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July 7, 2021

Town of South Windsor
Inland Wetlands Agency/Conservation Commission
1540 Sullivan Avenue
South Windsor, CT 06074

RE: ***Wetlands Assessment/Impact Analysis***
25 Talbot Lane, South Windsor, Connecticut

JMM Job # 21-2857-SWN-3

Dear Commissioners:

At the request of the applicant, UW Vintage Lane II, LLC, **JMM Wetland Consulting Services, LLC** (JMM) is providing this Wetlands Assessment/Impact Analysis report to be submitted with an application to conduct regulated activities at the above-referenced property.

A soils-based wetland delineation was previously conducted at the site by Certified Soil Scientist John Ianni of Highland Soils, LLC. It is JMM's understanding that Mr. Jeff Folger, Senior Environmental Planner for the Town of South Windsor, and Mr. Ianni, reviewed the wetland boundary and mutually agreed upon the location and extent of each wetland area as shown on the submitted site plans. JMM visited the site on June 10th, 2021 to review the site and to gather baseline information for this report.

In this report, JMM is providing the following:

1. Descriptions of the on-site regulated wetlands and watercourses.
2. A functions and values assessment of the regulated wetlands associated with and adjacent to the site.

3. An analysis of the direct and potential indirect impacts upon the regulated resources and upon the functions and values they provide.

1.0 Introduction

This +/- 30.37-acre site is located south of Governors Highway and east of Talbot Lane, in South Windsor, Connecticut (see Figure 1, attached). Temple Beth Hillel is located just off-site to the east while Carla's Pasta is located to the west. Currently, the site is undeveloped with an abandoned paved road within the north/northwestern part of the site, open weedy/shrubby areas, and forested upland and wetland areas, which include two (2) man-made ditched watercourses. The weedy/shrubby areas were active agricultural fields until the 1990s.

2.0 Description of Regulated Resource Areas

Wetland-1

This isolated wetland area is located along the southwestern portion of the site adjacent to the property line. The wetland includes a man-made excavated ditched watercourse and follows along the southwestern property line and adjacent off-site paved parking lot (i.e., Carla's Pasta).

This wetland is classified as a *palustrine, broad-leaved forested* wetland (PFO1E) according the National Wetland Inventory (NWI) Classification system (see photo 1, attached). The dominant hydrologic regimes within this wooded swamp are *seasonally saturated* and *seasonally flooded* and the wetland's hydro-geomorphic classification (HGM) is *groundwater* and *surface water slope*. Within this wetland area the soils were observed to be poorly drained.

Typical vegetation observed within Wetland-1 includes such species as red maple, sugar maple, sweet pepperbush, green brier, royal fern, woodferns, and areas of sedges, as well as others.

Wetland -2

This isolated wetland area is located in the northeastern portion of the overall site, and was at one time at the northern edge of an agricultural field. This disturbed wetland is located in the vicinity of Governors Highway, where fill piles, landscape debris and other miscellaneous disturbances were observed.

As with Wetland-1, Wetland-2 is also classified as a *palustrine, broad-leaved forested* wetland (PFO1E) according to the NWI Classification system (see photo 6). The dominant hydrologic regimes within this wooded swamp are *seasonally saturated* and *seasonally flooded* and the wetland's hydro-geomorphic classification (HGM) is *groundwater* and *surface water slope*. Within this wetland area the observed soils were disturbed and poorly drained.

Typical vegetation observed within Wetland-2 included such species as red maple, sugar maple, white ash, spicebush, firebush (invasive), cinnamon fern, sensitive fern, oak seedlings, Asiatic bittersweet (invasive), and poison ivy, to name a few.

Watercourse-1

This isolated, disturbed man-made watercourse is located along the eastern portion of the site. This ditched watercourse follows an abrupt boundary along the bank of the ditch with little to no hydrophytic vegetation within the watercourse (see photo 2). Periodic flow travels in an easterly direction to an outlet structure located off-site, but adjacent to the eastern property line (see photo 3). Both this ditch, as well as the one identified as Watercourse-2, were located along the edges of prior agricultural fields. They were excavated in order to lower the water table of the adjacent moderately well drained upland soils, and extend the growing season. It is worth noting that this ditched watercourse is proposed to be filled (see Section 5 for additional information).

