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TOWN OF CARMEL
PLANNING BOARD



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MICHAEL CARNAZZA
*Director of Code
Enforcement*

RICHARD FRANZETTI, P.E.
Town Engineer

PATRICK CLEARY,
AICP, CEP, PP, LEED AP
Town Planner

PLANNING BOARD AGENDA
JULY 27, 2022 – 7:00 P.M.

TAX MAP # PUB. HEARING MAP DATE COMMENTS

PUBLIC HEARING

1.	PGI, LLC Endoscopy Center – 667 Stoneleigh Ave	66.15-1-3	7/27/22	6/28/22	Public Hearing & Resolution
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SITE PLAN

2.	NYCDEP West Branch Auxiliary Dam – 34 Drewville Road	65.-1-5		07/ 2022	Site Plan
3.	Suez Water New York Inc – Chateau Wells - 59 McNair Drive	75.20-1-16		4/27/22	Site Plan

MISCELLANEOUS

4. Minutes – 05/25/22



TOWN OF CARMEL SITE PLAN APPLICATION INSTRUCTIONS



The Town of Carmel Planning Board meetings are held twice a month, on the second Thursday and fourth Wednesday at 7:00 PM at Carmel Town Hall, 60 McAlpin Avenue, Carmel, NY 10541.

The submission deadline is 10 days prior to the Planning Board meeting. New site plan applications that have been deemed complete will be placed on the agenda in the order they are received.

No application will be placed on the agenda that is incomplete

Pre-Submission:

Prior to the formal submission of the site plan, a pre-submission conference may be requested by the applicant to be conducted with representatives from the Town, which may include the Town Planner, Town Engineer, Director of Code Enforcement and/or the Planning Board Attorney. This conference will serve to educate the applicant on the process he/she must follow, clarify the information required to submit a complete site plan application, and to highlight any specific areas of concern. You may arrange a pre-submission conference through the Planning Board Secretary at (845) 628-1500 extension 190.

Submission Requirements:

At least 10 days prior to the Planning Board meeting, the site plan application shall be submitted to the Planning Board Secretary as follows:

All site plans shall be signed, sealed and folded with the title box legible. The application package shall include:

- 11 copies of the Site Plan Application Form, signed and notarized.
- 11 copies of the SEQR Environmental Assessment Form (use of short form or long form shall be determined at pre-submission conference).
- 5 full size sets of the Site Plan (including floor plans and elevations)
- 1 CD (in pdf. format) containing an electronic version of the Site Plan
- 2 copies of the Disclosure Statement
- 11 copies of the Site Plan Completeness Certification Form
- All supplemental studies, reports, plans and renderings.
- 2 copies of the current deed.
- 2 copies of all easements, covenants and restrictions.
- The appropriate fee, determined from the attached fee schedule. Make checks payable to the *Town of Carmel*.

Rose Vrombita 7/13/22

 Planning Board Secretary; Date

Richard J. [Signature] 7/12/22

 Town Engineer; Date



TOWN OF CARMEL SITE PLAN APPLICATION



Per Town of Carmel Code – Section 156 - Zoning

SITE IDENTIFICATION INFORMATION		
Application Name: NYCDEP West Branch Reservoir Auxillary Dam Slope Safety Improvements	Application # 22-0008	Date Submitted: 7/8/22
Site Address: No. 34 Street: Drewville Rd Hamlet: Town of Carmel		
Property Location: (Identify landmarks, distance from intersections, etc.) Drewville Rd and US Route 6		
Town of Carmel Tax Map Designation: Section 65 Block 1 Lot(s) 5	Zoning Designation of Site: NYC Watershed	
Property Deed Recorded In County Clerk's Office Date Liber Page	Liens, Mortgages or other Encumbrances Yes No X	
Existing Easements Relating to the Site No Yes Describe and attach copies: NA	Are Easements Proposed? No Yes Describe and attach copies: No	
Have Property Owners within a 500' Radius of the Site Been Identified? Yes X No Attached List to this Application Form		
APPLICANT/OWNER INFORMATION		
Property Owner: NYCDEP - Paul Costa	Phone #: (718) 595-5470 Fax#:	Email: PCosta@dep.nyc.org
Owners Address: No. 71 Street: Smith Ave	Town: Kingston	State: NY Zip: 12401
Applicant (if different than owner): Erk LeClair	Phone #: (518) 782-4573 Fax#:	Email: leclaires@cdmsmith.com
Applicant Address (if different than owner): No. 11 Street: British American Blvd, Suite 200	Town: Latham	State: NY Zip: 12110
Individual/ Firm Responsible for Preparing Site Plan: Erk LeClair, Camp Dresser McKee and Smith	Phone #: (518) 782-4573 Fax#:	Email: LeClairES@cdmsmith.com
Address: No. 11 Street: British American Boulevard	Town: Latham	State: NY Zip: 12110
Other Representatives: Linda Singh / NYCDEP	Phone #: 917-207-9477 Fax#:	Email: SinghLI@dep.nyc.gov
Owners Address: No. Street:	Town:	State: Zip:
PROJECT DESCRIPTION		
<p>Describe the project, proposed use and operation thereof:</p> <p>The project (Contract CRO-534) will improve the stability of the downstream slope of the West Branch Auxillary Dam, bringing the dam into conformance with current NYSDEC Dam Safety Guidelines and reconstruct and widen U.S. Route 6 that passes over the Auxillary Dam crest to better meet current NYSDOT standards. See Site Plan Narrative for additional information.</p>		

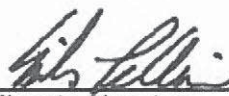
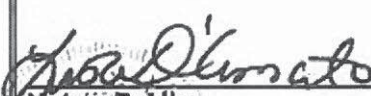
TOWN OF CARMEL SITE PLAN APPLICATION

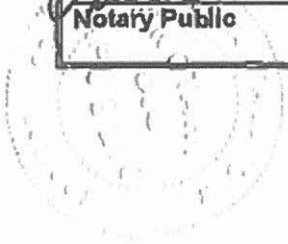
PROJECT INFORMATION			
Lot size: Acres: 45.8	Square Feet:	Square footage of all existing structures (by floor): NA	
# of existing parking spaces: NA		# of proposed parking spaces: NA	
# of existing dwelling units: NA		# of proposed dwelling units: NA	
Is the site served by the following public utility infrastructure: <ul style="list-style-type: none"> • Is project in sewer district or will private septic system(s) be installed? <small>excluding private septic system</small> _____ • If yes to Sanitary Sewer answer the following: <ul style="list-style-type: none"> ▶ Does approval exist to connect to sewer main? Yes: <input type="checkbox"/> No: <input type="checkbox"/> ▶ Is this an In-district connection? _____ Out-of district connection? _____ ▶ What is the total sewer capacity at time of application? _____ ▶ What is your anticipated average and maximum daily flow _____ 			
For Town of Carmel Town Engineer <ul style="list-style-type: none"> ▶ What is the sewer capacity _____ 			
• Water Supply	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Not Applicable	
If Yes: <ul style="list-style-type: none"> ▶ Does approval exist to connect to water main? Yes: <input type="checkbox"/> No: <input type="checkbox"/> ▶ What is the total water capacity at time of application? _____ ▶ What is your anticipated average and maximum daily demand _____ 		NOT applicable NOT applicable NOT applicable	
• Storm Sewer	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>		
• Electric Service	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>		
• Gas Service	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>		
• Telephone/Cable Lines	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>		
For Town of Carmel Town Engineer Water Flows _____ <i>NOT applicable</i> Sewer Flows _____ <i>Richard J. [Signature] 7/12/02</i> Town Engineer; Date			
What is the predominant soil type(s) on the site? <small>Dun/Charlton fine sandy loam, very stony</small>		What is the approximate depth to water table? 3.5 to 40 feet	
Site slope categories:	15-25% 100 %	25-35% %	>35% %
Estimated quantity of excavation:	Cut (C.Y.) 3500	Fill (C.Y.)	20,000
Is Blasting Proposed	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Unknown: <input type="checkbox"/>	
Is the site located in a designated Critical Environmental Area?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>		
Does a curb cut exist on the site? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	Are new curb cuts proposed? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	What is the sight distance? Left _____ Right _____	
Is the site located within 500' of: <ul style="list-style-type: none"> • The boundary of an adjoining city, town or village Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> • The boundary of a state or county park, recreation area or road right-of-way Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> • A county drainage channel line. Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> • The boundary of state or county owned land on which a building is located Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> 			

TOWN OF CARMEL SITE PLAN APPLICATION

Is the site listed on the State or Federal Register of Historic Place (or substantially contiguous) Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>			
Is the site located in a designated floodplain? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
Will the project require coverage under the Current NYSDEC Stormwater Regulations Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>			
Will the project require coverage under the Current NYCDEP Stormwater Regulations Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>			
Does the site disturb more than 5,000 sq ft		Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	
Does the site disturb more than 1 acre		Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	
Does the site contain freshwater wetlands? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>			
Jurisdiction: NYSDEC: <input checked="" type="checkbox"/> Town of Carmel: <input checked="" type="checkbox"/> <i>yes</i>			
<i>If present, the wetlands must be delineated in the field by a Wetland Professional, and survey located on the Site Plan.</i>			
Are encroachments in regulated wetlands or wetland buffers proposed?		Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	
Does this application require a referral to the Environmental Conservation Board?		Yes: <input type="checkbox"/> No: <input type="checkbox"/>	
Does the site contain waterbodies, streams or watercourses?		Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>	
Are any encroachments, crossings or alterations proposed?		Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	
Is the site located adjacent to New York City watershed lands?		Yes: <input type="checkbox"/> No: <input type="checkbox"/> site = NYC land	
Is the project funded, partially or in total, by grants or loans from a public source? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>			
Will municipal or private solid waste disposal be utilized? Public: <input type="checkbox"/> Private: <input type="checkbox"/>		Not applicable	
Has this application been referred to the Fire Department?		Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	
What is the estimated time of construction for the project? 2023 through 2025			
ZONING COMPLIANCE INFORMATION			NA- No building proposed
Zoning Provision	Required	Existing	Proposed
Lot Area			
Lot Coverage			
Lot Width			
Lot Depth			
Front Yard			
Side Yard			
Rear Yard			
Minimum Required Floor Area			
Floor Area Ratio			
Height			
Off-Street Parking			
Off-Street Loading			

TOWN OF CARMEL SITE PLAN APPLICATION

Will variances be required? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	If yes, identify variances:
PROPOSED BUILDING MATERIALS	
Foundation	NA
Structural System	NA
Roof	NA
Exterior Walls	NA
APPLICANTS ACKNOWLEDGEMENT	
I hereby depose and certify that all the above statements and information, and all statements and information contained in the supporting documents and drawings attached hereto are true and correct.	
<u>ERIK LECLAIR</u> Applicants Name	 Applicants Signature
Sworn before me this <u>15th</u> day of <u>June</u> 20 <u>22</u>	
 Notary Public	



LISA D'AMATO
 NOTARY PUBLIC, STATE OF CONNECTICUT
 MY COMMISSION EXPIRES 12/31/2022



TOWN OF CARMEL SITE PLAN COMPLETENESS CERTIFICATION FORM



All Site Plans submitted to the Planning Board for review shall include the following information and details, as set forth in Section 156-61 B of the Town of Carmel Zoning Ordinance.

This form shall be included with the site plan submission

	<i>Requirement Data</i>	<i>To Be Completed by the Applicant</i>	<i>Waived by the Town</i>
1	Name and title of person preparing the site plan	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
2	Name of the applicant and owner (if different from applicant)	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
3	Original drawing date, revision dates, scale and north arrow	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
4	Tax map, block and lot number(s), zoning district	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
5	All existing property lines, name of owner of each property within a 500' radius of the site	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
6	Contour lines at two-foot intervals, grades of all roads, driveways, sanitary and storm sewers	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
7	The location of all water bodies, streams, watercourses, wetland areas, wooded areas, rights-of-way, streets, roads, highways, railroads, buildings, structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	The location of all existing and proposed easements	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
9	The location of all existing and proposed structures, their use, setback dimensions, floor plans, front, side and rear elevations, buildable area.	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
10	On site circulation systems, access, egress ways and service roads, emergency service access and traffic mitigation measures	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
11	Sidewalks, paths and other means of pedestrian circulation	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
12	On-site parking and loading spaces and travel aisles with dimensions	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/>
13	The location, height and type of exterior lighting fixtures	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
14	Proposed signage	NA <input type="checkbox"/> ✓	<input type="checkbox"/>
15	For non-residential uses, an estimate of the number of employees who will be using the site, description of the operation, types of products sold, types of machinery and equipment used	<input checked="" type="checkbox"/>	<input type="checkbox"/>



TOWN OF CARMEL SITE PLAN COMPLETENESS CERTIFICATION FORM



	Requirement	To Be Completed by the Applicant	Waived by the Town
16	The location of clubhouses, swimming pools, open spaces, parks or other recreational areas, and identification of who is responsible for maintenance	NA <input type="checkbox"/>	<input type="checkbox"/>
17	The location and design of buffer areas, screening or other landscaping, including grading and water management. A comprehensive landscaping plan in accordance with the Tree Conservation Law	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	The location of public and private utilities, maintenance responsibilities, trash and garbage areas	NA <input type="checkbox"/>	<input type="checkbox"/>
19	A list, certified by the Town Assessor, of all property owners within 500 feet of the site boundary	<input type="checkbox"/>	<input type="checkbox"/>
20	Any other information required by the Planning Board which is reasonably necessary to ascertain compliance with this chapter	<input type="checkbox"/>	<input type="checkbox"/>

Applicants Certification (to be completed by the licensed professional preparing the site plan:

I, ERIK LECLAIR hereby certify that the site plan to which I have attached my seal and signature, meets all of the requirements of §156-61B of the Town of Carmel Zoning Ordinance:



Erik Leclair
Signature - Applicant

6-9-22
Date

Professional Seal

Paul [Signature]
Signature - Owner

6-21-22
Date



TOWN OF CARMEL
SITE PLAN COMPLETENESS
CERTIFICATION FORM



Town Certification (to be completed by the Town)

I _____ hereby confirm that the site plan meets all of the requirements of §156-61B of the Town of Carmel Zoning Ordinance:

Rose Trombetta

Signature - Planning Board Secretary

7/15/22

Date

Richard J. [Signature]

Signature - Town Engineer

7/12/22

Date

Short Environmental Assessment Form

Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information			
NYCDEP - BEDC			
Name of Action or Project: NYCDEP West Branch Auxiliary Dam Slope Safety Improvements (CRO-534)			
Project Location (describe, and attach a location map): West Branch Auxiliary Dam: U.S. Route 8 east of Drewville Road, Carmel, NY (See Figures 1 and 2 in Attachment C)			
Brief Description of Proposed Action: See Site Plan Narrative			
Name of Applicant or Sponsor: Erik LeClair / Camp Dresser McKee & Smith		Telephone: (518) 782-4573	
		E-Mail: leclaires@cdmsmith.com	
Address: 11 British American Blvd, Suite 200			
City/PO: Latham		State: NY	Zip Code: 12110
1 Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			NO <input checked="" type="checkbox"/>
2 Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: USACE, NYSDEC, NYSDOT			YES <input checked="" type="checkbox"/>
3 a Total acreage of the site of the proposed action? _____ 4.00 acres b Total acreage to be physically disturbed? _____ 3.56 acres c Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ 460+ acres			
4 Check all land uses that occur on, are adjoining or near the proposed action			
5 <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural (non-agriculture) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential (suburban) <input checked="" type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input checked="" type="checkbox"/> Other (Specify) water supply reservoir <input type="checkbox"/> Parkland			

5. Is the proposed action,	NO	YES	N/A
a. A permitted use under the zoning regulations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Consistent with the adopted comprehensive plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES	
If Yes, identify: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Are public transportation services available at or near the site of the proposed action?			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES	
If the proposed action will exceed requirements, describe design features and technologies:			
Not Applicable _____	<input type="checkbox"/>	<input type="checkbox"/>	
10. Will the proposed action connect to an existing public/private water supply?	NO	YES	
If No, describe method for providing potable water: _____			
No occupied space created or modified by proposed project	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Will the proposed action connect to existing wastewater utilities?	NO	YES	
If No, describe method for providing wastewater treatment			
Private septic system services the Gatehouse (Shall 10) located on the opposite side of US Route 8, adjacent to the West Branch Reservoir	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO	YES	
Gatehouse located outside the proposed limits of work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?			
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres:			
State regulated Freshwater - LC 30 Stream 854-220 C(T) The Auxiliary Dam and maintenance road are located within the 100-foot adjacent area to this wetland. Trees within 20 feet of the auxiliary dam would be cut, including those within the 100-foot adjacent area. Existing 12-inch drainage line from toe of slope to existing weir box would be replaced in kind. Area would be restored. No permanent impact to regulated freshwater wetland is anticipated.			

Project Description

The proposed project (Contract CRO-534) includes improving the stability of the downstream slope increasing the downstream slope stability factor of safety to meet or exceed the minimum required factors of safety as outlined in the New York State Department of Environmental Conservation (NYSDEC) "Guidelines for Design of Dams"; installing subsurface drainage to eliminate ponding conditions at the toe of slope; reconstructing U.S. Route 6 along the crest of the dam; and improving the management of roadway drainage. The project will bring the dam into conformance with current NYSDEC Dam Safety Guidelines and the reconstructed U.S. Route 6 that passes over the Auxiliary Dam crest will better meet current NYSDOT standards.

The tax parcel (block 65.-1-5) the Auxiliary Dam resides within is 45.83 acres in size and is zoned as a waterbody. The project area is approximately 4 acres in size although physical work would be confined to an area of 3.6 acres. The block and lot map is included in **Attachment 1** and project area zoning map are provided in **Attachment 4** with a list of adjoining property owners within 500 feet of all boundaries of the project site.

The reconstruction of the auxiliary dam crest and downstream slope would temporarily impact traffic along this section of U.S. Route 6. Project work has been discussed closely with NYSDOT as well as the Town of Carmel. In addition, freshwater wetlands regulated by US Army Corps of Engineers (USACE), NYSDEC and the Town of Carmel are located at the toe of the downstream side of the auxiliary dam. Existing site structures (maintenance road, dam drainage structure and a portion of the auxiliary dam itself) reside within 100 feet of the wetland boundary. In addition, an existing 12" drainage pipe that carries seepage from the toe of the slope to a weir box located in the wetland has failed. In kind replacement of the failed pipe would be required and would result in a temporary impact to the wetland. Construction activities would be required within the wetland regulated by USACE and NYSDEC and the NYSDEC regulated 100-foot adjacent area. Tree removal and cutting required for dam safety and construction purposes would be limited to the period between November 1 and March 31 in consideration of the Northern Long-Eared Bat and Indiana Bat.

Construction is anticipated to take place over two construction seasons. Generally, the first construction season would be utilized to address the dam slope while the second construction season work would focus on the improvements and widening U.S. Route 6 and final site restoration.

Approximately 3,500 cubic yards of unsuitable material would be disposed of offsite and approximately 20,000 cubic yards of material would be brought to the site over the two construction seasons. Soil samples from the site were collected between October 31 and November 18, 2016. The lab analysis indicated that no special handling, disposal or health and safety measures are anticipated to be required for handling excavated soils. The proposed project does not include the construction of above ground structures. The proposed work would be inspected by a full-time construction manager and the designer would be onsite as required.

Work at this location would require special consideration to limit the risk of construction-related material entering the West Branch Reservoir. The proposed project work that would be closest to the Reservoir involves the improvements to U.S. Route 6 at the crest of the dam. This work would be

approximately 25 feet from the reservoir and its banks. A turbidity curtain (or curtains) would be installed in the reservoir when work takes place to prevent impact to the Reservoir.

Existing Conditions

The New York City Department of Environmental Protection (DEP) operates a series of water supply reservoirs servicing the City of New York (“the City”) and upstate communities. The West Branch Reservoir is located in the DEP East of Hudson reservoir system and is part of the Croton Watershed. It is controlled by two dams, the West Branch Main Dam and West Branch Auxiliary Dam (NYS ID 231-0511B). Both dams are owned by the City and are operated by DEP Bureau of Water Supply – Dam Safety. The reservoir and dam are located in the Town of Carmel in Putnam County, New York.

The West Branch Auxiliary Dam was completed in 1895. The dam is approximately 1.3 miles southwest of the main dam on the southern tip of the West Branch Reservoir. The dam is 64 feet high and 750 feet long and carries U.S. Route 6 along the crest of the dam. Drewville Road is to the south. The upstream slope is approximately 2H:1V (Horizontal to Vertical). Plans indicate the downstream slope is at 2.4H:1V; however, the upper 10 feet of the slope adjacent to the roadway is steeper at approximately 1.8:1.

Inspections were completed on the Auxiliary Dam in 2008 and 2009 to identify potential issues associated with movement of the downstream slope. The issues identified were pavement cracking; surface drainage problems, leaning guide rail and utility poles; erosion and slope stability of the downstream slope; and ponded water at the downstream toe. In 2012, URS and CDM in joint venture performed a detailed study of the dam, evaluated the site conditions, investigated several options for remediation, and ultimately recommended flattening the downstream slope and widening the crest of the dam. The recommended action includes flattening the downstream slope and widening the crest of the auxiliary dam. Implementation of this work will address the slope stability issues identified in the report, extend the life of the dam and improve U.S. Route 6, as the widening of the dam provides room for the construction of a shoulder and minor widening of the lanes. These roadway improvements have been coordinated with the NYSDOT.

Wetlands

Freshwater wetlands were delineated by CDM Smith on the project site on June 14, 2016. Wetlands were delineated in accordance with the New York State Freshwater Wetland Act and the USACE 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987)[the Manual], and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (v 2.0)(ERDC/EL TR-12-1 dated January 2012)[the Regional Supplement]. Three areas were flagged with wetland characteristics and subsequently named Wetlands 1 through 3. The boundaries of each of the wetlands were flagged with blue tape. Wetland #1 did not fully meet the definition of a jurisdictional wetland and is approximately 2,351 square feet in size. The area is primarily characterized as a stone lined seepage drainage feature located at the toe of the dam slope. This feature collects water that drains through two pipes beneath the onsite maintenance road and ultimately empties into the wetland and associated stream. Wetlands #2 and #3 were determined to be jurisdictional wetlands. Wetland #2 coincides with the area identified as NYSDEC regulated freshwater wetland LC-30 and falls under USACE

jurisdiction. Wetland LC-30 is located to the east of the dam slope and is approximately 48 acres in size. NYSDEC conducted a site visit on November 2, 2017 and confirmed their jurisdiction of Wetland #2 (LC-30) as flagged in the field. Wetland #3 is approximately 4,120 square feet in size and is located towards the northern extent of the dam slope in an area that is regularly mowed. Wetland #3 is under the jurisdiction of USACOE.

Permits required to conduct work in the wetland areas have been filed through the state and federal agencies (NYSDEC and USACE). Permits, once issued by NYSDEC and USACE will be provided to the Town of Carmel per the requirements of the Town Code.

Proposed Project

The following provides a highlight of the proposed site changes.

Tree Removal

Tree cutting is required to establish a 20-foot clear area at both ends of the dam in accordance with DEC Dam Safety Guidelines and to provide safe access to the site entrance driveway for large construction vehicles. Approximately 78 trees will be cut to create the required 20-foot clear area, to establish a temporary gravel construction access road and to modify the existing site entrance driveway off Drewville Road to provide safe construction vehicle access. Tree cutting would be limited to the period between November 1 and March 31 in consideration of the Northern Long Bat and the Indiana Bat.

The list of trees to be removed is summarized in the table below and the locations shown in the Tree Removal Plan drawings in **Attachment 1**.

Summary of Trees to Be Removed

Common Name	Number to be Removed	Diameter at Breast Height (inches)
White Pine	9	14 to 36
Norway Maple	7	8 to 18
Black Birch	11	6 to 16
Red Maple	13	8 to 16
Sugar Maple	12	4 to 28
Shagbark Hickory	3	6 to 10
Slippery Elm	2	6 to 10
European Larch	11	6 to 16

Common Name	Number to be Removed	Diameter at Breast Height (inches)
White Ash	3	10 to 23
White Oak	2	26 to 44
Amelanchier Sp.	1	6
Hop Hornbeam	2	5 to 8
American Elm	2	6 to 7

Excavation and Fill of Dam Slope

Excavation and fill construction activities would be progressed from the toe of slope to the crest of the dam. Construction activities on the dam would be restricted to a defined area. Material along the downstream slope would be removed in steps or benches to reduce the tendency of the new embankment to slide down the existing slope. The material that is removed to create the benching would be tested and reused as embankment fill if found to be suitable. In addition, topsoil removed would be stored and reused upon completion of the embankment fill. Drawings are provided in **Attachment 1**.

Reconstruction of U.S. Route 6

U.S. Route 6 would be reconstructed within the limits of the dam crest. Currently, the existing roadway has two 11-foot wide travel lanes with two-foot wide shoulders. The proposed roadway would shift the centerline by approximately 3 feet towards the downstream side of the dam creating two 11.5-foot wide travel lanes and 2.5-foot wide shoulders. A Work Zone Traffic Control (WZTC) plan would be implemented with temporary traffic control measures during construction in coordination with the NYSDOT, Putnam County and Town of Carmel. Drawings are provided in **Attachment 1**. Site photos reflecting existing site conditions and anticipated post-construction conditions are provided in **Attachment 2**.

Installation of Instrumentation

Several pieces of instrumentation are proposed to be installed. Specifically, six inclinometers would be installed at two locations located in the flat area adjacent to the guide railing at the top of the downstream slope. Four water level sensors would be installed to measure water level elevation in the three existing V-notch weirs and the proposed monitoring vault within the existing seepage chamber. The four existing vibrating wire piezometers, grouted casings, and data collection systems would be maintained in their current location. The existing casings would be extended to meet the proposed slope ground surface elevation. An additional eight vibrating wire piezometers would be installed at four new well locations.

