

Via Electronic Mail

June 23, 2020



Kacie Hand
Town Planner
Town of Wallingford Planning and Zoning Department
45 South Main Street
Wallingford, CT 06492

Re: Soil Remediation Project at 21 Toelles Road, Wallingford, CT

Dear Ms. Hand:


Pfizer Inc. (Pfizer) is applying to the Town of Wallingford for a permit for the proposed remediation of wetland soils at a formerly owned industrial facility located at 21 Toelles Road in Wallingford, CT. On behalf of Pfizer, Woodard & Curran is providing the attached Application for Special Permit for Excavation and Filling and associated attachments.

The remediation project consists of the excavation and disposal of shallow wetland soil that is subject to cleanup under the state of Connecticut RSRs as administered by the Connecticut Department of Energy and Environmental Protection (CTDEEP). The remediation is intended to address historical impacts above a site-specific ecological cleanup goal accepted by CTDEEP. The area will be restored to existing grades following the excavation and replanted with native wetland plants resulting in improved environmental conditions within the wetland. A permit application has also been submitted to the Town of Wallingford Inland Wetlands and Watercourses Department.

We appreciate your review of this project. If upon your review you have any questions, please do not hesitate to call me at 781.613.0576 or kapigian@woodardcurran.com.

Sincerely,

WOODARD & CURRAN, INC.


Kyle Apigian, Ph.D.
Technical Manager

Cc: Samantha Somers, Pfizer
Lucas Hellerich, W&C
Jack Markey, W&C
Tom Talbot, P&Z

Enclosure(s)

PN: 0232596.00



Planning and Zoning Excavation Permit Application

Soil Remediation Project
Wallingford, CT

213 Court Street, 4th Floor
Middletown, CT 06457
1-800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

232596.00
Pfizer
June 2020

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**1. TOWN OF WALLINGFORD PLANNING AND ZONING APPLICATION FOR SPECIAL
PERMIT FOR EXCAVATION AND FILLING OF LAND**

New Application (\$1,030.00 Fee)

Renewal (\$550.00 Fee)

APPLICATION NO.: _____

Residential (100-250 c.y \$250.00 Fee)
(Anything over 250 c.y. all applicable fees apply)

APPLICATION FOR
SPECIAL PERMIT FOR EXCAVATION AND FILLING OF LAND

Applicant: Pfizer Inc
(Name of Applicant or Agent, please print)

Mailing Address: Pfizer Inc, 235 East 42nd Street, MS: NYO-219-05-01

New York New York 10017
(City) (State) (Zip)

Telephone: (212) 338-1812
(Please include area code)


(Signature of Applicant or Agent)

Christopher J. Clark
Director, Global Engineering
Pfizer, Inc.

I. I (We) hereby petition the Planning and Zoning Commission to:

- Fill property as described below,
- Remove top soil, loam, gravel, clay, stone or minerals,
- Stockpile earth materials on land located in Wallingford at:

21 Toelles Road, Wallingford, CT

(Address of Project)

IF RENEWAL OPERATION:

- 2. Initial permit for site granted on: _____
- 3. Expiration date of existing permit: _____
- 4. Amount of bond in place: _____

All operations must comply with the requirements as defined under Section 6.10 of the Wallingford Zoning Regulations.

Application Fee Paid: _____ Date: _____ Recording Fee Paid: _____ Date: _____

*Pursuant to Section 8-3b of the Connecticut General Statutes, no Special Permit is effective until a copy is filed on the Land Records. If this application is approved, a \$60.00 fee will be required to cover the filing of this Special Permit on the Land Records; checks should be made payable to "Town Clerk - Wallingford".

!!!! THE APPLICANT, OR THEIR REPRESENTATIVE, MUST BE PRESENT AT EACH PZC MEETING AT WHICH THEIR APPLICATION WILL BE HEARD !!!!

2. PROJECT BACKGROUND

On behalf of Pfizer Inc. (Pfizer), Woodard & Curran has prepared this permit application in support of the proposed Wetland Soil Remediation Project (the Project), located at 21 Toelles Road in Wallingford, Connecticut (Subject Site). The project scope involves a defined area of impacted wetland soil that is subject to cleanup under the state of Connecticut Remediation Standard Regulations (RSRs) as administered by the Connecticut Department of Energy and Environmental Protection (CTDEEP) and the Connecticut Transfer Act obligations as triggered by the property sale from Pfizer (former property owner) to AMETEK, Specialty Metal Products Division (current property owner). The project involves the remediation of soil to address historical impacts in the wetland area. Shallow soils within the wetland area exhibiting impacts above a site-specific ecological cleanup goal accepted by CTDEEP will be excavated and disposed off-site. The area will then be restored (backfilled and planted) in-kind to approximate existing conditions resulting in improved environmental conditions and an enhanced wetland habitat.

The Subject Site is located at 21 and 25 Toelles Road, in Wallingford, Connecticut, although the property is typically referred to as 21 Toelles Road. It is identified as Map 73, Block 10, Lot 5 according to the Town of Wallingford's Tax Assessor's office (Parcels 1 and 2 combined). It is currently owned and operated by AMETEK, Specialty Metal Products Division. The location of the Subject Site is depicted on **Attachment A, Drawing G-002**. The attached drawing set also includes the Key Map, existing conditions plans, construction drawings, and site restoration plans. The Subject Site encompasses a total area of approximately 14 acres, of which approximately 4.8 acres is wetlands. The anticipated area of wetland excavation is 2.23 acres. There are four buildings located on the site which were constructed between 1960 and 1999. Undeveloped forested wetlands (broad-leaved deciduous) are present on the southern portion of the site adjacent to Wharton Brook. Site features are depicted on **Attachment A, Drawing C-000**.

A multi-year, multi-phase environmental investigation was performed across the Subject Site under a Licensed Environmental Professional (LEP) with review by the CT DEEP's Remediation Division, to evaluate historical impacts at the Subject Site. In July 2015, the environmental investigation and remediation of all Site areas of concern were completed under the LEP program, and the CTDEEP issued a Letter of No Audit, with the exception of the wetland area and a smaller confined area interior to one of the property buildings which still require remedy implementation. Several environmental investigations were conducted at the wetland area which showed wetland soil/ sediment was the only media and nickel was the only contaminant shown to be a driver for remediation. The environmental investigation efforts also confirmed the extent of excavation needed to meet the site-specific ecological cleanup goal is confined to a 2.23 acre area and a depth of 6 inches to 2 feet. The remedy approach and remedial extents were reviewed with CTDEEP who provided concurrence that the remediation approach and extents were acceptable.

2.1 SITE DESCRIPTION

The Subject Site is improved with four distinct buildings that were constructed from 1960 to 1999 in various phases. Building 1, located in the northwestern portion of the Site, is 28,000 square feet in size and used as the Primary Manufacturing Facility. Building 2, designated as the Main Plant, is approximately 65,000 square feet in size and is located on the northeast portion of the Site. Building 3, designated as the "Specialty Product Development" area, is approximately 7,200 square feet in size and was constructed as an extension of the southern end of Building 1. Building 4 is located in the southwestern portion of the Site and is approximately 44,000 square feet in size. Asphalt-paved parking areas are located in between all buildings.

Wetlands were identified, classified, and delineated at the Subject Site as part of a comprehensive wetland delineation completed by New England Environmental Services in December of 2019. Documentation detailing the results of this delineation is presented in **Attachment A**. The wetland type was classified under the Federal Geographic Data Committee Wetlands Classification Standard as "PFO1E" (Palustrine Forested, Broad-Leaved Deciduous, Seasonally Flooded/Saturated). These wetlands are dominated by woody vegetation greater than 6 meters tall. The overstory is dominated by American sycamore, red maple, yellow birch, and tulip tree, and the shrub/sapling layer includes

spicebush, highbush blueberry, and sweet pepperbush. Incursions of invasive common reed (*Phragmites australis*) and Japanese knotweed (*Fallopia japonica*) are present at the Site. A list of vegetation observed in the site wetlands (during the delineation and recorded during other site visits) is presented as **Table 1**.

The wetlands are associated with the watercourse known as Wharton Brook, a perennial stream, which forms the southeastern property boundary and is located to the southeast of the proposed remediation area. Wharton Brook flows in a sinuous streambed from the northeast to the southwest, ultimately discharging to the Quinnipiac River approximately 0.3 miles to the west of the property.

Shallow soil (the upper six inches) within the wetlands consists of deposits of organic, brown to very dark gray, alluvial soils. Deeper soils (below six inches) are similar but exhibit red to yellowish matrix concentrations. This soil is best classified as fine sandy loam under USDA soil taxonomy guidelines. Typical Total Organic Carbon (TOC) content of this soil was observed to be between 4.5%-7%, based on surficial soil samples collected in the wetland area.

The wetland soils are typically saturated to the surface throughout the majority of the year. Groundwater within the palustrine forested wetlands has been observed as shallow as six inches below the ground surface. Groundwater elevations are assumed to be closely tied with the level of the adjacent stream. The excavation will take place within the 100-year flood zone, and portions of the wetland are within the floodway of Wharton Brook, and experience seasonal flooding.

3. DESCRIPTION OF ACTIVITY

Additional information associated with the Planning and Zoning Permit Application is provided in this section.

3.1 DESCRIPTION OF ACTIVITY

The project is a soil remediation project designed to address historical impacts in the wetland area on the Subject Site. Soil remediation work will take place entirely within approximately 2.23 acres of wetlands; however, upland areas adjacent to the work area will also be disturbed to allow for work area access. The project will include the excavation and removal of shallow impacted wetland soil at concentrations above a site-specific ecological cleanup criterion accepted by CTDEEP within the wetland area located on the southern portion of the property. The proposed excavation area encompasses an approximate 97,500 square foot area (2.23 acres). Approximately 70,000 square feet (1.61 acres) will be excavated to a depth of 6-inches below grade, and the remaining 27,000 square feet (0.62 acres) will be excavated to a depth of 2-feet below grade. The proposed excavation areas, and depth of excavated areas are presented in **Drawing C-001**. Prior to implementation, the selected remediation contractor will be required to submit for review (and approval by the Project Engineer) a Contractor's Work Plan that will detail the approach to be implemented in the field. The following paragraphs outline the general approach that will likely be utilized to conduct the remediation.

