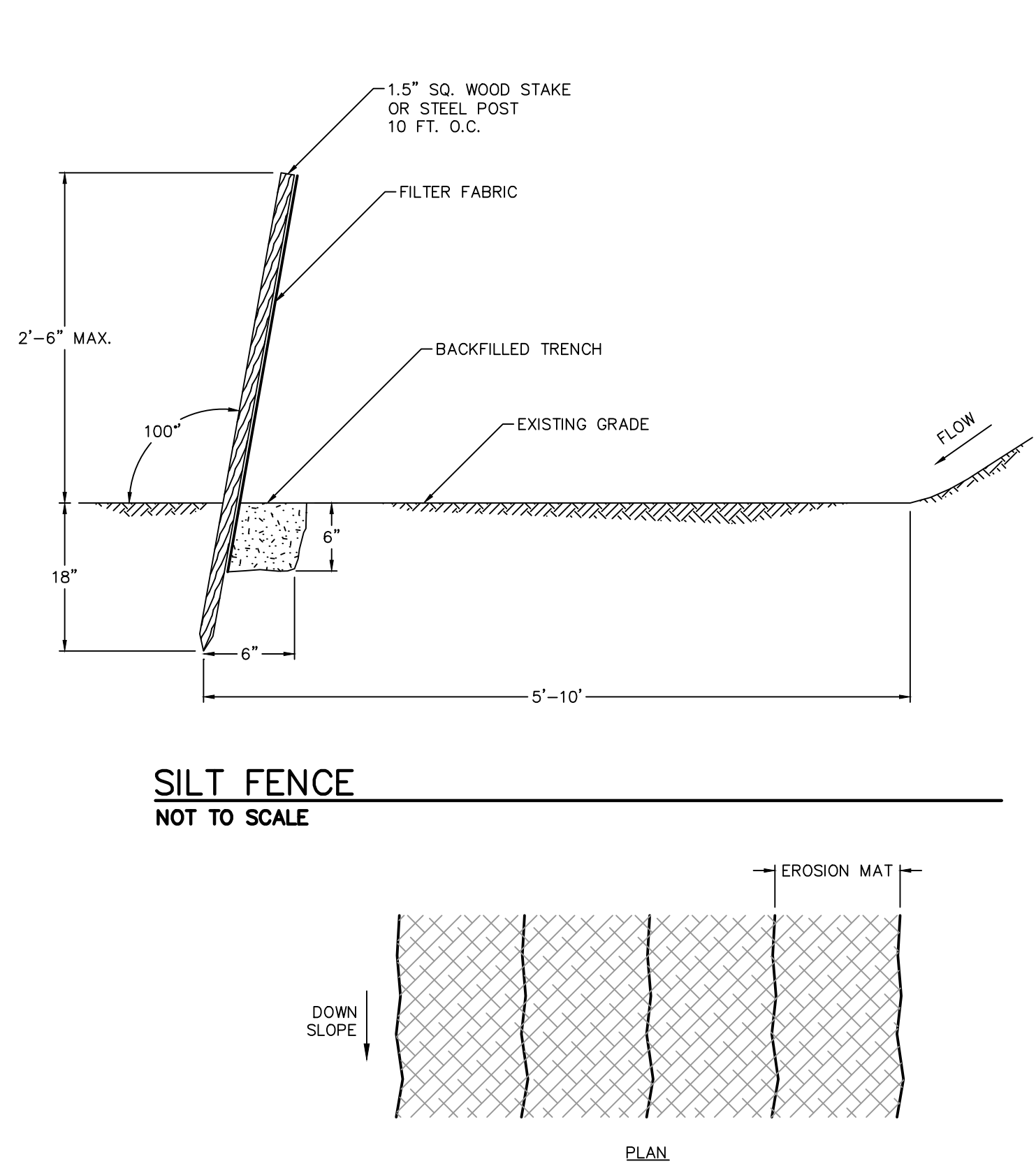
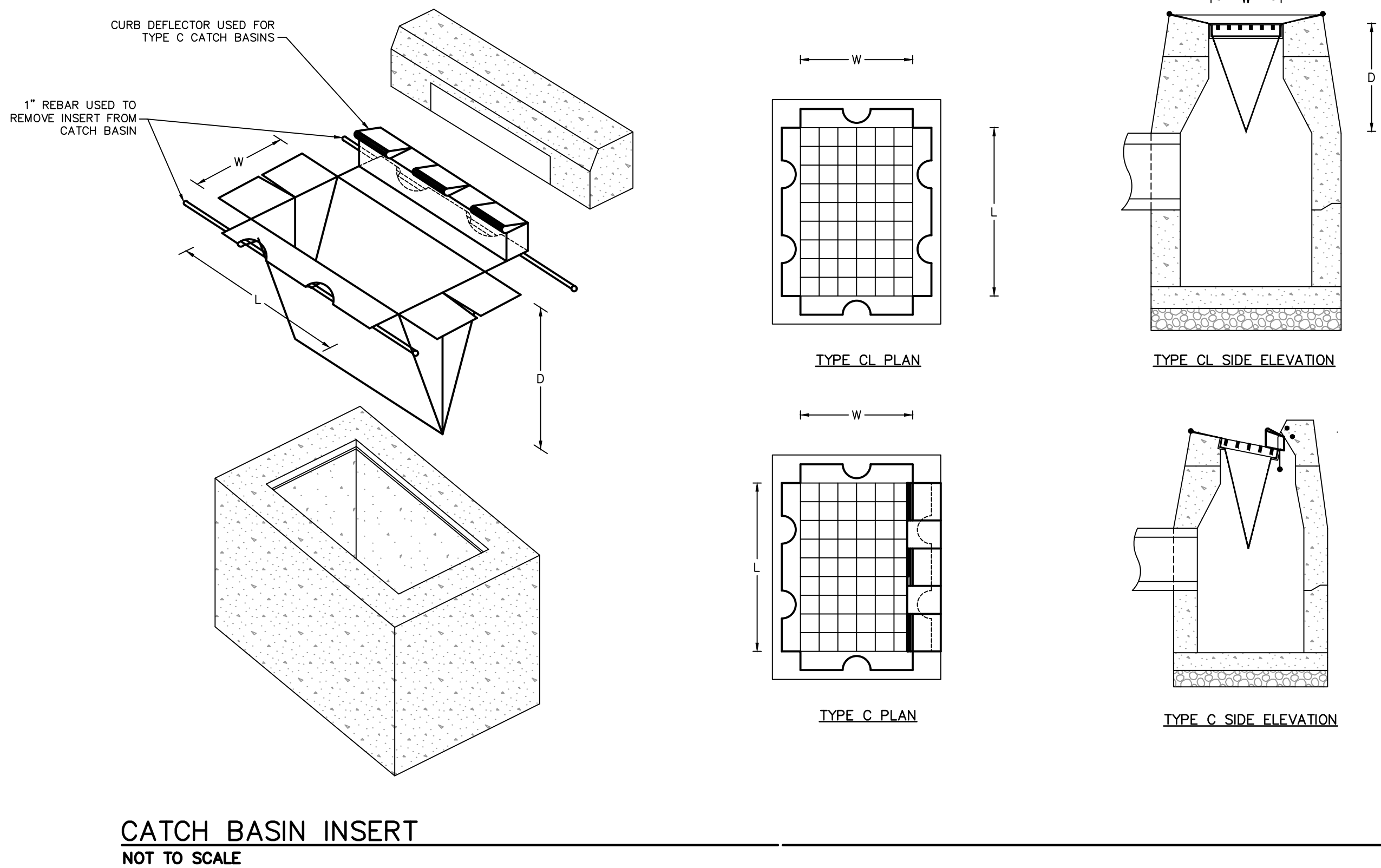
STEPHEN D. WILLIAMS
GRADING AND EROSION & SEDIMENT
CONTROL PLAN
53 MERROW ROAD
TOLLAND
CONNECTICUT