Site Drainage Improvements

Site drainage improvements would be implemented throughout this project. Improvements include underdrains and surface drainage structures to U.S. Route 6 and along the crest of the dam. Roadway runoff would be carried to the southern abutment of the dam where it would be directed to a stone-lined drainage swale with check dams. The swale would then carry water to a drainage structure near the base of the dam, where it would be directed to a water quality feature (i.e. vegetated bio-retention basin) and then piped beneath the access roadway to discharge into the wetland. The roadway drainage system would be isolated from the downstream slope's surface drainage along with the monitored toe drain seepage collection system. The stone-lined drainage swale at the northern groin would be realigned to follow the contour of the new groin and would direct runoff from northern end of the dam to the existing wetland. A new curtain drainage system would be installed along the toe of the dam to collect seepage from below the toe of the downstream slope. All existing drainage pipes would be removed and replaced. Newly installed drainage pipes will be connected to each of the existing curtain drain discharge points and v-notch weirs.

To address roadway runoff, the improvements include a post-construction treatment practice – a bioretention basin. The bioretention basin will be located adjacent to the dam and will provide water volume control and water quality treatment for roadway drainage captured along the reconstructed portion of Route 6. Water exiting the bioretention basin will be directed to the onsite wetlands. Drawings are provided in **Attachment 1**.

Temporary and Permanent Impacts to Onsite Wetlands

Temporary and permanent impacts are to be a result from work activities in each of the three delineated wetlands. The following table provides a summary of these impacts from construction activities to the three areas flagged as exhibiting wetland characteristics.

Summary of Temporary and Permanent Impact on Onsite Wetlands

Delineated Areas	Temporary Impact (square feet)	Permanent Impact (Fill) (square feet)
Wetland 1	0	2,351
Wetland 2	1,500	0
Wetland 3	500	0

As shown in the table, construction activities would result in a permanent impact of 2,351 square feet to Wetland 1; 1,500 square feet of temporary impact to Wetland 2; and 500 square feet of temporary impact to Wetland 3. Work activities conducted in Wetland 1 includes filling in the existing stormwater drainage feature to flatten out the downstream slope. Work activities to be conducted in Wetland 2 includes the replacement of a failed 12-inch drainage pipe. Approximately 1,500 square feet of wetland would be temporarily impacted to repair the drainage feature. Wetland soils would be stockpiled separately and used to backfill and restore the trenched area upon completion of the pipe replacement.

The existing auxiliary dam toe of slope and maintenance road are within the NYSDEC 100-foot adjacent area to Wetland 2. The maintenance road would be replaced in the same location. The dam slope, toe of slope and seepage drainage collection system would be replaced in an area further east of the current locations. However, no new permanent structures are being constructed within wetland. Work activities to be conducted in Wetland 3 includes the area being used as second contractor site access point from U.S. Route 6. Approximately 500 square feet of wetland would be temporarily impacted during construction activities. Impacts from construction vehicles will be mitigated through the use of geotextile matting or equivalent materials.

The stone-lined drainage feature identified as Wetland 1 would be permanently filled as part of this proposed project to allow for the flattening of the downward facing slope bringing the dam into compliance with current dam safety guidelines. The drainage system will continue to direct water to the wetlands as it currently does. Areas disturbed in Wetland 2 and Wetland 3 would be restored to pre-existing conditions resulting in no reduction of wetland area or function. In addition, there is no direct work activities in the reservoir or onsite stream. A turbidity curtain would be installed in the reservoir to protect water quality during the reconstruction of U.S. Route 6. The turbidity curtain would be removed upon completion of work activities on U.S. Route 6. Therefore, it is not anticipated that construction activities will cause either temporary or permanent adverse impacts to the jurisdictional wetlands.

Permits required to conduct work in the wetland areas have been filed through the state and federal agencies (NYSDEC and USACE). Permits, once issued by NYSDEC and USACE will be provided to the Town of Carmel per the requirements of the Town Code.

Site Landscaping

The proposed project would disturb approximately 3.6 acres of land and require the removal of approximately 3,500 cubic yards of material. Approximately 20,000 cubic yards of material would be brought to the site to reconstruct the face of the dam and improvements to U.S. Route 6. Disturbance from construction activities would be limited to the extent practicable. The vegetation that would be removed from the face of the West Branch Auxiliary Dam would be restored and revegetated with native low maintenance vegetation after slope construction. Trees would not be replanted on the dam groins or adjoining slope (20-foot clear area). Limited tree and shrub planting will take place at the entrance driveway on Drewville Road as the conclusion of all work. In addition, similar habitat is provided for dependent wildlife species beyond the 20-foot clear area in the forested area to the east of the auxiliary dam and other areas of the 2,000 acres associated with the West Branch Reservoir. Other site areas impacted from construction activities including the small area of the wetlands disturbed to replace the 12-inch drainage pipe, would be restored and revegetated with similar native vegetation.

The 20-foot clear area will be revegetated with DEP Bureau of Water Supply (BWS) specified goose-deterrent field grass cover when construction is complete. The cleared area at the site entrance will be replanted with trees and shrubs. A bioretention basin will be constructed adjacent to the dam for collection and water quality treatment of the captured roadway drainage. Proposed planting at the site entrance and within the basin has been coordinated with DEP-BWS Natural Resources staff.

Miscellaneous Site Work

The existing site maintenance driveway that parallels Drewville Road would be restored and resurfaced at the end of construction. Specifically, the portion of the driveway that parallels the toe of slope would be restored with gravel while the upper portion of the driveway would be restored with asphalt. Existing overhead utilities along U.S. Route 6 would be relocated on new poles along the north-bound lane of the highway. The low-level outlet pipes that run from the gate house to the fountain are currently plugged with grout at both ends. An intermediate vault within these pipelines within the dam is currently filled with gravel. The gravel would be removed from this intermediate vault to allow for manhole access so that waterflow due to seepage through these pipes could be visually monitored by DEP-BWS staff.

Proposed Project Construction

Construction is anticipated to occur over two construction seasons. Construction would not take place during the winter months due to unsafe working conditions for the contractor. The first construction season would occur in 2023 and focus on stabilizing the downstream slope of the dam. Equipment expected on site includes excavators, backhoes, skid steers, dump trucks, chippers and hand-held equipment. Heavy equipment is not expected to be routinely used in either construction season. Approximately 50 truckloads of excavated material that cannot be reused on site would be removed and approximately 1,550 truckloads of material would be delivered to the project site during the first construction season. Excavated soil would be reused onsite to the maximum extent practicable. It is estimated that the duration of construction activities would last approximately 6 months and occur during the daytime hours between 7 AM to 5 PM.

The second construction season would occur in 2024 and focus on improvements to U.S. Route 6, installation of stormwater controls and final site restorations. Anticipated equipment during this phase of construction includes backhoes, pavers, dump trucks, pick-up trucks, and excavators. Approximately 120 truckloads of excavated material that cannot be reused onsite would be removed and approximately 110 truckloads of material would be delivered to the project site. It is estimated that construction activities would occur for a duration of 4 months and take place during the nighttime hours between 8 PM to 6 AM (as requested by the Town of Carmel).

Construction during each of the seasons would take place Monday through Friday and not include holidays, in accordance with the Town of Carmel Code. Work would be inspected by a full-time construction manager and the designer would be on site as required.

Construction Sequencing:

It is anticipated that construction mobilization would occur over a duration of 4 months. During this period of time, the contractor would be assembling equipment, potentially conducting tree removal activities, and preparing submittals required prior to going onto the project site. Construction activities during the first season would occur over an approximate 6-month period and are summarized below:

- Install erosion and sediment control practices prior to initiating construction activities. This includes the installation of a double row of silt fencing to exclude Bog Turtle from work area.

- Trees within 20 feet of the proposed toe of slope would be cut and stumps removed. This is required to meet current NYSDEC Dam Safety Guidelines and to provide a safe working environment for the contractor and DEP personnel. Limited to the period between November 1 and March 31.
- Construct temporary improvements to existing Access Road driveway and establish contractor staging area.
- Remove the stone swale at the existing toe of slope providing area for construction of the new downstream slope.
- Install a subsurface curtain drainage system to collect seepage along the proposed toe of the dam and connect the system to three existing measuring weir boxes. The curtain drain would consist of perforated HDPE pipe surrounded by crushed stone and a filter sand layer.
- Replace failed drainage pipe within wetland.
- Remove and temporarily store existing topsoil and embankment fill excavated from the slope. The excavated embankment fill would be re-used in construction of the proposed embankment slope. Topsoil would be re-used for turf establishment on the slope.
- Place embankment fill on the downstream slope of the dam. The fill would widen the dam crest by approximately 8 feet, and provide a single, consistent slope of 2.4:1 over the full height of the downstream slope.
- Seed completed embankment and adjoining work areas.
- Install bioretention feature and associated plantings and piping.
- Relocate the existing stone-lined drainage swales at both abutments of the dam to the newly established groins of the reconfigured slope.
- Excavate gravel fill from the existing intermediate, low-level outlet pipe vault located along the masonry outlet tunnel running from the gatehouse to the fountain. Install a manhole access to the vault through the proposed embankment fill.
- Remove the 3-foot diameter low-level outlet pipe from the outlet tunnel to allow access for inspection of the tunnel, and to facilitate monitoring of seepage through the tunnel walls.
- Replace the existing masonry seepage chamber at the toe of slope with a concrete structure and establish access to the chamber through the new slope via a manhole.
- Maintain four existing vibrating wire piezometers, grouted casings, and data collection systems, and extend casing to meet proposed slope ground surface elevation.
- Install eight new piezometer sensors at four new well locations.

- Install four water level sensors to measure water elevation in three existing V-notch weirs and seepage chamber.
- Reconfigure two existing inclinometer wells to allow future access from within the roadway shoulder. Install six permanent inclinometers in the two existing wells.

The following work is anticipated to occur during the second construction season over a duration of approximately 4 months. Construction activities would occur during the overnight period from 8 PM to 6 AM to limit the impacts on traffic. Activities are summarized below:

- Reconstruct U.S. Route 6 within the limits of the dam crest. This work includes removal and replacement in-kind of the existing galvanized steel guide railing, asphalt pavement, and partial removal of the granular subbase. Lane and shoulder widths would be increased as approved by NYSDOT.
- Install a closed highway drainage system along U.S. Route 6 using NYSDOT-approved drainage structures and piping. The drainage system would outlet at a stone-lined swale at the north side of Drewville Road.
- Relocate the existing overhead utility lines to new utility poles within the limits of work along U.S. Route 6. (Maybe completed during the first year of construction.)
- Restore and resurface the maintenance access roadway adjacent to Drewville Road at the end of construction.
- Install trees and shrubs at restored entrance driveway on Drewville Road.
- Revegetate (loam and seed) remaining disturbed areas.

Erosion and Sedimentation Control Measures

Erosion and sedimentation control measures and spill prevention requirements would be implemented prior to initiating land disturbing construction activities. These measures would prevent silt, sediment, fuels, solvents, lubricants, concrete, grout or other pollutants from migrating offsite as runoff or entering the wetlands, reservoir or existing stormwater control measures. Construction would not start until all erosion and sedimentation control measures and best management practices (BMPs) are in place. Furthermore, the work activities along the slope would be restricted to only clearing and excavating areas within this discreet work area to limit the area of soil exposed and subject to erosion at any given time. Specifically, the work area will be limited to an area that is 50-feet wide by up to 750-feet long (length of dam) in accordance with the Contract Documents. In addition, the work area would be backfilled and stabilized as work progresses up the slope to ensure the slope remains stable throughout the work.

Control measures anticipated to be used throughout the duration of the project would include:

- **Silt Fence:** A temporary barrier of geotextile fabric or filter cloth and reinforced with posts would be installed along the toe of the dam at the east side of the project site. The silt

- fencing would intercept sediment-laden runoff from the areas of disturbed soil thereby preventing the flowing of sediment outside the project boundary.
- **Turbidity Curtain:** A temporary turbidity curtain would be placed in the reservoir when work is initiated on the US Route 6 roadway at the crest of the dam.
 - **Storm Drain Inlets Protection:** A temporary, semi-permeable barrier would be installed within storm drain inlets in the project area to filter and settle out sediments from runoff before it enters the storm inlet.
 - **Dust Suppression:** Visual air monitoring would be performed concurrently with site construction activities. Dust suppression may include the use of water. The site may be sprayed with water until the surface is wet. This is especially effective on the driving areas and entrance ways to the construction work areas.
 - **Temporary Seeding and Mulching:** Areas disturbed or rough graded that are subject to erosion would receive a temporary seeding in combination with straw mulch or a suitable equivalent.
 - **Erosion Control Blankets:** Erosion control blankets would be used on slopes 3 horizontal to 1 vertical or steeper to stabilize soils. Blankets to be placed immediately after seeding.
 - **Maintenance of Site Grading:** The site would be maintained and graded such that all stormwater runoff is diverted to soil erosion and sediment control features.
 - **Stockpiling Restrictions:** Stockpiling of soils would be restricted to a designated area at the project site. Silt fence would surround the soil stockpiles to prevent migration and to capture loose soil.
 - **Site Restoration:** The final site restoration includes grading and spreading loam and seeding on the non-rip rap work area. The temporary staging area would be restored (graded and replanted) at the conclusion of the work.

As mentioned earlier under Site Drainage improvements, post construction roadway drainage would be directed by curbing to catch basins and piped to newly lined stone groins located on the southern and northern ends of the auxiliary dam that would ultimately drain into the downgradient wetlands. Coordination of the stormwater improvements with the Town of Carmel would take place as the Town is a Local MS4. Permanent changes to the roadway drainage would also be discussed with New York State Department of Transportation (NYSDOT) as U.S. Route 6 is under their jurisdiction. The proposed action would not result in a significant adverse impact to the local stormwater collection system as the roadway drainage and auxiliary dam seepage would be addressed onsite. The new stormwater collection system would direct roadway drainage to the groin swales reducing the potential for erosion of the downstream slope. The erosion and sedimentation control measures to be implemented during construction and post-construction measures are reflected on the project drawings (**Attachment 1**) and detailed in the Stormwater Pollution Prevention Plan (**Attachment 3**).

Construction Traffic

Notification of the project will extend beyond the site plan review process to ensure the public is aware of lane closures and other potential project impacts. Road messaging boards will be used as well as

notification on the Town website. Traffic impacts during construction activities would be maintained and minimized to the extent possible throughout the duration of the proposed project. During construction of the embankment fill (construction season 1), contractor vehicular access to the project site would be primarily via the gated West Branch Auxiliary Dam site access road off Drewville Road. Some construction related traffic such as material deliveries may access the site from the secondary driveway off U.S. Route 6. This would minimize traffic impacts to U.S. Route 6 with construction vehicles entering and exiting the site. In addition, contractor parking would not be permitted along Drewville Road or U.S. Route 6. Instead, contractor parking would be strictly limited to the auxiliary dam itself to reduce any traffic that may be created from contractor's vehicles.

During the first construction season U.S. Route 6 is expected to remain open to traffic in both directions. However, temporary lane closures may occur throughout the project to allow for safe movement of equipment or to provide for worker safety. Temporary lane closures will be limited to non-peak hours between 9 AM to 3 PM. Based on the traffic impact study, the addition of construction traffic was determined to have a minimal impact on the existing traffic conditions.

During the second construction season, temporary impacts to traffic will occur during the reconstruction of U.S. Route 6. It was determined that the existing hourly volume of vehicles using U.S. Route 6 dramatically decreases after 7 PM. Therefore, work is scheduled to start at 8 PM. Specifically, nighttime lane closures would be required during reconstruction of the roadway. During the nighttime reconstruction of U.S. Route 6, traffic would be maintained using temporary traffic signals controlling alternating one-way traffic. Emergency services (i.e., fire and ambulance) will have the ability to pre-empt temporary signals when necessary. Occasional closures of both lanes would be necessary but are expected to be infrequent and short duration (< 15 minutes) to allow for safe construction operations such as relocating channelizing devices, equipment or materials. At the end of each work night, the roadway would be reopened fully to allow for two-way traffic to flow freely during the daytime period. During the first season of construction, temporary signals at the Route 6/Drewville Road intersection will be covered when not in use and use of the signals will be limited at the contractor's staging area across from Shaft 10. The roadway during the ongoing work would likely be a gravel surface or compacted subbase. The speed limit through this area would be reduced to 25 miles per hour for the duration of the work. In addition, a Work Zone Traffic Control (WZTC) plan would be implemented in coordination with the NYSDOT, Putnam County and Town of Carmel. The WZTC is provided in **Attachment 1**.

In summary, the addition of construction related traffic to Drewville Road and U.S. Route 6 during the first construction season is anticipated to result in a small delay during the peak hour. The impact to traffic during the second construction season is unavoidable but of limited duration. The work zone protection plans provided in **Attachment 1** would ensure worker and traffic safety. Nighttime construction during the second construction season minimizes the potential impact on traffic through this corridor as both the northbound and southbound lanes of U.S. Route 6 would be open to traffic during the daytime hours when vehicle numbers are at their highest. Although traffic passing through the work zone would be impacted during the proposed work is unavoidable, the impact is for a limited duration. It is not anticipated that additional personnel will be required for long-term maintenance of the site; therefore, increased traffic volumes at the site are not expected beyond the construction period.

Noise

Potential noise related impacts during construction activities would result from the operating equipment including backhoes, hauling trucks, excavators, skid steers, dump trucks, grading equipment and hand-held power equipment. Private homes are located along Drewville Road, to the north, south and east of the proposed project work area. The closest residence to the project site is approximately 830 feet north of the work area off U.S. Route 6. In addition, the closest residence on Drewville Road is located 1100 feet from the work area along the crest of the dam. There are residences directly across the reservoir approximately 1,700 feet from the crest of the dam.

Slope stabilization excavation and fill activities conducted during the first construction season would require the use of construction equipment that would generate noise throughout the normal daytime hours. According to the Town of Carmel noise code (Chapter 104-14 D.), construction activities are to be conducted to not produce sound level exceeding an L_{10} of 70 db(A) when measured at a distance of 400 feet in a residential-zoned district during the hours of 8:00 AM to 6:00 PM. Construction activities during the second construction season would occur between the hours of 6 PM to 8 AM.

Contractors are required to adhere to the requirements of the Town Code for Noise. Although the Town Noise Code references sound at a distance of 400 feet from the work area, no residences are located at that distance. As mentioned, the closest residences are approximately 830 feet from the work area (north on U.S. Route 6); 1,000 feet from the work area (south on Drewville Road); and 1,700 feet from the work area (across the reservoir on Washington Avenue). Noise Code requirements are anticipated to be met during daytime construction activities conducted during the first construction season. However, there is a potential for nighttime construction activities during the second construction season to exceed the Town Noise Code.

An assessment of potential nighttime noise impacts was conducted using the Roadway Construction Noise Model (RCNM). The RCNM is used to predict construction noise levels that can then be compared to noise level requirements and forecast compliance. Based on the assumptions within this model, nighttime noise would exceed the limit of 55 db(A) at a distance of 400 feet from the work area. However, it is important to note that there are no residences within 400 feet from the work area. At the closest residence located 850 feet north of the work area along U.S. Route 6, the nighttime noise level of 55 would be exceeded by 6.6 db(A). The calculation did not assume noise attenuation from topography and vegetation. Therefore, densely vegetated forested areas present between the work area and surrounding residences have the potential to act as a buffer and reduce the noise level below the level calculated by the model. In addition, it was determined that noise levels from construction activities would not exceed Noise Code levels at the properties across the reservoir along Washington Avenue. Construction activities during both seasons are anticipated to occur during the growing season when trees and vegetation are leafed out.

Nighttime noise is generally more noticeable as ambient noise levels are lower. The contract documents would inform the selected contractor of the requirements of the Town of Carmel Noise Code. Noise generated from the use of various types of construction equipment is for a limited duration and all equipment would be maintained to meet the manufacturer's requirements for noise attenuation (ex.

Exhaust muffler). Therefore, the temporary noise impacts during construction would not be considered significant.

Lighting

Nighttime work during the second construction season to reconstruct U.S. Route 6 would require the use of lighting to ensure both worker and traffic safety. Contractors are required to adhere to the requirements of the Town Code for Lighting. There is a potential for nighttime lighting to become visible to nearby residents. As mentioned, there are residences approximately 830 feet north of the work area off U.S. Route 6; 1,000 feet south of the work area off Drewville Road; and 1,700 feet west of the work area across the reservoir. Existing tree cover and vegetation between the work area and surrounding residences will help reduce impacts from lighting. The anticipated duration of nighttime lighting is limited to approximately 4-month period and is an essential requirement for the safety of both construction workers and traffic. Therefore, the potential impact is minimal.

Permits and Approvals

The following tables identify potential discretionary permits and approvals required to construct the proposed project:

Table 1 Summary of Federal Permits

Agency	Permit/Approval
US ACE	Nationwide Permit #3-Maintenance

Table 2 Summary of New York State Permits/Approvals

Agency	Permit/Approval
NYSDEC	Protection of Waters Permit Dams and Impoundment Structures (Construct, Reconstruct, or Repair)
NYSDEC	Protection of Waters – Stream Disturbance (Bed and Bank); Navigable Waters (Excavation and Fill)
NYSDEC	Freshwater Wetlands
NYSDEC	State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activities (GP 0-20-001)

Table 3 Summary of Local Permits/Approvals

Agency	Permit/Approvals
NYCPDC	Design Commission Final Approval
NYCDEP	Stormwater Pollution Prevention Plan Approval
Town of Carmel	Site Plan Approval
Town of Carmel	Building Permit

NYC Bureau of Planning and Assessment is the Lead Agency and is conducting the environmental review of this proposed project in accordance with NY SEQRA. The Lead Agency determination will be provided to the Town when available.

DEP-Regulatory & Engineering Programs (REP) has reviewed the Stormwater Pollution Prevention Plan (SWPPP) dated February 3, 2022 and provided its approval. The SWPPP and REP approval are provided in **Attachment 3**. The Town Engineer will conduct a review of the SWPPP for impact to the Town's MS4 for work performed outside of the NYSDOT-maintained roadway.

WEST BRANCH AUXILIARY SLOPE IMPROVEMENT
PRELIMINARY SITE PLAN APPLICATION

Attachment 1

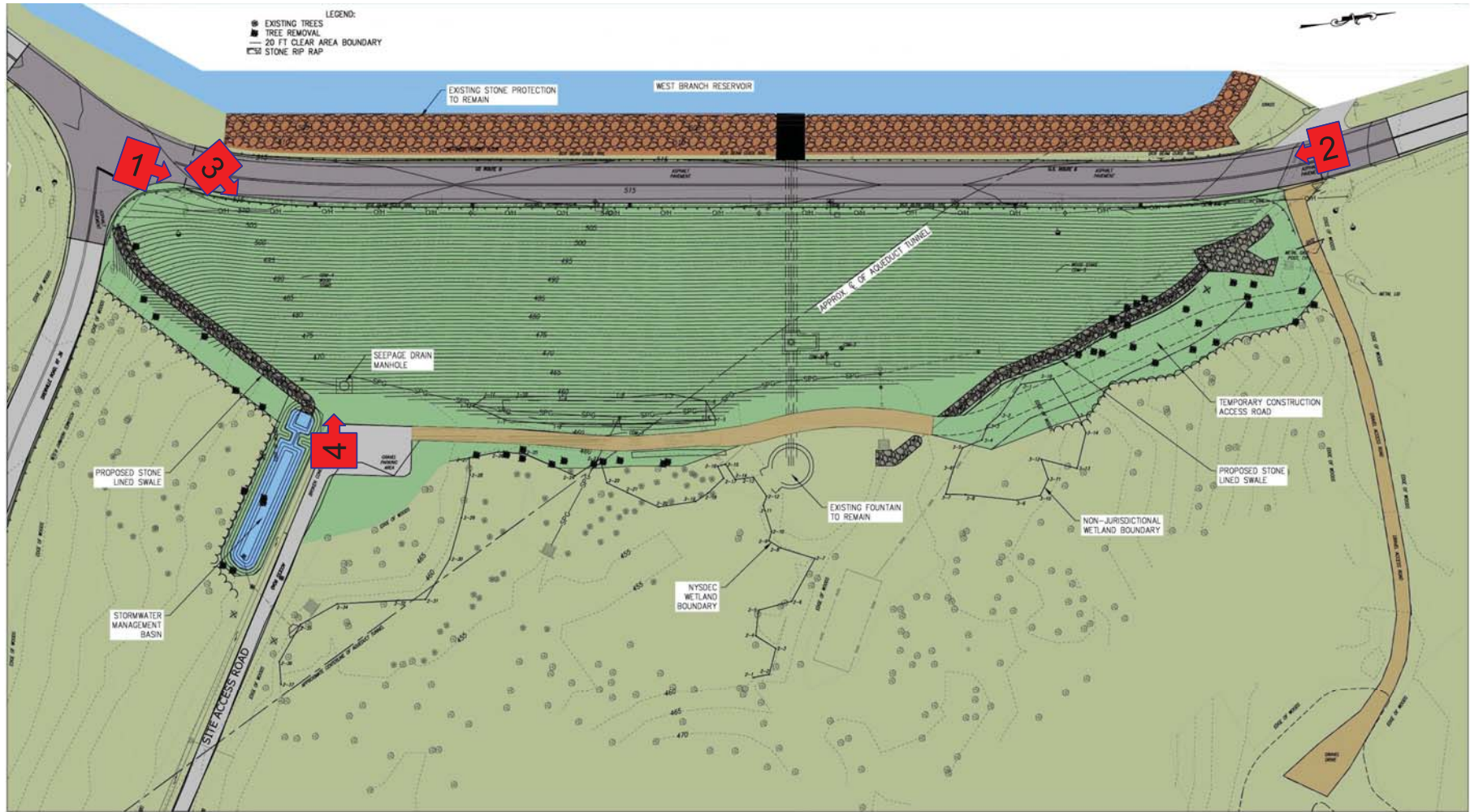
West Branch Auxiliary Dam Slope Stability Improvements:

- **Site Plan Drawings**
- **Work Zone Traffic Control Plans**
- **Truck Routes**
- **Parcel Map**

WEST BRANCH AUXILIARY SLOPE IMPROVEMENT
PRELIMINARY SITE PLAN APPLICATION

Attachment 2
Figures

Proposed Site Plan Renderings



Site Rendering – View No. 1



1 Existing View



1 Proposed View

Northbound View From State Route 6

Site Rendering – View No. 2



2 Existing View



2 Proposed View

Southbound View From State Route 6

Site Rendering – View No. 3



3 Existing View



3 Proposed View

Parking Area and Stormwater Management Basin View From State Route 6

Site Rendering – View No. 4



4 → Existing View



4 → Proposed View

View of Seepage Chamber From DEP-Only Parking Area

WEST BRANCH AUXILIARY SLOPE IMPROVEMENT
PRELIMINARY SITE PLAN APPLICATION

Attachment 3

Stormwater Pollution Prevention Plan, February 2022

DEP-BEC Acceptance letter, February 9, 2022



New York City
**Department of
Environmental Protection**

STORMWATER POLLUTION PREVENTION PLAN DETERMINATION

Pursuant to the authority granted under:

Article 11 of the New York State Public Health Law;
Rules and Regulations For The Protection From Contamination, Degradation and
Pollution Of The New York City Water Supply and Its Sources, 15 RCNY Chapter 18,
10 NYCRR Part 128.