3.2 PROPOSED CONSTRUCTION ACTIVITIES

The construction activities will include site mobilization and preparation, excavation, and restoration phases. The activities will commence with a pre-construction survey, establishment of temporary facilities and controls, installation of access points from the adjacent parking area into the wetland, and installation of erosion and sedimentation controls. Brush and small diameter trees will be cut to the ground surface. Large diameter trees (greater than 15 inches diameter at breast height) will be preserved where possible, and minimal excavation will be completed in close proximity to these trees in order to protect root systems. Cut trees, branches, and brush from non-invasive species will be retained and re-used as brush piles during the restoration phase to help establish wildlife habitat. Stockpile staging and load-out areas will be established within the wetland area immediately adjacent to upland areas as depicted in **Attachment A, Drawing C-006**. Temporary haul roads extending into the wetlands will be established using mats. Stormwater entering the Site from the existing outfall will also be temporarily diverted to outside of the excavation limits. A proposed site sequencing plan detailing the sequence of the activities and proposed locations of these site features are depicted in **Attachment A, Drawing C-006**.

Excavation will be performed using low ground pressure (rubber tire or tracks) mechanized equipment. The Central third of the excavation area will have approximately two feet of soil removed while the East and West thirds will have approximately six inches of soil removed. All soil removed will be disposed of off-site.

The excavated area will be restored to pre-existing grades by placement of backfill, with the top twelve inches (six inches in the six-inch excavation area) being comprised of organic wetland topsoil. Backfill below 12 inches in depth will be bank run gravel. In accordance with approved wetlands permits, a wetland seed mix will then be applied across the disturbed area. Wetland plantings (native trees and shrubs) will be planted during the first growing season following the completion of excavation and backfilling activities. Temporary haul roads, soil staging areas, and other temporary features will also be removed during the restoration phase. Following construction, the restored wetlands will be monitored during the growing season to evaluate plant growth, soil conditions, and site stability. A restoration plan with proposed restored elevations and trees to remain in place are depicted in **Drawing C-005**.

3.3 SOIL EROSION AND SEDIMENT CONTROL PLAN

Installation of sedimentation and erosion controls will be completed following mobilization to the site, prior to any excavation activities and include a combination of silt fencing, straw wattles, anti-tracking pads and tire and track washing pads. Throughout excavation and backfilling activities, the selected contractor will inspect all sedimentation and erosion control measures to ensure they are in good repair, and in the event of deficiencies the contractor shall correct the deficiency as soon as possible. The details of these inspections and repairs will be reported to the Project Engineer on a weekly basis.

As depicted in **Attachment A, Drawing C-001** erosion and sediment controls will be utilized at the site where potential for erosion concerns may be possible. A silt fence lined with a straw wattle, or similar product, will be placed around the entirety of the excavation area, as detailed in **Attachment A, Drawing C-202**. In locations where the excavation area is in proximity to Wharton Brook, and the excavation bottom will be below the ordinary high-water mark, two rows of silt fence and wattles, facing opposite directions, will be used for additional erosion and sediment controls. For additional protection in the flood-prone areas, the contractor will be required to submit a Flood Mitigation Plan, which will include temporary water barriers (e.g. HydraBarrier, Aqua Barrier coffer dam, WIPP system, PortaDam), to be used if site and weather conditions require flood control. The details of the installation of the silt fence sedimentation barriers, and temporary water barriers are illustrated in **Attachment A, Drawings C-201 and C-202**. Additional stocks of erosion and sedimentation control materials will be maintained on-site and stored out of the floodway/work area.

During the course of the excavation activities, soil will be excavated and temporarily staged within the wetland area. Backfill materials will be tested¹ prior to importation to the Site and staged during backfilling activities. Silt fence and wattles will be placed, in a similar fashion as the wetland excavation area, around each of the soil staging areas and the material management area. Additionally, a minimum of 10-millimeter thick polyethylene sheeting will be placed underneath each of the soil staging areas prior to placing the materials. At the end of each workday the piles will be covered and secured with a minimum of 6-millimeter thick polyethylene sheeting.

Three proposed access areas will be used for trucks and equipment to gain access to the wetland remediation area. The entrance to each of these access areas will have anti-tracking pads. A separate truck soil loading and tire and track washdown pad will also be constructed at each of the areas. Physical removal of soil and sediment from truck tires and equipment prior to leaving the excavation area will be performed on the pad. The pad will be designed in a fashion to collect the soil and sediment following removal from the equipment, for proper storage and offsite disposal. The proposed locations for the features described above are depicted on **Attachment A, Drawing C-006**. The details of the construction of these pads are detailed in **Attachment A, Drawings C-201 and C-202**. All sediment and erosion control methods will remain in place until site restoration has been completed, with the exception of the erosion and sediment control surrounding the excavated wetland area which will remain in place until acceptable regrowth of the wetland area, as determined by the Project Engineer in accordance with federal, state and local permits, has been observed.

Following backfilling activities, restorative seeding and planting will be conducted within the wetland area to stabilize the soils and sediment. Disturbed and excavated areas not within the wetland will be restored to pre-construction conditions. Ruts will be leveled, and grassed areas will be established. In the event restoration activities commence during less than ideal growing conditions (e.g., cold weather) the area will be seeded, and biodegradable erosion blankets will be placed over the entirety of the backfilled area to act as temporary erosion and sediment control. Planting activities will then occur during the following spring. During the first growing season, the restored wetlands will be monitored on approximately a monthly basis, to ensure adequate regrowth and the stabilization of the soils. If sufficient

¹ Backfill material will be tested and results will be compared to Connecticut Remediation Standard Regulations.

regrowth is not observed by the Project Engineer, additional plantings and seeding will occur in the wetland and/or upland areas. Erosion and sediment control measures placed around the excavation area will only be removed when sufficient regrowth, as determined by the Project Engineer in accordance with federal, state and local permits, is observed within the remedial wetland area. Wetland restoration plans detailing the proposed elevations of restored area, as well as seeding and planting, are depicted on **Attachment A, Drawing C-005**.

3.4 STORMWATER MANAGEMENT

Stormwater from the existing outfall currently located at the upgradient side of the wetland area will be temporarily rerouted to outside of the excavation area during excavation and restoration activities. Following restoration of the wetland, the outfall riprap pad will be restored and the temporary outfall and associated temporary riprap pad and conveyance piping will be removed or repurposed.

A series of calculations were performed to confirm the sizing of the riprap pad. The velocity and flow from the onsite stormwater conveyance system was calculated using Hydroflow Express Connection for Autodesk® AutoCAD® Civil 3D® (2019 Version), both for the existing stormwater outfall as well as the temporary stormwater bypass to be used during construction activities. The locations of existing and proposed temporary stormwater conveyance systems are depicted on the Drawings. The calculations took into account the length, size, shape and slope of the pipe among other physical characteristics. The calculations assumed the highest flow scenario: the stormwater conveyance system at maximum capacity (i.e. piping and catch basins full to capacity with stormwater) and under headwater conditions. The calculated discharge flows were used to determine the specifications and dimensions of the energy dissipation riprap pad required to reduce the flows to a nominal level to prevent scouring of the surrounding soils. The energy dissipation riprap pad is designed to disperse the velocity of the single stormwater discharge point into a sheet flow over the entire area of the pad at a nominal velocity. In the event of ponding within the pad, the ponded water will aid in reducing the velocity of the stormwater discharge point. As an added protective measure, the pad will be surrounded by silt fencing with a strawbale barrier to further reduce velocity of the stormwater discharge and capture sediment or debris carried with the stormwater.

No net increase in flow is anticipated based on the temporary relocation of the outfall; therefore, no increased flooding to downstream properties or adjacent properties in North Haven are anticipated.

3.5 PROJECT SCHEDULE

Pending approval of permits, the proposed excavation and restoration project activities are anticipated to begin approximately in October 2020 and end approximately in January 2021. Excavation and restoration activities include mobilization to the site, excavation, backfilling, restoration and demobilization activities. During excavation and backfilling activities, excavated wetland soils, clean bank run gravel, as well as clean organic soil will be temporarily staged onsite. The proposed wetland excavation work is anticipated to occur in three phases, moving from the eastern to western to central (roughly third) portions of the wetland excavation area. During excavation of the eastern and western portions, an approximate volume of 650 yards of excavated soils will be generated from each phase and staged over a two to three-week period and transported offsite for disposal during one to two weeks following the excavation. For the central portion, an approximate 2,000 yards of excavated soils will be generated and staged over a two to three-week period and transported offsite for disposal during a two to three-week period. Following removal of the excavated soils from each of the phases, backfill materials will be imported to the site and placed into the excavation areas. In the eastern and western portions, an approximate volume of 650 yards of clean organic soil will be staged for approximately one to two weeks while the excavated areas are backfilled to the proposed grades. The central portion of the site will have an approximate volume of 1,000 yards of bank run gravel and 1,000 yards of clean organic soil stockpiled for approximately two to three weeks while the excavated areas are being backfilled. Wetlands seeding will be applied soon after the backfilling has been completed. Wetlands planting activities are anticipated to be performed in Spring 2021, followed by wetland maintenance activities.

3.6 CONTINGENCY MEASURES AND PLANNING

Mitigation measures will be implemented to limit the incursion of flood waters into the active excavation area during construction. Flood barriers (e.g., cofferdams) will be installed along the limit of work in low lying areas to limit the potential for flooding. Heavy equipment used in the wetlands during remediation, when not in use, will be staged on a lined washdown pad located adjacent to the upland area (outside of the floodway). If severe flooding is anticipated, heavy equipment will be moved to adjacent, paved, upland areas.