FUSS & O'NEILL
146 HARTFORD ROAD
NORWALK, CONNECTICUT 06040
860.646.2460
www.fandoo.com

SCALE: HORZ.: 1" = 40'
VERT.: 1" = 40'
DATUM: NAD 83
HORZ.: 1" = 40'
VERT.: 1" = 40'
GRAPHIC SCALE
40 20 0 20 40

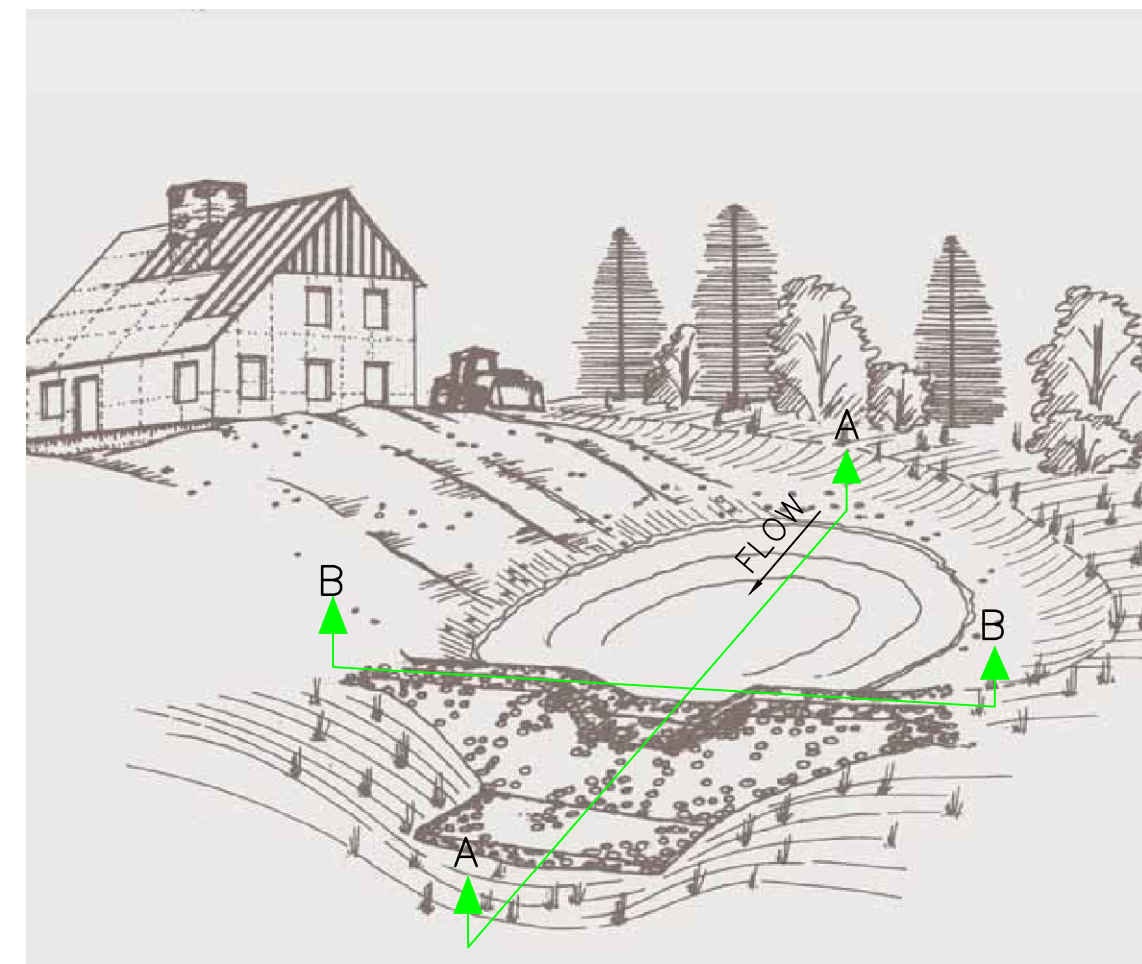
No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