New York City Department of Environmental Protection (DEP) makes the following determination with respect to the stormwater pollution prevention plan (SWPPP) described below:

Name of Project: Contract CRO-534 - West Branch Auxiliary Dam Slope Improvements

Location: US Route 6 and Drewville Road
(T) Carmel, Putnam County
Tax Map # be 54.-1-29.-1 and 65.-1-12
DEP Log# 2018-CF-0020-SP.1

Owner: New York City Department of Environmental Protection/BEDC

Address: 16 Little Hollow Road, P.O. Box 620
Grahamsville, New York 12740

Drainage Basin: Croton Falls Reservoir

General Description: The purpose of this project (Contract CRO-534) is to address the issues associated with the downward movement of the downstream slope of the dam. The proposed project includes improving the stability of the downstream slope using approved select fill materials to flatten the downstream slope. DEP review and approval is required by Sections 18-39(b)(4)(iv) of the “Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources” (Watershed Regulations). Approximately 4 acres of disturbance and 1.2 acres of new impervious surfaces are proposed. Runoff reduction, stormwater management and treatment will be provided using a bioretention area and grass filter strips. The SWPPP shall be implemented in accordance with the report and plans titled “Stormwater Pollution Prevention Plan for West Branch Auxiliary Dam Slope Improvements” prepared by Darcy A. Rosenthal, P.E., dated February 3, 2022 (see appendix A).

STORMWATER POLLUTION PREVENTION PLAN DETERMINATION

West Branch Auxiliary Dam Slope Improvements
(T) Carmel, New York

February 8, 2022
Page 2 of 4

(XX) Approved

() Denied

Conditions of Approval:

This approval is granted with the following conditions:

- The regulated activity must be conducted in compliance with the plans as approved, listed in Appendix A, all applicable accepted standards, and all applicable laws, rules and regulations.
- Any alteration or modification of the SWPPP must be approved by DEP prior to implementation; DEP may opt to issue an amended SWPPP Determination.
- The applicant must schedule a pre-construction conference prior to the start of construction. Present at the meeting should be the applicant, the design engineer, the general contractor, and DEP staff.
- The applicant must notify DEP at least forty-eight (48) hours prior to the commencement of construction activity so that compliance inspections may be scheduled by DEP.
- All erosion and sediment controls must be properly installed and maintained until the site has been stabilized and the risk of erosion eliminated. Final stabilization is defined in the General Permit as all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 80% cover for the area has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed.
- At the completion of the project, the applicant is required to submit as-built drawings for all stormwater management, runoff reduction and water quality facilities.
- The stormwater management and water quality facilities must be maintained in accordance with the maintenance schedule included in the SWPPP as approved by DEP.
- This approval shall expire and thereafter be null and void unless construction is completed within Five (5) years of the date of issuance or within any extended period of time approved by DEP upon good cause shown.
- In the event that the material submitted is inaccurate or misleading, this approval is not valid and construction of this project is in violation of DEP regulations.
- Failure to comply with any of the conditions of this approval is a violation of this approval and the *Rules and Regulations For The Protection From Contamination, Degradation and Pollution Of The New York City Water Supply and Its Sources*.
- A copy of the approved plans and determination should be maintained for record, and a copy must be available for inspection at the construction site.

STORMWATER POLLUTION PREVENTION PLAN DETERMINATION

West Branch Auxiliary Dam Slope Improvements
(T) Carmel, New York

February 8, 2022
Page 3 of 4

- DEP shall be provided access to the project site during the construction phase for monitoring and inspection purposes.
- This approval and all conditions of the approval are binding on the owner of the property where the facility is to be located. Any references to the “applicant” in this approval or in any conditions of this approval shall be deemed to refer to the owner of such property.

Date: February 8, 2022

Determination made by:

Danny Shedlo

Danny Shedlo, P.E.
Section Chief
EOH Regulatory & Engineering Programs

STORMWATER POLLUTION PREVENTION PLAN DETERMINATION

West Branch Auxiliary Dam Slope Improvements
(T) Carmel, New York

February 8, 2022
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APPENDIX A

The following documents were prepared by Darcy A. Rosenthal, P.E. for Contract CRO-534 - West Branch Auxiliary Dam Slope Improvements, all dated February 3, 2022:

1. Stormwater Pollution Prevention Plan
2. Drainage & Piping Plan
3. Bioretention Swale Plan & Details
4. Storm Drain Piping Profile
5. Toe Drain Piping Profile
6. Drainage Details
7. Soil Erosion & Sediment Control Plan
8. Soil Erosion & Sediment Control Plan Details

The City of New York
Department of Environmental Protection



STORMWATER POLLUTION PREVENTION PLAN
CRO-534 WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

FEBRUARY 2022



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Notice of Intent (TO BE COMPLETED)
MS4 Approval Form (TO BE COMPLETED)

Appendix B: Site Location Map
DEC Wetland Maps
NRCS Soil Maps
ORHP Review

Appendix C: Erosion Control Plans, Details, and Notes

Appendix D: Stormwater Water Quality Treatment Calculations
Pre and Post Construction Stormwater Quantity Calculations

Appendix E: Contractor Certifications

Appendix F: Erosion and Sediment Control Inspection Reports

Section I

Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of the New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-20-001) and that of New York City Department of Environmental Protection Bureau of Water Supply (DEP-BWS). This project for the New York City Department of Environmental Protection (NYCDEP) titled “West Branch Auxiliary Dam Slope Improvement Project” includes earthwork to flatten the downstream slope of the dam, install subsurface drainage at the toe of the slope, reconstruction of US Route 6 that passes along the crest of the slope, and re-direct roadway drainage from US Route 6 away from the downstream dam slope.

Coverage under the General Permit is required because the proposed project will disturb more than 1 acre of land. Construction will increase the impervious cover on the site and alter site hydrology. Therefore, the SWPPP has been developed to include erosion and sediment control measures as well as water quality and quantity control measures that meet the standards detailed in the General Permit and meet DEP-BWS requirements. The plan describes potential sources of pollution at the construction site, that could impact the quality of stormwater discharges and identifies measures to minimize the potential for pollutant impact. The contract drawings and technical specifications are a required component of this SWPPP, and a selection of drawings and specifications are included in this plan in Appendix C. The entire contract set is included in this SWPPP by reference.

Coverage under the General Permit is achieved by preparing a SWPPP and submitting a Notice of Intent (NOI) to the New York State Department of Environmental Conservation (NYSDEC). The NOI shall be included in Appendix A of this Plan. The SWPPP is a dynamic document. Updates will be made to reflect the required modifications during the duration of construction. Changes to the plan will be documented in the SWPPP Revision History table in Section 7. The project is located within the limits of the Town of Carmel, a traditional land use control MS4. As such, approval from the Town is required and documented on the MS4 SWPPP Acceptance Form in Appendix A.

1.1 Scope of the Project

This SWPPP has been developed for the NYCDEP West Branch Auxiliary Dam Slope Improvement Project. The site location map is provided as Figure 1 in Appendix B. While construction in this project includes work on US Route 6, a roadway under the jurisdiction of the New York State Department of Transportation (NYSDOT), for the purposes of this SWPPP, the Owner of the project is identified as NYCDEP.

The purpose of this project (Contract CRO-534) is to address the issues associated with the downward movement of the downstream slope of the dam. The proposed project includes improving the stability of the downstream slope using approved select fill materials to flatten the downstream slope; increasing the slope stability factor of safety to meet or exceed the minimum required factors of safety as outlined in the New York State Department of Environmental Conservation (NYSDEC) "Guidelines for Design of Dams"; installing subsurface drainage to eliminate ponding conditions at the toe of slope; reconstructing U.S. Route 6 along the crest of the dam; and improving the management of roadway drainage. The project will improve the stability of the downstream slope and the reconstructed U.S. Route 6 that passes over the Auxiliary Dam crest will better meet current NYSDOT standards. Discussions with NYSDOT have taken place and an agreement as to the roadway geometry has been reached and is reflected on the contract plans.

Reconstruction of US Route 6 along the top of the dam will be completed as a full depth pavement replacement and will include widening of the pavement to provide lane widths and shoulders in line with NYSDOT standards. The additional width of pavement is proposed on the downstream side of the roadway (i.e. area draining away from the reservoir), however the reconstruction will shift the roadway centerline such that additional paved area will be located within the West Branch Reservoir drainage area. Outside of the dam limits the existing US Route 6 will be transitioned to the new alignment on the dam through sections of milling and paving. Additional roadway work is proposed for the existing access drive off of Drewville Road. Millings from the US Route 6 work will be used to resurface the paved portion of this access road; the gravel portion of the access road will also be resurfaced and extended to run the entire length of the new toe of dam. Additionally, the entrance at Drewville Road will be re-graded with a temporary gravel extension to facilitate the entrance/exit of construction traffic from the site. The additional gravel will be removed after construction. A temporary gravel access road will also be constructed at the north end of the site to allow construction related access from US Route 6 to the toe of the dam. This gravel access road will also be removed and the area restored at the end of construction.

1.2 Location of the Project/General Description

The West Branch Auxiliary Dam is located in the Town of Carmel in Putnam County (See Figure 1 in Appendix B), north of the intersection of US Route and Drewville Road. The tax parcel the Auxiliary Dam resides within is 45.83 acres in size. This parcel includes the dam, access roads from Drewville Road and US Route 6, freshwater wetlands regulated by US Army Corp of Engineers, and NYSDEC-regulated wetlands. The remaining area is wooded. The proposed project will be limited to approximately 5 acres on the western portion of the parcel, as shown on Figure 2, Appendix B.

The project is not located within a Total Maximum Daily Load (TMDL) watershed. The onsite US Army Corps of Engineers jurisdictional wetland and West Branch Reservoir

are not 303(d) listed waterbodies as outlined in the SPDES General Permit for Stormwater Discharges for Construction Activity.

Consultation with New York Natural Heritage Program and United States Fish and Wildlife Services has taken place as part of the environmental review of the project. Measures are identified and incorporated into the construction plans to minimize the potential for impact to threatened and endangered species.

Work at the gatehouse is not included in the proposed project. At the request of OPRHP, a Construction Protection Plan would be implemented to ensure the historic gatehouse is not impacted by the construction activities. Therefore, no significant adverse impacts are anticipated to historic and archeological resources as a result of the proposed action. Documentation from OPRHP is provided in Appendix B.

An approximated central location of the project based on Northing and Easting Coordinates is shown in Table 1A below.

Table 1A - Location Table

<i>Approximate Coordinate Position at Center of the Project</i>		
<i>Location</i>	<i>Northing</i>	4583902
	<i>Easting</i>	608184

1.3 Project Type and Size

The estimated project site area is 45.85 acres based on the reported parcel size. Within this parcel, the estimated area of disturbance is 4.5 acres and includes the area to be disturbed for the dam slope flattening, US Route 6 reconstruction, construction of a stormwater management area, and construction of a temporary access road, staging area and access road improvements. These limits include the areas of pavement milling (US Route 6 and Drewville Road) and pavement resurfacing (site access road), which are not activities that involve soil disturbance. However, these areas are included in the disturbed area estimates for this SWPPP so that full depth pavement repairs can be completed if needed.

The existing impervious area within the limits of construction is estimated to be approximately 1.13 acres, and includes the current limits of US Route 6, the site access road from Drewville Road, the site access road from US Route 6, existing parking area and gravel road at toe of the dam, rip-rap swales at the north and south groins, and rip-rap at the toe of the slope. The future impervious area within the limits of construction is estimated to be approximately 1.20 acres, which includes the new limits of US Route 6, the access road from Drewville Road (unchanged from current limits), the access road from US Route 6 (unchanged from current limits), parking area (unchanged from current limits) and gravel road at toe of the dam (extended along full length of new dam toe), and rip-rap swales at the new north and south groin (with wider channels compared to existing).

The majority of this disturbed area drains to the downstream facing side of West Branch Auxiliary Dam, however the western half of US Route 6 drains to the West Branch Reservoir. As part of the US Route 6 reconstruction the roadway will shift approximately 1.5 feet to the east, while the roadway centerline shifts 3 feet to the east. This difference between the total roadway shift and the centerline shift increases the impervious area that will drain to the Reservoir by approximately 1,000 square feet (or 0.023 acres).

In summary, the estimated area of the site and disturbances are:

- Area of Site = 45.85 acres
- Area of Disturbance = 4.5 acres
- Existing Impervious Area within Disturbed = 1.13 acres
- Future Impervious Area within Disturbed = 1.20 acres

Section II

Project Maps and Plans

Construction drawings and specifications have been assembled for this project, that will be reviewed and approved by the New York State Department of Environmental Conservation (NYSDEC), New York City Department of Environmental Protection (NYCDEP), and the New York State Department of Transportation (NYSDOT). Plan sheets for erosion prevention and sediment control measures are included in the contract plans and specifications. Plans will be updated as required to address site conditions during the life of the construction work.

2.1 Location Map

As stated in the Section I, the West Branch Auxiliary Dam is located in the Town of Carmel in Putnam County New York. See Figure 1 in Appendix B

2.2 Contract Plans

The contract drawings for the “West Branch Auxiliary Dam Slope Improvement Project” are incorporated into this SWPPP by reference. Erosion control detail sheets and sections of the contract specifications that detail site specific erosion and sediment control elements are included in Appendix C of this SWPPP.

2.3 Description of Existing Vegetation

The 4.5-acre area that comprises the proposed project limits of work includes area that is wooded, managed low shrubs, vegetated freshwater wetlands, and mowed dam slope. The area to be disturbed during construction includes the paved travel lanes and shoulders of US Route 6 and Drewville Road, the grass-covered slope of the existing dam face, and wooded slopes adjacent to the groins of the dam face. Beyond the toe of the dam and the existing access road is a NYSDEC freshwater wetland (LC-30), also under the jurisdiction of USACE, and identified as Wetland 2 on the contract plans. Additional wetland resources under the jurisdiction of USACE have been identified as well – Wetland 1 is the rip-rap lined area at the toe of the dam, while Wetland 3 is a small isolated area on the northern edge of the project area. The wetland areas are identified on the project plans. A tree survey was conducted. Tree location, species and DBH was recorded.

Section III

Project Soils

3.1 NRCS Soil Map at Project Location

Soil information for this site was obtained from the Natural Resources Conservation Service Web Soil Survey (www.websoilsurvey.nrcs.usda.gov) and soil maps created through the online program are provided in Appendix B for the overall project limits of work.

3.2 Soil Types

The following soil types and hydrologic groups are present within the project limits as obtained from the Natural Resources Conservation Service Web Soil Survey. The designations used in this table are defined in subsection 3.2.1 through 3.2.2.

Table 3 - Soil Types

Hydrologic Group (HSG)	Map Unit Symbol	Predominate Soil Type	Percent of Soil Type at Project Site	Infiltration Rate	Runoff Hazard Potential
NA	Dam	Large Dam	50%	NA	NA
B	C1C	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	19%	Moderate	Severe
B	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	15%	Moderate	Moderate
B	Ub	Udorthents, smoothed	16%	Moderate	Slight

A hydrologic soil group was assumed for the dam area (HSG B) for both pre- and post-construction calculations.

3.2.1 Hydrologic Group/Runoff Hazard Potential

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soil groups present on this site fall into hydrologic soil group B. Soil groups fall into four designations (A, B, C, D) and are described below.

Group A: Soils having a high infiltration rate (very low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B: Soils having a moderate infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. The soils have a moderate rate of water transmission.

Group C: Soils having a slow infiltration rate (moderate runoff potential) when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

3.2.2 Erosion Hazard Potential

The erosion hazard potential ratings indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope and soil erosion factor K, as obtained from the Natural Resources Conservation Service Web Soil Survey and with other factors being equal, the higher the K factor, the more susceptible the soil is to sheet and rill erosion by water. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate"

indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

3.3 Project Soil Runoff and Erosion Potential Summary

The predominate soil types within the West Branch Auxiliary Dam site are Charlton Fine Sandy Loam and Charlton-Chatfield Complex. These soil types fall within hydrologic soil group B and have moderate to severe potential for erosion.

Section IV

Construction Phasing

4.1 Sequence of Construction Activities

The Contractor is required to submit to the Owner for approval a construction/progress schedule showing the order in which the Contractor proposes to carry out the work, the date which the work on the project will start, the major items of work (mobilization, soil erosion control measures, earthwork, excavation, site restoration, etc.), the critical features and the proposed completion dates for each task.

The Contractor's work schedule and methods shall be consistent with the SWPPP or amended SWPPP. Once approved, the progress schedule shall become a part of the SWPPP.

The following list is a recommended sequence of major construction activities for the project to meet the NYSDEC erosion control requirements. Given the scope of work it is anticipated that construction will span two construction seasons. Construction is anticipated to begin in 2024 and be completed in 2025.

4.1.1 Year 1

1. Install erosion and sediment control practices prior to initiating construction activities. This includes the installation of a double row of silt fencing to exclude Bog Turtle from work area, construction entrances, silt fencing at the limit of construction, and turbidity curtains in West Branch Reservoir (work shown on C-042 Phase 0 Erosion and Sediment Control Plan).
2. Cut, clear and remove stumps of trees within 20 feet of the proposed toe of slope and at access road. This is required to meet current NYSDEC Dam Safety Guidelines and to provide a safe working environment for the contractor and DEP personnel. (Tree clearing is limited to the period beginning November 1 and ending March 31.)
3. Construct temporary gravel access road and staging area.
4. Remove the stone swale at the existing toe of slope for construction of the new downstream slope.
5. Install a subsurface curtain drainage system to collect seepage along the proposed toe of the dam. The curtain drain would consist of perforated PVC pipe surrounded by crushed stone and a filter sand layer.
6. Replacement of the failed drainage pipe.

7. Remove and temporarily store existing topsoil and embankment fill excavated for benching prior to placement of the embankment fill. The excavated embankment fill will be re-used in construction of the proposed embankment slope. Topsoil will be re-used for turf establishment on the slope.
8. Place embankment fill on the downstream slope of the dam. The fill will widen the dam crest by approximately 8 feet, and provide a single, consistent slope of 2.4:1 over the full height of the downstream slope. As part of embankment construction stage installation of silt socks along face of dam (C-043 and C-044 Phase 1 Erosion and Sediment Control Plans).
9. Seed completed embankment and adjoining work areas.
10. Construct stone-lined drainage swales at both newly established groins of the reconfigured slope. Install check dams within each swale (C-043 and C-044 Phase 1 Erosion and Sediment Control Plans).
11. Construct bioretention area with plants and associated piping.
12. Excavate gravel fill from the existing intermediate, low-level outlet pipe vault located along the masonry outlet tunnel running from the gatehouse to the fountain. Install a manhole access to the vault through the proposed embankment fill.
13. Remove the 3-foot diameter low-level outlet pipe from the outlet tunnel to allow access for inspection of the tunnel, and to facilitate monitoring of seepage through the tunnel walls.
14. Replace the existing stairs to masonry seepage chamber at the toe of slope with a concrete structure and establish access to the chamber through the new slope via a manhole.
15. Maintain four existing vibrating wire piezometers, grouted casings, and data collection systems, and extend casing to meet proposed slope ground surface elevation.
16. Install new piezometer sensors at new well locations.
17. Install flume manholes with radar level element to measure water level through the flumes.
18. Install permanent inclinometers in new well locations.
19. Remove Phase 1 Erosion and Sediment Controls after stabilization is achieved.

4.1.2 Year 2

1. Install silt sock near crest of the dam (C-045 and C-046 Phase 2 Erosion and Sediment Control Plans)
2. Reconstruct U.S. Route 6 within the limits of the dam crest. This work includes removal and replacement in-kind of the existing galvanized steel guide railing, asphalt pavement, and partial removal of the granular subbase. Lane and shoulder widths would be increased as approved by NYSDOT.
3. Install a closed highway drainage system along U.S. Route 6 using NYSDOT-approved drainage structures and piping. The drainage system outlets at a stone-lined swale at the north side of Drewville Road.
4. Loam and seed along NYSDOT ROW.
5. Remove and re-grade area of temporary gravel access road and staging area constructed in Year 1. Revegetate (loam and seed) disturbed areas. As part of re-grading, stage installation of silt socks along disturbed area (C-046 Phase 2 Erosion and Sediment Control Plans)
6. Restore and resurface the site maintenance access roadway adjacent to Drewville Road at the end of construction.
7. Remove Phase 0 and Phase 2 Erosion and Sediment Controls after stabilization is achieved.

Section V

Erosion and Sediment Control Measures

5.1 Erosion Control Plan

Erosion and sediment control plans have been developed in accordance with the NYSDEC's technical standards which are contained in the "New York Standards and Specifications for Erosion and Sediment Control" and NYCDEP-BWS. The erosion control plans limit the amount of area exposed prior to stabilization and employs various sediment control methods such as silt fences, erosion control blankets, and check dams.

Construction and waste materials expected to be stored at the staging area consists of material and equipment typically used to construct roadways, drainage systems and large embankments. Materials generally consist of soil, stone, sand, concrete, pipe, wood, and metal. Equipment generally consists of excavation and grading equipment, dump trucks, and paving equipment.

The erosion and sediment control measures along with the appropriate details and notes are provided on the plan and project sheets C-042 to C-049. The erosion control measures will be installed before beginning soil-disturbing activities. The proposed sequence for the construction activities is detailed in Section IV.

These controls will be implemented by the Contractor. The Contractor's construction manager and the Owner's Representative will be responsible for maintaining adherence to the SWPPP, conducting inspections and maintaining accurate records.

5.1.1 Erosion Control Measures

Erosion and sediment control measures will conform to the details and specifications provided in the contract drawings in Appendix C and in the full drawing set provided with the SWPPP. These details and specifications conform to the NYSDEC standard adopted under the "New York Standards & Specifications for Erosion & Sediment Controls (July 2016)" or provide equivalent performance.

5.1.1.1 Silt Fences

Silt fences will be installed along the downhill limit of construction (separating construction area from the freshwater wetland to the extent possible) and on the downhill side of the staging area. Silt fences will be maintained until the site is stabilized as described below.

5.1.1.2 Construction Entrance

Construction entrances meeting the NYSDEC requirements will be installed at the both the access road from Drewville Road and the access road at US Route 6. The improved construction entrances will be maintained throughout construction.

5.1.1.3 Silt Sock

Silt socks will be installed along the dam and side slopes as these areas are grubbed and cleared and reconstructed at the new slope. Installation of the socks will be along a contour and shall be staged such that the length of unstabilized slope above the sock is limited as shown on the drawings.

5.1.1.4 Turbidity Curtain

A turbidity curtain is a filter fabric barrier installed within a water body to trap sediment. The contractor shall install a turbidity curtain(s) within West Branch Reservoir at the onset of construction. The turbidity curtain anchors shall be spaced at a maximum of 100 ft. apart and be located a minimum of 10 ft. beyond the limits of disturbance associated with the project.

5.1.1.5 Stabilization

Site stabilization shall be initiated as soon as practicable in portions of the site where construction activities have ceased. In no case shall this take place more than 14 days after the construction activity in that portion of the site has ceased. Stabilization can be achieved using vegetative or non-vegetative cover over soil to reduce the potential for erosion. Such measures can include grass, mulch, geotextiles, riprap, etc.

5.1.1.6 Revegetation

As soon as possible after construction is completed, areas that have been disturbed will be reseeded. Topsoil will be placed and prepared using fertilizer and lime, in accordance with the specifications. Seed will be applied within 10 days following soil preparation. Fiber and straw mulch will be applied to all seeded areas in accordance with the NYSDEC technical standards. All seeded areas will be watered and reseeded as necessary to achieve a healthy, uniform growth over the entire seeded area. Erosion and sedimentation controls will remain in place until vegetation is well established.