The weather forecast will be closely monitored to track potential significant precipitation events, and site activities may be adjusted or stopped if significant flooding of the nearby Wharton Brook is anticipated. Stormwater within the excavation will be managed through a combination of water diversion and construction sequencing in order to minimize the amount of disturbed/open excavation at any given time. Water diversion may include the use of cofferdams or similar measures installed between the excavation and the adjacent Wharton Brook. Construction procedures will include active excavation within small “cells” and rapid backfilling/stabilization to reduce the amount of erosion and pooling of water.

3.7 RESTORATION

The wetlands within the excavated area will be restored in-kind to approximate existing conditions (**Attachment A, Drawings C-004, C-005**). There will be no net fill at the Site, and no changes to hydraulic conditions. Existing grades will be substantially restored by placement of backfill, with the top twelve inches (six inches in the six-inch deep excavation areas) being composed of organic wetland topsoil. Backfill materials will be tested² prior to importation to the Site and staged during backfilling activities. Wetland seed mix will then be sown across the restored area prior to installation of a biodegradable fiber blanket. Wetland plantings (herbaceous plugs, shrubs, and trees) will be installed during appropriate seasonal conditions. Temporary haul roads, stockpile areas, and other temporary features will also be removed during the restoration phase. Following construction, the restored wetlands will be monitored during the growing season to evaluate plant growth, soil conditions, and site stability. Invasive species will be controlled within the restoration area.

3.8 REMEDIATION ALTERNATIVES

The project scope involves a defined area of impacted wetland soil that is subject to cleanup under the state of Connecticut Remediation Standard Regulations (RSRs) as administered by the Connecticut Department of Energy and Environmental Protection (CTDEEP) and in accordance with the Connecticut Transfer Act. Cleanup of the wetland soils is being performed to meet a site-specific ecological cleanup goal accepted by CTDEEP resulting in improved environmental conditions and an enhanced wetland habitat.

The proposed project avoids or minimizes the impacts to sensitive site features including wetlands, streams, drainage ditches, sensitive ecological habitats, and other regulated resources to the extent practicable, mitigates temporary impacts whenever possible, and ultimately will restore the impacted wetlands to an improved condition (i.e., free of impacts and invasive species) compared to pre-remediation conditions in accordance with state and federal regulations and guidance. The proposed project scope, described in this application, minimized adverse impacts by incorporating results of additional soil delineation and sampling efforts. These additional efforts resulted in the square footage of wetland area affected by the remediation work to be reduced, and confirmed the limit of work did not overlap with the

² Backfill material will be tested and results will be compared to Connecticut Remediation Standard Regulations.

main flowing stream channel or stream bed of Wharton Brook, while still achieving the necessary removal of impacted soils in accordance with the state of Connecticut RSRs..

The additional delineation and sampling efforts also provided the necessary additional data to allow certain large trees (greater than 15 inches diameter at breast height) to be left standing throughout the proposed excavation area that would have alternatively been removed. Retention of large trees will provide habitat value within the wetlands, retain stratification of vegetation layers, aid in soil stabilization, provide shade to the replanted area, and provide a seed source for volunteer plants. The soil excavation around these large trees will only extend up to a radius around these trees approximately equal to the canopy drip line. Minimal scraping of soil using small equipment or hand tools may be completed within the tree dripline above the root zone. Work practices to be taken during construction to minimize impacts outside of the limits of work – including project sequencing, operation of heavy equipment, erosion control, and stabilization of backfill – are discussed above.

In-kind wetland mitigation across the entirety of the project area will be implemented, as discussed in a separate permit application to the Wallingford Inland Wetlands and Watercourses Commission. The application also includes an invasive species monitoring plan, other contingency measures, and a long-term monitoring plan.

Table 1: Existing Conditions Plant Species List
21 Toelles Road, Wallingford, CT - Soil Remediation Project

Layer	Common name	Scientific name	wetland	
			indicator status	invasive?
<i>Herbaceous</i>				
	aster sp.	--	--	
	garlic mustard	<i>Alliaria petiolata</i>	FACU	Y
	mugwort	<i>Artemisia vulgaris</i>	UPL	Y
	lakebank sedge	<i>Carex lacustris</i>	OBL	
	sweet woodreed	<i>Cinna arundinacea</i>	FACW	
	dodder	<i>Cucuta sp.</i>	NA	
	Japanese knotweed	<i>Fallopia japonica</i>	FACU	Y
	lesser celandine	<i>Ficaria verna</i>	FACW	Y
	jewelweed	<i>Impatiens capensis</i>	FACW	
	soft rush	<i>Juncus effusus</i>	OBL	
	Japanese stiltgrass	<i>Microstegium vimenium</i>	FAC	Y
	sensitive fern	<i>Onoclea sensibilis</i>	FACW	
	cinnamon fern	<i>Osmunda cinnamomea</i>	FACW	
	New York fern (?)	<i>Parathelypteris noveboracensis</i>	FAC	
	common reed	<i>Phragmites australis</i>	FACW	Y
	canada clearweed	<i>Pilea pumila</i>	FACW	
	multiflora rose	<i>Rosa multiflora</i>	FACU	Y
	blackberry	<i>Rubus semisetosus</i>	FAC	
	green bulrush	<i>Scirpus atrovirens</i>	OBL	
	Canada goldenrod	<i>Solidago canadensis</i>	FACU	
	skunk cabbage	<i>Symplocarpus foetidus</i>	OBL	
	poison ivy	<i>Toxicodendron radicans</i>	FAC	
<i>Shrub/sapling</i>				
	sweet pepperbush	<i>Clethra alnifolia</i>	FAC	
	northern spicebush	<i>Lindera benzoin</i>	FACW	
	elderberry	<i>Sambucus racemosa</i>	FACU	
	highbush blueberry	<i>Vaccinium corymbosum</i>	FACW	
	smooth arrowwood	<i>Viburnum recognitum</i>	FAC	
<i>Tree</i>				
	boxelder	<i>Acer negundo</i>	FAC	
	red maple	<i>Acer rubrum</i>	FAC	
	tree of heaven	<i>Ailanthus altissima</i>	NA	Y
	speckled alder	<i>Alnus incana</i>	FACW	
	yellow birch	<i>Betula alleghenensis</i>	FAC	
	shagbark hickory	<i>Carya ovata</i>	FACU	
	green ash	<i>Fraxinus pennsylvanica</i>	FACW	
	tulip tree	<i>Liriodendron tulipifera</i>	FACU	
	blackgum	<i>Nyssa sylvatica</i>	FAC	
	American sycamore	<i>Platanus occidentalis</i>	FACW	
	red oak	<i>Quercus rubra</i>	FACU	
	sassafras	<i>Sassafras albidum</i>	FACU	
	American elm	<i>Ulmus americana</i>	FACW	
<i>Vine</i>				
	Asiatic bittersweet	<i>Celastrus orbiculatus</i>	UPL	Y
	Virginia creeper	<i>Parthenocissus quinquefolia</i>	FACU	
	fox grape	<i>Vitis labrusca</i>	FACU	

Includes plant species documented at the Site during the wetland delineation and Ecological Risk Assessment, as well as those observed during Site visits.