PROJ. No.: 20140060A30
DATE: DECEMBER 16, 2019
CG-102



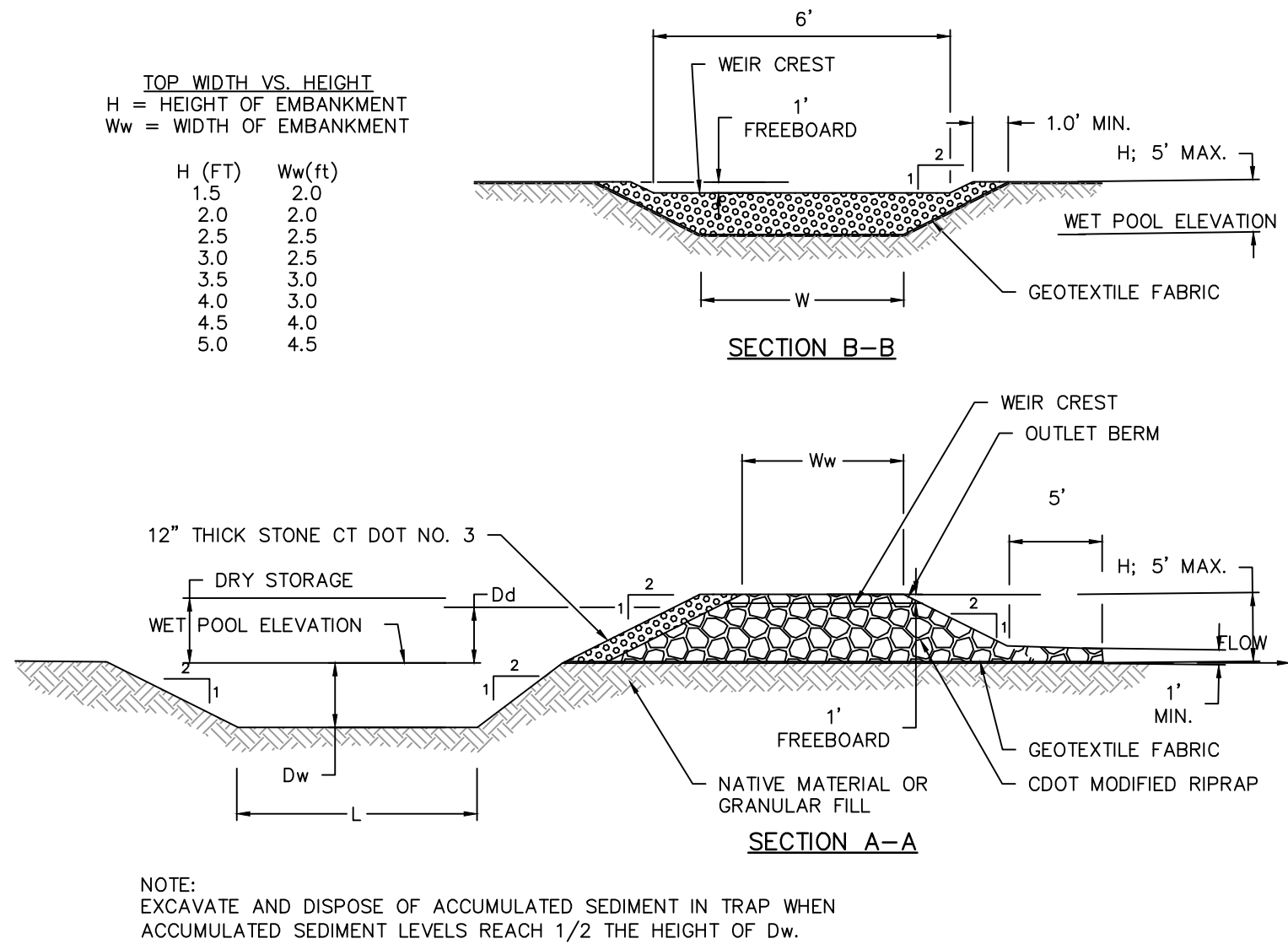
EROSION CONTROL MAT

SCALE: N.T.S.