5.1.1.7 Erosion Control Blankets

During revegetation, erosion control blankets will be installed along all slopes greater than 3(H):1(V) to help the seeds and plants establish.

5.1.2 Stockpiles

All contractor storage areas will be within the limits of clearing/construction for the site. A staging/stockpile area has been designated at the northern portion of the property. Silt fencing will be installed and maintained at the downhill perimeter of the staging area. As needed, temporary earth dikes or swales shall be constructed to divert runoff from uphill areas around the stockpiles. Silt fences will be installed downhill from the stockpile.

5.1.3 Other Materials

5.1.3.1 Construction Waste

Construction and waste materials expected to be stored on-site consist of materials and equipment typically used in earth moving work and to construct, roadways. Materials generally consist of soil, stone, sand, concrete, pipe, wood, metal, and drainage pipe. Equipment generally consists of heavy earth moving equipment.

Efforts shall be taken throughout construction to prevent litter and construction debris from becoming a pollutant source in stormwater discharge from the site. Litter and debris brought to the construction site shall be properly stored and removed from the site at the end of each work day.

5.1.3.2 Petroleum and Hazardous Substances

Contractor will be responsible for the proper storage and handling of petroleum and hazardous substances to avoid accidental releases of oil or hazardous materials, as defined in 40 CFR 117 and 40 CFR 301. To reduce potential impact of a leak or spill from construction equipment, routine maintenance and refueling of equipment shall be performed with absorbent and other containment materials nearby for rapid containment and recovery of any spill. Containment materials shall be checked and replenished as needed each work day. Used absorbent and containment materials will be stored in a manner to eliminate contact with rainfall or runoff (i.e. in a closed drum) until such material can be properly disposed.

At a minimum the Contractor shall be familiar with specific spill reporting measures as implemented at this site by NYCDEP BWS and implement the following measures:

- To minimize the possibility of leakage of hydraulic fluid, all hydraulic lines on the construction equipment and vehicles will be inspected at the end of each workday. If any excessive wear or leakage is observed, the line will be repaired prior to further use.
- All mechanical pumping equipment that will come in contact with water must be lubricated using food grade oil.
- Spill containment equipment will be stored in a designated chemical and equipment storage area (contractor staging area) in an easily accessible manner for use in the cleanup of accidental releases of fuel or hazardous materials. The Contractor will maintain a sufficient supply of oil absorbent pads, oil absorbent materials, containment booms, and appropriate storage drums to contain a chemical or fuel spill.
- All reportable spills of oil and chemicals, as specified in the NYSDEC regulations governing notification of releases and threats of release of oil and hazardous material, will be reported to the NYSDEC. All waste generated as the result of chemical spills will be stored, handled and disposed of off-site in accordance with all applicable laws and regulations.

5.1.3.3 Significant Spill and Leaks

The Contractor will take preventative measures to avoid spills of petroleum products and chemicals, including but not limited to the measures identified in the above. If there is a release or spill of oil or hazardous substance, as defined in 40 CFR 117 and 40 CFR 302, the Contractor shall follow the procedures outlined in the Safe Work Plan which include:

1. Immediately notifying Supervisors/Co-workers, if they are or may be in IMMEDIATE DANGER.
2. Contacting Emergency 911 if medical attention is required.
3. Notifying the NYCDEP Police Command Center.
4. Completing and faxing a NYCDEP Incident Report and including the Compliance Section.

Once contacted, the NYCDEP personnel will do the following:

- If the release is a reportable quantity, notify the National Response Center at (800) 424-8802 as soon as the NYCDEP has knowledge of the discharge.
- Within 14 calendar days, modify the SWPPP to include a description and date of the release, the circumstances leading up to the release, and any modifications to the SWPPP that may be necessary to prevent future releases and/or provide improved response methods. Contractor and NYCDEP onsite staff will review these changes to ensure all are informed of the revised procedures for addressing such events.
- Within 14 calendar days, submit a written description of the release (if reportable quantity), the date of the release, the circumstances leading up to the release, and the steps taken to prevent and control future releases to the following address:

NYS Department of Environmental Conservation Division of Water
625 Broadway
Albany, NY 12233-3500

Within 14 calendar days, modify the SWPPP to include a description and the date of the release, the circumstances leading up to the release, and any modifications to the SWPPP that may be necessary to prevent future releases and/or provide improved response methods.

5.2 Dewatering

As needed the Contractor shall be responsible for designing, installing and operating a dewatering system to lower the water table to at least 2 feet below bottom of all excavations. Dewatering wastewater shall be treated to remove sediment in accordance

with the NYSDEC Guidelines for Erosion and Sediment Control (“Blue Book”). Dewatering discharges to the reservoir are not permitted.

5.3 Maintenance Schedule

All physical pollution control measures will be maintained throughout the course of construction. Erosion and sedimentation control measures will remain until final stabilization, as defined in the General Permit, is achieved. Sediment accumulated on silt fences will be removed when sediment accumulation causes visible bulges in the fence. Any damage to the silt fences or other erosion control measures as documented by the inspector (see below) shall be repaired within 24-hours of the discovery of the problem.

5.4 SWPPP Implementation Responsibilities

A qualified Inspector (as defined by the General Permit) knowledgeable in the principles and practice of erosion and sediment controls (i.e. Professional Engineer, Soil Scientist or Certified Professional in Erosion and Sediment Control) shall perform an assessment of the site prior to commencement of soil disturbing activities to certify that the appropriate controls described in the SWPPP have been implemented. Additional inspections shall be performed at least every 7 calendar days throughout the construction period. All inspections will be documented and attached to this Plan in Appendix F and shall be made available to the permitting authority and Town of East Fishkill upon request. Any problems encountered during the inspection should be immediately reported to the general contractor. Problem areas should be revisited on the following inspection to make sure corrections have been made.

At the completion of construction, and prior to filing of the Notice of Termination, the same qualified professional shall perform a final site inspection to certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls not required for long-term control have been removed.

5.5 Certifications

Prior to commencement of construction activities, the Owner will identify the Contractor and subcontractors (if applicable) that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP. Each of these contractors and subcontractors shall identify one trained individual from their company that will be responsible for implementation of the SWPPP. At least one trained contractor must be on-site when soil disturbing activities are being performed.

The General Permit defines a trained contractor as “an employee from a contracting (construction) firm that has received four hours of training, which has been endorsed by the Department, from a Soil and Water Conservation District, CPESC, Inc., of other Department endorsed entity, in proper erosion and sediment control principles no later than two years from the date of the general permit is issued.....This individual will be responsible for the day to day implementation of the SWPPP.”

Each contractor/subcontractor that will be responsible for implementation of some part of the SWPPP will complete the certification in Appendix E. This certification identifies the trained contractor for each contractor/subcontractor and outlines the specific areas of the SWPPP for which the contractor/subcontractor will have responsibility. These certifications will be maintained on-site with the SWPPP.

Section VI

Post Construction Stormwater Control Practices

6.1 Post Construction Stormwater Control Requirements

The New York State Stormwater Management Design Manual (Design Manual) requires the use of stormwater control practices to address the changes in stormwater runoff quantity and quality that development can cause. These practices must be sized according to the criteria presented in Table 6A and described below.

Table 6A- Design Manual Sizing Criteria

New York Stormwater Sizing Criteria	
Water Quality (WQv)	Capture and treat 90% of the average annual stormwater runoff volume
Runoff Reduction Volume (RRv)	RRv (acre-feet) = Reduction of the total WQv by application of green infrastructure techniques and SMPs to replicate pre-development hydrology.
Channel Protection (Cpv)	Provide 24-hour extended detention for the post-development 1-year, 24-hour storm event
Overbank Flood (Qp)	Control the peak discharge from the 10-year storm to the 10-year pre-development rate.
Extreme Storm (Qf)	Control the peak discharge from the 100-year storm to the 100-year pre-development rate.

6.1.1 Water Quality Volume

The NYSDEC stormwater management rules require treatment of the water quality storm event to remove suspended solids and other pollutants. The volume of the water quality storm is defined in the Design Manual, based on the 90% storm event, the drainage area and the percent impervious of the site.

$$\text{WQv (acre-feet)} = P \cdot (Rv) \cdot (A) / 12$$

Where
 P = 90% Rainfall Event
 A = Disturbed area (acres)

$$R_v = 0.05 + 0.009 * I$$

I = Percent impervious

For work in areas that are already developed, Section 9.3.2 of the Design Manual indicates that a minimum of 25% of the water quality volume (WQv) from the disturbed, impervious area is captured and treated by the implementation of standard practices or reduced by application of greentechnologies.

As this is an existing site, capture of 25% of the WQv associated with the existing impervious area to be disturbed is required, along with 100% of the WQv associated with new impervious area.

6.1.2 Runoff Reduction Volume

The Runoff Reduction Volume (RRv) criterion requires the use, where feasible, of green technologies to capture and treat the Water Quality Volume. Per the NYS Design Manual:

Runoff reduction shall be achieved by infiltration, groundwater recharge, reuse, recycle, evaporation/evapo-transpiration of 100 percent of the post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system.

Where the full WQv cannot be captured using green technologies, the Design Manual provides a calculation for the minimum required RRv. The additional WQv that cannot be treated using green methods must be treated using standard methods outlined in Section 6 of the Design Manual.

$$RRv_{\min} \text{ (acre-feet)} = (P * R_v * A_{ic} * S) / 12$$

Where

- RRv_{min} = Minimum runoff reduction volume required
- P = 90% Rainfall Event
- A_{ic} = Total area of new impervious cover (acres)
- R_v = 0.05 + 0.009*I where I is 100% impervious
- S = Hydrologic Soil Group Specific Reduction Factor

Per Section 4.3 of the Design Manual, the reduction factor (S) for HSG A soil is 0.55, for HSG B soil is 0.40, for HSG C is 0.30 and for HSG D is 0.20.

While achievement of run-off reduction is the goal with any project, application of these requirements can be waived for re-development projects. As this project is re-development of the dam site and roadway along the crest, meeting this criterion is not required.

6.1.3 Channel Protection Volume

The first water quantity requirement for stormwater management is protection of stream channels from erosion. The Design Manual indicates that this goal is met by providing 24-hour extended detention of the one-year, 24-hour storm event; detention time is defined as the time difference between the center of mass of the inflow hydrograph and the center of mass of the outflow hydrograph.

The CPv requirement does not apply if reduction of the entire CPv volume is achieved at the site through green infrastructure or infiltration systems.

6.1.4 Overbank Flood Control

The second quantity criteria of the Design Manual is the control of the 10-year, 24-hour storm to attenuate the post development peak discharge rate to pre-development rates. The primary purpose of this criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding.

6.1.5 Extreme Flood Control

The third criteria of the Design Manual is the control of the 100-year, 24-hour storm to attenuate the post development peak discharge rate to predevelopment rates. This criterion is in place to protect the physical integrity of the stormwater management systems, prevent an increased risk for flood damage from large storm events and to maintain the boundaries of the predevelopment 100-year floodplain.

6.2 Existing Conditions

The existing site is divided into two primary drainage areas – the area that drains to the West Branch Reservoir, and the portion of the site that discharges to the wetland at the toe of the dam. The area draining to the reservoir is primarily the western lane of Route 6 as it crosses the dam, along with stretches on either end of the dam where the roadway is pitched toward the reservoir. There is a narrow 2-ft shoulder along the roadway on the dam that has grass. The slope then drops to rip-rap as it enters the reservoir.

The area that drains to the wetland includes the dam face, areas along both dam groins, and the eastern portion of US Route 6. The dam face is vegetated, mostly low growing grasses while the side slopes are primarily wooded. A small wetland area has been mapped on the northern side slope and at the toe of the slope.

To estimate the existing discharge rates from this area, calculations were performed of the existing conditions. Drainage areas within the project site were delineated using existing site survey. The NRCS Web Soil Survey was referenced to identify the hydrologic soil groups present at the site. Peak runoff rates for the 1, 10 and 100-year storms were calculated using the TR-55 method. The TR-55 calculation tables for pre and post construction are included in Appendix D. The pre-construction rates are provided below.

**Table 6B
West Branch Auxiliary Dam
Pre-Construction Conditions**

	1-year	10-year	100-year
24-hr Rainfall (inches)	2.84	5.38	8.4
Site Draining to Reservoir (cfs)	0.3	1.2	2.51
Site Draining to Wetland (cfs)	2.00	8.16	17.70

The area draining to the reservoir used for these calculations has an area of 0.5 acres, while the area draining to the LC 50 wetland has an area of 3.73 acres. These delineations include parts of Drewville Road and the NYCDEP property that are not expected to be disturbed as part of this project, but which could contribute runoff to proposed treatment features. Figures are included in Appendix D illustrating the delineation of drainage areas for these calculations.

6.3 Proposed Conditions

The proposed construction will widen US Route 6 at the crest of the auxiliary dam and shift the roadway centerline to the east. Additionally, project will flatten the dam slope and create new, wider rip-rap groin swales. The gravel roadway at the toe of the dam will be extended along the entire toe. Catchbasins and drainage piping will be installed on US Route 6 to direct roadway runoff away from the face of the dam. These site changes would increase the calculated peak runoff rates from the site, as shown in Table 6C. Please note the rates in this table assume no stormwater quality controls are in place.

**Table 6C
West Branch Auxiliary Dam
Post-Construction Conditions**

	1-year	10-year	100-year
24-hr Rainfall (inches)	2.84	5.38	8.4
Site Draining to Reservoir (cfs)	0.3	1.2	2.55
Site Draining to Wetland (cfs)	2.20	8.72	18.52

In addition to affecting post-construction runoff peak rates (quantity controls) the additional impervious surfaces noted above require treatment for water quality standards. The redevelopment standards in Chapter 9 of the NYS Design Manual apply to this project, meaning that treatment is required for the WQv associated with 25% of the existing, disturbed impervious surface plus 100% of any new impervious surfaces. For these calculations “disturbed areas” do not include areas to be milled or resurfaced, but do include the part of the US Route 6 to be fully re-constructed. New impervious surfaces include the extended portion of the gravel access road and the widened paved area of US Route 6. The temporary impervious surfaces planned for the entrance on

Drewville Road and the access road from US Route 6 are not included as “impervious surfaces” in the WQv calculations as these areas will be restored with topsoil and seed at the end of construction.

At the same time, the NYCDEP requires water quality treatment for all new impervious area at the source, i.e. offsetting by treating additional existing impervious surfaces at another location on-site is not allowed. Thus, separate treatments are required for the extra paved width of US Route 6 on the east side of the dam; the additional gravel access road length at the toe of the dam; and the “new” impervious surface directed to the reservoir as a result of the roadway centerline shift. But ultimately, each treatment system must be designed for the entire drainage area contributing to the treatment system (not just the impervious area).

To meet the Design Manual requirements, stormwater from this project will be controlled and treated through a bioretention area, a grass filter and a modified filter strip. Runoff from the east side of US Route 6, collected with catchbasins and drainage pipe, will discharge to the south groin swale. This flow will be treated by an off-line bioretention area at the base of the slope. Plantings in the bioretention area will be native species including:

Eutrochium maculatum (Joe Pye weed)
Helenium autumnale (sneezeweed)
Clethra alnifolia (sweet pepperbush)
Symphotrichum novae-angliae (New England aster)
Cephalanthus occidentalis (buttonbush)

All plantings are shown on the construction drawings.

Runoff from the extended gravel access road will be treated with a grass filter on the east side of the road. The filter area is approximately 50-ft in length with a slope of approximately 2%.

Site constraints limit the extent of quality management that can be provided for the portion of US Route 6 draining to the reservoir. Currently the edge of pavement is only about 2 feet from the start of the rip-rap slope on the upstream dam face. This steep (slope approximately 25%) strip of grass is currently the only treatment provided to runoff entering the reservoir. The proposed re-alignment of the roadway will create additional space between the edge of pavement and the rip-rap slope. The post-construction grass strip will be approximately 5-feet wide with an average slope of 6%. While this does not meet the Design Manual requirements for a filter strip, this area is expected to provide treatment beyond current conditions.

The proposed means of meeting the Design Manual requirements are detailed below in Table 6D. The bioretention area provides both WQv and RRV treatment; per the Design Manual 40% of the volume provided in a bioretention area can be claimed as volume to meet the RRV criteria. Additionally, the combined volume of the bioretention area and

forebay provide volume to reduce the peak discharge rates from the site to pre-construction rates.

**Table 6D
Stormwater Management Plan Summary**

Criteria	Site Draining to Wetland	Site Draining to Reservoir
Water Quality Volume (WQv)	Target (access road): 226 ft ³ Proposed: Filter Strip Target (US Route 6): 428 ft ³ Proposed: 1,824ft ³	Target: 422 ft ³ Proposed: Modified Filter Strip
Runoff Reduction Volume (RRv)	Target: 171 ft ³ Min.: 68 ft ³ Proposed: 729 ft ³ (40% of Bioretention Volume)	Target: 166 ft ³ Min.: 66.2 ft ³ Proposed: Modified Filter Strip
Channel Bank Volume (Cpv)	Target: 435 ft ³ Proposed: 2,324 ft ³	NA - Peak Discharge Rates do not increase
Overbank Flood Control 10 Year (Qp)	Target Qp: 8.16 cfs Storage Required: 1,341 ft ³ Storage Proposed: 2,324 ft ³	
Extreme Flood Control 100 Year (Qf)	Target Qf: 17.70 cfs Storage Required: 2,274 ft ³ Storage Proposed: 2,324 ft ^{3*}	

6.4 Operation and Maintenance of Post-Construction Stormwater Control Practices

The bioretention area, groin swales and grass filter strips will be maintained by DEP in accordance with this Operation and Maintenance Plan.

**Table 6E -Post Construction Stormwater Management Facilities
Maintenance Plan Responsibilities**

Maintained by	NYCDEP
Name, Address, Phone of Responsible Party	---
Facilities to be Maintained	Bioretention Area Grass Filter Groin Swales
Description of Funding Source	NA
Minimum Vegetative Cover Requirements	100% cover required
Access and Safety Issues	All maintenance work to be completed within limits of property
Testing and Disposal of Sediments	N/A

Local and Non-Local Permits	N/A
Legal Agreements	N/A, NYCDEP owns property

The main components of this maintenance plan are regular inspections and preventative maintenance. These tasks shall be completed in accordance with the following schedule.

Monthly

1. Remove debris accumulated in the bioretention area.
2. Remove any weeds growing around the plants within the bioretention area.
3. Remove any debris from bioretention area forebay.

Annually

1. Remove debris and sediment accumulation from bioretention area, forebay, and groin swales.
2. Identify plants that are not thriving and replace as needed.
3. Prune plants and trees to maintain healthy status.
4. Note the depth of sediment accumulated in the bioretention area. If water ponds in bioretention area for more than 48-hrs., remove and replace top few inches of soil.

After Major Storm Events

1. Inspect the bioretention area for signs of erosion, plant loss or excessive ponding. Schedule soil/plant replacement as necessary.

SWPPP Revision History
West Branch Auxiliary Dam
Slope Improvements
Putnam County, New York

Changes to the SWPPP as construction progresses shall be updated within the SWPPP and documented in the SWPPP Revision History Table.

SWPPP Revision History Table

Revision #	Brief Explanation of Revision	Date of Revision	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

ATTACHMENT A
GENERAL PERMIT
NOTICE OF INTENT
MS4 APPROVAL FORM



Department of
Environmental
Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001


Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM
CONSTRUCTION ACTIVITIES**

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges to surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants to surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

Discharges authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize the discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
 - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
 - (iii) *Minimize* the amount of soil exposed during *construction activity*;
 - (iv) *Minimize* the disturbance of *steep slopes*;
 - (v) *Minimize* sediment *discharges* from the site;
 - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
 - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
 - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
 - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
 - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

 - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

 - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

- e. **Prohibited *Discharges*.** The following *discharges* are prohibited:
 - (i) Wastewater from washout of concrete;

 - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
 - (iv) Soaps or solvents used in vehicle and equipment washing; and
 - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
 - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
 - (2) The site discharges directly to tidal waters, or fifth order or larger streams.

- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
 - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
 - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
 - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
 - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
 - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
 - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
 - (2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
 - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
 - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
 - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity to surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges after construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities or discharges from construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
 - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
 - b. Which are undertaken on land with no existing *impervious cover*; and
 - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
 - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
 - b. Which are undertaken on land with no existing *impervious cover*; and
 - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase “D” (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
 - 1-5 acres of disturbance - 20 feet
 - 5-20 acres of disturbance - 50 feet
 - 20+ acres of disturbance - 100 feet, or
 - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
 - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
 - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
 - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
 - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
 - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

- (i) No Affect
- (ii) No Adverse Affect
- (iii) Executed Memorandum of Agreement, or

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.
9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of Owner or Operator) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

**NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505**

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
 - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
 - b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

- c. the final SWPPP has been prepared, and
 - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:
- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
 - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
 - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
 - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
 - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
 - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.
4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor’s or subcontractor’s certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
3. The *owner or operator of a construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

- a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
 - b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
 - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
 - d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.
 - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..
 5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
 6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of a *construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4*, the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.
2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.
3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:
 - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

- b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;
 - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority; and
 - d. to document the final construction conditions.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
 - a. Background information about the scope of the project, including the location, type and size of project

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
 - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and
 - l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

The post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
 - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
 - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
 - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
 - (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;
 - (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
 - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
- e. Infiltration test results, when required; and
- f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria*, Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
 - Certified Professional in Erosion and Sediment Control (CPESC),
 - New York State Erosion and Sediment Control Certificate Program holder
 - Registered Landscape Architect, or
 - someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].
1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
 - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
 - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
 - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
 - b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
 - c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.
 - e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.
 4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
- f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
- g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- k. Identification and status of all corrective actions that were required by previous inspection; and

- I. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
 - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

- b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
 - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.
 - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
 3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice certification statements*” on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
 4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “*MS4 Acceptance*” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.
 5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
 - a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:
 - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
 - (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
 - b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
 - c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - (i) the chief executive officer of the agency, or
 - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge(s)*, the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer

BMP – Best Management Practice

CPESC – Certified Professional in Erosion and Sediment Control

Cpv – Channel Protection Volume

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)

DOW – Division of Water

EAF – Environmental Assessment Form

ECL - Environmental Conservation Law

EPA – U. S. Environmental Protection Agency

HSG – Hydrologic Soil Group

MS4 – Municipal Separate Storm Sewer System

NOI – Notice of Intent

NOT – Notice of Termination

NPDES – National Pollutant Discharge Elimination System

OPRHP – Office of Parks, Recreation and Historic Places

Qf – Extreme Flood

Qp – Overbank Flood

RRv – Runoff Reduction Volume

RWE – Regional Water Engineer

SEQR – State Environmental Quality Review

SEQRA - State Environmental Quality Review Act

SHPA – State Historic Preservation Act

SPDES – State Pollutant Discharge Elimination System

SWPPP – Stormwater Pollution Prevention Plan

TMDL – Total Maximum Daily Load

UPA – Uniform Procedures Act

USDA – United States Department of Agriculture

WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property – means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for “*Commence (Commencement of) Construction Activities*” and “*Larger Common Plan of Development or Sale*” also.