ATTACHMENT A: DRAWINGS

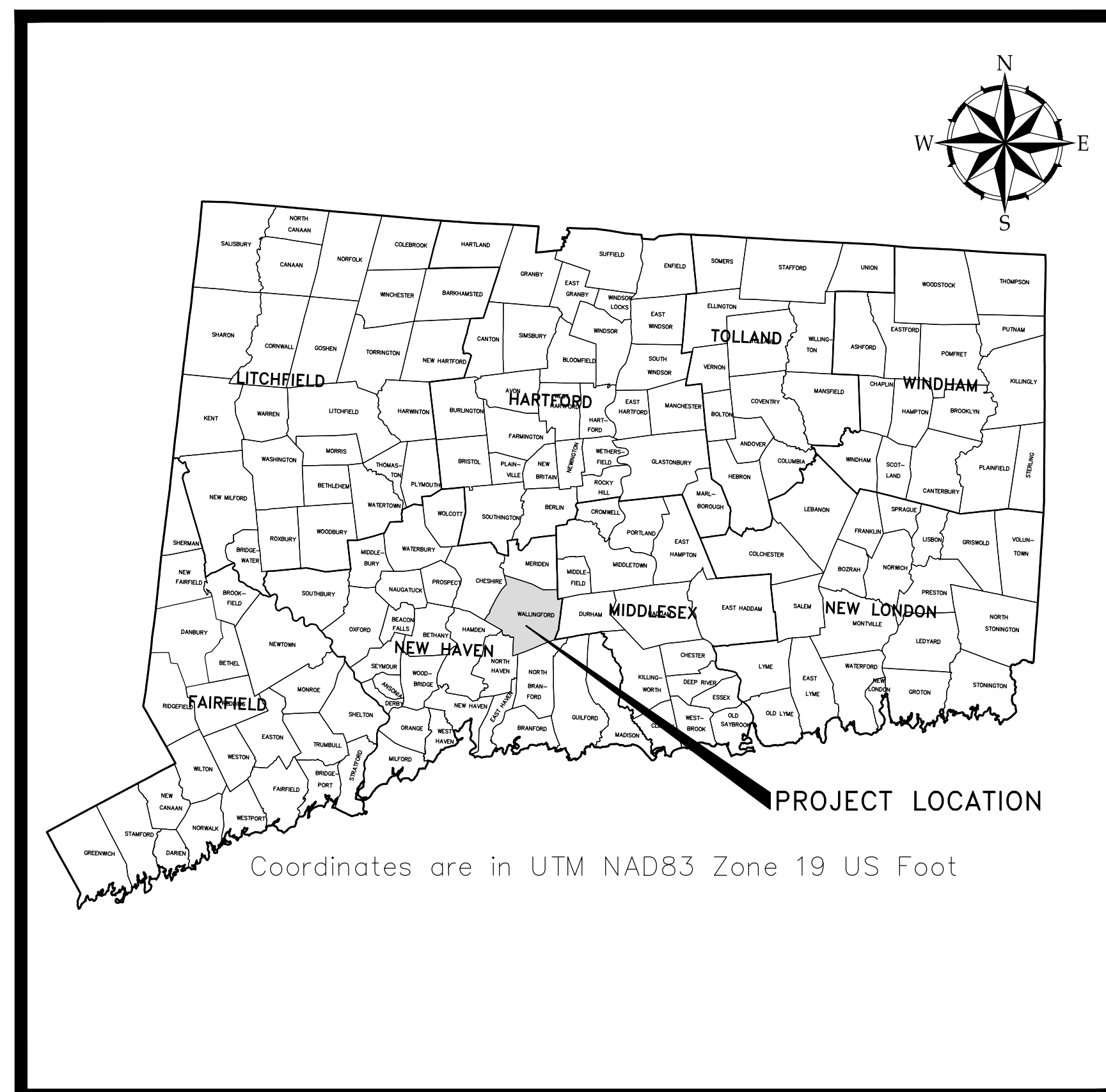
21 TOELLES ROAD WALLINGFORD CT

SOIL REMEDIATION PROJECT

PROJECT NO. 0232596.00

JUNE 2020

DRAFT



PROJECT LOCATION MAP

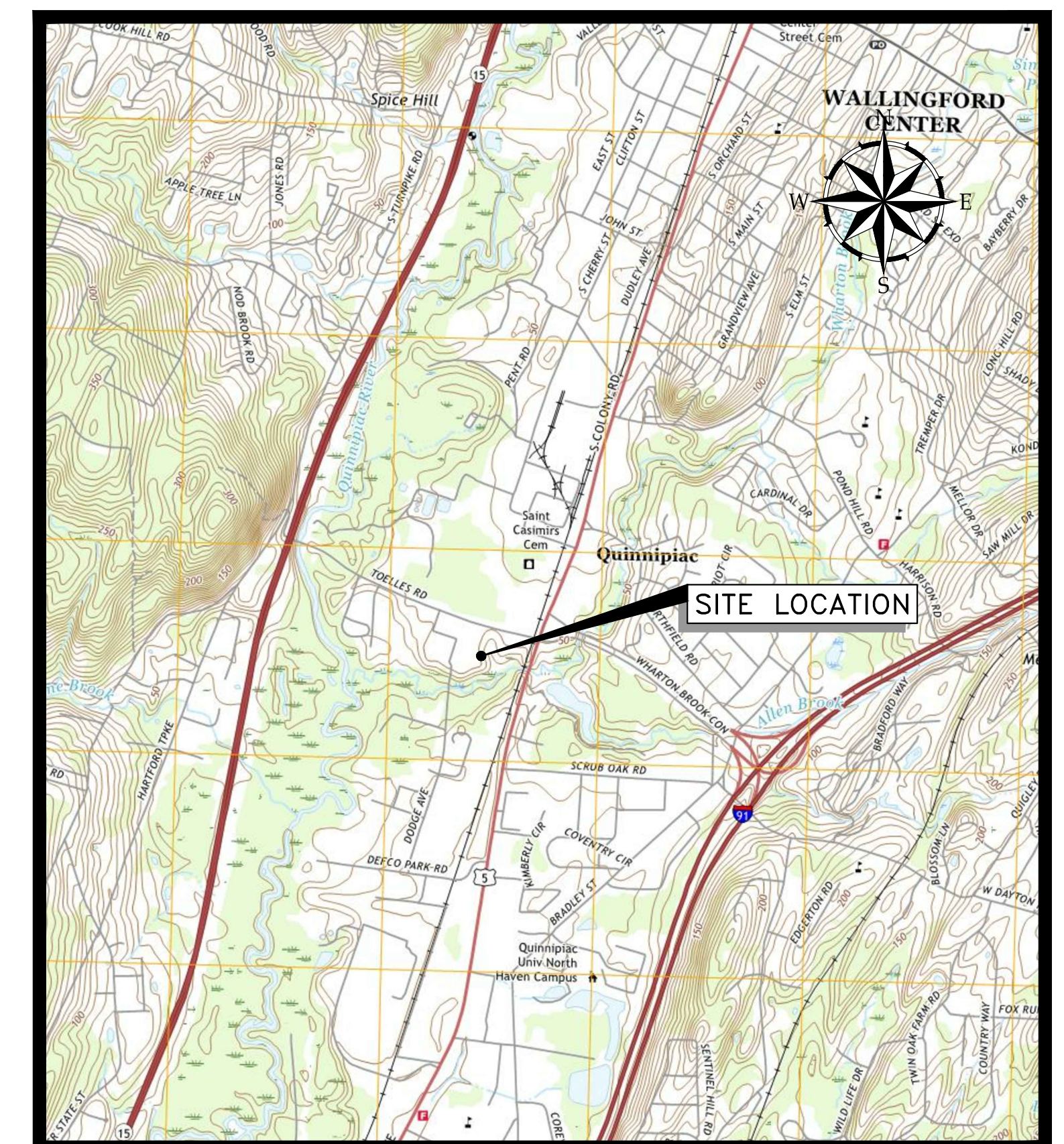
SHEET LIST TABLE

GENERAL	
G-000	COVER SHEET
G-001	GENERAL NOTES, ABBREVIATIONS, LEGEND AND DRAWING INDEX LIST
G-002	KEY MAP
CIVIL	
C-000	EXISTING CONDITIONS PLAN
C-001	EROSION AND SEDIMENTATION CONTROLS
C-002	SITE PREPARATION AND MATERIALS MANAGEMENT
C-003	PROPOSED EXCAVATION LIMITS OF SOIL
C-004	SITE RESTORATION PLAN
C-005	WETLAND RESTORATION PLAN
C-006	PROPOSED SITE SEQUENCING PLAN
C-201	SITE DETAILS 1
C-202	SITE DETAILS 2



213 Court Street, 4th Floor
 Middletown, Connecticut 06457
 888.265.8969 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



SOURCE: USGS TOPOGRAPHIC MAP
SITE LOCATION MAP

2000 0 2000 4000
 scale feet

GENERAL NOTES:

1. BASE PLAN COMPILED FROM PLAN BY ALFRED BENESCH & COMPANY ENTITLED, TOPOGRAPHIC SURVEY, 21 TOELLES ROAD, WALLINGFORD, CONNECTICUT DATED DECEMBER 23, 2019.
2. THE COORDINATES AND ELEVATIONS DEPICTED ON THE PLAN REPRESENT THE NAD '83 AND THE NAD '88 DATUMS. COORDINATES WERE ESTABLISHED ON THE SITE BASED UPON GPS OBSERVATIONS TAKEN ON OCT 11, 2018 USING TRIMBLE GNSS RTK R10 RECEIVERS AND SOLUTIONS PROVIDED THROUGH THE KENNET NETWORK.
3. WETLANDS DELINEATION WAS CONDUCTED BY RICHARD SNARSKI OF NEW ENGLAND ENVIRONMENTAL SERVICES AND FIELD LOCATED BY ALFRED BENESCH AND COMPANY DATED DECEMBER 2019.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING STRUCTURES TO REMAIN, UTILITIES, AND NEW SITE IMPROVEMENTS DURING THE COURSE OF THE WORK.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IMPACTS AND DAMAGE TO STRUCTURES DUE TO THEIR WORK, AND FOR CORRECTIVE ACTION OR REPAIRS NEEDED TO RESTORE THE STRUCTURE(S) TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR SHALL MANAGE AND LEGALLY DISPOSE OFF-SITE ALL EXCESS EXCAVATED MATERIALS, INCLUDING, BUT NOT LIMITED TO, SOIL, ROCK, BOULDERS, WATER, DEMOLITION WASTE, AND DEBRIS THAT CANNOT BE REUSED ON-SITE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ALL LINES, GRADES AND OTHER SURVEY CONTROL TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS.
8. THE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE ENGINEER SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
8. THE CONTRACTOR SHALL CALL "CALL BEFORE YOU DIG DIG" AT 811 AT LEAST 72 HOURS PRIOR TO EXCAVATION IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY CODES.
9. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A LICENSED LAND SURVEYOR ACCEPTABLE TO THE TOWN. PROPERTY MONUMENTS SHALL BE RESET IN ACCORDANCE TOWN OF DANBURY STANDARDS.
10. CONTRACTOR IS RESPONSIBLE FOR ALL SNOW REMOVAL AND WINTER MAINTENANCE OF ACCESS PATHS WITHIN THE LIMIT OF WORK.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE SITE DRAWINGS, INCLUDING BUT NOT LIMITED TO ALL UTILITIES, STORM INFRASTRUCTURE, SIGNS, UTILITY POLES, FENCES, ETC. AS REQUIRED. ALL COSTS SHALL BE INCURRED BY THE CONTRACTOR.
12. LAND OUTSIDE THE PROPOSED LIMIT OF WORK SHALL NOT BE DISTURBED BY THE CONTRACTOR.
13. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY CODES, REGULATIONS, LEGAL REQUIREMENTS, PERMIT CONDITIONS, ETC. SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY STANDARDS OF APPLICABLE LAWS, BUILDING AND CONSTRUCTION CODES.
14. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKWAYS, STREETS, PAVEMENTS, CURBING, TREES, PLANTINGS, LAWN, FENCING TO REMAIN ON OR OFF THE PREMISES, AND SHALL REPAIR AND REPLACE AT HIS/HER OWN EXPENSE, AS DIRECTED BY THE ENGINEER, ANY ITEMS DAMAGED AS A RESULT OF THE CONTRACTOR'S WORK.
15. WORK WITHIN PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH APPLICABLE FEDERAL TOWN OF WALLINGFORD AND STATE REQUIREMENTS.
16. IF IMPORTED FILL MATERIAL IS REQUIRED, IT SHALL BE CERTIFIED IN WRITING BY LICENSED INDEPENDENT TESTING FIRM OR ENGINEER AS NON-CONTAMINATED, CLEAN FILL SUITABLE FOR THE INTENDED USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTING OF ENVIRONMENTAL PARAMETERS AS OUTLINED IN THE CONTRACT DOCUMENTS.
17. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, RIPRAP, GRASS, ETC.) UNLESS OTHERWISE NOTED ON PLANS. RESTORATION OF ALL AREAS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
18. ALL MATERIAL SHALL BE FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.
19. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS PRIOR TO START OF CONSTRUCTION.
20. CONTRACTOR ACKNOWLEDGES THAT THE SITE IS SUBJECT TO CHANGE AND THAT WORK TO COMPLETE THE PROJECT IS BASED ON ITS CONDITION AT THE TIME OF BIDDING.
21. UTILITY LOCATIONS SHOWN ARE APPROXIMATE BOTH AS TO SIZE AND LOCATION. CONTRACTOR TO INVESTIGATE EXISTING CONDITIONS AND FIELD VERIFY LOCATIONS OF UTILITIES AND SUB-SURFACE STRUCTURES PRIOR TO CONSTRUCTION, AS NEEDED. NOT ALL EXISTING UTILITIES ARE SHOWN ON THE DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES.
22. COORDINATE DIRECTLY WITH UTILITY COMPANIES PER THE GENERAL REQUIREMENTS. NOTIFY UTILITY COMPANIES PRIOR TO COMMENCING WORK TO ALLOW SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF BURIED UTILITIES.
23. MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORM WATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., SHALL BE STORED AT THE END OF EACH DAY IN A STORAGE TRAILER OR COVERED LOCATION. ALL TYPES OF WASTES GENERATED AT THIS SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS.
24. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
25. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.
26. EXISTING FACILITIES TO REMAIN (I.E. TRANSFORMERS, TREES, POLES, HYDRANTS, FENCING, CATCH BASINS, MONITORING WELLS, AND UTILITIES, ETC.) AS WELL AS SITE IMPROVEMENTS SHALL BE PROTECTED DURING CONSTRUCTION. IF THESE ITEMS ARE DAMAGED, THE COST IS BOURNE BY THE CONTRACTOR.
27. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES BETWEEN THE PLANS AND SPECIFICATIONS. NO CHANGES ARE TO BE MADE UNLESS AUTHORIZED BY THE DESIGN ENGINEER.
28. CONTRACTOR SHALL OBTAIN ALL LOCAL, UTILITY, ETC. PERMITS REQUIRED FOR THE COMPLETION OF WORK UNDER THIS CONTRACT AND NOT INCLUDED IN THE CONTRACT DOCUMENTS. ANY AND ALL FEES ASSOCIATED WITH THIS WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED.
29. AT THE LOCATIONS WHERE TREES ARE TO REMAIN, EXCAVATION OF SOILS UP TO A DEPTH OF 6-INCHES TO THE TOP OF THE TREE ROOTS WITHIN THE DRIP LINE OF TREES TO REMAIN WITHIN THE EXCAVATION AREA WILL BE PERFORMED UTILIZING HAND TOOLS AND SMALL EQUIPMENT.
30. FLOOD MAP SOURCE: Q3 FLOOD ZONE DATA, WALLINGFORD, CT FROM THE STATE OF CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION, DATED SEPTEMBER 2010, TITLE Q3 FLOOD ZONE DATA WALLINGFORD, CT.