TEMPORARY SEDIMENT TRAP

NOT TO SCALE

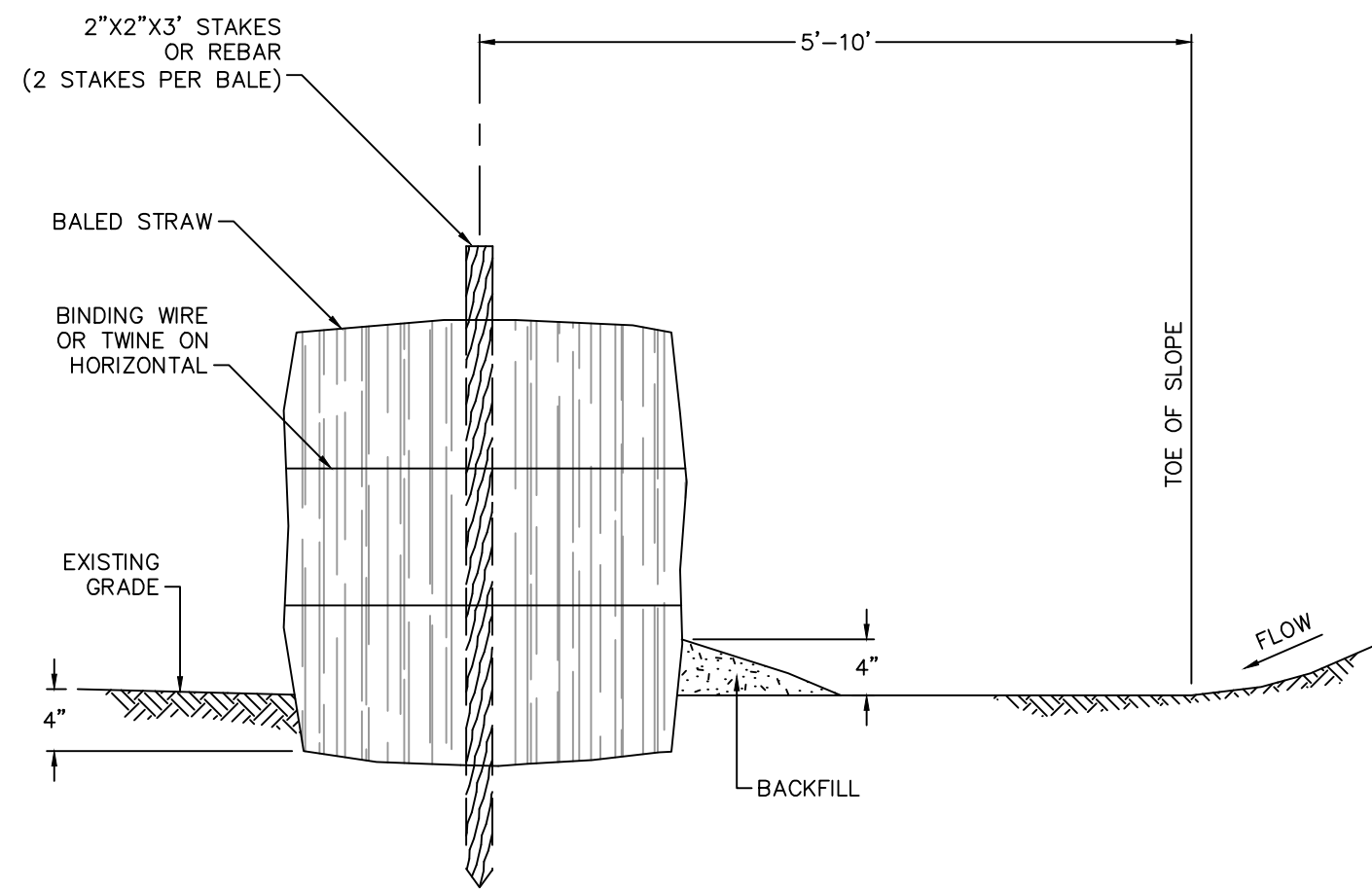


SEDIMENT TRAP NOTES

1. CONTRIBUTING AREA: 5 ACRES OR LESS.
2. DURATION OF USE: LESS THAN 2 YEARS.
3. REQUIRED TOTAL STORAGE VOLUME: 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, HALF OF WHICH SHALL BE IN THE WET STORAGE AREA, HALF SHALL BE IN THE DRY STORAGE AREA.
4. LENGTH TO WIDTH RATIO: 2:1 SHALL BE PROVIDED, IF POSSIBLE.
5. WET STORAGE VOLUME CALCULATION: SEE SEDIMENT AND EROSION CONTROL PLANS FOR DIMENSIONS
 $WSV = 0.85 \times AB \times D$ WHERE,
WSV = WET STORAGE VOLUME IN CUBIC FEET
AB = SURFACE AREA IN SQUARE FEET OF THE FLOODED AREA AT THE ELEVATION OF THE BASE OF THE RIPRAP OUTLET BERM (WET POOL ELEVATION, SEE SECTIONS)
D = MAXIMUM DEPTH IN FEET, MEASURED FROM THE LOW POINT IN THE TRAP TO THE BASE OF THE RIPRAP OUTLET BERM (WET POOL ELEVATION)
DRY STORAGE VOLUME: SEE SEDIMENT AND EROSION CONTROL PLANS FOR DIMENSIONS
 $DSV = ((AB + AT)/2) \times D$ WHERE;
DSV = DRY STORAGE VOLUME IN CUBIC FEET
AB = SURFACE AREA IN SQUARE FEET OF THE FLOODED AREA AT THE ELEVATION OF THE BASE OF THE RIPRAP OUTLET BERM (WET POOL ELEVATION, SEE SECTIONS)
AT = SURFACE AREA IN SQUARE FEET OF THE FLOODED AREA AT THE ELEVATION OF THE WEIR OF THE RIPRAP OUTLET BERM
D = DEPTH IN FEET, MEASURED FROM THE BASE OF THE RIPRAP OUTLET BERM TO THE ELEVATION OF THE WEIR OF THE RIPRAP OUTLET BERM