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment – means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department’s rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a *combined sewer*, and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank Flood* (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

<p>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</p> <ul style="list-style-type: none">• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.
<p>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</p> <p>All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.</p>
<p>The following construction activities that involve soil disturbances of one (1) or more acres of land:</p> <ul style="list-style-type: none">• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects• Pond construction• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover• Cross-country ski trails and walking/hiking trails• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.• Slope stabilization projects• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES
POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

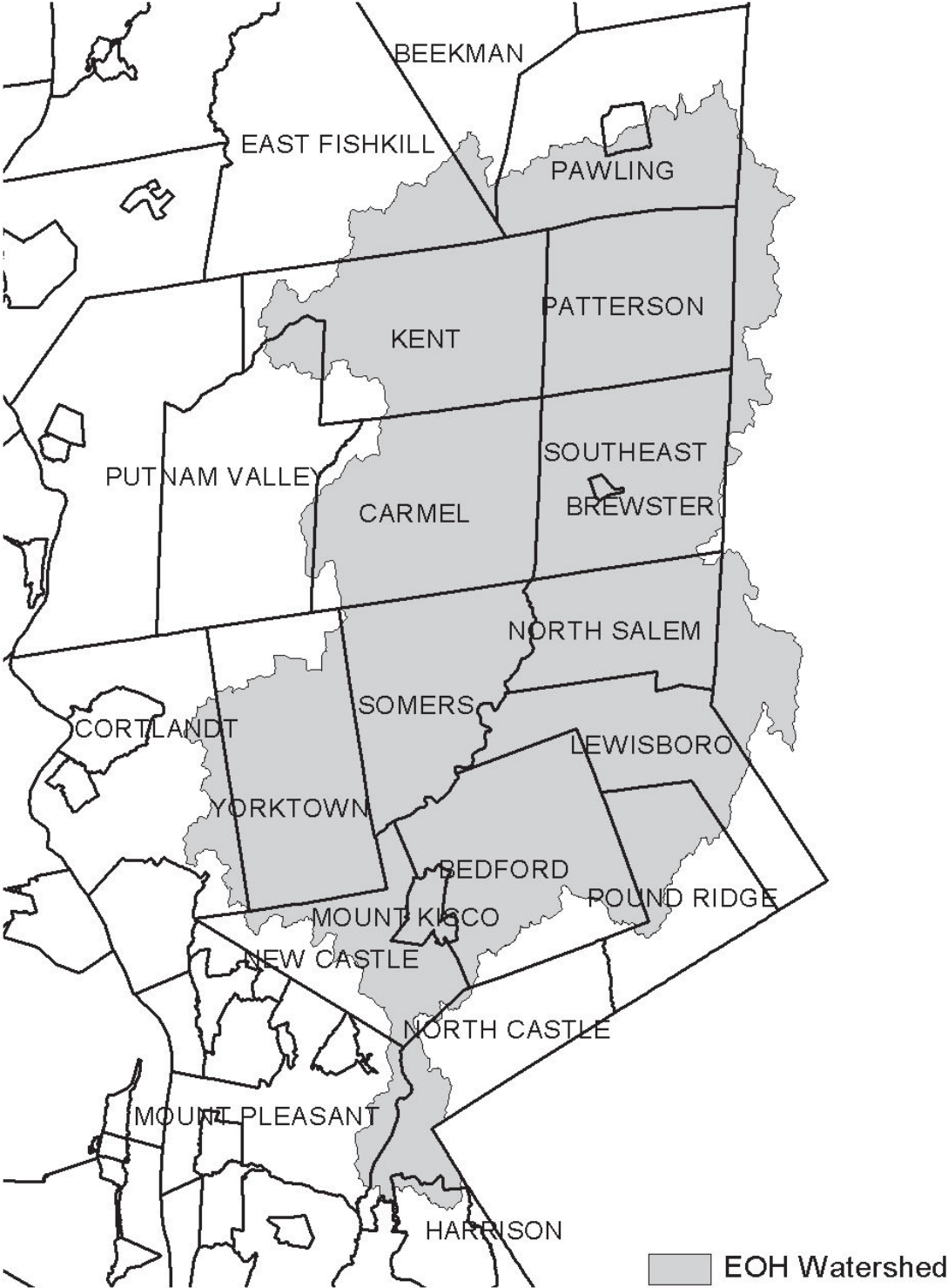


Figure 2 - Onondaga Lake Watershed

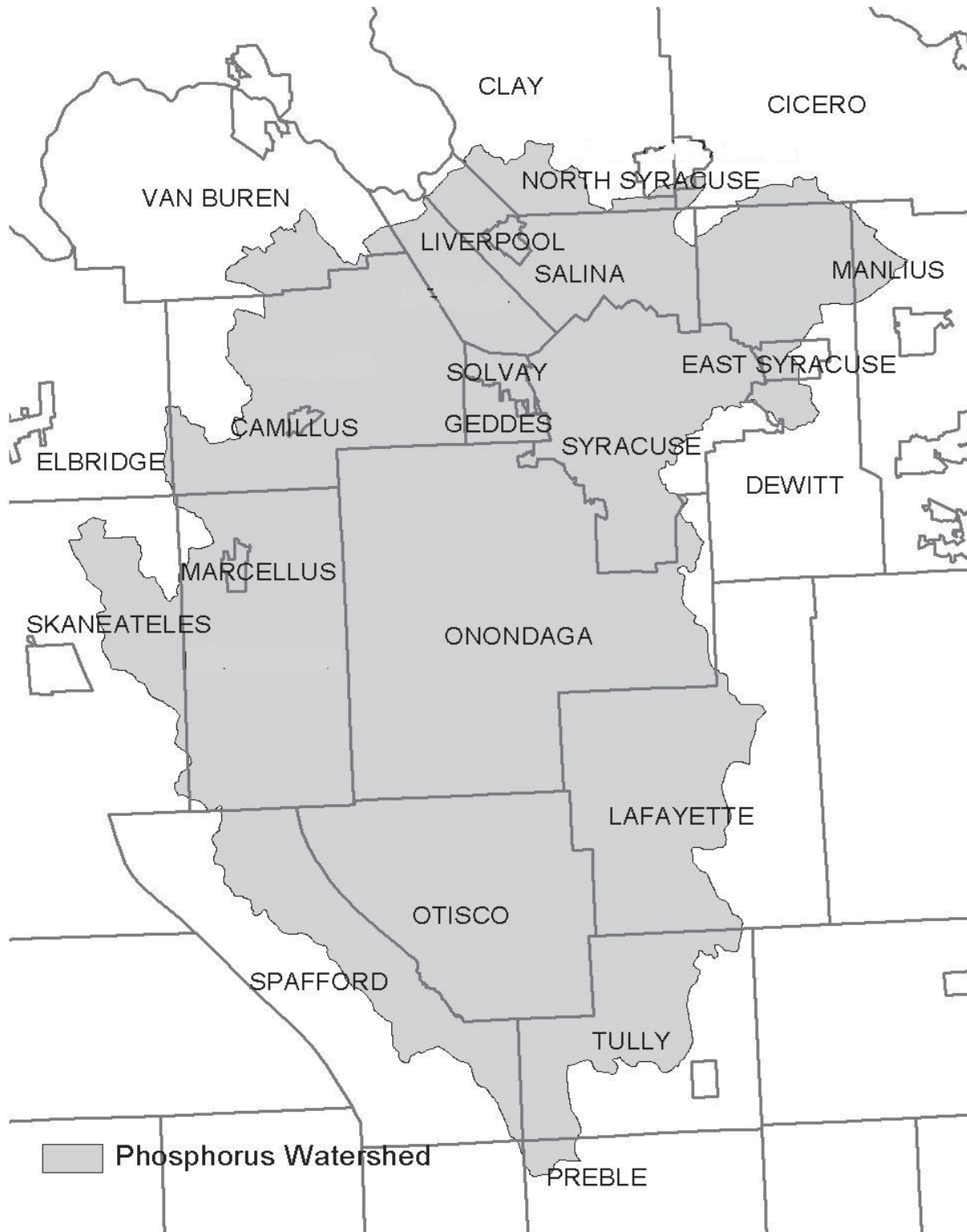


Figure 3 - Greenwood Lake Watershed



Figure 4 - Oscawana Lake Watershed

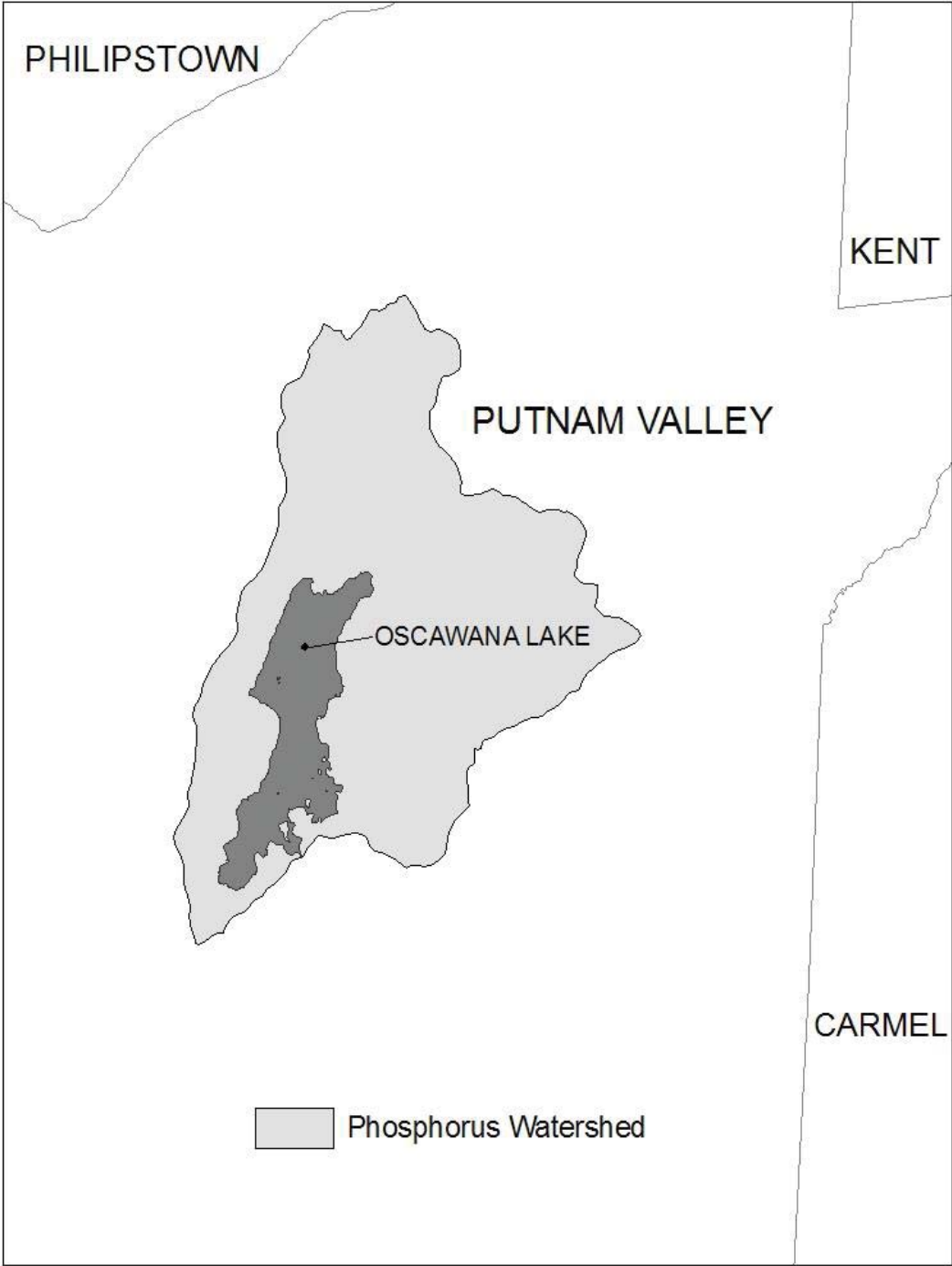
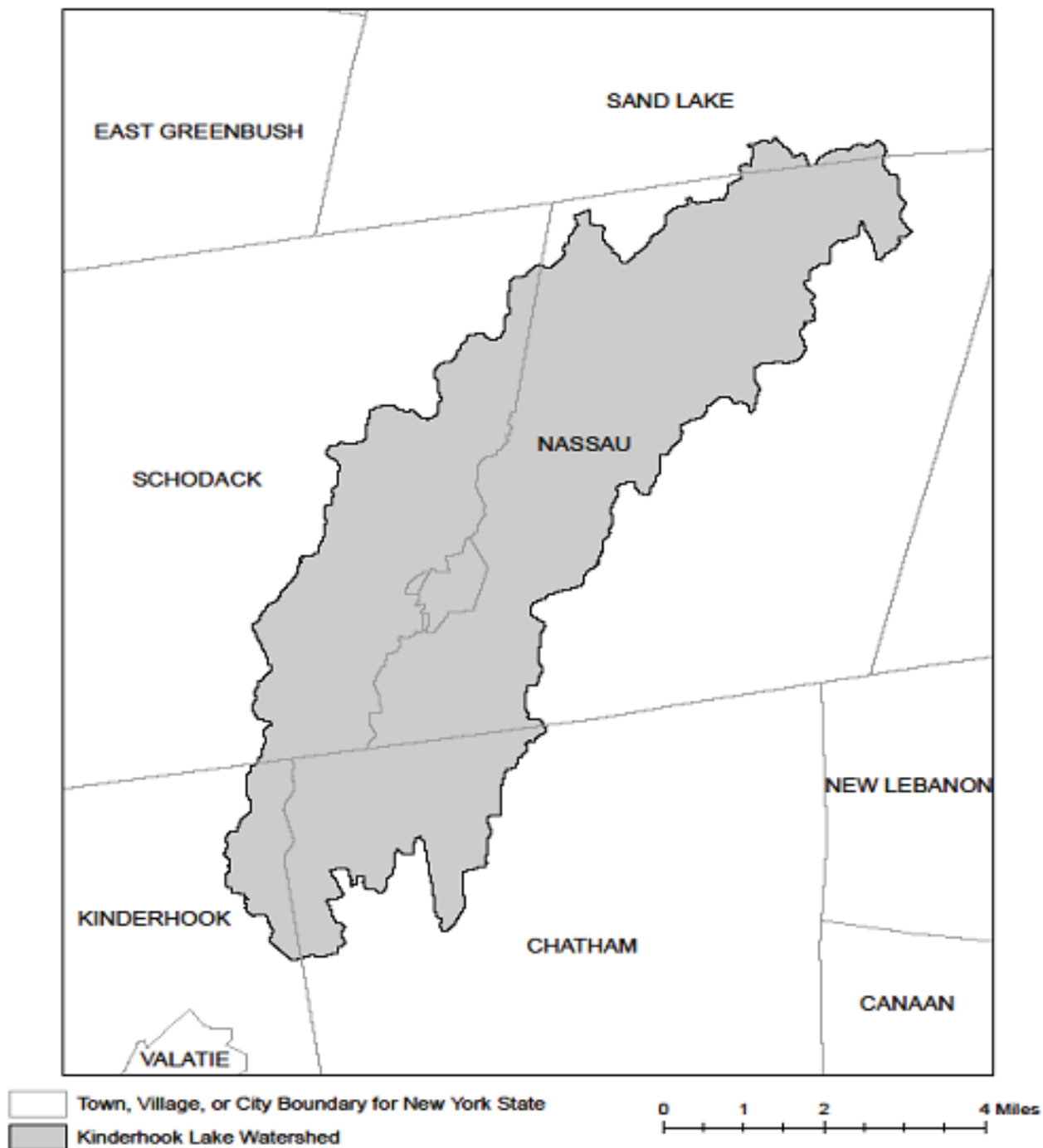


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070



Department of
Environmental
Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information

1. Owner/Operator Name: New York City Department of Environmental Protection

2. Contact Person:

3. Street Address:

4. City/State/Zip:

II. Project Site Information

5. Project/Site Name: West Branch Auxiliary Dam Slope Improvement Project

6. Street Address: US Route 6

7. City/State/Zip: Carmel, NY

III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

IV. Regulated MS4 Information

11. Name of MS4: Town of Carmel

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

ATTACHMENT B
FIGURES AND MAPS

XREFS: [] Images: [USGS Quad, 7372351]
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pwr:\pwr.comsmith.com\FW_PL\15215112230\04 Design Services MN_30%\12 Permitting\GEORIF\FIGURE 1.dwg

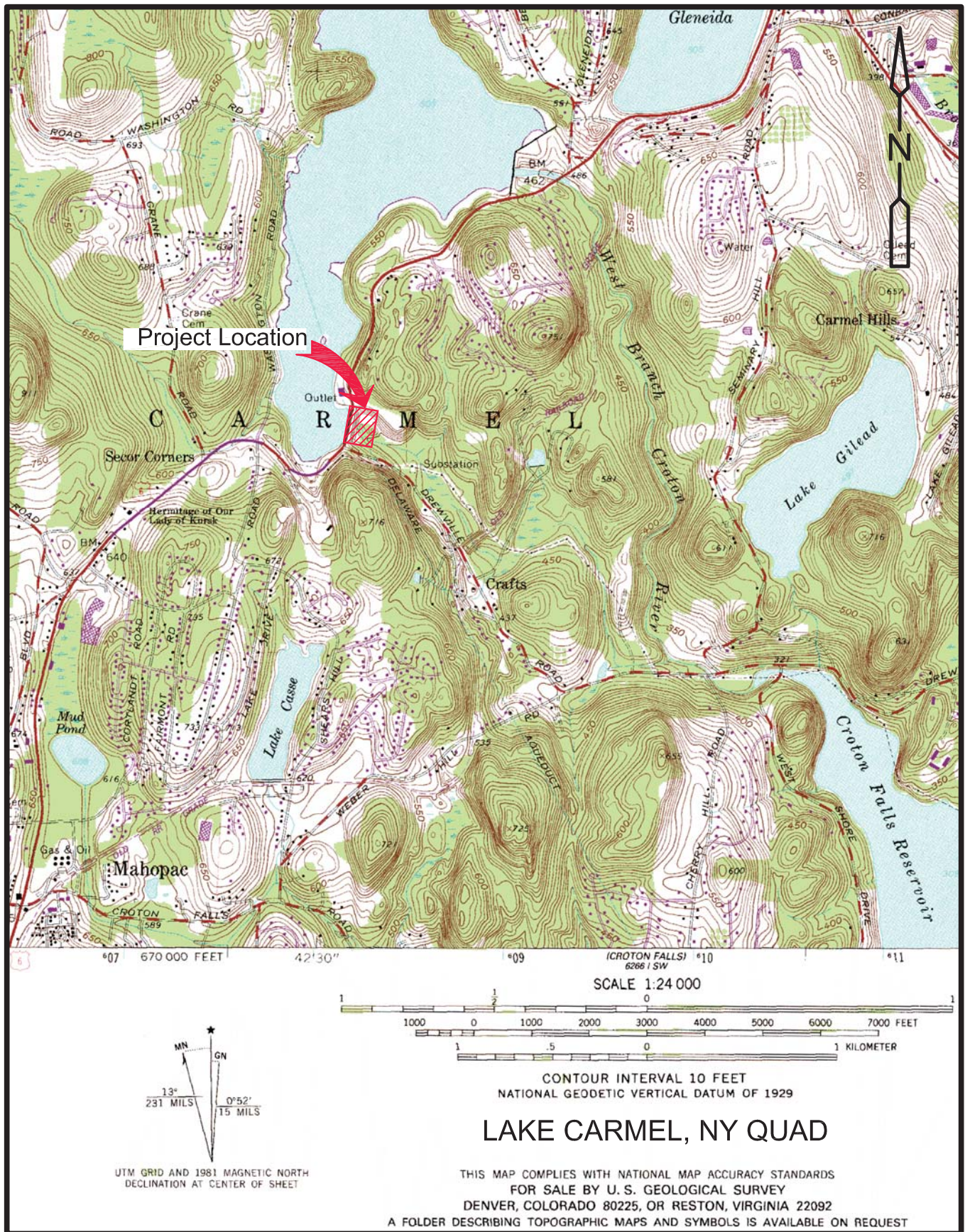


Figure 1
Project Location
NYCDEP West Branch Reservoir
Auxiliary Dam Slope Safety Improvements

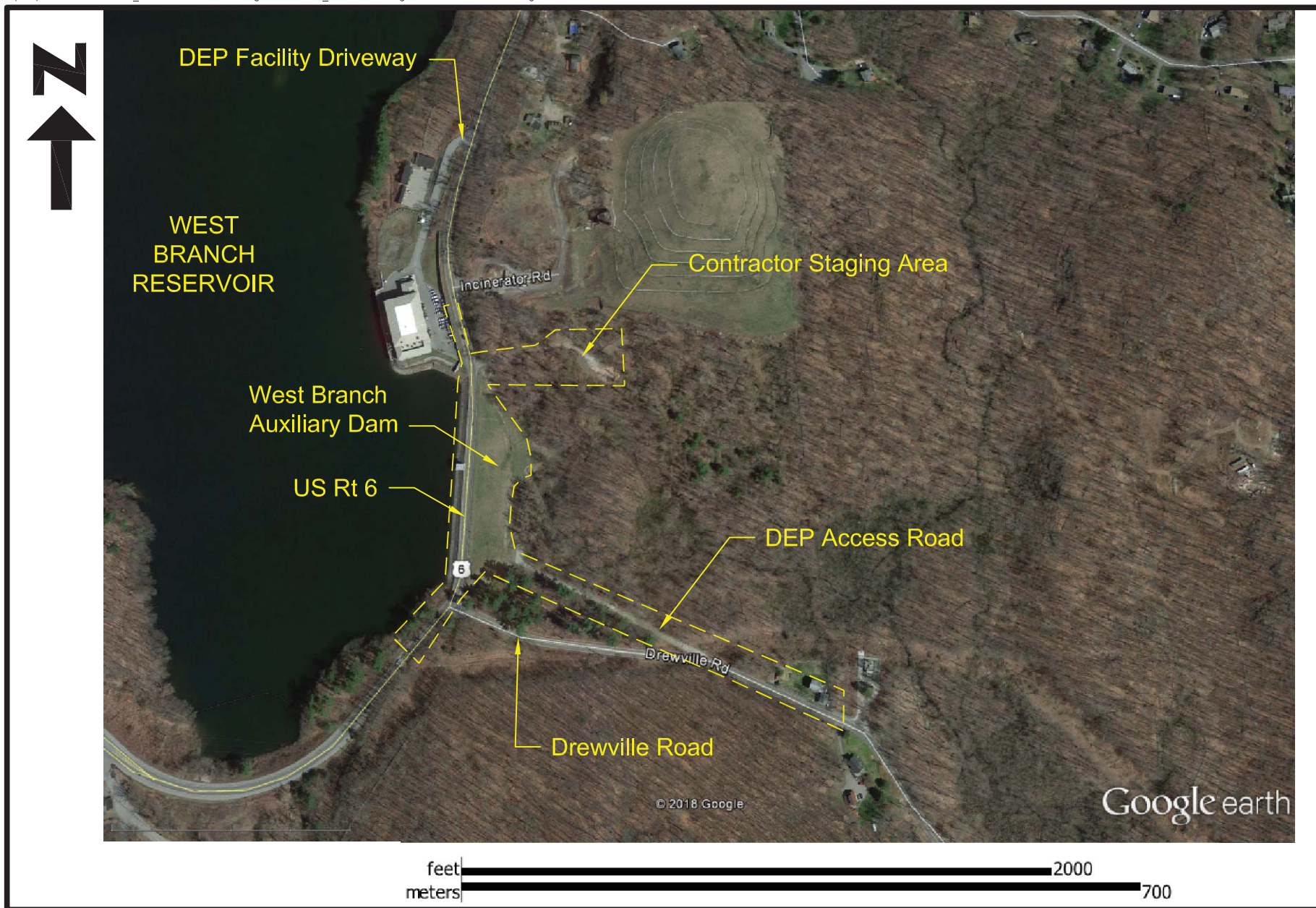
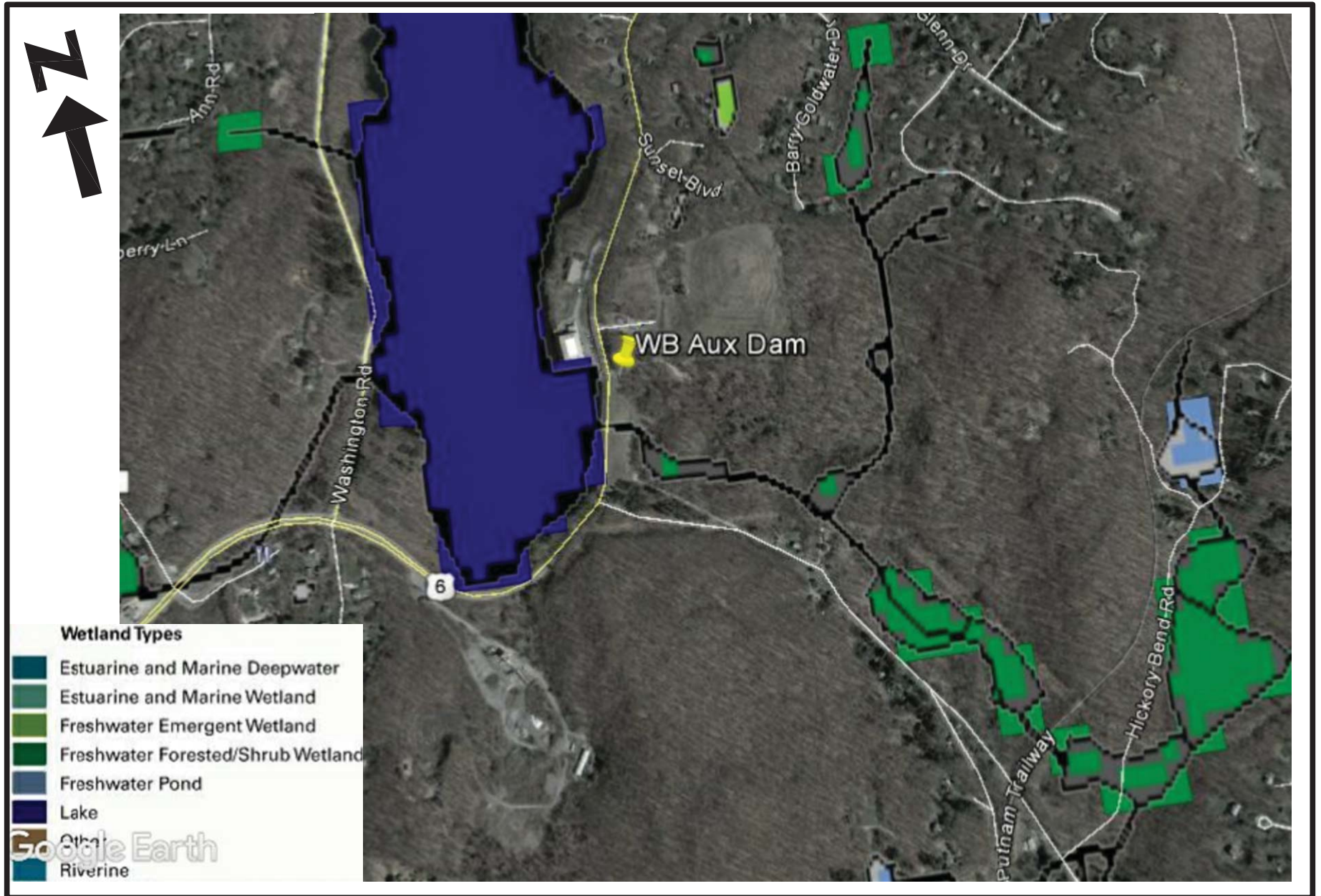


Figure 2
Proposed Project Limits
NYCDEP West Branch Reservoir
Auxiliary Dam Slope Safety Improvements



National Wetlands Inventory Map
NYCDEP West Branch Reservoir
Auxiliary Dam Slope Safety Improvements

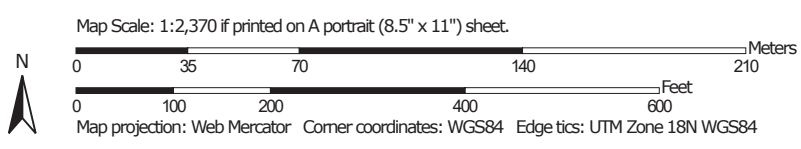


NYS Wetlands Map
NYCDEP West Branch Reservoir
Auxiliary Dam Slope Safety Improvements

Hydrologic Soil Group—Putnam County, New York
(West Branch Auxiliary Dam)




Soil Map may not be valid at this scale.