Watercourse-2

Watercourse-2 is also an isolated, man-made watercourse located along the eastern portion of the site and north of Watercourse-1. This ditched watercourse follows an abrupt boundary along the bank of the ditch and travels in an easterly direction to an outlet structure located at the eastern property line (see photos 4 & 5). It is worth noting that Watercourse-2 is not as long as Watercourse-1. This man-made disturbed ditched watercourse is also proposed to be filled (see Section 5 for additional information).

3.0 Soils of Study Area

The soils within the study area were observed to be both undisturbed and disturbed. The disturbed soils were observed to be scattered throughout, which includes the ditched watercourses and wetland areas. The undisturbed soils are derived from glacial outwash (i.e., stratified sand and gravel) deposits. The undisturbed upland soils are comprised of the moderately well drained Ninigret (701) soil series.

Ninigret fine sandy loam (701). This series consists of very deep moderately well drained soils formed in a coarse-loamy mantle underlain by sandy water deposited glacial outwash materials. They are nearly level to gently sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. 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 grayish brown fine sandy loam surface layer 8 inches thick. The subsoil from 8 to 26 inches is yellowish brown fine sandy loam with mottles below 16 inches. The substratum from 26 to 60 inches is mottled, pale brown, loose, stratified loamy sand.

The disturbed upland soils were mapped as the Udorthents (308) mapping unit.

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.

The undisturbed wetland soils were identified as the poorly to very poorly drained Walpole (13) soil series.

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.

Any disturbed wetland soils were mapped as the Aquents (308w) soil mapping unit.

Aquents (308w). This soil map unit consists of poorly drained and very poorly drained disturbed land areas. They are most often found on landscapes, which have been subject to prior filling and/or excavation activities. In general, this soil map unit occurs where two or more feet of the original soil surface has been filled over, graded or excavated. The *Aquents* are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation.

Aquents are recently formed soils, which have an aquic moisture regime. An aquic moisture regime is associated with a reducing soil environment that is virtually free of dissolved oxygen because the soil is saturated by groundwater or by water of the capillary fringe. The key feature is the presence of a ground water table at or very near to the soil surface for a period of fourteen days or longer during the growing season.

4.0 Functions/Values Assessment

The assessment of wetland functions and values is based primarily on the US Army Corps of Engineers' (USACE) *Descriptive Approach* (1995), and on best professional judgment. The assessment looks at Wetland-1 and Wetland-2.

A summary of the functions and values assessment can be found in Table 1, below. As can be seen, Wetland-1 offers three (3) principal functions and values, while Wetland-2 offers one (1) principal function and value.

This assessment is based on a number of factors, including the fact that both wetlands are relatively small and isolated, have low diversity of vegetative cover types and plant species, are disturbed and/or man-made in nature, and the surrounding upland landscape (i.e., residential, industrial) is considered unfavorable. Thus, the assessed wetlands only offer a few principal functions and values, which although present, are conferred at a low level.

Table 1: Summary of Wetland/Watercourse Function-Value Assessment

Function/Value	Wetland-1	Wetland-2
Groundwater Recharge/Discharge	P	P
Floodflow Alteration	Y	N
Sediment/Shoreline Stabilization	N/A	N/A
Sediment/Toxicant/Pathogen Retention	P	Y
Nutrient Removal/Retention/Transformation	P	Y
Production Export	Y	Y
Fish and Aquatic Habitat	N/A	N/A
Wildlife Habitat	Y	Y
Endangered Species Habitat	N	N
Visual Quality/Aesthetics	N	N
Educational/Scientific Value	N	N
Recreation (Passive, Active)	N	N
Uniqueness/Heritage	N	N

Notes: P = Principal function; Y = function present; N = function not appreciably present or absent

5.0 Proposed Activities

Overview

According to the reviewed plans, entitled *25 Talbot Lane Site Plan Application, 5 & 25 Talbot Lane & 475 & 551 Governor's Highway, South Windsor, CT*, by Design Professional, Inc., and dated July 2, 2021, a new 359,640 square foot industrial building is proposed, with paved parking areas and drives, utilities, a large stormwater basin, a wetland creation area, and other associated miscellaneous site work. This industrial development will be served by public sewer and water supply.