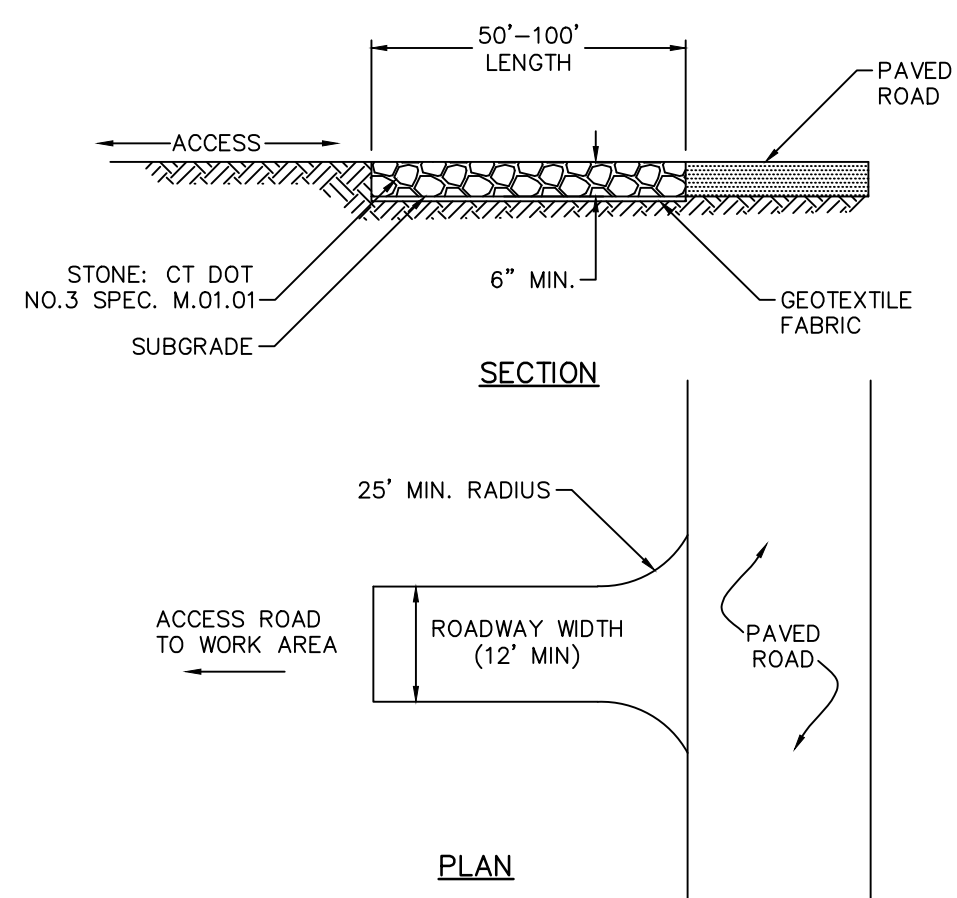
EROSION & SEDIMENT CONTROL NOTES

1. CONSTRUCTION STANDARDS – CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MOST RECENT EDITION OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (CT DEP BULLETIN 34). ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.
2. PLAN IMPLEMENTATION – IMPLEMENT THIS EROSION AND SEDIMENT CONTROL PLAN. THIS IMPLEMENTATION INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES UNTIL PERMANENT STABILIZATION IS ACHIEVED, INFORMING ALL SUBCONTRACTORS OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER MUNICIPAL AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN TO THE NEW OWNER IF THE TITLE OF THE LAND IS TRANSFERRED PRIOR TO ACHIEVING PERMANENT STABILIZATION.
3. INSTALLATION SCHEDULE – INSTALL THE CONSTRUCTION ENTRANCE BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO STUMP REMOVAL AND CONSTRUCTION. INSTALL ADDITIONAL CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER, HIS AGENTS OR AGENTS OF THE MUNICIPALITY.
4. FUGITIVE DUST – CONTROL FUGITIVE DUST USING WATER SPRAYS OR CALCIUM CHLORIDE ON SOIL SURFACES, SWEEPING PAVED AREAS, TEMPORARY WINDBREAKS OR NON-ASPHALTIC SOIL TACKIFIERS.
5. HAY BALE LIFE SPAN – INSTALL HAY BALES WHERE PROTECTION AND EFFECTIVENESS IS REQUIRED FOR LESS THAN 90 DAYS. OTHERWISE, INSTALL SILT FENCE.
6. CATCH BASINS – PROTECT CATCH BASINS WITH PROPER CONTROLS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
7. STOCKPILES – ENCIRCLE STOCKPILES OF ERODIBLE SOIL WITH A HAY BALE OR SILT FENCE BARRIER. THE SIDE SLOPES OF ERODIBLE STOCKPILED MATERIAL SHALL BE NO STEEPER THAN 2:1. STOCKPILES THAT ARE NOT TO BE USED WITHIN 30 DAYS SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE FORMED.
8. TOE OF SLOPE – ESTABLISH AN EROSION CONTROL BARRIER (SILT FENCE OR HAY BALE BARRIER) APPROXIMATELY 5 TO 10 FEET FROM THE PROPOSED TOE OF THE CUT OR FILL AREA PRIOR TO BEGINNING EARTHWORK.
9. SEDIMENT REMOVAL – SEDIMENT REACHING 1/2 THE HEIGHT OF THE EROSION CONTROL BARRIER SHALL BE REMOVED. REMOVE AND DISPOSE OF SEDIMENT IN A MANNER CONSISTENT WITH THE INTENT OF THE PLAN.
10. SOIL STABILIZATION SCHEDULE – APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRADED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE. APPLY TEMPORARY SOIL STABILIZATION MEASURES IF FINAL GRADING IS TO BE DELAYED MORE THAN 30 DAYS.
11. TEMPORARY SEEDING – TEMPORARILY SEED ERODIBLE SOILS THAT WILL BE EXPOSED GREATER THAN 1 BUT LESS THAN 12 MONTHS WITHIN THE FIRST 7 DAYS OF SUSPENDING GRADING OPERATIONS. APPLY LIME AT A RATE OF 90 LBS/1000 SQ. FT. APPLY 10-10-10 FERTILIZER AT A RATE OF 7 1/2 LBS/1000 SQ. FT. APPLY PERENNIAL RYE GRASS AT A RATE OF 2 LBS/1000 SQ. FT. TO A DEPTH OF 1/2 INCH. OPTIMUM SEEDING DATES ARE MARCH 15 TO JULY 1 AND AUGUST 1 TO OCTOBER 15. MULCH FOR SEED APPLIED WITHIN THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 80%-95% SOIL COVERAGE. MULCH FOR SEED APPLIED OUTSIDE OF THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 95%-100% COVERAGE.
12. PERMANENT SEEDING – SEED PERMANENT LAWN AREAS IN ACCORDANCE WITH THE SPECIFICATIONS.
13. INSPECTION – THE OWNER SHALL SECURE THE SERVICES OF A SOIL SCIENTIST OR PROFESSIONAL ENGINEER TO VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED AND MAINTAINED. THESE INSPECTIONS SHALL BE NOT LESS FREQUENTLY THAN WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF 0.1 INCH OR GREATER. FOLLOWING THESE INSPECTIONS, A WRITTEN REPORT SHALL BE PREPARED, INFORMING THE OWNER OR HIS AGENT NOT LESS FREQUENTLY THAN WEEKLY AND THE MUNICIPALITY NOT LESS FREQUENTLY THAN MONTHLY OF OBSERVATIONS, MAINTENANCE, AND CORRECTIVE ACTIVITIES UNDERTAKEN.