EROSION CONTROL NOTES:

1. PROVIDE EROSION CONTROL MEASURES AS SHOWN ON DRAWINGS. THESE ARE THE MINIMUM MEASURES TO BE EMPLOYED BY THE CONTRACTOR.
2. CONTRACTOR IS REQUIRED TO PERFORM ALL WORK AND SHALL PROVIDE EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND PERMITS.
3. ALL SOIL AND EROSION CONTROLS SHALL BE PLACED PRIOR TO ANY CONSTRUCTION ACTIVITIES. CONTRACTOR TO NOTIFY THE ENGINEER AND THE OWNER AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL EROSION CONTROL MEASURES NECESSARY TO PREVENT OFF-SITE TRACKING OF EARTH, SEDIMENT AND DEBRIS.
5. EROSION CONTROL BLANKETS OR SIMILAR EROSION CONTROL MEASURES WILL BE INSTALLED OUTSIDE PERMANENT SEEDING TIME FRAMES.
6. TEMPORARY EROSION CONTROL MEASURES MUST BE INSTALLED IN ACCORDANCE WITH DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS PRIOR TO COMMENCING SOIL DISTURBANCE ACTIVITIES.
7. SILT FENCE AND SEDIMENT BARRIERS (I.E. SILTSOXX, SILT FENCE, ETC) SHALL BE PLACED AROUND EXCAVATED MATERIAL STOCKPILES UNLESS THE STOCKPILES ARE BEING ACTIVELY WORKED. LOCATE MATERIAL STOCKPILES TO AVOID CONCENTRATED STORMWATER RUNOFF.
8. ADDITIONAL EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE ENGINEER OR CONTRACTOR. ADDITIONAL EROSION CONTROL MEASURES SHALL BE APPROVED BY THE ENGINEER.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE TIMELY INSTALLATION, INSPECTION, MAINTENANCE, AND/OR REPLACEMENT OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES TO ENSURE PROPER OPERATION THROUGHOUT THE DURATION OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF PERMANENT MEASURES UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETED.
10. MAINTENANCE: INSPECT AND REPAIR SEDIMENT BARRIERS PRIOR TO AND AFTER EVERY SIGNIFICANT STORM EVENT (>0.5 INCHES) AND AT LEAST WEEKLY. THE CONTRACTOR SHALL REPAIR OR REPLACE CONTROLS AS NECESSARY. REMOVE AND PROPERLY DISPOSE OF ACCUMULATED SEDIMENT WHEN ACCUMULATED TO A DEPTH OF SIX (6) INCHES OR LESS. DISTURBED AREAS SHALL BE BROUGHT TO FINAL GRADE AND STABILIZED IN PHASES TO MINIMIZE AREAS EXPOSED TO EROSION.
11. NO DUST WILL BE ALLOWED OUTSIDE THE LIMIT OF WORK. DUST SHALL BE MINIMIZED ON THE WORK SITE. CONTRACTOR MUST CONDUCT CONTINUOUS EFFORT TO CONTROL DUST. LACK OF DUST CONTROL COULD CAUSE THE PROJECT TO BE STOPPED UNTIL ISSUES ARE RESOLVED.
12. ALL EXCAVATED SOIL MUST BE EITHER PLACED IN COVERED ROLL-OFFS OR IF STOCKPILED, PLACED ON AND COVERED BY A MINIMUM 6 MIL POLY SHEETING AT ALL TIMES UNLESS THE STOCKPILES ARE BEING ACTIVELY WORKED.
13. DUST SHALL BE CONTROLLED AS NECESSARY. ROADWAY SURFACES SHALL BE WETTED AND MECHANICALLY SWEEP AS NECESSARY TO CONTROL DUST ON AN ONGOING BASIS. THE USE OF CALCIUM CHLORIDE FOR DUST CONTROL IS NOT ALLOWED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
14. CONTRACTOR IS RESPONSIBLE FOR DIVERTING AND PREVENTING STORMWATER FROM ENTERING INTO EXCAVATION AREAS. CONTRACTOR MUST DIVERT STORMWATER FROM OVERLAND FLOWS.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ARRANGE, SCHEDULE, AND PERFORM WORK IN SUCH A MANNER AS TO CAUSE MINIMUM INTERFERENCE WITH THE OCCUPANTS AND SITE ABUTTERS TRAFFIC AND OPERATIONS. THE CONTRACTOR SHALL GIVE NOTICE TO THE ENGINEER AND ALLOW THE OCCUPANTS AND ABUTTERS TIME TO PREPARE FOR UNAVOIDABLE TEMPORARY DISRUPTIONS OF THE OCCUPANTS AND ABUTTERS' NORMAL OPERATIONS.
2. ADEQUATE PROTECTION FOR PERSONS AND PROPERTY SHALL BE PROVIDED AT ALL TIMES. EXCAVATIONS IN THE VICINITY OF SITE ACCESS ROADS AND PARKING AREAS SHALL BE BARRICADED AND ILLUMINATED AT NIGHT.
3. TRASH RECEPTACLES SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR.
4. EQUIPMENT SHALL BE MAINTAINED TO PREVENT LEAKAGE OF VEHICLE FLUIDS.
5. THE CONTRACTOR SHALL REMOVE FROM THE PROJECT SITE ALL RUBBISH AND DEBRIS FOUND THEREON. STORAGE OF SUCH MATERIALS ON THE PROJECT SITE WILL NOT BE PERMITTED. ALL MATERIALS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL APPLICABLE CODES AND REGULATIONS. THE CONTRACTOR SHALL LEAVE THE PROJECT SITE IN A SAFE AND CLEAN CONDITION UPON COMPLETION OF THE WORK.
6. MONITORING WELLS SHALL BE PROTECTED DURING SOIL EXCAVATION AND MANAGEMENT ACTIVITIES. MONITORING WELL ROAD BOXES SHALL BE RESET FLUSH WITH FINISH GRADE WHEN WORK IS COMPLETE. IF THE ENGINEER DETERMINES THAT A MONITORING WELL SPECIFIED FOR PROTECTION ON THE DRAWINGS IS DAMAGED BEYOND REPAIR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DECOMMISSIONING OF THE DAMAGED WELL IN ACCORDANCE WITH THE STATE OF CONNECTICUT WELL ABANDONMENT REGULATIONS AND INSTALLATION OF NEW REPLACEMENT WELL AT THE DIRECTION OF THE ENGINEER.
7. THE CONTRACTOR SHALL MANAGE AND LEGALLY DISPOSE OFF-SITE ALL EXCESS EXCAVATED MATERIALS, INCLUDING, BUT NOT LIMITED TO, SOIL, ROCK, BOULDERS, WATER, TREE STUMPS, WOOD, AND DEBRIS THAT CANNOT BE REUSED ON-SITE.
8. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.
9. SAWCUTS IN EXISTING PAVEMENT SHALL BE SMOOTH AND STRAIGHT. EXISTING PAVEMENT SHALL BE SAWCUT AND BUTTED TO THE NEW PAVEMENT. NO FEATHERING OF PAVEMENT WILL BE PERMITTED.
10. RESTRICT ACCESS TO SITE THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO EXCAVATION SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS. EXCAVATIONS IN THE VICINITY OF SITE ACCESS ROADS AND PARKING AREAS SHALL BE BARRICADED AND ILLUMINATED DURING NON-WORKING HOURS.
11. WORK REQUIRED FOR DISCONTINUANCE OR INTERRUPTION OF ANY UTILITY SERVICES DUE TO THE PROJECT WORK SHALL BE ARRANGED BY THE CONTRACTOR WITH THE UTILITY COMPANIES WITH THE PRIOR APPROVAL OF THE ENGINEER.
12. THE CONTRACTOR SHALL PROVIDE ROUTINE INSPECTIONS OF ALL ON-SITE EQUIPMENT AND MACHINERY TO PREVENT AND LEAKAGES AND/OR SPILLS FROM OCCURRING ON THE PROJECT SITE. IN THE EVENT OF A SPILL OR LEAK, THE CONTRACTOR IS RESPONSIBLE AT THEIR OWN COST FOR IMMEDIATE CLEANUP TO PREVENT FURTHER MIGRATION TO SITE DRAINAGE AREAS AND/OR FURTHER TRANSPORTATION OF THE SPILLED SUBSTANCE (VIA TRACKS, TIRES, ETC.) OVER THE PROJECT SITE.
13. IF AN EXISTING UTILITY IS ENCOUNTERED DURING EXCAVATION, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER.
14. FLOOD PROTECTION AND WATER DIVERSION MEASURES SHALL BE PROVIDED AS DESCRIBED IN THE CONTRACT DOCUMENTS.