Direct Wetland Impacts

According to the reviewed site plans 13,781 square feet (0.32-acres) of *direct* isolated "watercourse" impacts are proposed at the subject site. This impact is associated with a portion of the proposed building, parking areas and drives, as well as the above-ground stormwater management basin (i.e., water quality basin). It is worth noting that a roughly 13,900 square feet (0.32-acres) wetland creation area is being proposed in the southwestern portion of the site adjacent to Wetland-1 (see Design Professionals planting plan for more/detailed information; Sheet C-LS1).

Indirect Wetland Impacts

Indirect or secondary impacts to a wetland or watercourse can occur as a result of activities outside of wetlands or watercourses. Such impacts can be *short-term* or *long-term*, and are typically associated with erosion and sedimentation, mostly during the construction period, the removal or disturbance of vegetation in upland areas, but adjacent to wetlands or watercourses, the alteration of wetland hydrology or the flow regime of a watercourse, and the discharge of degraded or insufficiently treated surface water or groundwater, which may adversely impact the water quality of the regulated resources.

The potential for any of these indirect impacts to occur at the site as a result of the proposal depends on the regulated resources themselves, their sensitivity, their ecological and physical characteristics, and the degree to which they provide recognized functions and values. These *potential* impacts are discussed below.

Erosion and Sedimentation

The potential for soil erosion and subsequent deposition in wetlands or watercourses exists at every construction site that involves soil disturbance. At this site the risk or the potential for

adverse impacts from erosion and sedimentation is considered *low*. The primary reasons for this assessment are as follows: (1) a detailed erosion and sedimentation control plan has been prepared and submitted, which complies with the CT DEEP's 2002 *Connecticut Guidelines for Erosion and Sediment Control*, as well as any recent guidelines promulgated by regulatory agencies; and (2) the site's undisturbed soils are *moderately* erosive (see attached K-factor assessment) and the slopes within the development area are relatively gentle, which reduces the risk of significant erosion and sedimentation.

Removal of Native Vegetation and Habitat Loss

Habitat loss associated with land clearing is an unavoidable consequence of land development, which has the potential of impacting wetlands and watercourses. At the subject site, an effort has been made to limit the disturbance of woody vegetation to the extent possible, maintaining a sufficient wooded and/or planted buffer to the both of the site's wetland resources.

The proposed plans show that the majority of the site will have its tree canopy removed, including areas of weedy/scrub shrub growth. The amount of the 80-foot-wide upland review area (URA) to be disturbed is 5.3-acres. Due to the fact that both Wetland-1 and Wetland-2 are small, isolated, and confer limited functions and values, the significance of a permanent vegetated buffer is much reduced in the post-construction condition. Nevertheless, the plans show that a planted buffer is provided for both these wetlands that will remain, and which will continue to provide similar functions and values as under existing conditions.

Potential Impacts to Wetland Hydrology and Stream Flow

The hydrologic and flow regime of Wetland-1 and Wetland-2 are dependent both on contributions via shallow groundwater flow and surface flows. However, both these wetlands rely primarily on the rising of the subregional water table, which provides for their hydrology. The site plans show that an effort has been made to ensure that wetland hydrology will be preserved. An effort has been made to both infiltrate stormwater into the ground both with below-ground infiltrator systems, which will handle, treat and infiltrate the "first-flush" generated during a storm event, as well as through direct discharge from the relatively clean roof runoff. Moreover, the large water quality basin will recharge the groundwater table at the site. Based on review of the plans, as well as of the drainage report, the hydrology of the wetlands will be maintained.

Potential Water Quality Impacts

Stormwater runoff from impervious surfaces of residential sites has the potential of degrading the water quality (i.e., surface and groundwater) of regulated resources. Generation of potential pollutants on impervious surfaces typically results from vehicular traffic over them.

The CT-DEEP's 2004 *Stormwater Quality Manual* ("the Manual") is used to guide the selection, design, siting, and sizing of appropriate best management practices (BMPs), which are protective of surface and groundwater quality. The CT-DEEP has adopted, through their General Permit for discharge of stormwater, an 80% TSS (total suspended solids) minimum annual removal goal, because research has shown that the concomitant removal of other runoff constituents is high at these levels of TSS removal.