TOE OF SLOPE STRAW BALE BARRIER

NOT TO SCALE



CONSTRUCTION ENTRANCE

NOT TO SCALE

NOT FOR CONSTRUCTION

SCALE: HORZ.: NOT TO SCALE

VERT.: NOT TO SCALE

DATUM: NOT TO SCALE

HORZ.: NOT TO SCALE

VERT.: NOT TO SCALE

GRAPHIC SCALE

FUSS & O'NEILL
146 HARTFORD ROAD
NORWICH, CONNECTICUT 06040
860.646.2460
www.fandco.com

STEPHEN D. WILLIAMS
EROSION & SEDIMENT CONTROL
DETAILS
53 MERROW ROAD
TOLLAND
CONNECTICUT

PROJ. No.: 20140060.A30
DATE: DECEMBER 16, 2019

CD-501



- Ecology
- Soil & Wetland Studies
- Water Quality Monitoring • GPS
- Environmental Planning & Management
- Ecological Restoration & Habitat Mitigation
- Aquatic, Wildlife and Listed Species Surveys
- Application Reviews • Permitting & Compliance

December 18, 2019

VIA HAND-DELIVERY

Inland Wetlands
& Watercourses Commission
21 Tolland Green
Tolland, CT 06084

ATTN: Mr. Lee Lafountain, Chairman

RE: ***PROPOSED SITE GRADING***
53 Merrow Road, Tolland, CT
REMA Job # 19-2196-TOL13

Dear Mr. Lafountain & Commission members:

At the request of the co-applicant, Mr. Stephen D. Williams, REMA ECOLOGICAL SERVICES, LLC (REMA) inspected the above-referenced on four occasions starting on July 3rd and ending on October 24th, 2019. The primary objectives of the site inspections were to: (1) conduct an initial baseline inventory of uplands and wetlands, (2) verify previous wetland delineations conducted by others, (3) delineate a segment of wetland boundary not previously delineated that extends off-site to the north (i.e., Wetland 'A'), and (4) determine the status of three putative vernal pool habitats previously investigated by others several years ago.

Attached to this cover letter/report are: (1) An *On-Site Soil Investigation & Wetland Delineation Report*, (2) an aerial photograph of the site showing the three vernal pool habitats investigated (Figure 1), and (3) annotated photographs of the site's wetland resources (i.e., Photos 1 to 28).



On July 3rd, and August 13th, 2019 site investigations were conducted to determine the presence or absence of obligate vernal pool species, including evidence of breeding, within three on-site pools. On July 3rd, VP #1, VP#2, and PVP #3 (see Figure 1, attached) were thoroughly surveyed and cover searched using an aquatic D-net.

On July 3rd, VP#1, which is embedded within Wetland 'C'(see Figure A), and centrally located within the overall study area, was roughly 6' x 6' in size with about 3" of water and contained a hundred or more wood frog (*Lithobates sylvaticus*) tadpoles.

VP#2, which is a portion of the Wetland 'A', and located at the northeastern section of the site, was found to be the most productive with many hundreds of wood frog tadpoles. The pool observed at the time measured about 14' x 8' and had up to 12" of water.

PVP#3 (i.e., Potential Vernal Pool #3) is immediately to the southwest of VP#2 with an old woods road separating the two pools, and is embedded within Wetland 'B'. PVP#3 did not contain any water during this site visit.

On August 13th, 2019, the previously investigated vernal pool habitats as well as surrounding areas were surveyed again. None of the pools contained water, however two size classes of wood frog were observed in the vicinity of the three pools: 0.5" long froglets, and 1.0" froglets, indicating early spring and later spring egg mass depositions and reproduction.

It is not possible, based on our July 2019 investigations alone, to ascertain the exact level of productivity at the two amphibian breeding habitats where wood frog larvae were observed. Typically overall productivity is deduced in the early spring of a given year by an egg mass count. For wood frogs, each egg mass can contain upwards of 1,500 individual eggs, and a productive vernal pool would have at least 25 egg masses. It is highly unlikely that either Vernal Pool #1 or Potential Vernal Pool #3 would be considered even moderately productive based on our observations.

In all likelihood, Vernal Pool #2 is the only productive vernal pool habitat associated with the study area, and this assessment is based on the observed hydrological potential of the pool. It is the deepest and larger of the three habitats investigated, and would sustain sufficient water depths for a long enough period to be productive for wood frogs even



during years that are abnormally dry. In fact, the other two habitats (i.e., VP#1 and PVP#3) would only allow the emergence of neonates during the somewhat wetter than normal years. During normal precipitation years these two other habitats would actually become *ecological sinks*, attracting breeding of wood frogs, but without the prospect of reproduction.

Therefore, the loss of VP#1 would not constitute a significant impact upon the local wood frog population. VP #2, which is considered productive, will be well protected, and will continue to provide suitable breeding habitat for vernal pool amphibians into the future. We note that following the grading proposed, sufficient suitable terrestrial habitat for the non-breeding life cycle of wood frog would remain to the north, south, west and northeast of VP#2.

Please feel free to contact our office with any questions on the above.

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC



George T. Logan, MS, PWS, CSE
Registered Soil Scientist
Professional Wetland Scientist

Attachments: Figure 1; Photos 1 to 28; On-Site Soil Investigation & Wetland Delineation Report



MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

CRCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

FIGURE 1: Vernal Pool
Habitat; 53 Merrow Road,
Tolland, CT

53 Merrow Road, Tolland, CT
Photos taken in July through October 2019, by REMA Ecological Services, LLC



Photo 1: Wetland A - VP2; October; facing westerly.



Photo 2: Wetland A - VP2; August; view from offsite; REMA A-7 wetland boundary flag; facing northeasterly.



Photo 3: Wetland A - VP 2; note wall along property boundary; July; facing westerly.



Photo 4: Wetland A - VP 2; July; facing southwesterly.



Photo 5: Wetland A – VP 2; wood frog tadpoles; July.



Photo 6: Wetland A – VP 2; July; close up of tadpoles



Photo 7: Wetland A – VP 2; July 3rd; facing northwesterly.