GENERAL NOTES



ABBREVIATIONS*

&	APPROX; ±	AND	APPROXIMATELY
BOS	BOTTOM OF STEPS	CB	CATCH BASIN
CL	CENTERLINE	CLDI	CLEAR
CM	CONCRETE	CM	CONCRETE
CO	CORRUGATED METAL PIPE	COMM	COMMUNICATION
CONC	CONCRETE	CONC	CONCRETE
CS	CARBON STEEL	CS	CARBON STEEL
CU	COPPER	DI	DUCTILE IRON
DMH	DRAIN MANHOLE	DIA.	DIAMETER
DS	DOWN-SPOUT	DS	DOWN-SPOUT
E	UNDERGROUND ELECTRICAL	E	UNDERGROUND ELECTRICAL
EL	ELEVATION	EL	ELEVATION
FFE	FINISH FLOOR ELEVATION	FINISH	FINISH
EX	EXPOSED	FLG	FLANGE
FL	FLOOR	FL	FLOOR
FM	FORCE MAIN	FT	FOOT/FEET
GALV.	GALVANIZED	GALV.	GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE	HORIZ.	HORIZONTAL
HP	HIGH POINT	HP	HIGH POINT
HT	HEIGHT	HT	HEIGHT
HWY	HIGHWAY	HYD	HYDRANT
INV.	INVERT	INV.	INVERT
LF	LINEAR FEET	LP	LOW POINT
MAX.	MAXIMUM	MECH	MECHANICAL
MH	MANHOLE	MH	MANHOLE
MIN.	MINIMUM	MON	MONUMENT
NO.	NUMBER	NO.	NUMBER
N.T.S.	NOT TO SCALE	O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER	OE	OVERHEAD ELECTRIC
OH	OVERHEAD	OH	OVERHEAD
±	PLUS OR MINUS	PLS	PROFESSIONAL LAND SURVEYOR
PVC	POLYVINYL CHLORIDE	RCP	REINFORCED CONCRETE PIPE
REINF.	REINFORCED	REF.	REFERENCE LINE
REQ'D	REQUIRED	R	REQUIRED
S	SLOPE	S	SLOPE
SD	STORM DRAIN	SD	STORM DRAIN
SMH	SEWER MANHOLE	SCH	SCHEDULE
SQR	STANDARD DIMENSION RATIO	SQ.	SQUARE
SS	STAINLESS STEEL	STA.	STATION
TYP.	TYPICAL	TOS	TOP OF STEPS
W	WITH	W	WITH
W/V	WATER VALVE	W/V	WATER VALVE
•WWM	WELDED WIRE MESH	•WWM	WELDED WIRE MESH

THESE ARE GENERAL ABBREVIATIONS. NOT ALL APPEAR ON THESE DRAWINGS.

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DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	DRAWN BY
		JM	LH	CB

GENERAL NOTES, ABBREVIATIONS AND LEGEND

21 TOELLES ROAD
WALLINGFORD CT

SOIL REMEDIATION PROJECT

JOB NO: 232596 00
DATE: JUNE 2020
SCALE: AS NOTED
SHEET: 2 OF 12

G-001

DRAFT

LEGEND

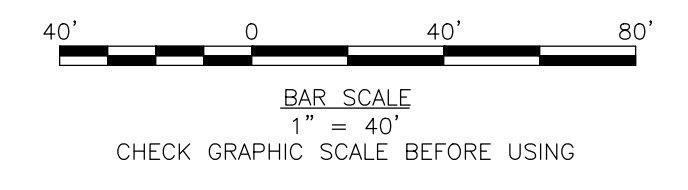
- EXCAVATION TO 6" (ANTICIPATED) [Symbol: Dashed line with 'x' marks]
- EXCAVATION TO 24" (ANTICIPATED) [Symbol: Solid line with 'x' marks]
- PROPERTY LINE [Symbol: Long-dashed line]
- EDGE OF WATER [Symbol: Dotted line]
- EDGE OF PAVEMENT [Symbol: Short-dashed line]
- CONTOUR LINES [Symbol: Dashed line]
- FENCE LINE [Symbol: Line with 'x' marks]
- WETLAND LINE [Symbol: Dashed line with 'x' marks]
- WETLAND FLAG [Symbol: Circle with 'X W.F.-29']
- TREE TO BE RETAINED AND ITS DRIP LINE (DIAMETER AT BREAST HEIGHT AT LEAST 15") [Symbol: Circle with tree icon]
- TREE TO BE REMOVED (DIAMETER AT BREAST HEIGHT LESS THAN 15") [Symbol: Circle with tree icon]
- LIMIT OF WORK [Symbol: Thick solid line]
- LIMIT OF 2' EXCAVATION [Symbol: Thin solid line]
- LIMIT OF 6" EXCAVATION [Symbol: Dashed line with 'x' marks]
- ORDINARY HIGH WATER LINE [Symbol: Dashed line with 'x' marks]



MINIMUM LIMITS OF EXCAVATION VIA HAND TOOLS AND SMALL EQUIPMENT (TYP).

GENERAL NOTES

1. THE ANTICIPATED OVERALL EXCAVATION AREA IS 97,527 SF (2.23 AC).
2. THE ANTICIPATED EXCAVATION AREA TO 6" IS 70,335 SF (1.61 AC).
3. THE ANTICIPATED EXCAVATION AREA TO 24" IS 27,192 SF (0.62 AC).



DRAFT

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REV#	DESCRIPTION	DATE
DESIGNED BY:	JM	
CHECKED BY:	LM	
DRAWN BY:	CB	2325980-C-003.dwg

PROPOSED EXCAVATION LIMITS OF SOIL

21 TOELLES ROAD
WALLINGFORD CT

SOIL REMEDIATION PROJECT

JOB NO: 232598 00
DATE: JUNE 2020
SCALE: AS NOTED
SHEET: 7 OF 12

C-003

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LEGEND

LIMIT OF WETLAND RESTORATION	—
PROPERTY LINE	- - - - -
EDGE OF WATER	~~~~~
EDGE OF PAVEMENT	=====
CONTOUR LINES (EXISTING)	---x---x---x---
FENCE LINE	---x---x---x---
WETLAND LINE	- - - - -
WETLAND FLAG	X W.F.--29
CONTOUR LINES (PROPOSED)	---x---x---x---
TREE TO BE RETAINED AND ITS DRIP LINE (DIAMETER AT BREAST HEIGHT AT LEAST 15")	⊙
ORDINARY HIGH WATER LINE	- - - - -

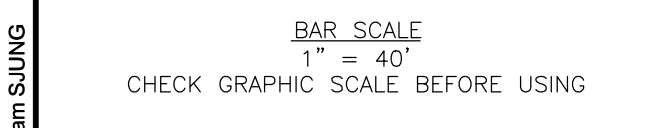
GENERAL NOTES

1. EROSION AND SEDIMENTATION CONTROLS WILL BE INSTALLED AROUND ALL EXCAVATION AREAS PRIOR TO GROUND DISTURBANCE AND WILL REMAIN IN PLACE UNTIL THE GROUND IS STABILIZED FOLLOWING RESTORATION AS DIRECTED BY ENGINEER.
2. ALL EXCAVATION AREAS WILL BE BACKFILLED AND RESTORED WITH WETLAND SOIL AND PLANTINGS.
3. THE ESTIMATED OVERALL RESTORATION AREA IS 97,527 SF (2.23 AC) (INCLUDES WETLAND AND UPLAND AREAS).