Flows generated from the proposed development will be intercepted and conveyed through a formal stormwater management system which includes catch basins, below-ground infiltrators with water quality isolator rows, and a large water quality basin, with a properly sized sediment forebay. This basin has been designed and sized to comply the CT-DEEP Manual, and provides for a water quality volume (WQV) that far exceeds what is required. It is JMM's opinion that the proposed handling of runoff from the site will protect both on-site and off-site downgradient regulated resources.

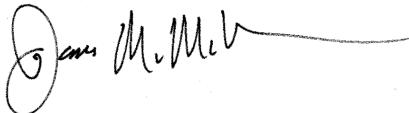
6.0 Conclusion

In conclusion, it is JMM's opinion that as proposed, and with diligent monitoring of erosion and sediment controls, the proposal will not have significant adverse short-term (construction) or long-term (water quality/habitat) impacts upon the regulated resources.

Please call us if you have any questions on the above or need further assistance.

Respectfully submitted,

JMM WETLAND CONSULTING SERVICES, LLC

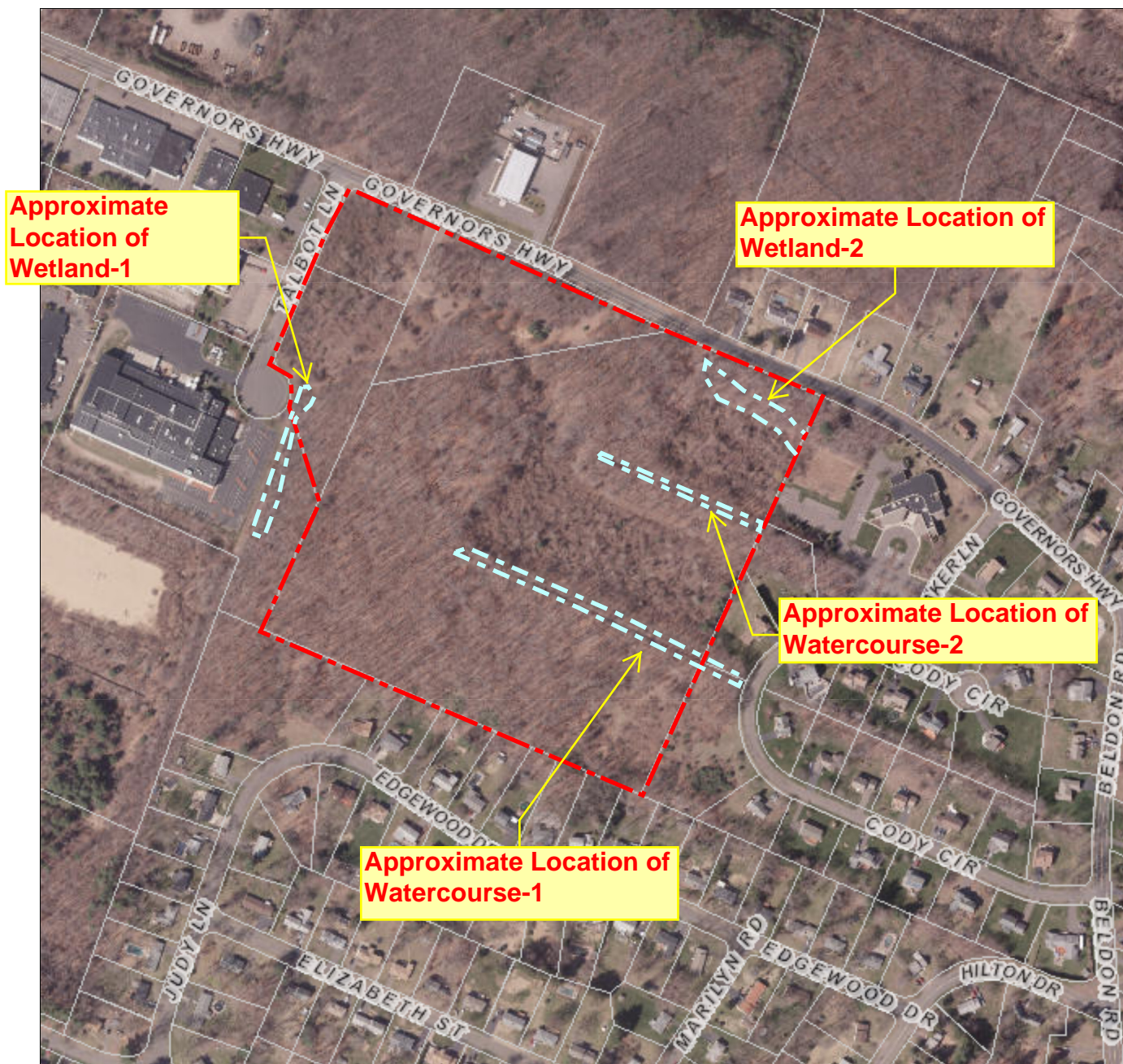


James M. McManus, MS, CPSS
Certified Professional Soil Scientist (No. 15226)