Photo 8: Wetland A – VP 2; wood froglet; August

53 Merrow Road, Tolland, CT
Photos taken in July through October 2019, by REMA Ecological Services, LLC



Photo 9: Wetland B; August; southern end; facing southerly.



Photo 10: Wetland B – PVP3; August; facing southerly.



Photo 11: Wetland B; July; facing southerly.



Photo 12: Wetland C – October; facing northeasterly.

53 Merrow Road, Tolland, CT
Photos taken in July through October 2019, by REMA Ecological Services, LLC



Photo 13: Wetland C; August; facing southwesterly.



Photo 14: Wetland C – VP1: July 3rd; facing easterly.



Photo 15: Wetland C – VP1; wood frog tadpoles; July 3rd.



Photo 16: Wetland C; July; facing northeasterly.

53 Merrow Road, Tolland, CT
Photos taken in July through October 2019, by REMA Ecological Services, LLC



Photo 17: Wetland C – VP 1; August; facing northeasterly.



Photo 18: Wetland C – VP 1; October after significant rain events; facing westerly.



Photo 19: Wetland D; August; facing northerly.



Photo 20: Wetland D; August; facing westerly.

53 Merrow Road, Tolland, CT
Photos taken in July through October 2019, by REMA Ecological Services, LLC



Photo 21: Wetland E; upland/wetland transition zone; August; facing northwesterly.



Photo 22: Wetland E; southwest section on-site; October; facing southerly.



Photo 23: Wetland E; poorly drained wetland; August; facing southwesterly.



Photo 24: Wetland E; very poorly drained section; October; facing westerly.



Photo 25: Wetland E; very poorly drained section; August; facing westerly.



Photo 26: Wetland E; spring peeper on Sphagnum mosses; August.



Photo 27: Soil boring to the west of Wetland E in moderately well drained uplands; October; facing westerly.



Photo 28: Outwash soils; gravelly medium sand, from boring in previous photo; uplands west of Wetland E: October.



REPORT DATE: December 18, 2019

PAGE 1 OF 3

REMA ECOLOGICAL SERVICES, LLC

164 East Center Street, Suite 8
Manchester, CT 06040

860.649.REMA (7362)

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT

PROJECT NAME & SITE LOCATION:

(+/- 28.18 acres; two parcels)

53 Merrow Road

Tolland, CT

REMA Job No.: 19-2196-TOL13

Field Investigation Date(s): July - October 2019

Field Investigation Method(s):

☒ Spade and Auger

☐ Backhoe Test Pits

☐ Other: _____

REPORT PREPARED FOR:

SD Williams, LLC

36 Buff Cap Road

Tolland, CT 06084

Field Conditions:

Weather: Partly Cloudy, 40s to 80s

Soil Moisture: moderate-high

Snow/Frost Depths: N/A

Purpose of Investigation:

- ☒ Wetland Delineation/Flagging in Field
☐ Wetland Mapping on Sketch Plan or Topographic Plan
☐ High Intensity Soil Mapping by Soil Scientist
☒ Medium Intensity Soil Mapping from *The Soil Survey of Connecticut* Maps (USDA-NRCS)
☒ Other: verification of wetland delineations by others

Base Map Source: CT Soil Survey web; USDA-NRCS (attached); Figure A (attached)

Wetland Boundary Marker Series: RES-A-1 to RES-A-7 tied to WL-1 to 9 ('A' wetland; closed loop), WL-1 to 31 ('E' wetland; open line), and WL-10 to 32 ('B' wetland), WL-29 to 42 ('C' wetland), and WL-100 to 111 ('D' wetland) (closed loops) (A-series delineations only by REMA, others verified as correct)

General Site Description/Comments: The "the study area," is +/- 28.18 acres, comprised of two parcels, located on the east side of Merrow Road (CT-195) and NW of Interstate 84, in Tolland, CT. Landuses in the vicinity include a mix of moderate density residential and commercial development. An area in the west-central portion of the site has been previously disturbed. Undisturbed soils are derived from glacial till deposits (i.e., unstratified sand, silt, & rock), and glaciofluvial deposits (stratified sand & gravel). The upland soils include the well-drained Canton (61), and the well-drained Charlton-Chatfield (73) soil series complex. The onsite wetland soils include the Ridgebury-Leicester-Whitman (3) soil series complex, the Ridgebury (2), Walpole (13), and Scarborough (15) soil series. Previously disturbed upland soils are mapped as Udorthents (308). The regulated resources include four forested isolated wetlands (i.e., 'A' through 'D'), and a sizeable forested wetland extending off-site to the east (i.e., 'E'), associated with the Skungamaug River floodplain. The river is located just off site to the east, within the CT DOT right-of-way. Dominant overstory vegetation associated with the delineated wetlands and its edge includes red maple, black birch, gray birch, red oak, white pine, eastern hemlock, white ash, and black cherry. Dominant understory vegetation includes maple-leaved viburnum, arrowwood, Japanese barberry, wild sarsaparilla, winterberry, highbush blueberry, cinnamon, New York royal, sensitive, and hayscented ferns, roughstem goldenrod, partridge berry, white avens, clearweed, tussock and bladder sedges, stout wood reedgrass, jewelweed, Morrow's honeysuckle, sessile-leaved bellwort, long-awned grass, clubmosses, skunk cabbage, jack-in-the-pulpit, violets, water horehound, tall meadow rue, swamp dewberry, Canada mayflower, green briar, fox grape, poison ivy, Virginia creeper, Asiatic bittersweet, and others.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)**PROJECT NAME & SITE LOCATION:** (+/- 28.18 acres; two parcels)53 Merrow Road, Tolland, CT**SOIL MAP UNITS****Upland Soils**

Charlton very stony fine sandy loam (73). This series consists of very deep, well drained coarse-loamy soils formed in friable, glacial till on uplands. They are nearly level to very steep soils on till plains and hills. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. In tilled areas, these soils have a surface layer of dark brown fine sandy loam 8 inches thick. The subsoil from 8 to 26 inches is yellowish brown fine sandy loam and sandy loam. The substratum from 26 to 60 inches or more is grayish brown gravelly fine sandy loam.