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WETLAND RESTORATION PLANTING TABLE

Habitat	Area	Stratum	Common name	Scientific name	Wetland Indicator Code	Size	Container	Spacing	#	Notes
Pelustrine Forested (PFO)	95,832	Herbaceous	sensitive fern	<i>Onoclea sensibilis</i>	FACW	12" approx.	gc	3' center	500	Locate species in wetter or drier areas based on wetland indicator code
			cinnamon fern	<i>Osmunda cinnamomea</i>	FACW	12" approx.	gc	3' center	500	
			green bulrush	<i>Scirpus atrovirens</i>	OBL	2" plugs	1' center	500		
			lakebank sedge	<i>Carex lacustris</i>	OBL	2" plugs	1' center	500		
			soft rush	<i>Juncus effusus</i>	OBL	2" plugs	1' center	500		
			sweet woodreed	<i>Cinna arundinacea</i>	FACW	2" plugs	1' center	500		
		Virginia creeper	<i>Parthenocissus quinquefolia</i>	FACU	2" plugs	1' center	500	Sow throughout.		
		Wetland Forest Seed Mix ¹ (or similar)				seed	1 lb / 15,000 # ²		6	
		smooth arrowwood	<i>Viburnum recognitum</i>	FAC	2" - 3"	rc	5' center		140	Locate shrubs in wetter or drier areas based on wetland indicator code
		elderberry	<i>Sambucus racemosa</i>	FACU	2" - 3"	rc	5' center		50	
		sweet pepperbush	<i>Clethra alnifolia</i>	FAC	2" - 3"	rc	5' center		140	
		highbush blueberry	<i>Vaccinium corymbosum</i>	FACW	2" - 3"	rc	5' center		140	
spicebush	<i>Lindera benzoin</i>	FACW	2" - 3"	rc	5' center	140				
tuliptree	<i>Liriodendron tulipifera</i>	FACU	3" - 4"	rc	10' center	50	Locate trees in wetter or drier areas based on wetland indicator code			
red maple	<i>Acer rubrum</i>	FAC	3" - 4"	rc	10' center	100				
yellow birch	<i>Betula alleghaniensis</i>	FAC	3" - 4"	rc	10' center	150				
boxelder	<i>Acer negundo</i>	FAC	3" - 4"	rc	10' center	150				
American sycamore	<i>Platanus occidentalis</i>	FACW	3" - 4"	rc	10' center	100				
speckled alder	<i>Alnus incana</i>	FACW	3" - 4"	rc	10' center	200				
American elm	<i>Ulmus americana</i>	FACW	3" - 4"	rc	10' center	150				

ACCESS ROUTE PLANTING TABLE

Habitat	Area	Stratum	Common name	Scientific name	Wetland Indicator Code	Size	Container	Spacing	#	Notes	
Upland Access Routes ²	per 1,000 SF	Herbaceous	New England Conservation Wildlife Mix ¹ (or similar)			seed	1 lb / 1750 # ²	TBD	Sow throughout.		
			smooth arrowwood	<i>Viburnum recognitum</i>	FAC	2" - 3"	rc	5' center		1	
		Shrubs	elderberry	<i>Sambucus racemosa</i>	FACU	2" - 3"	rc	5' center	1		
			sweet pepperbush	<i>Clethra alnifolia</i>	FAC	2" - 3"	rc	5' center	2		
			tuliptree	<i>Liriodendron tulipifera</i>	FACU	3" - 4"	rc	10' center	3		
		Trees	red maple	<i>Acer rubrum</i>	FAC	3" - 4"	rc	10' center	2		
			red oak	<i>Quercus rubra</i>	FACU	3" - 4"	rc	10' center	2		
			boxelder	<i>Acer negundo</i>	FAC	3" - 4"	rc	10' center	3		
		Wetland Access Routes	per 1,000 SF	Herbaceous	Wetland Forest Seed Mix ¹ (or similar)			seed	1 lb / 15,000 # ²	TBD	Sow throughout.
					sweet pepperbush	<i>Clethra alnifolia</i>	FAC	2" - 3"	rc	5' center	
Shrubs	highbush blueberry			<i>Vaccinium corymbosum</i>	FACW	2" - 3"	rc	5' center	1		
	spicebush			<i>Lindera benzoin</i>	FACW	2" - 3"	rc	5' center	2		
Trees	boxelder			<i>Acer negundo</i>	FAC	3" - 4"	rc	10' center	3		
	American sycamore			<i>Platanus occidentalis</i>	FACW	3" - 4"	rc	10' center	2		
	speckled alder			<i>Alnus incana</i>	FACW	3" - 4"	rc	10' center	2		
American elm	<i>Ulmus americana</i>			FACW	3" - 4"	rc	10' center	3			

1. New England Wetland Plants, Inc. Species included in Conservation Wildlife Mix: Virginia Wild Rye (*Elymus virginicus*), Little Bluestem (*Schizachyrium scoparium*), Big Bluestem (*Andropogon gerardii*), Creeping Red Fescue (*Festuca rubra*), Switch Grass (*Panicum virgatum*), Partridge Pea (*Chamaecrista fasciculata*), Deer Tongue (*Panicum clandestinum*), Indian Grass (*Sorghastrum nutans*), Ox Eye Sunflower (*Helopsis helianthoides*), Common Milkweed (*Asclepias syriaca*), Spotted Joe Pye Weed (*Eupatorium maculatum*), Grass Leaved Goldenrod (*Euthamia graminifolia*), Blue Vervain (*Verbena hastata*), New England Aster (*Aster novae-angliae*), Early Goldenrod (*Solidago juncea*).
2. Southern Tier Consulting, Inc. Species included Northeast Wetland Forest Herb Mix: Green Bulrush (*Scirpus atrovirens*), Wool Grass (*Scirpus cyperinus*), Fox Sedge (*Carex vulpinoidea*), Canada Mannagrass (*Glyceria canadensis*), Blue Vervain (*Verbena hastata*), Reed Meadowgrass (*Glyceria grandis*), Fowl Mannagrass (*Glyceria striata*), Deertongue (*Panicum clandestinum*), White Vervain (*Verbena urticifolia*), Melic Mannagrass (*Glyceria melicaria*), False Nettle (*Boehmeria cylindrica*), Stinging Nettle (*Urtica dioica*), Giant Goldenrod (*Solidago gigantea*), Winkled Goldenrod (*Solidago rugosa*), Wood Reed (*Cinna arundinacea*), Whitegrass (*Leersia virginica*), Buttonbush (*Cephalanthus occidentalis*), Wild Rye (*Elymus canadensis*), Water Parsnip (*Sium suave*), Virginia Wild Rye (*Elymus virginicus*), Pennsylvania Smartweed (*Polygonum pennsylvanicum*), Large-Leaf Avens (*Geum macrophyllum*), Riverbank Wild Rye (*Elymus riparius*), Water Dock (*Rumex verticillatus*), Swamp Milkweed (*Asclepias incarnata*), Shallow Sedge (*Carex lurida*), Turk's Cap Lily (*Lilium superbum*), Blackberry (*Rubus alleghaniensis*).
3. Refers to unmaintained upland access areas. Landscaped/asphalt areas to be restored per project specifications.

Note: During planting, a qualified wetland professional may relocate up to 50 percent of the plants in each community type if as-built site conditions would pose an unreasonable threat to the survival of plantings installed according to the mitigation plan. The plantings shall be relocated to locations with suitable hydrology, and soils and where appropriate structural context with other plantings can be maintained.

Note: To reduce the immediate threat and minimize the long-term potential of degradation, the species included on the 'Invasive and Other Unacceptable Plant Species' list in Appendix K of the New England District Compensatory Mitigation Guidance shall not be included as planting stock in the overall project. Only plant materials native and indigenous to the region shall be used. Species not specified in the mitigation plan shall not be used without prior written approval from the Corps.

WETLAND RESTORATION PLAN

21 TOELLES ROAD
WALLINGFORD CT

SOIL REMEDIATION PROJECT

JOB NO:	232596 00
DATE:	JUNE 2020
SCALE:	AS NOTED
SHEET:	9 OF 12

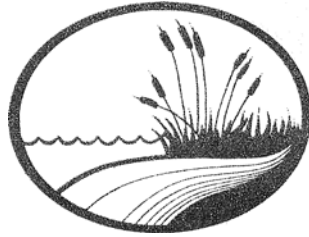
C-005

DRAFT

W:\woodardcurran\wetlandrestoration\Projects\23259600-C-005.dwg, Jun 16, 2020, 9:37am, SUNJING

ATTACHMENT B: WETLAND DELINEATION DOCUMENTATION

**NEW ENGLAND
ENVIRONMENTAL
SERVICES**



**BLACKLEDGE
RIVER NURSERY**

Wetland Narrative

Pfizer
21 Toelles Road
Wallingford, Connecticut

The vegetation growing in the wetland was inventoried on December 16, 2019 (See Table 1). The wetland is dominantly forested. The majority of the wetland occurs in the flood plain of Wharton Brook. Wharton Brook is 15 to 25 feet in width. The substrate is sand.

The dominate exotic invasive plant species in the wetland includes Japanese Knotweed, Multiflora Rose, Common Reed and Asian Bittersweet. The wildlife observed in the wetland on December 16, 2019 was the cottontail rabbit, blue jay and cardinal. Raccoon tracks were observed along Wharton Book.

Prepared By:

A handwritten signature in black ink, appearing to read "Richard Snarski".