Hydrologic Soil Group—Putnam County, New York
(West Branch Auxiliary Dam)

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


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 1:24,000.

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: Putnam County, New York
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 5, 2016

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ChC	Charlton fine sandy loam, 8 to 15 percent slopes	B	0.8	6.9%
CiC	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	B	4.0	34.8%
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	2.4	21.3%
CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	0.3	2.7%
DAM	Large dam		2.2	19.2%
Ff	Fluvaquents-Udifluvents complex, frequently flooded	A/D	0.2	2.1%
Ub	Udorthents, smoothed	B	1.2	10.3%
W	Water		0.3	2.8%
Totals for Area of Interest			11.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

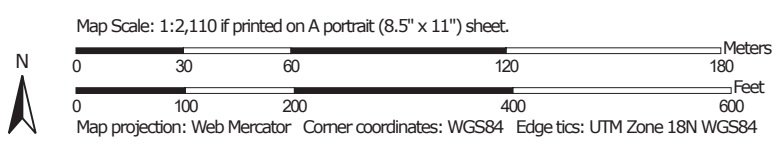
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Erosion Hazard (Off-Road, Off-Trail)—Putnam County, New York
(West Branch Auxiliary Dam)




Soil Map may not be valid at this scale.








MAP LEGEND

Area of Interest (AOI)






 Area of Interest (AOI)

Soils






Soil Rating Polygons

 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available


Soil Rating Lines

 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available

Soil Rating Points




 Very severe
 Severe
 Moderate
 Slight
 Not rated or not available

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 1:24,000.

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: Putnam County, New York
 Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 5, 2016

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.

Erosion Hazard (Off-Road, Off-Trail)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
ChC	Charlton fine sandy loam, 8 to 15 percent slopes	Severe	Charlton (85%)	Surface kw times slope times R index (0.79)	0.3	3.2%
			Paxton (5%)	Surface kw times slope times R index (0.82)		
			Chatfield (3%)	Surface kw times slope times R index (0.82)		
			Canton (2%)	Surface kw times slope times R index (0.79)		
CIC	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	Severe	Charlton, very stony (85%)	Surface kw times slope times R index (0.82)	3.5	36.2%
			Paxton, very stony (5%)	Surface kw times slope times R index (0.82)		
			Chatfield, very stony (3%)	Surface kw times slope times R index (0.79)		
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	Moderate	Charlton, very stony (50%)	Surface kw times slope times R index (0.75)	1.9	19.7%
			Chatfield, very stony (30%)	Surface kw times slope times R index (0.67)		
			Hollis, very stony (5%)	Surface kw times slope times R index (0.52)		
CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	Severe	Chatfield, very stony (45%)	Surface kw times slope times R index (0.95)	0.3	3.0%
			Charlton, very stony (35%)	Surface kw times slope times R index (0.97)		
			Hollis, very stony (5%)	Surface kw times slope times R index (0.80)		
DAM	Large dam	Not rated	Large dam (100%)		2.2	22.5%
Ff	Fluvaquents-Udifluvents complex, frequently flooded	Slight	Fluvaquents (50%)		0.0	0.2%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Udifluvents (35%)			
Ub	Udorthents, smoothed	Slight	Udorthents, smoothed (80%)		1.1	11.8%
W	Water	Not rated	Water (100%)		0.3	3.4%
Totals for Area of Interest					9.7	100.0%

Rating	Acres in AOI	Percent of AOI
Severe	4.1	42.4%
Moderate	1.9	19.7%
Slight	1.2	12.0%
Null or Not Rated	2.5	26.0%
Totals for Area of Interest	9.7	100.0%

Description

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope, soil erosion factor K, and an index of rainfall erosivity (R). The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

November 29, 2017

Ms. Kathryn Kelly
Senior Project Manager
NYC Environmental Protection
59-17 Junction Blvd, 11th floor
Flushing, NY 11373

Re: DEC
CRO-534 West Branch Auxiliary Dam Creep Remediation
US Route 6 at Drewville Road, Carmel, NY
17PR07556

Dear Ms. Kelly:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential impacts that must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6NYCRR Part 617).

We have reviewed your submission for the CRO-534 West Branch Auxiliary Dam Creep Remediation project. We note that the New Croton Aqueduct System: West Branch Reservoir Auxiliary Dam is eligible for listing in the State and National Registers of Historic Places. We understand that the proposed project will include widening and repaving the dam, and flattening the downstream slope.

We note that there are no archaeological concerns associated with this project. Based on this review, it is the opinion of the SHPO that the proposed project will have No Adverse Impact to historic resources provided the following condition is incorporated into the project:

1. A Construction Protection Plan is implemented for the historic gatehouse structure to ensure that it is not damaged or altered by the construction activities.

If you have any questions, I can be reached at (518) 268-2164.
Sincerely,

Weston Davey
Historic Site Restoration Coordinator
weston.davey@parks.ny.gov

via e-mail only

Division for Historic Preservation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

November 10, 2017

Kathryn Kelly
NYCDEP
59-17 Junction Blvd., 11th Fl
Flushing, NY 11373

Re: CRO-534:West Branch Auxiliary Dam Creep Remediation
County: Putnam Town/City: Carmel

Dear Ms. Kelly:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

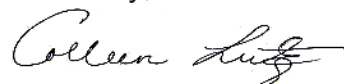
We have no records of rare or state-listed animals or plants, or significant natural communities directly at the project site.

About 3.5 miles from the project site is a documented winter hibernaculum of **Northern long-eared bat** (*Myotis septentrionalis*, state and federally listed as Threatened). These bats may travel five miles or more from documented locations. The main impact of concern for bats is the cutting or removal of potential roost trees. For information about any permit considerations for your project, contact the Permits staff at the NYSDEC Region 3 Office at dep.r3@dec.ny.gov, (845) 256-3054. For information about potential impacts of your project on this species and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098.

For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,



Colleen Lutz
Assistant Biologist
New York Natural Heritage Program

1373



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New York Field Office

3817 Luker Road

Cortland, NY 13045

Phone: (607) 753-9334 Fax: (607) 753-9699

http://www.fws.gov/northeast/nyfo

To: Christopher Nadareski

Date: Oct 10, 2018

USFWS File No: 17TA3529

Regarding your: Letter Fax x Email

Dated: Sep 25, 2018

For project: CRO-534 West Branch Auxiliary Dam Creep Remediation

Located: southern tip of the West Branch Reservoir

In Town/County: Town of Carmel, Putnam County

Pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the U.S. Fish and Wildlife Service:

Acknowledges receipt of your "no effect" and/or no impact determination. No further ESA coordination or consultation is required.

x Acknowledges receipt of your determination. Please provide a copy of your determination and supporting materials to any involved Federal agency for their final ESA determination.

Is taking no action pursuant to ESA or any legislation at this time, but would like to be kept informed of project developments.

As a reminder, until the proposed project is complete, we recommend that you check our website (http://www.fws.gov/northeast/nyfo/es/section7.htm) every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current. Should project plans change or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

USFWS Contact(s): Sandie Doran

Supervisor: Robyn Orsini Acting Date: 10/10/18



Vincent Sapienza, P.E.
Commissioner

Paul V. Rush, P.E.
Deputy Commissioner
Bureau of Water Supply
prush@dep.nyc.gov

71 Smith Avenue
Kingston, NY
Tel: (845) 340-7800
Fax: (845) 334-7175

From: Christopher Nadareski
Section Chief, Wildlife Studies
NYCDEP
Upstate BWS
71 Smith Avenue
Kingston, NY 12401
CNadareski@dep.nyc.gov
1-845-340-7773

To: Sandra Doran
U.S. Fish and Wildlife Service
New York Field Office
3817 Luker Road
Cortland, NY 13045

September 25, 2018

Re: Online Project Review Request
CRO-534: West Branch Auxiliary Dam Creep Remediation
Putnam County, NY
IPaC Consultation Code: 05EINY00-2017-SLI-3529

Dear Ms. Doran,

We have reviewed the referenced project using the New York Field Office's online project review process and have followed all guidance and instructions in completing the review. We completed our review on June 4, 2018 and are submitting our project review package in accordance with the instructions for further review.

Our proposed action consists of dam safety improvements for the West Branch Auxiliary Dam in the Town of Carmel, Putnam County, New York.

The West Branch Auxiliary Dam was completed in 1895. The dam is approximately 1.3 miles southwest of the main dam on the southern tip of the West Branch Reservoir. Inspections completed of the Auxiliary Dam in 2008 and 2009 identified issues associated with localized downstream slope creep and ponded water at the downstream toe. A 2012 detailed study of the dam ultimately recommended flattening the downstream slope and widening the crest of the dam.

The location of the project and the action area are identified on the enclosed map shown on Attachment 1. The project is expected to begin in 2020 and would be completed in 2022.

This project review is needed for the Joint Permit Application for Nationwide Permits #33 Temporary Construction, Access, and Dewatering; New York State Department of Environmental Conservation Protection of Water Permit for Dams and Impoundment Structures, Stream Disturbance, 401 Water Quality Certification, Freshwater Wetlands and SPDES permits; environmental review in accordance with the City Environmental Quality Review and the State Environmental Quality Review Act; and Putnam County and Town of Carmel permits and approvals.

The enclosed project review package provides the information about the species, critical habitat, and Bald Eagles considered in our review, and the species conclusions table included in the package identifies our determinations for the resources that may be affected by the project.

For additional information, please contact Kathryn Kelly at (718) 595-7712, kkelly@dep.nyc.gov, or me at the contact information listed above.

Thank you for your time in providing us with a response to this request.

Sincerely,



Christopher Nadareski,
Section Chief
Wildlife Studies Section, DEP

Attachments:

Location Maps
Species Conclusion Table

Cc: John Petronella, NYSDEC Region 3
Kelly McKean, NYSDEC Region 3
Brian Orzel, USACE
Michael Reid, DEP
Andrew Bader, DEP
Paul Costa, P.E., DEP
Linda Singh, DEP
Tom Boland, DEP
Laurie Machung, DEP
Mark Klein, DEP
Mark Page, Jr., DEP
Sangamithra Iyer, P.E., DEP
Kathryn Kelly, DEP

Attachments

Species Conclusions Table

Project Name: West Branch Auxiliary Dam Creep Remediation (Consultation Code: 05EINY00-2017-SLI-3529)

Project Sponsor: New York City Department of Environmental Protection

Date: September 25, 2018

Species Name	Potential Habitat Present?	Species Present?	Critical Habitat Present?	ESA Determination	Notes / Documentation Summary (include full rationale in your report)
Indiana Bat	Unknown/ Assume Presence -- No current Phase 1 Habitat survey conducted.	Unknown/ Assume Presence -- No current Phase 1 Habitat survey conducted.	No	May affect, but not likely to adversely affect	Indiana bats were not identified as occurring in the project area by New York Natural Heritage Program (Attached). Tree cutting will be limited to the period November 1 st through March 31 th ; therefore, no impacts are anticipated for the Indiana bat.
Northern Long-Eared Bat	No current Phase 1 Habitat survey conducted.	No current Phase 1 Habitat survey conducted.	No	May affect, but not likely to adversely affect	Northern long-eared bats were not identified as occurring in the project area by New York Natural Heritage Program (Attached). Tree cutting will be limited to the period November 1 st through March 31 th ; therefore, no impacts are anticipated for northern long-eared bat.

Species Name	Potential Habitat Present?	Species Present?	Critical Habitat Present?	ESA Determination	Notes / Documentation Summary (include full rationale in your report)
Bog Turtle	Yes, based on Phase 1 Survey conducted on May 16, 2018	Unknown -- No current survey conducted.	No	May affect, not likely to adversely affect	<p>A Bog Turtle (Phase I) Habitat Survey was conducted May 16, 2018 in the NYSDEC LC-30 wetlands located at the downstream side of the auxiliary dam. The Phase 1 Survey concluded that the wetlands (NYSDEC LC-30) met the criteria to be potential bog turtle habitat. The proposed work will be performed in a manner to avoid permanent impacts to wetlands, although temporary impacts are unavoidable. The Bog Turtle Habitat Survey is attached.</p> <p>Prior to the start of work associated with the drainage system replacement, a Bog Turtle Phase 2 survey will be conducted by a surveyor (herpetologist) and two rows of silt fencing will be installed to block turtles from entering the work area. These measures will result in zero take of any bog turtles.</p>

Bog Turtle Phase I Habitat Survey

Contents

Bog Turtle Habitat Evaluation Field Form

Bog Turtle Phase I Survey Assessment Narrative

Phase I Bog Turtle Survey Photo Log

West Branch Auxiliary Dam Partial Topographic Survey

West Branch Auxiliary Dam Wetland and General Work Area Plan

USFWS Hudson-Housatonic Recovery Unit Bog Turtle
Habitat Evaluation Field Form
(Revised 12/2013)

Project/Property Name: CRO-534
Project Name/Type: West Branch Reservoir Auxiliary Dam
Applicant/Landowner Name: City of New York
County: Putnam Quad: Lake Carmel, NY Township/Municipality: Carmel
NYNHP Species Hit Y N Map attached Y N Aerial attached Y N

ACTION AREA

Action area size: 3.32 acres Does the Phase 1 survey include all wetlands in the action area? Y N
If no, give wetland ID #s and reasons for no survey: Wetland 3 is a small, approximately 490 square foot, isolated wetland to the North of LC-30. It lacks suitable soils and vegetation that would trigger a Phase 1 bog turtle survey.

If yes, give wetland ID #s for each: _____

WETLAND ID: LC-30 PHOTOS TAKEN: Yes No WETLAND SIZE: LC-30 is 48.9 acres
Wetland size estimation – If actual acreage is not known at time of investigation, check one:
 < 0.1 acre 0.1-0.5 acre > 0.5 to < 1 acre 1-2 acres 2-4 acres 5+ acres 12+ acres

WETLAND LOCATION: Lat 41°23'57.011" N Long 73°42'13.836" W
(approximate center of wetland) GPS Datum (check one): NAD 27 NAD 83 WGS 84

SURVEY CONDITIONS & LIMITATIONS

Date of survey: 5/16/2018 Time In: 10:47 am Time Out: 11:48 am

Last precipitation: < 24 hours 1-7 days > 1 week unknown

Drought conditions? Y N Unknown

How much of this wetland is located off-site (i.e., outside the project boundaries or right-of-way)?

none of it – the entire wetland is within the project boundaries (skip next 2 questions)

some of it – _____ acres or 50-60 % of the wetland appears to be located off-site

If part of this wetland continues off-site, how much of the off-site portion was surveyed (on foot)?

none of it all of it part of it (_____ % or _____ acres of the off-site portion)

How much of the off-site portion of this wetland is visible (e.g., from the subject property or from a public road)? all of it part of it (at least 3 acres) none of it

Are there any wetlands located off-site and close enough to be affected by this project? Y N

If yes, could they be potential bog turtle habitat? Y N Unknown

Describe surrounding landscape (wetlands, forest, subdivision, agricultural field, fallow field, etc.):
Surrounding areas include upland forest, the West Branch reservoir, roadways, and buildings

WETLAND CHARACTERISTICS

Wetland type(s) present and % cover: PEM _____ PSS 2% PFO 98% POW _____

NYSDEC Mapped Wetland Y N Name LC-30 NWI Mapped Wetland Y N

Edinger et. al. (2002)5 Community Types: Red maple-hardwood swamp

Y N Are there any signs of disturbance to hydrology (ditching, filling, ponds, roads, etc.)? If yes, describe **There a couple of square drains within the boundaries of the wetland. Visible on plans.**

Y N Are there any signs of disturbance to vegetation (mowing, pasturing, burning, etc.)? If yes,
Hydrology

Y N Springs or seeps visible or likely? Muskgrass (*Chara* spp.) present? Yes No

Y N Saturated soils present? If yes, year-round? Likely Unlikely Unknown

Y N Water visible on surface? Check all that apply: small puddles/depressions (4" deep)

rivulets (___" deep) larger pools/ponds (___" deep)

Y N Evidence of flooding? If yes, describe indicators **Blackened leaves, water marks**

Hydrological Regime (Cowardin 1979): Semi-permanently flooded Seasonally flooded other

Notes: _____

Soils Mapping Unit (optional): _____

Field observations confirm mapped type? YES NO Unknown

Soils- PEM			
Mucky? <input type="checkbox"/> Yes <input type="checkbox"/> No	How much of it (PEM) is mucky? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: _____ to _____"	Most of the mucky part(s) of the wetland can be probed: <input type="checkbox"/> 3-5" <input type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"
Non-mucky? <input type="checkbox"/> YES <input type="checkbox"/> NO	How much of it (PEM) is non-mucky? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input type="checkbox"/> 50-70% <input type="checkbox"/> >70%		

Soils- PSS and PFO			
Mucky? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	How much of it is mucky? <input type="checkbox"/> <10% <input type="checkbox"/> 10-29% <input type="checkbox"/> 30-49% <input checked="" type="checkbox"/> 50-70% <input type="checkbox"/> >70%	Mucky soils range in depth from: <u>6</u> to <u>13</u> "	Most of the mucky part(s) of the wetland can be probed: <input type="checkbox"/> 3-5" <input checked="" type="checkbox"/> 6-8" <input type="checkbox"/> 9-11" <input type="checkbox"/> ≥12"

Notes: _____

Wetland Vegetation (characterize the wetland as a whole)

Dominant Vegetation ***Acer rubrum***, ***Onoclea sensibilis***, ***Symplocarpus foetidus***, ***Impatiens capensis***, ***Ilex verticillata***, ***Alnus serrulata***, ***Phragmites australis***, ***Viola sp.***, ***Carex stipata***, ***Carex leptotelea***, ***Carex gracimillia***, ***Carex prasina***, ***Carex stricta***, ***Juncus effusus***, ***Lysimacchia ciliata***

*Dominant plant species in bold

Calciphiles** (See list for examples) tussock sedge grass-of-Parnassus poison sumac shrubby cinquefoil other: _____

Reptiles and Amphibians

Were any bog turtles observed? Yes No If yes, how many? _____

Other reptiles or amphibians? observed previously observed: Lithobates clamatus

INVESTIGATOR'S OPINION

YES NO UNSURE The hydrology criterion for bog turtle habitat is met.

Notes: Although the wetland lacks shallow rivulets typical of bog turtle habitat, there is some shallow surface ponding and surface flow that meets criteria for potential suitable habitat.

YES NO UNSURE The soils criterion for bog turtle habitat is met.

Notes: Mucky soils were encountered during the survey and appear to cover large areas of this wetland.

YES NO UNSURE The vegetation criterion for bog turtle habitat is met.

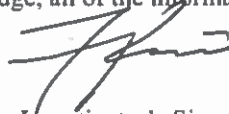
Notes: Calciphiles like *Toxicodendron vernix* were present but not dominant in the wetland and there is a diverse mix of sedges that meet the criteria for suitable bog turtle vegetation.

YES NO UNSURE This wetland is potential bog turtle habitat.

Notes: This wetland is not characteristic of core habitat for the bog turtle, but there is some potential for it to support the species based on suitable vegetation, soils, and some hydrological indicators.

I certify that to the best of my knowledge, all of the information provided herein is accurate and complete.

Frank Parisio



5/16/2018

Investigator's Name (print)

Investigator's Signature

Date

Contact info: parisiof@dep.nyc.gov

West Branch Reservoir Auxiliary Dam Project

Bog Turtle Phase 1 Survey Assessment Narrative

A bog turtle (*Clemmys muhlenbergi*) Phase I habitat survey was conducted on New York State regulated wetland LC-30 on May 16th, 2018. The habitat assessment was conducted in accordance with guidelines from the U.S. Fish and Wildlife Service for doing bog turtle Phase 1 habitat surveys. This narrative accompanies a completed Phase 1 survey form and photo log.

Approximately 40% of the wetland LC-30 was surveyed for potential bog turtle habitat. The survey area included all areas to be directly impacted by the work as well as areas east and southeast of the proposed activity. The canopy was dominated by mature red maple (*Acer rubrum*), and a sub-canopy of alder (*Alnus serrulata*) and winterberry holly (*Ilex verticillata*). Sensitive fern (*Onoclea sensibilis*), spotted jewelweed (*Impatiens capensis*), and skunk cabbage (*Symplocarpus foetidus*) were dominant ground cover species. A small area (approximately 0.06 acres) of wetland at the base of the slope of the West Branch dam was dominated by common reed (*Phragmites australis*). Common reed was not observed anywhere else in LC-30 during the survey.

The wetland had tussock sedge (*Carex stricta*), a weak calciphile, and a few poison sumac trees (*Toxicodendron vernix*) were observed. Calciphytic vegetation was not dominant in the surveyed portion of LC-30. Additionally, sedges were identified but were not dominant and areas of dense sedge tussocks, which are typical of bog turtle habitats were not seen.

Saturated soils and small ponded water areas were observed during the Phase 1 survey. Over half of the surveyed area had mineral soil that was mucky. Mucky soil depths ranged from six to eight inches deep. Shallow rivulets were not found in the wetland and most of flow was located in a shallow drainage course.

Wetland LC-30 has some suitable vegetation for the bog turtle like dominant skunk cabbage and some tussock sedge. It meets the vegetation requirement for potential suitable habitat but lacks many plant species that are characteristic of where bog turtles have been found. The presence of mucky soils and area of wetland drives the Phase 1 assessment to being positive for potential suitable habitat. The surveyed area is large enough to potentially provide some habitat for bog turtles.

NYC DEP wetland ecologist Frank Parisio has been conducting Phase 1 bog turtle surveys since 2010 and has participated on several bog turtle blitz surveys with NYS DEC. He has also received bog turtle Phase 1 survey training provided by the NYS Wetlands Forum.

CRO- 534 West Branch Reservoir Dam Project
Phase 1 Bog Turtle Survey Photo Log



View to the north from wetland interior. (Photo taken 5/16/2018).



**View into wetland looking at an existing grated drain structure.
(Photo taken 5/16/2018)**



**Looking north from within wetland toward West Branch reservoir dam
(Photo taken 5/16/2018).**



**Picture shows some shallow standing water and ground cover by hydrophytic
vegetation. (Photo taken 5/16/2018).**



View to the east of some shrub area in wetland LC-30.

(Photo taken 5/16/2018).

MATCH LINE - SEE V105



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THE NEW YORK STATE EDUCATION LAW.

**WEST BRANCH AUXILIARY DAM
CREEP REMEDIATION PROJECT**
TOPOGRAPHIC, PARTIAL BOUNDARY, AND TREE SURVEY
U.S. ROUTE 6, PUTNAM COUNTY, NEW YORK

REVISIONS

NO.	ITEM	DATE

CHK. BY: ERQ DWG. BY: RLS

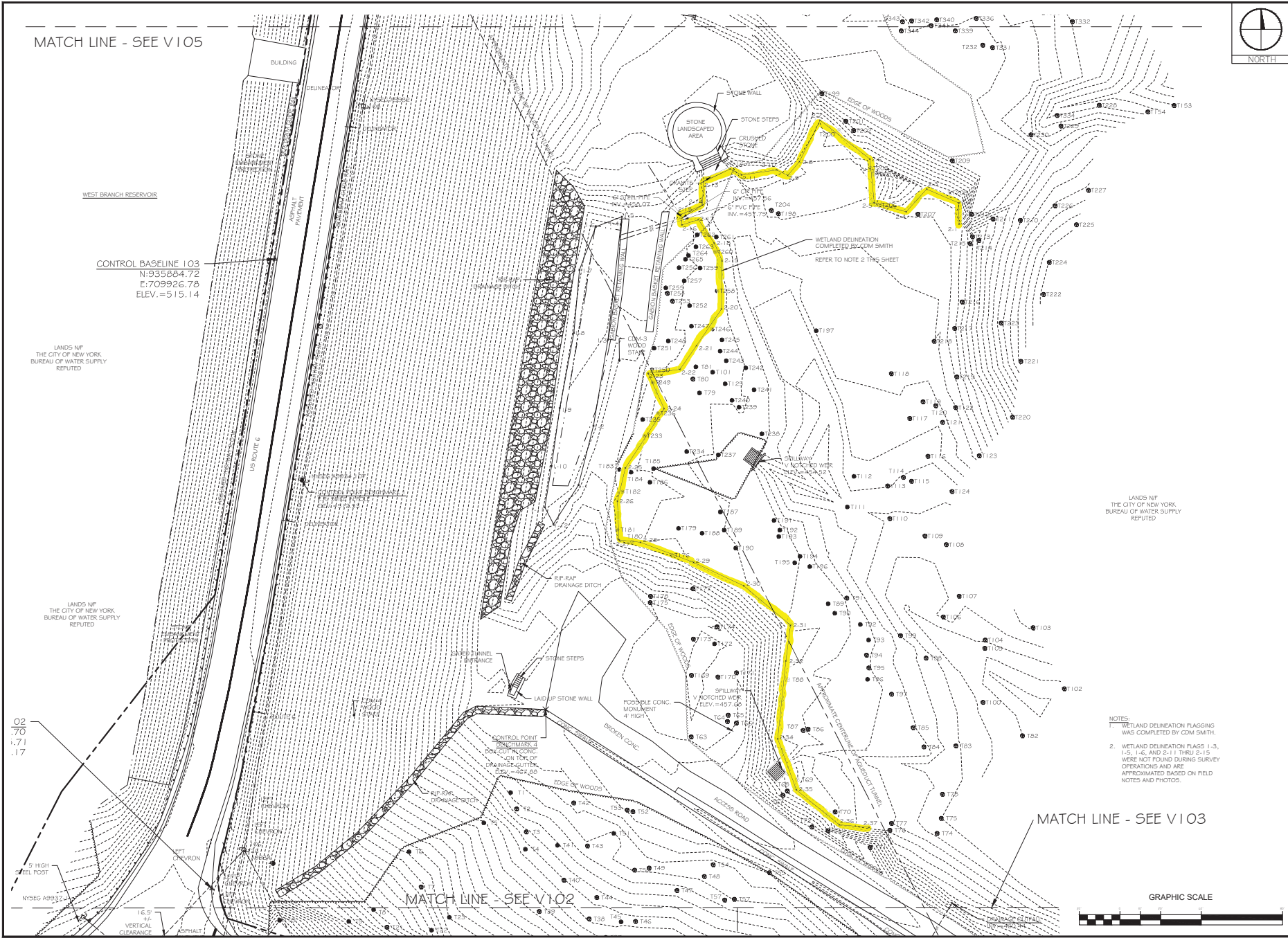
DATE: December 14, 2016

SHEET TITLE:
TOPOGRAPHIC SURVEY

SHEET NO.