Attachments: Figure 1, Photos 1-8, NRCS Web Soil Survey Map, K-Factor Erodibility Assessment

Town of South Windsor

Geographic Information System (GIS)



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of South Windsor and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 400 feet

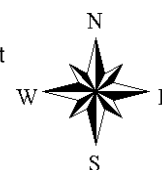




Photo 1: View of Wetland-1 located along the southwestern part of site (JMM photo taken 6/10/2021); facing southwesterly



Photo 2: View of Watercourse-1 located along the eastern part of site (JMM photo taken 6/10/2021); facing northwesterly



Photo 3: View of off-site drainage structure at the eastern terminus of Watercourse-1 (JMM photo taken 6/10/2021); facing easterly



Photo 4: View of Watercourse-2 located along the eastern part of site (JMM photo taken 6/10/2021); facing northeasterly



Photo 5: View of drainage structure at the eastern terminus of Watercourse-2 (JMM photo taken 6/10/2021); facing easterly



Photo 6: View of Wetland-2 located in the northeastern part site (JMM photo taken 6/10/2021); facing northeasterly

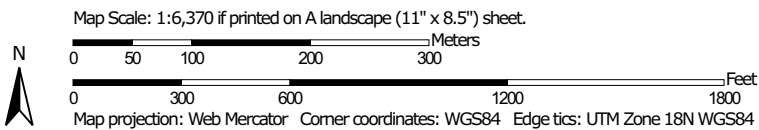


Photo 7: View of abandoned paved road in the northeastern part of site (JMM photo taken 6/10/2021); facing northwesterly



Photo 8: View of typical upland area (JMM photo taken 6/10/2021); facing northeasterly

Soil Map—State of Connecticut
(475 Governors Hwy, South Windsor, CT)




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/10/2021
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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 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Jul 15, 2019—Oct 24, 2019