R. Richard Snarski
Professional Wetlands Scientist #1391
Registered Professional Soil Scientist #1975

February 7, 2020

RRS/srh

Table 1

Complete List of Vascular Plant Species Observed in Wetland

Pfizer
21 Toelles Road, Wallingford, Connecticut
Survey Date: December 16, 2019

<u>Scientific Name</u>	<u>Common Name</u>
<i>Lindera benzoin</i>	Spicebush
<i>Sassafras albidum</i>	Sassafras
<i>Betula alleghaniensis</i>	Yellow Birch
<i>Quercus rubra</i>	Red Oak
<i>Acer rubrum</i>	Red Maple
<i>Liriodendron tulipifera</i>	Tulip
<i>Alnus incana</i>	Speckled Alder
<i>Carya ovata</i>	Shagbark Hickory
<i>Vaccinium corymbosum</i>	Highbush Blueberry
<i>Rosa multiflora</i>	Multiflora Rose
<i>Sambucus racemosa</i>	Elderberry
<i>Clethra alnifolia</i>	Pepperbush
<i>Viburnum recognitum</i>	Arrowwood
<i>Rubus semisetosus</i>	Blackberry
<i>Symplocarpus foetidus</i>	Skunk Cabbage
<i>Cinna arundinacea</i>	Sweet Woodreed
<i>Carex lacustris</i>	Lakebank Sedge
<i>Osmunda cinnamomea</i>	Cinnamon Fern
<i>Onoclea sensibilis</i>	Sensitive Fern
<i>Phragmites australis</i>	Common Reed
<i>Toxicodendron radicans</i>	Poison Ivy
<i>Vitis labrusca</i>	Fox Grape
<i>Celastrus orbiculatus</i>	Asian Bittersweet
<i>Scirpus atrovirens</i>	Green Bulrush
<i>Impatiens capensis</i>	Jewelweed
<i>Fallopia japonica</i>	Japanese Knotweed
<i>Nyssa sylvatica</i>	Blackgum

Wetland Function-Value Evaluation Form

Total area of wetland NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? NO
 Adjacent land use Parking lot, Buildings, Road Distance to nearest roadway or other development 1.5 feet
 Dominant wetland systems present PFOIE, POWH (Wharton Brook) Contiguous undeveloped buffer zone present NO
 Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Middle
 How many tributaries contribute to the wetland? one on site Wildlife & vegetation diversity/abundance (see attached list)

Wetland ID: WD 1
 Latitude 41.427255 - 72.840068 Longitude
 Prepared by: Ricard Snarski Date 12/16/2019
 Wetland Impact: _____ Area _____
 Evaluation based on: _____
 Office: _____ Field:
 Corps manual wetland delineation completed? Y N _____

Function/Value	Suitability Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>	1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 15		Ground water seeps are evident along the majority of the wetland boundary
Floodflow Alteration	<input checked="" type="checkbox"/>	15, 16, 17, 18	<input checked="" type="checkbox"/>	The majority of the wetland is part of the floodplain of Wharton Brook, Alluvial soils
Fish and Shellfish Habitat	<input checked="" type="checkbox"/>	4, 8, 14, 16, 17		No fisheries were observed.
Sediment/Toxicant Retention	<input checked="" type="checkbox"/>	1, 3, 4, 6, 8, 9, 10, 12, 16	<input checked="" type="checkbox"/>	Sediment is deposited through wetland.
Nutrient Removal	<input checked="" type="checkbox"/>	2, 3, 4, 5, 7, 8, 10, 11, 13	<input checked="" type="checkbox"/>	Nitrate contamination occurs in wetland. The wetland has potential for nutrient removal from upstream sources.
Production Export	<input checked="" type="checkbox"/>	1, 2, 4, 5, 10		Outflow is culvert under rail road tracks. Little transport by wildlife due to land development.
Sediment/Shoreline Stabilization	<input checked="" type="checkbox"/>	1, 3, 4, 6, 9, 12, 14		Trees and shrubs stabilize the bank of Wharton Brook.
Wildlife Habitat	<input checked="" type="checkbox"/>	8, 11, 13, 15, 16, 17, 18		UR band development (Parking lot, building, and rail road border majority of wetland).
Recreation	<input checked="" type="checkbox"/>			There is no public access to wetland. A chain link fence occurs on the north side of wetland.
Educational/Scientific Value	<input checked="" type="checkbox"/>			No known educational use.
Uniqueness/Heritage	<input checked="" type="checkbox"/>	1, 5, 20		No known archaeological sites. Wetland does not have any unique attributes.
Visual Quality/Aesthetics	<input checked="" type="checkbox"/>			No public access to wetland.
Endangered Species Habitat	<input checked="" type="checkbox"/>			The majority of uplands around wetland is developed.
Other				NO Endangered or Sensitive Listed Species found

Notes: _____
 * Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Pfizer, 21 Toelles Road City/County: Wallingford Sampling Date: 12/10/2017
 Applicant/Owner: Woodward/Curtan/Pfizer State: CT Sampling Point: IV
 Investigator(s): Richard Sharvick Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): side slope Local relief (concave, convex, none): None
 Slope (%): 6 Lat: 41.427255 Long: -72.840068 Datum: NAD83-1984
 Soil Map Unit Name: Udorthent NWI classification: h0hC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1)
<input type="checkbox"/> High Water Table (A2)
<input type="checkbox"/> Saturation (A3)
<input type="checkbox"/> Water Marks (B1)
<input type="checkbox"/> Sediment Deposits (B2)
<input type="checkbox"/> Drift Deposits (B3)
<input type="checkbox"/> Algal Mat or Crust (B4)
<input type="checkbox"/> Iron Deposits (B5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|---|

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Microtopographic Relief (D4) | <input type="checkbox"/> FAC-Neutral Test (D5) |
|---|--|

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 1U

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>25X</u>)				
1. <u>Sassafras alleghanense</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
2. <u>Quercus rubra</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
3. <u>Betula alleghanensis</u>	<u>20</u>	<u>✓</u>	<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
	<u>60</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15X</u>)				
1. <u>Rosa multiflora</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
2. <u>Sassafras albidum</u>	<u>20</u>	<u>✓</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Herb Stratum (Plot size: <u>5X</u>)				
1. <u>Solidago canadensis</u>	<u>38</u>	<u>✓</u>	<u>FACU</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>38</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
		= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16 (AB)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is $\leq 3.0^1$

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (include photo numbers here or on a separate sheet.)

Sample Point 1U is located 12 feet up gradient of wetland flag #23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/3						s l	A
5-23	7.5YR 5/4						m-c s	C (fill)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA5) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Pfizer, 21 Toelles Road City/County: Wallingford Sampling Date: 12/10/2017
 Applicant/Owner: Woodward/Curtan/Pfizer State: CT Sampling Point: 1W
 Investigator(s): Richard Shavski Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): base of slope Local relief (concave, convex, none): none
 Slope (%): 3 Lat: 41.427255 Long: -72.870068 Datum: NAD83-1989
 Soil Map Unit Name: Walpole NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one is required; check all that apply)</p> ___ Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) ___ Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B6)	<p>Secondary Indicators (minimum of two required)</p> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

<p>Field Observations:</p> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>16"</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>24"</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 1W

Tree Stratum (Plot size: <u>20X</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	<u>38</u>	<u>V</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (AB)
2. <u>Betula alleghaniensis</u>	<u>20</u>	<u>V</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>58</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15X</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Lindera benzoin</u>	<u>20</u>	<u>V</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>20</u> = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>5X</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Symplocarpus</u>	<u>20</u>	<u>V</u>	<u>obl</u>	
2. <u>Rubus semisetosus</u>	<u>20</u>	<u>V</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>40</u> = Total Cover				Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <u>V</u> No _____
Remarks: (Include photo numbers here or on a separate sheet.) <p style="font-size: 1.2em;">Sample Point 1W is located 13' down gradient of wetland flag #23.</p>				

SOIL

Sampling Point: 1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 3/1						fsl	A
6-13	7.5YR 7/2		2.5Y 6/2	20	C	m	v fsl	B
13-20	7.5YR 5/2		10YR 6/6	10	C	m	ms	C

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: 2 V

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. <i>Atlanthus altissima</i>	38	✓	FACV	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>38</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. <i>Atlanthus altissima</i>	20	✓	FACV	
2. <i>Rosa multiflora</i>	10	✓		
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>30</u> = Total Cover				
Herb Stratum (Plot size: _____)				
1. <i>Solidago canadensis</i>	20	✓	FACV	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>20</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No

Remarks: (include photo numbers here or on a separate sheet.)

Sample point is located 15' up gradient of wetland flag number #16

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Pfizer, 21 Toelles Road City/County: Wallingford Sampling Date: 12/10/2017
 Applicant/Owner: Woodward/Curtan/Pfizer State: CT Sampling Point: 2W
 Investigator(s): Richard Sharaski Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): base of slope Local relief (concave, convex, none): none
 Slope (%): 3 Lat: 41.427255 Long: -72.840068 Datum: NAD83-1984
 Soil Map Unit Name: Aippowan NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) ___ Marl Deposits (B15) <input checked="" type="checkbox"/> Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 	
Remarks: 	

VEGETATION – Use scientific names of plants.

Sampling Point: 2W

Tree Stratum (Plot size: _____)				Dominance Test worksheet:			
1.	Absolute % Cover	Dominant Species?	Indicator Status	Number of Dominant Species That Are OBL, FACW, or FAC:			
1. <i>Nyssa sylvatica</i>	20	V	FAC	5	(A)		
2. <i>Acer rubrum</i>	20	V	FAC				
3. _____				Total Number of Dominant Species Across All Strata:	6 (B)		
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	83 (AB)		
5. _____							
6. _____							
7. _____							
40 = Total Cover							
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:			
1.	Absolute % Cover	Dominant Species?	Indicator Status	Total % Cover of:	Multiply by:		
1. <i>Lindera benzoin</i>	20	V	FACW	OBL species _____	x 1 = _____		
2. <i>Sassafras albidum</i>	20	V	FACW	FACW species _____	x 2 = _____		
3. _____				FAC species _____	x 3 = _____		
4. _____				FACU species _____	x 4 = _____		
5. _____				UPL species _____	x 5 = _____		
6. _____				Column Totals:	(A) _____ (B) _____		
7. _____				Prevalence Index = B/A = _____			
40 = Total Cover							
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____			
1. <i>Phragmites australis</i>	63	V	FACW				
2. <i>Symplocarpus foetidus</i>	20	V	OBL				
3. _____							
4. _____							
5. _____							
6. _____							
7. _____							
8. _____							
9. _____							
10. _____							
11. _____							
12. _____							
83 = Total Cover							
Woody Vine Stratum (Plot size: _____)							
1. _____							
2. _____							
3. _____							
4. _____							
_____ = Total Cover							
Remarks: (Include photo numbers here or on a separate sheet.) Sample point 2W is located 12' down gradient of wetland flag #16							



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