Chatfield loam (73). This series consists of moderately deep, well drained, and somewhat excessively drained soils formed in till. They are nearly level to very steep soils on glaciated plains, hills, and ridges. Slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 20 to 40 inches. Permeability is moderate or moderately rapid. In tilled areas, these soils have a surface layer that is very dark to dark grayish brown loam up to 8 inches thick. The subsoil from 8 to 26 inches is brown, flaggy silt loam.

Canton stony fine sandy loam (61). This series consists of deep, well drained soils formed in a coarse-loamy mantle underlain by sandy glacial till on uplands. They are nearly level to very steep soils on till plains and hills. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically, these soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil from 2 to 23 inches is yellowish brown fine sandy loam, gravelly fine sandy loam and gravelly sandy loam. The substratum from 23 to 60 inches is pale brown gravelly loamy sand.

Udorthents (308). This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. Udorthents or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

Wetland Soils

Ridgebury fine sandy loam (3). This soil series consists of deep, poorly and somewhat poorly drained soils formed in a coarse-loamy mantle underlain by firm, compact glacial till on uplands. They are nearly level to moderately steep soils on till plains, low ridges and drumloidal landforms. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically these soils have a black sandy loam surface layer 6 inches thick. The mottled subsoil from 6 to 16 inches is olive gray sandy loam. The mottled substratum from 16 to 60 inches is a light olive brown and olive, very firm and brittle gravelly sandy loam.

Leicester fine sandy loam (3). This series, which is some Connecticut counties is found only in complex with the Ridgebury and Whitman series, consists of deep, poorly drained loamy soils formed in friable glacial till on uplands. They are nearly level to gently sloping soils in drainage ways and low lying positions on till covered uplands. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically, these soils have a surface layer of black fine sandy loam 6 inches thick. The subsoil from 6 to 23 inches is grayish brown, mottled fine sandy loam. The substratum from 26 to 60 inches or more is dark yellowish brown, mottled, friable, gravelly fine sandy loam.

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)

PROJECT NAME & SITE LOCATION: (+/- 28.18 acres; two parcels)
53 Merrow Road, Tolland, CT

SOIL MAP UNITS

Whitman fine sandy loam (3). This series, which is some Connecticut counties is only mapped in complex with the Ridgebury and Leicester series, consists of deep, very poorly drained soils formed in a coarse-loamy mantle underlain by firm, compact glacial till on uplands. They are nearly level and gently sloping soils on till plains, low ridges and drumloidal landforms. The soils formed in acid glacial till derived mainly from schist, gneiss or granite. Typically these soils have a black fine sandy loam surface layer 8 inches thick. The mottled subsoil from 8 to 15 inches is gray sandy loam. The mottled substratum from 15 to 60 inches is firm, olive gray to gray dense glacial till.

Walpole sandy loam (13). This series consists of deep, poorly drained soils formed in sandy water deposited glacial outwash materials. They are nearly level to gently sloping soils on glaciofluvial landforms, typically in shallow drainage ways and low-lying positions on stream terraces and outwash plains. The soils formed in loamy over stratified sandy and gravelly outwash derived from a variety of acid rocks. Typically, these soils have a very dark brown sandy loam surface layer 6 inches thick. The subsoil from 6 to 23 inches is mottled, grayish brown sandy loam. The substratum from 23 to 60 inches is mottled, light brownish gray, gravelly loamy sand and gravelly sand.

Scarboro muck (15). This series consists of very deep, very poorly drained soils formed in sandy water deposited glacial outwash materials. They are nearly level soils on glaciofluvial landforms, typically in low depressions and drainage ways of outwash plains and terraces. The soils formed in a loamy sand lying over stratified sandy and gravelly outwash derived from a variety of acid rocks. Typically these soils have a 9 inch black mucky peat or very dark brown mucky sandy loamy surface layer. The subsurface layer from 9 to 16 inches is gray loamy sand. The substratum from 16 to 60 inches is olive gray, grayish brown and light yellowish brown loamy sand, loamy fine sand and coarse sand. The substratum may be stratified.

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

REMA ECOLOGICAL SERVICES, LLC

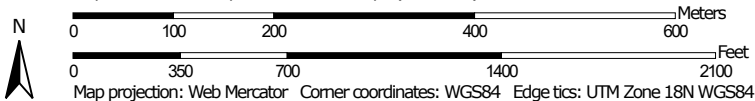


George T. Logan, MS, PWS, CSE
Registered Soil Scientist
Field Investigator/Senior Reviewer

Soil Map—State of Connecticut (Route 195)



Map Scale: 1:7,530 if printed on A landscape (11" x 8.5") sheet.



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



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

10/24/2019
Page 1 of 4


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.

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: Apr 30, 2013—Sep 23, 2017

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
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	5.3	2.1%
12	Raypol silt loam	5.5	2.1%
13	Walpole sandy loam, 0 to 3 percent slopes	17.1	6.6%
18	Catden and Freetown soils, 0 to 2 percent slopes	10.7	4.2%
23A	Sudbury sandy loam, 0 to 5 percent slopes	3.3	1.3%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	13.8	5.4%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	14.7	5.7%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	10.4	4.0%
60D	Canton and Charlton soils, 15 to 25 percent slopes	0.0	0.0%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	9.1	3.5%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	64.7	25.1%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	2.2	0.9%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	6.0	2.3%
108	Saco silt loam	24.7	9.6%
109	Fluvaquents-Udifluvents complex, frequently flooded	4.5	1.7%
303	Pits, quarries	1.8	0.7%
306	Udorthents-Urban land complex	48.8	19.0%
308	Udorthents, smoothed	5.6	2.2%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	6.2	2.4%
W	Water	3.2	1.2%
Totals for Area of Interest		257.5	100.0%