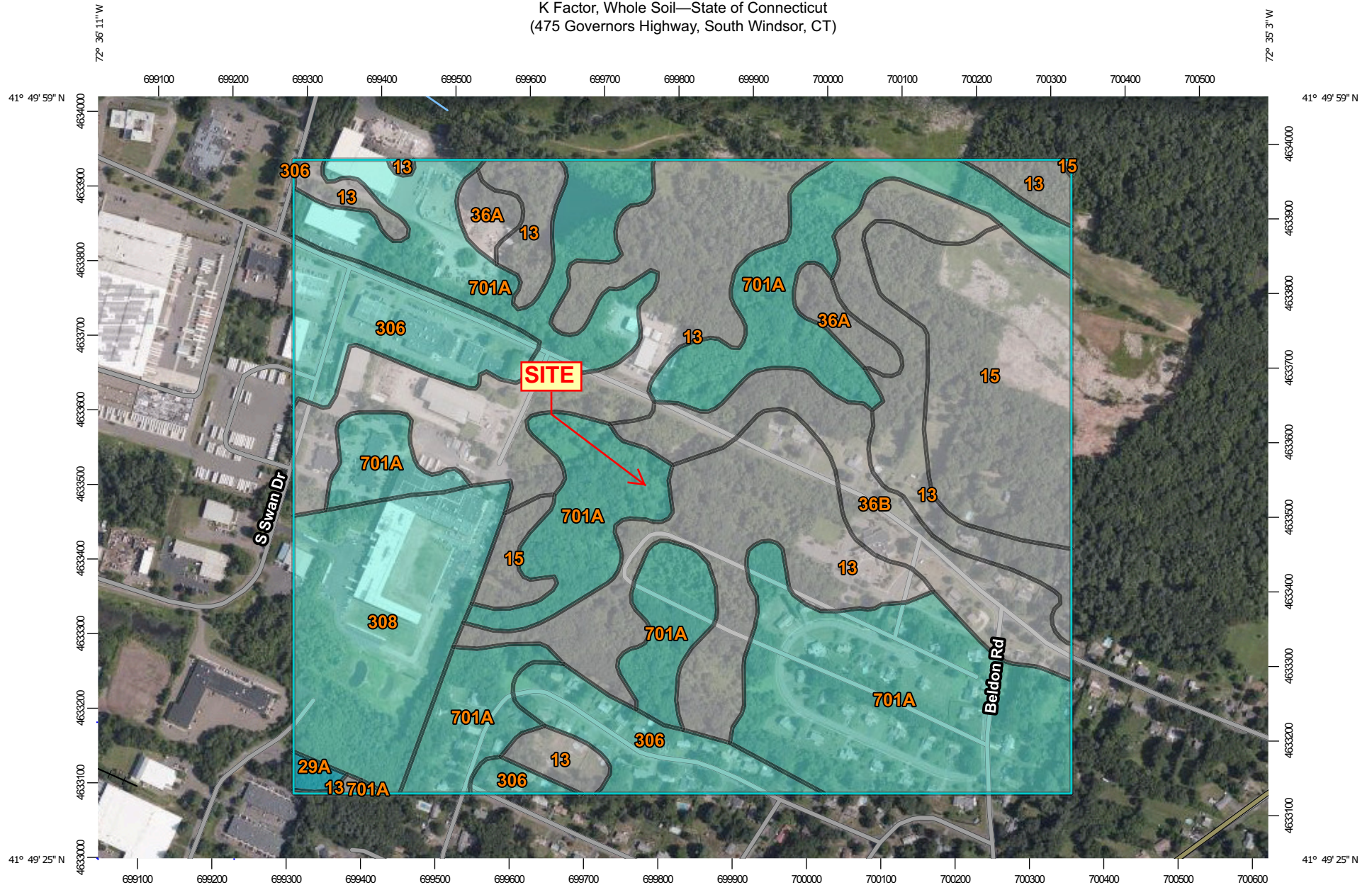
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

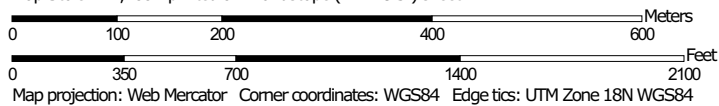
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
13	Walpole sandy loam, 0 to 3 percent slopes	47.7	27.8%
15	Scarboro muck, 0 to 3 percent slopes	18.4	10.7%
36A	Windsor loamy sand, 0 to 3 percent slopes	2.2	1.3%
36B	Windsor loamy sand, 3 to 8 percent slopes	12.3	7.1%
306	Udorthents-Urban land complex	16.1	9.4%
308	Udorthents, smoothed	13.0	7.6%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	62.0	36.1%
Totals for Area of Interest		171.8	100.0%



K Factor, Whole Soil—State of Connecticut
(475 Governors Highway, South Windsor, CT)



Map Scale: 1:7,200 if printed on A landscape (11" x 8.5") sheet.




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

7/6/2021
Page 1 of 3
















MAP LEGEND

Area of Interest (AOI)







 Area of Interest (AOI)










Soils

Soil Rating Polygons
















	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Soil Rating Lines








	.02
	.05
	.10
	.15
	.17
	.20

	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Soil Rating Points

	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Water Features

	Streams and Canals
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads
	Aerial Photography

MAP INFORMATION

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

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Web Soil Survey URL:
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Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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Date(s) aerial images were photographed: Jul 15, 2019—Oct 24, 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.

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13	Walpole sandy loam, 0 to 3 percent slopes		65.1	29.5%
15	Scarboro muck, 0 to 3 percent slopes		22.7	10.3%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	.37	0.6	0.3%
36A	Windsor loamy sand, 0 to 3 percent slopes		3.7	1.7%
36B	Windsor loamy sand, 3 to 8 percent slopes		13.0	5.9%
306	Udorthents-Urban land complex	.32	18.4	8.3%
308	Udorthents, smoothed	.32	20.5	9.3%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	.32	76.6	34.7%
Totals for Area of Interest			220.6	100.0%

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