V104

RECORD PROJECT NO. 11469



CONTROL BASELINE I 03
N:935884.72
E:709926.78
ELEV.=515.14

MATCH LINE - SEE V103

MATCH LINE - SEE V102

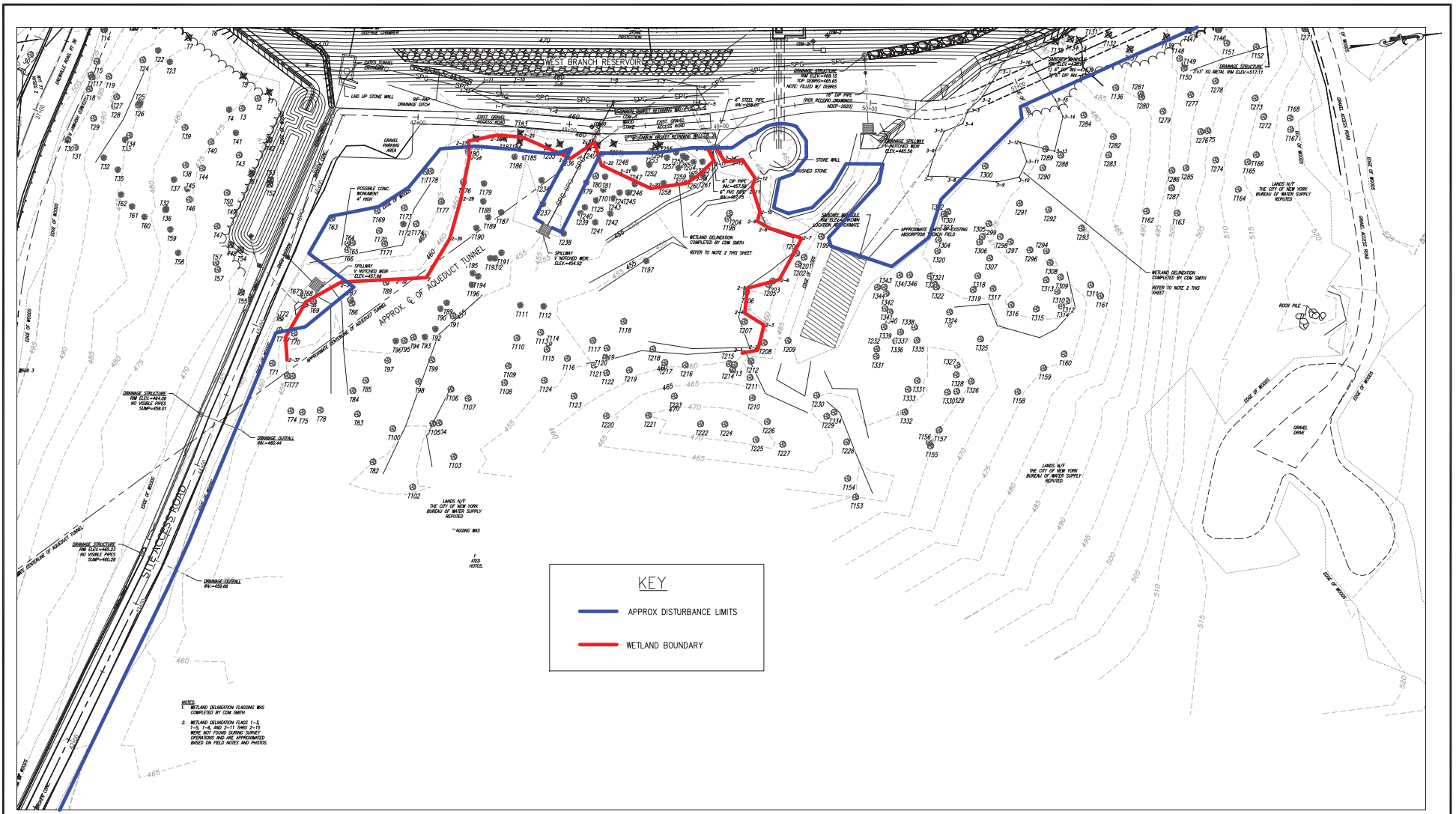
- NOTES:
1. WETLAND DELINEATION FLAGGING WAS COMPLETED BY CDM SMITH.
 2. WETLAND DELINEATION FLAGS 1-3, 1-5, 1-6, AND 2-1 THROUGH 2-15 WERE NOT FOUND DURING SURVEY OPERATIONS AND ARE APPROXIMATED BASED ON FIELD NOTES AND PHOTOS.



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FILE LOCATION: C:\w\211\w\w\050500111469\SURVEY.DWG

02
.70
1.71
.17

9' HIGH
STEEL POST
NYSEG A9932
16.5'
VERTICAL
CLEARANCE
ASPHALT

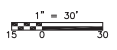


NOTES:
 1. WETLAND DELINEATION (RACON) WAS COMPLETED BY CDM SMITH.
 2. WETLAND DELINEATION PLACES 1-5, 1-6, 1-7, 1-8, AND 2-11, 2-12, 2-13 WERE NOT FOUND DURING SURVEY OPERATIONS AND ARE APPROXIMATED BASED ON FIELD NOTES AND PHOTOS.

KEY

— APPROX DISTURBANCE LIMITS

— WETLAND BOUNDARY



NO.	DATE	REVISIONS/DESCRIPTION	APPR'D.

DESIGNED BY:
S. MURPHY

CHECKED BY:
E. LECLAIR

DESIGN LEAD:
E. LECLAIR

SECTION MANAGER:
E. LECLAIR

DRAWN BY:
S. MURPHY

CDM Smith

111 BERNARD STREET, 4th Floor, NYC
 Larchmont, NY 10523
 TEL: (914) 834-4000



APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

"WARNING—IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS SUCH IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2."

NEW YORK CITY ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dep

WEST BRANCH AUXILIARY DAM CREEP REMEDIATION
 PUTNAM COUNTY, NEW YORK

BOG TURTLE HABITAT

DATE: 04/03/18
 SCALE: 1" = 30'
 SHEET NO.: XX OF 39
 DRAWING NO.:

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

USFWS Correspondence



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385

Phone: (607) 753-9334 Fax: (607) 753-9699

<http://www.fws.gov/northeast/nyfo/es/section7.htm>

In Reply Refer To:

June 04, 2018

Consultation Code: 05E1NY00-2017-SLI-3529

Event Code: 05E1NY00-2018-E-06851

Project Name: NYCDEP CRO 534: West Branch Auxiliary Dam Creep Remediation

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: <http://www.fws.gov/northeast/nyfo/es/section7.htm>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (<http://www.fws.gov/windenergy/>)

[eagle_guidance.html](#)). Additionally, wind energy projects should follow the Services wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office

3817 Luker Road

Cortland, NY 13045-9385

(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2017-SLI-3529

Event Code: 05E1NY00-2018-E-06851

Project Name: NYCDEP CRO 534: West Branch Auxiliary Dam Creep Remediation

Project Type: DAM

Project Description: Dam slope stabilization including increasing overall roadway width at the crest of the dam

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.399781168286246N73.7053802383377W>



Counties: Putnam, NY

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/182/office/52410.pdf Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/182/office/52410.pdf	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

NYS Natural Heritage Program Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

November 10, 2017

Kathryn Kelly
NYCDEP
59-17 Junction Blvd., 11th Fl
Flushing, NY 11373

Re: CRO-534:West Branch Auxiliary Dam Creep Remediation
County: Putnam Town/City: Carmel

Dear Ms. Kelly:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

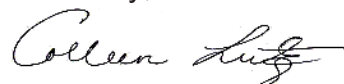
We have no records of rare or state-listed animals or plants, or significant natural communities directly at the project site.

About 3.5 miles from the project site is a documented winter hibernaculum of **Northern long-eared bat** (*Myotis septentrionalis*, state and federally listed as Threatened). These bats may travel five miles or more from documented locations. The main impact of concern for bats is the cutting or removal of potential roost trees. For information about any permit considerations for your project, contact the Permits staff at the NYSDEC Region 3 Office at dep.r3@dec.ny.gov, (845) 256-3054. For information about potential impacts of your project on this species and how to avoid, minimize, or mitigate any impacts, contact the Region 3 Wildlife staff at Wildlife.R3@dec.ny.gov, (845) 256-3098.

For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 3 Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,



Colleen Lutz
Assistant Biologist
New York Natural Heritage Program

1373

ATTACHMENT C
CONTRACT PLANS AND SPECIFICATIONS

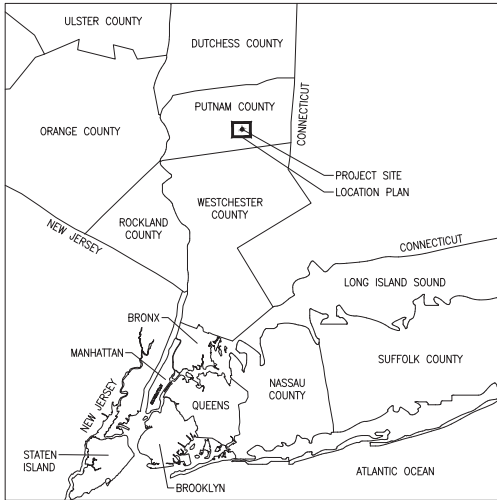


**FOR PERMITTING
PURPOSES ONLY**

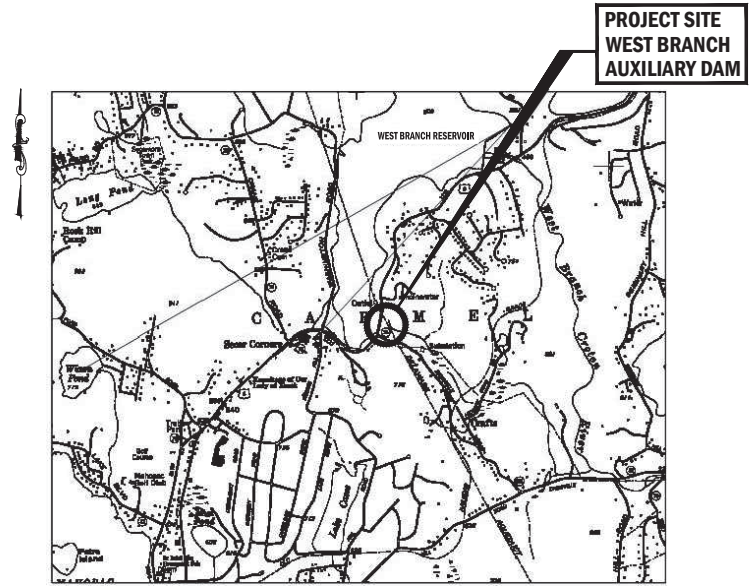
**NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION**

**WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS
CONTRACT CRO-534**

**PUTNAM COUNTY, NEW YORK
FEBRUARY 2022**



KEY PLAN
NOT TO SCALE



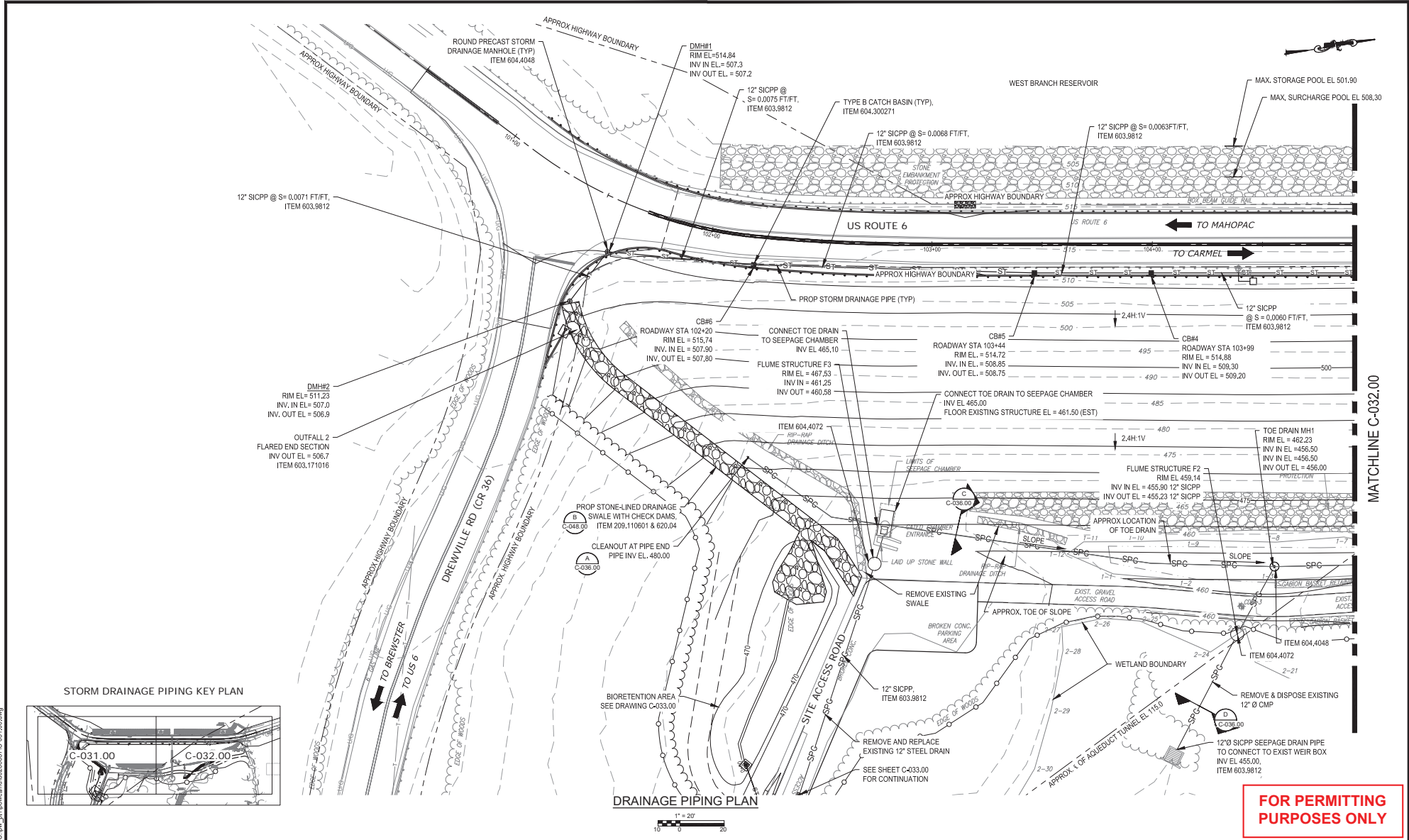
LOCATION PLAN
1" = 500'
250 0 500

MICHAEL BORSYKOWSKY, P.E.
ASSISTANT COMMISSIONER
WATER SYSTEM CAPITAL PROGRAM

ANA BARRIO
DEPUTY COMMISSIONER
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION

VINCENT SAPEINZA, P.E.
COMMISSIONER
DEPARTMENT OF ENVIRONMENTAL PROTECTION





Last Saved By: & Date: PDM/MLL/UD, Wednesday, February 02, 2022 at 09:58:32 AM
 Plot Size: 11.00 X 17.00 (INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwworking\10268657\C-031.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
 D. ROSENTHAL
 CHECKED BY:
 E. LECLAR
 DESIGN LEAD:
 D. ROSENTHAL
 SECTION MANAGER:
 E. LECLAR

DRAWN BY:
 R. JAMES

 11800 American Blvd, Suite 200
 Luban, NY 12110
 Tel: (518) 782-4800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 D. COSTA
 PORTFOLIO MANAGER

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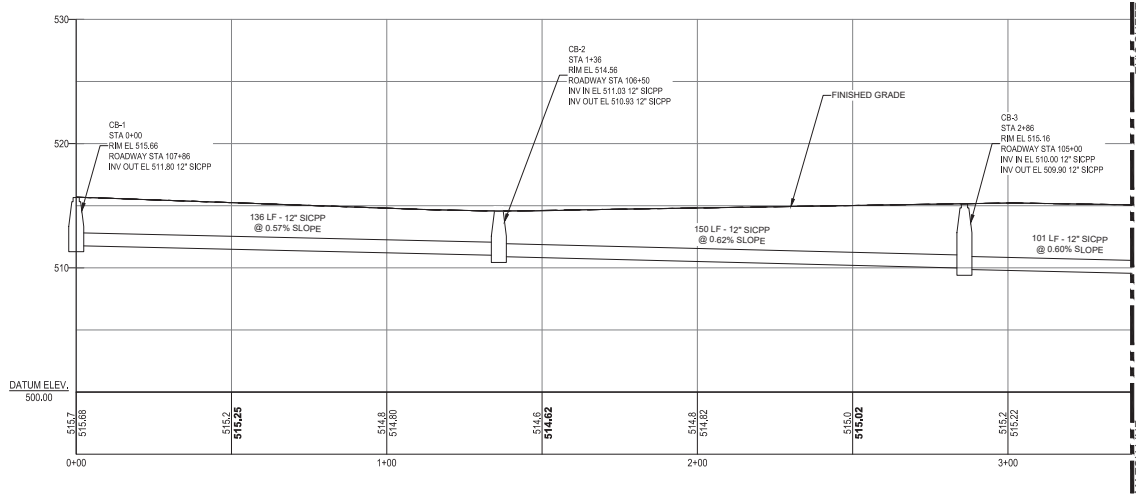
NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
 DRAINAGE & PIPING PLAN (1 OF 2)

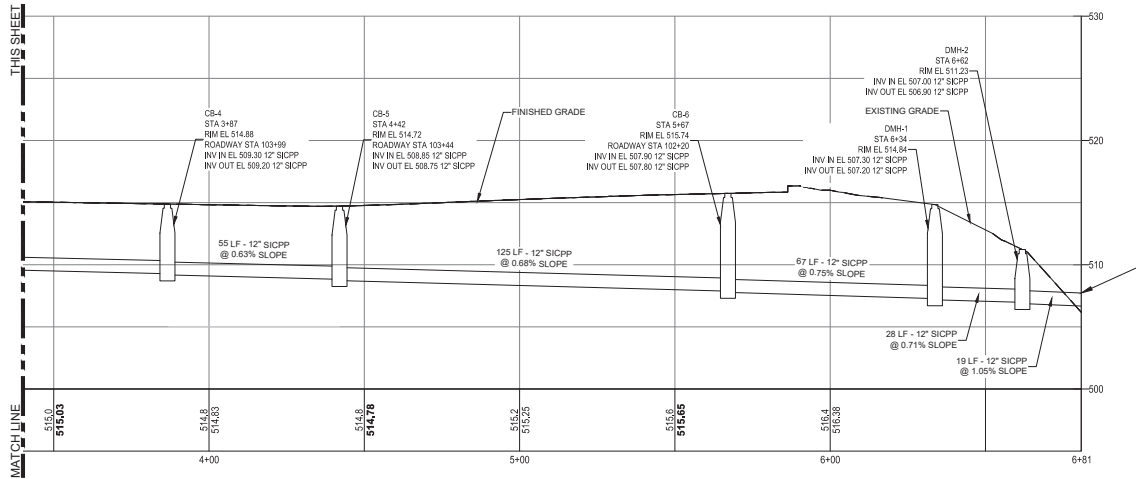
DATE: 2/3/2022
 SCALE: 1"=20'
 SHEET NO.:
 41 OF 81
 DRAWING NO.:
 C-031.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Lead: David B. & Dave POWELL LLP, Tuesday, January 18, 2022 and Dave Powell@theadway.com; February 2, 2022, 11:43:03 AM.
 Pipe Size (ANSI) (D (22.00 X 34.00 INCHES)) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwr_f\1\pww\mcd\0268657\0-C034.dwg



- PAYMENT NOTES:**
1. ALL 12" SICPP SHOWN ARE ITEM 603.9812
 2. ALL CATCHBASINS [CB] SHOWN ARE ITEM 604.300271, WITH FRAMES AND GRATES ITEM 655.0804
 3. ALL MANHOLES [DMH] SHOWN ARE ITEM 604.4048, WITH FRAME AND COVER ITEM 655.1202.



STORM DRAIN PIPING PROFILE
 1" = 5'
 1" = 20'

FOR PERMITTING
 PURPOSES ONLY

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY: D. ROSENTHAL	SECTION MANAGER: E. LECLAIR
CHECKED BY: E. LECLAIR	
DESIGN LEAD: D. ROSENTHAL	
APPROVED BY: 	

DRAWN BY:
R. HANES



11 8000 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 756-6000



APPROVED FOR THE CITY OF NEW YORK
L. SINGH ACCOUNTABLE MANAGER
P. COSTA PORTFOLIO MANAGER

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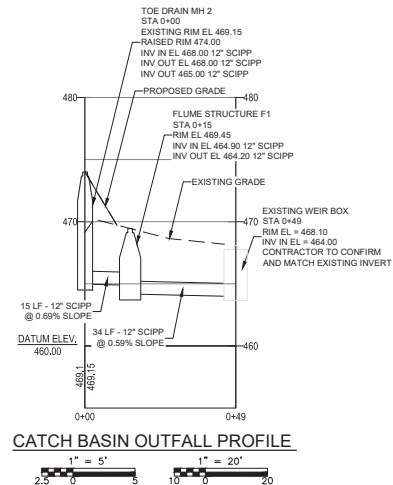
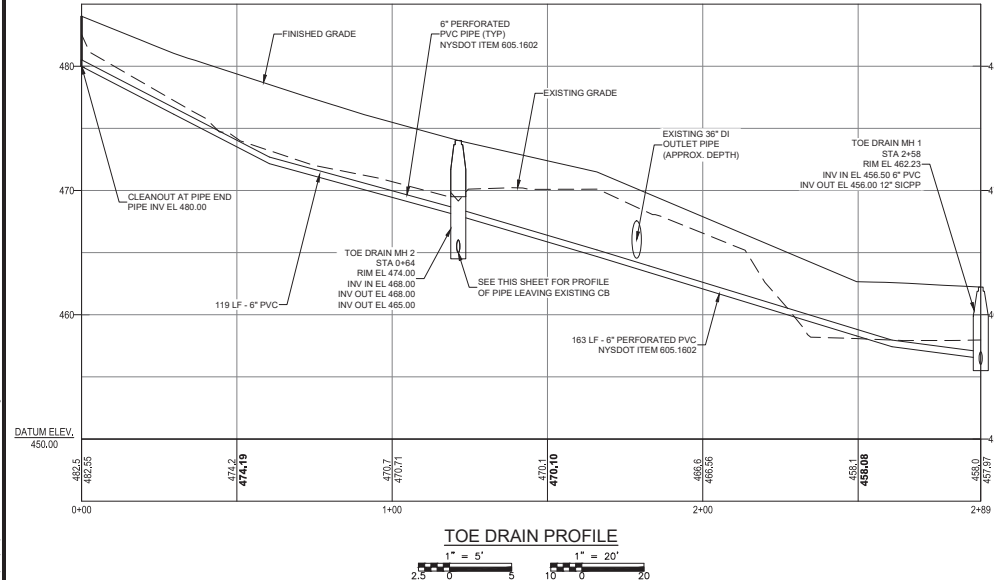
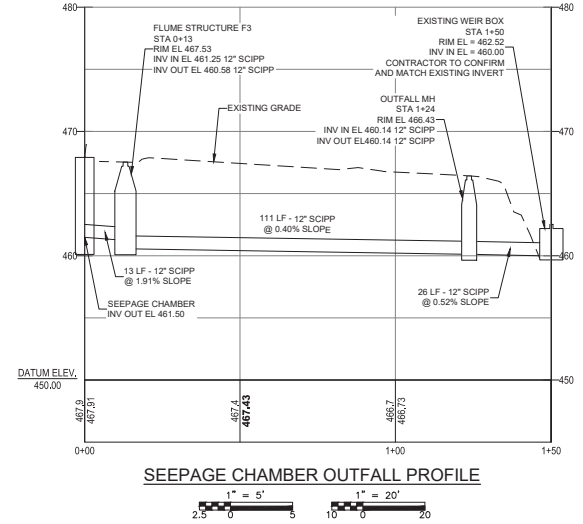
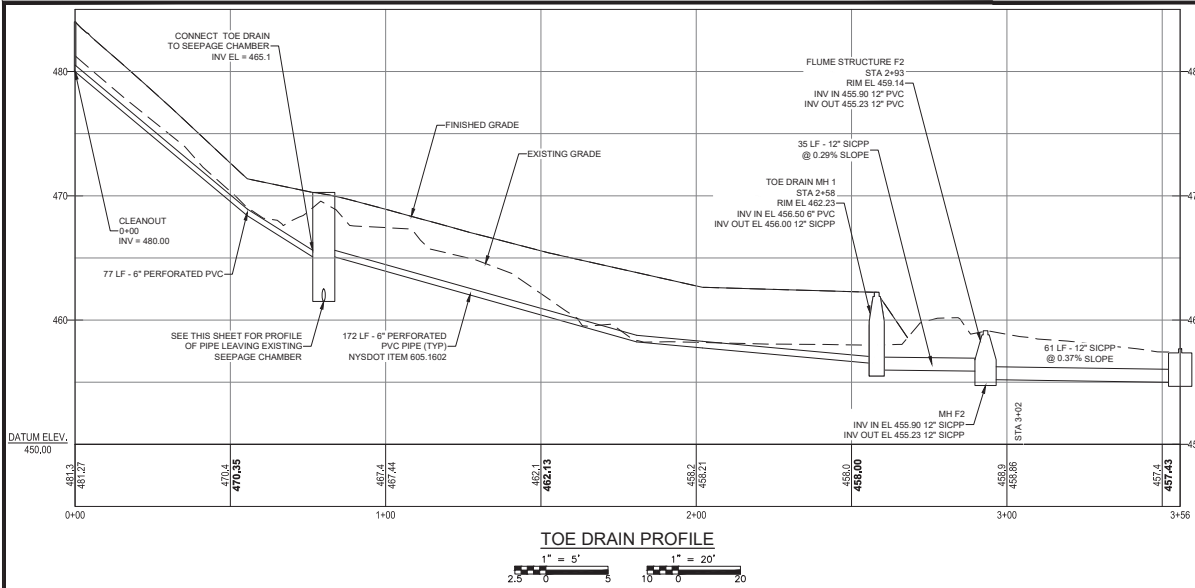
NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK

STORM DRAIN PIPING PROFILE

DATE: 2/3/2022
SCALE: 1"=20'
SHEET NO.: 44 OF 81
DRAWING NO. C-034.00

Lead: David B. & Date: 01/20/2022
 Designer: D. Rosenthal, Checked by: E. Leclair
 Drawn by: R. Hanes, Design Lead: D. Rosenthal
 Section Manager: E. Leclair
 Project: West Branch Auxiliary Dam Slope Improvements
 Drawing Name: & Location: C:\p\p\11\0268657\T0434.00.dwg
 Date: 1/20/2022



- PAYMENT NOTES:**
- ALL 12" SICPP SHOWN ARE ITEM 603.9812
 - ALL MANHOLES [MH] SHOWN ARE ITEM 604.4048, WITH FRAME AND COVERS ITEM 655.1202
 - FLUME STRUCTURES ARE ITEM 604.4072, MANHOLE FRAME AND COVER ITEM 655.1202

FOR PERMITTING PURPOSES ONLY

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
D. ROSENTHAL

CHECKED BY:
E. LECLAIR

DESIGN LEAD:
D. ROSENTHAL

SECTION MANAGER:
E. LECLAIR

DRAWN BY:
R. HANES

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

J. COSTA
PORTFOLIO MANAGER

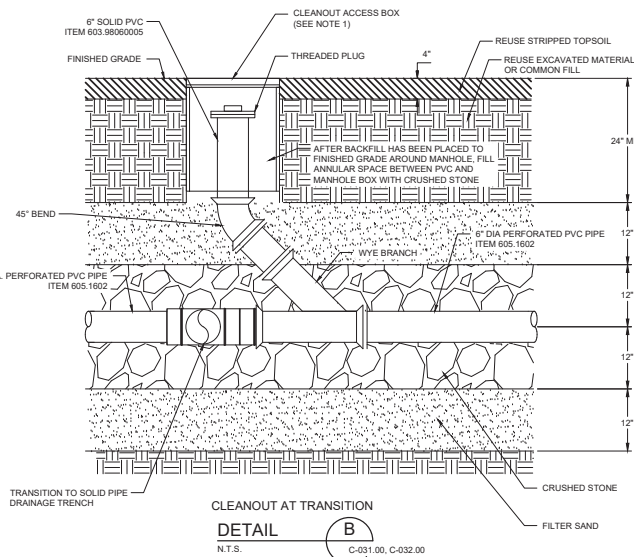
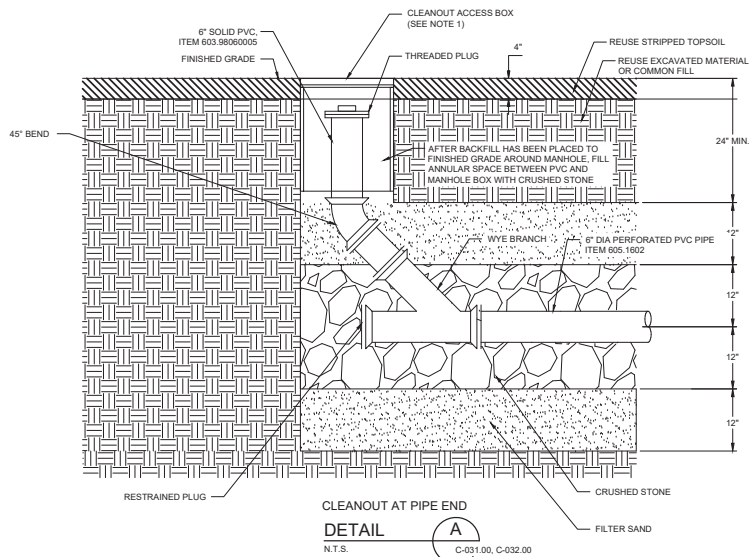
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 CORONA, NEW YORK 11368
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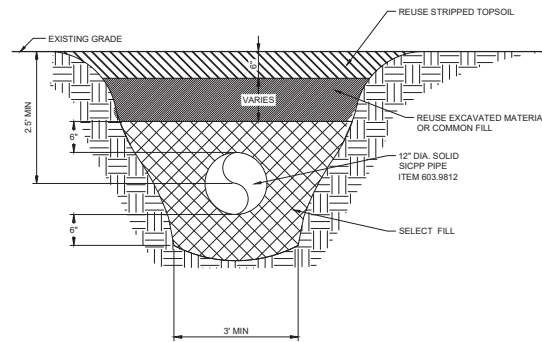
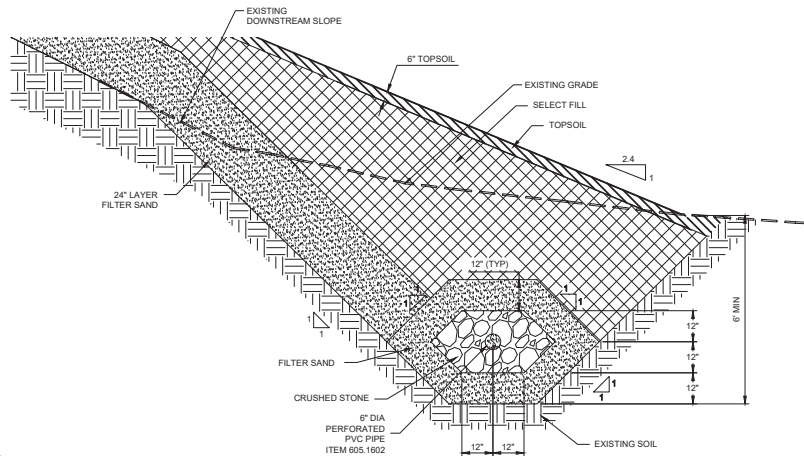
WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK

TOE DRAIN PIPING PROFILE

DATE: 2/3/2022
SCALE: 1"=20'
SHEET NO.: 45 OF 81
DRAWING NO. C-035.00



- NOTES:**
- CLEANOUT BOXES SHALL BE RATED FOR AT LEAST AASHTO H10 TRUCK LOADING (8,000 LBS), REFER TO SPECIFICATION 33 41 53 FOR ADDITIONAL DETAILS AND REQUIREMENTS.



- NOTES:**
- CONTRACTOR SHALL PLACE FILTER SAND AND CRUSHED STONE INCREMENTALLY TO ACHIEVE THE LAYER THICKNESSES AND GEOMETRY OF THE TOE DRAIN AS DEPICTED IN DETAIL 'C'

FOR PERMITTING PURPOSES ONLY

Last Saved By: R. H. Jones, 07/10/2021 10:44:46 AM
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 Plot Style: T:\s\p\tbls\BECDC_Drawing.ctb
 Drawing Name: & Location: C:\Users\R. H. Jones\Documents\Projects\2021\071021\071021.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
D. ROSENTHAL
CHECKED BY:
E. LECLAR
DESIGN LEAD:
D. ROSENTHAL
SECTION MANAGER:
E. LECLAR

DRAWN BY:
R. HANES

11 8100 American Blvd, Suite 200
Luthers, NY 12110
Tel: (518) 765-6600

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

D. COSTA
PORTFOLIO MANAGER

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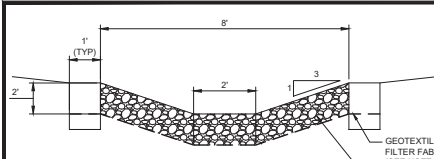
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CORONA, NEW YORK 11368
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**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**

DRAINAGE DETAILS (1 OF 2)

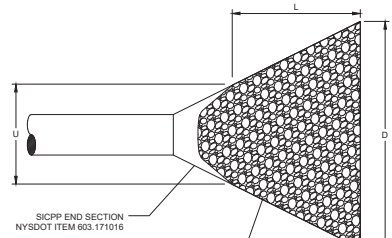
DATE: 2/3/2022
SCALE: N/A
SHEET NO.: 46 OF 81
DRAWING NO.: C-036.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



- NOTES:**
- STONE FILLING SHALL BE RECOVERED RIP-RAP FROM EXISTING SITE SUPPLEMENTED WITH MEDIUM STONE FILLING, ITEM 620.04.
 - GEOTEXTILE FILTER FABRIC SHALL EXTEND 1' MIN BEYOND THE EDGE OF THE STONE FILLING.

**SWALE
DETAIL
A**
NTS
C-010.00

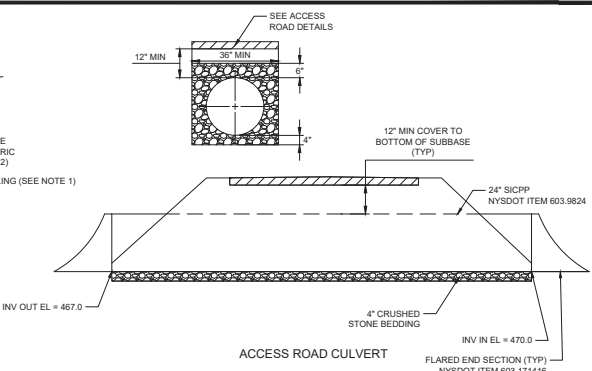


NOTE: PLACE FILTER FABRIC UNDER RIPRAP

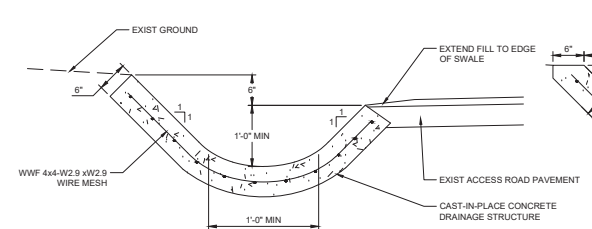
STORM PIPE NO.	LENGTH L - (FT)	DEPTH (IN)	UPSTREAM WIDTH - U (FT)	DOWNSTREAM WIDTH - D (FT)
OUTFALL 1 & 2	6	12	3	7

**RIPRAP APRON
DETAIL
E**
NTS

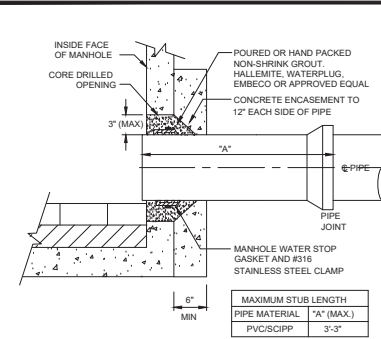
- NOTES:**
- PIPE BEDDING-SELECT GRANULAR FILL MATERIAL COMPACTED IN LAYERS TO 95% MAXIMUM DENSITY. (ASTM D1557 MODIFIED PROCTOR)
 - TRENCH BACKFILL-COMMON FILL MATERIAL COMPACTED IN LAYERS TO 92% MAX. DENSITY AND 98% UNDER PAVED AREAS. (ASTM D1557 MODIFIED PROCTOR).
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION. DEWATER AS NECESSARY.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF FLOW.
 - IF UNSUITABLE FOUNDATION IS ENCOUNTERED REMOVE UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION. REPLACE WITH STRUCTURAL FILL COMPACTED TO 95% MAX. DENSITY (ASTM D1557 MODIFIED PROCTOR).
 - SHEETING SHALL BE DRIVEN BELOW THE UTILITY INVERT IF REQUIRED FOR LATERAL SUPPORT OR UNSUITABLE MATERIAL REMOVAL. WHERE DRIVEN BELOW PIPE INVERT, SHEETING SHALL BE CUT OFF A MIN OF 12" ABOVE TOP OF PIPE OR HIGHER, AS AUTHORIZED BY THE ENGINEER, AND LEFT IN PLACE. IN NO CASE SHALL SHEETING LEFT IN PLACE EXTEND HIGHER THAN 30" BELOW SURFACE GRADE UNLESS SPECIFICALLY APPROVED. BRACING SHALL BE PROVIDED AS REQUIRED.
 - BACKFILL MATERIALS SHALL BE EITHER OF THE SAME TYPE & COMPOSITION AS THE MATERIALS REMOVED, OR GREATER STRUCTURAL ADEQUACY. EXCAVATED MATERIALS MIXED WITH DELETERIOUS SUBSTANCES DURING CONSTRUCTION SHALL NOT BE USED FOR BACKFILLING.
 - FOR INSTALLATIONS IN PAVEMENT, ALL EXISTING PAVEMENT SHALL BE CUT SQUARELY WITH A SAW. WEARING SURFACE SHALL BE SAME TYPE AND THICKNESS AS THE EXISTING PAVEMENT.
 - METAL ACCESS GRATE SHALL BE RATED FOR AT LEAST AASHTO H10 TRUCK LOADING (8,000 LBS). REFER TO SPECIFICATION 05 50 00 FOR ADDITIONAL DETAILS AND REQUIREMENTS.



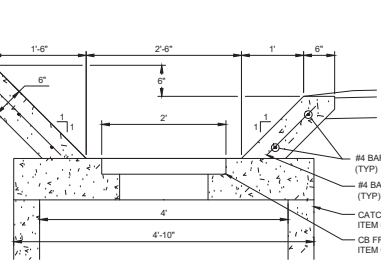
**ACCESS ROAD CULVERT
DETAIL
B**
NTS



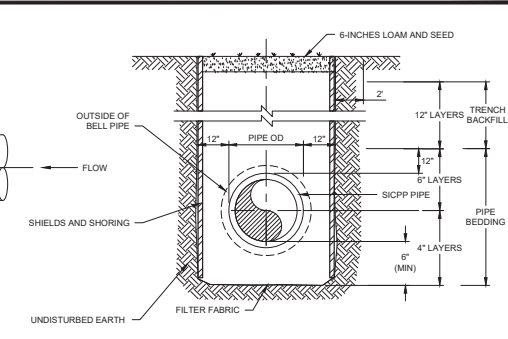
**EXISTING CONCRETE SWALE
SECTION
G**
N.T.S.



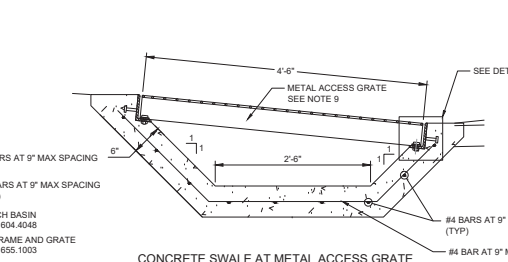
**PIPE CONNECTION TO EXISTING STRUCTURE
DETAIL
C**
NTS



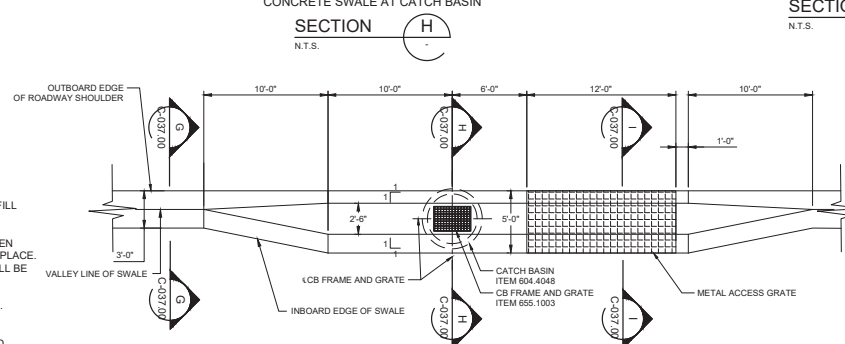
**CONCRETE SWALE AT CATCH BASIN
SECTION
H**
N.T.S.



**PIPE TRENCH (OUTSIDE NYS DOT PAY LIMITS)
DETAIL
D**
NTS

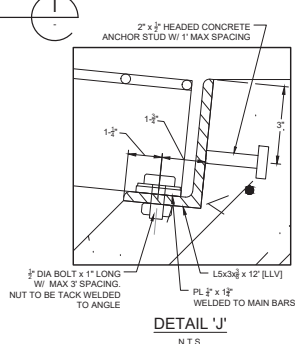


**CONCRETE SWALE AT METAL ACCESS GRATE
SECTION
I**
N.T.S.



ACCESS ROAD SWALE PLAN

- NOTES:**
- CONCRETE SWALE LONGITUDINAL SLOPE TO BE FIELD MEASURED TO MATCH EXISTING GRADE.



DETAIL 'J'
N.T.S.

FOR PERMITTING PURPOSES ONLY

Last Saved By: & Date: P:\DWG\11401.LDW, Friday, January 29, 2022 and Date Plotted: Wednesday, February 2, 2022 1:25:18 PM
 Plot Style Name: & Location: C:\pwc\pl\lowell\mcd\02686197\C-037.dwg
 Plot Style Table: REDUC.ctb
 Drawing Name: & Location: C:\pwc\pl\lowell\mcd\02686197\C-037.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
D. ROSENTHAL
CHECKED BY:
E. LECLAR
DESIGN LEAD:
D. ROSENTHAL
SECTION MANAGER:
E. LECLAR



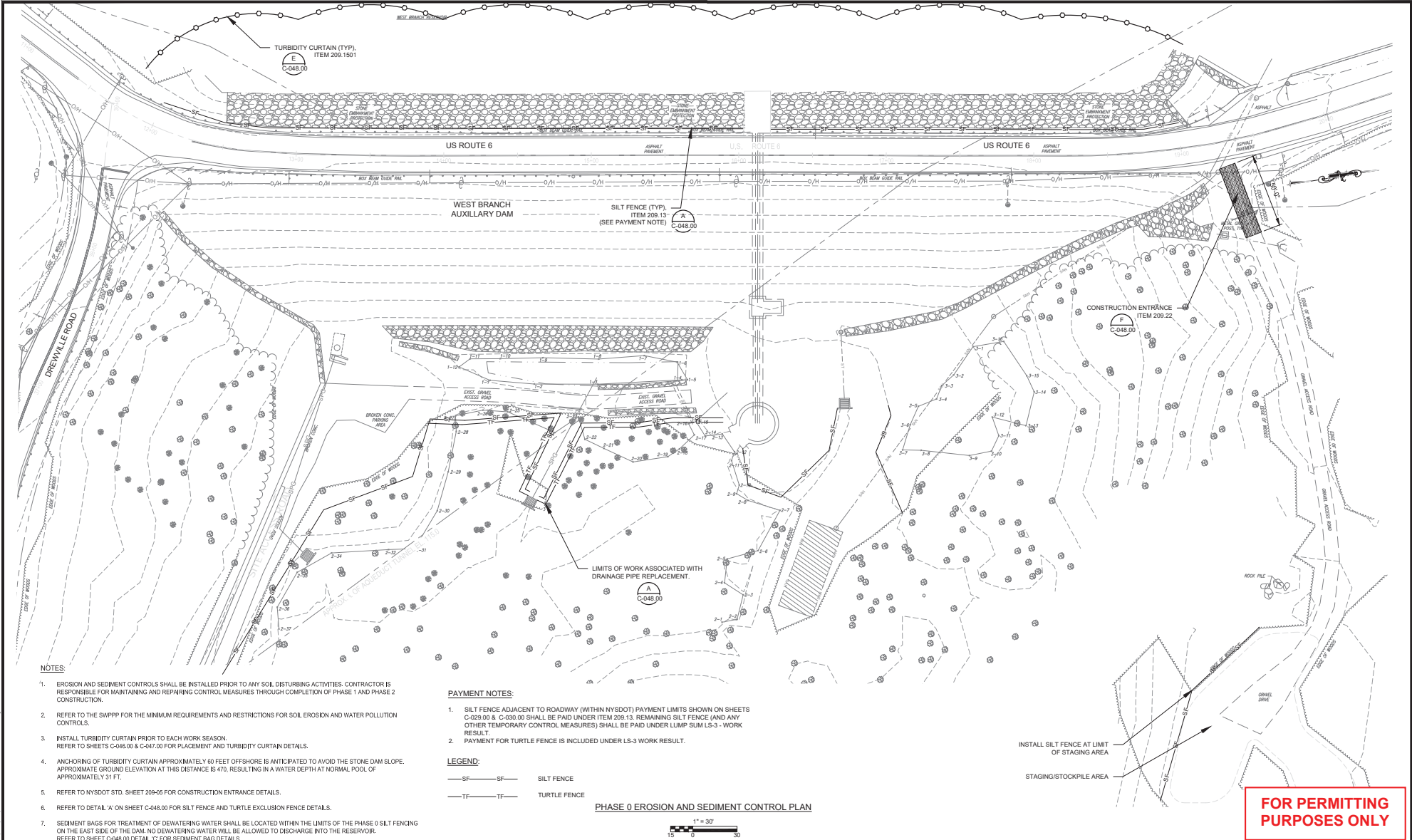
APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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CORONA, NEW YORK 11368
www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
DRAINAGE DETAILS (2 OF 2)
DATE: 2/3/2022
SCALE: N/A
SHEET NO.: 47 OF 81
DRAWING NO.: C-037.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



- NOTES:**
1. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBING ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPAIRING CONTROL MEASURES THROUGH COMPLETION OF PHASE 1 AND PHASE 2 CONSTRUCTION.
 2. REFER TO THE SWPPP FOR THE MINIMUM REQUIREMENTS AND RESTRICTIONS FOR SOIL EROSION AND WATER POLLUTION CONTROLS.
 3. INSTALL TURBIDITY CURTAIN PRIOR TO EACH WORK SEASON. REFER TO SHEETS C-048.00 & C-047.00 FOR PLACEMENT AND TURBIDITY CURTAIN DETAILS.
 4. ANCHORING OF TURBIDITY CURTAIN APPROXIMATELY 60 FEET OFFSHORE IS ANTICIPATED TO AVOID THE STONE DAM SLOPE. APPROXIMATE GROUND ELEVATION AT THIS DISTANCE IS 410, RESULTING IN A WATER DEPTH AT NORMAL POOL OF APPROXIMATELY 31 FT.
 5. REFER TO NYSOT STD. SHEET 209-05 FOR CONSTRUCTION ENTRANCE DETAILS.
 6. REFER TO DETAIL 'A' ON SHEET C-048.00 FOR SILT FENCE AND TURTLE EXCLUSION FENCE DETAILS.
 7. SEDIMENT BAGS FOR TREATMENT OF DEWATERING WATER SHALL BE LOCATED WITHIN THE LIMITS OF THE PHASE 0 SILT FENCING ON THE EAST SIDE OF THE DAM. NO DEWATERING WATER WILL BE ALLOWED TO DISCHARGE INTO THE RESERVOIR. REFER TO SHEET C-048.00 DETAIL 'C' FOR SEDIMENT BAG DETAILS.

- PAYMENT NOTES:**
1. SILT FENCE ADJACENT TO ROADWAY (WITHIN NYSOT) PAYMENT LIMITS SHOWN ON SHEETS C-029.00 & C-030.00 SHALL BE PAID UNDER ITEM 209.13. REMAINING SILT FENCE (AND ANY OTHER TEMPORARY CONTROL MEASURES) SHALL BE PAID UNDER LUMP SUM LS-3 - WORK RESULT.
 2. PAYMENT FOR TURTLE FENCE IS INCLUDED UNDER LS-3 WORK RESULT.

- LEGEND:**
- SF— SF— SILT FENCE
 - TF— TF— TURTLE FENCE

PHASE 0 EROSION AND SEDIMENT CONTROL PLAN



FOR PERMITTING PURPOSES ONLY

Lead: Sarah B. & Bob POWELL LLP, Thursday, January 18, 2025 and Date: Project: Thursday, February 6, 2025 12:29:36 AM
 Paper Size: ANSI D (24.00 X 34.00 INCHES) Plot Scale: 1"=30'
 Drawing Name: & Location: C:\p\l\lowell\m\2025\617\C-042.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY: E. LECLAIR	DRAWN BY: E. LECLAIR
CHECKED BY: E. LECLAIR	DESIGN LEAD: E. LECLAIR
SECTION MANAGER: E. LECLAIR	APPRD.:



APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

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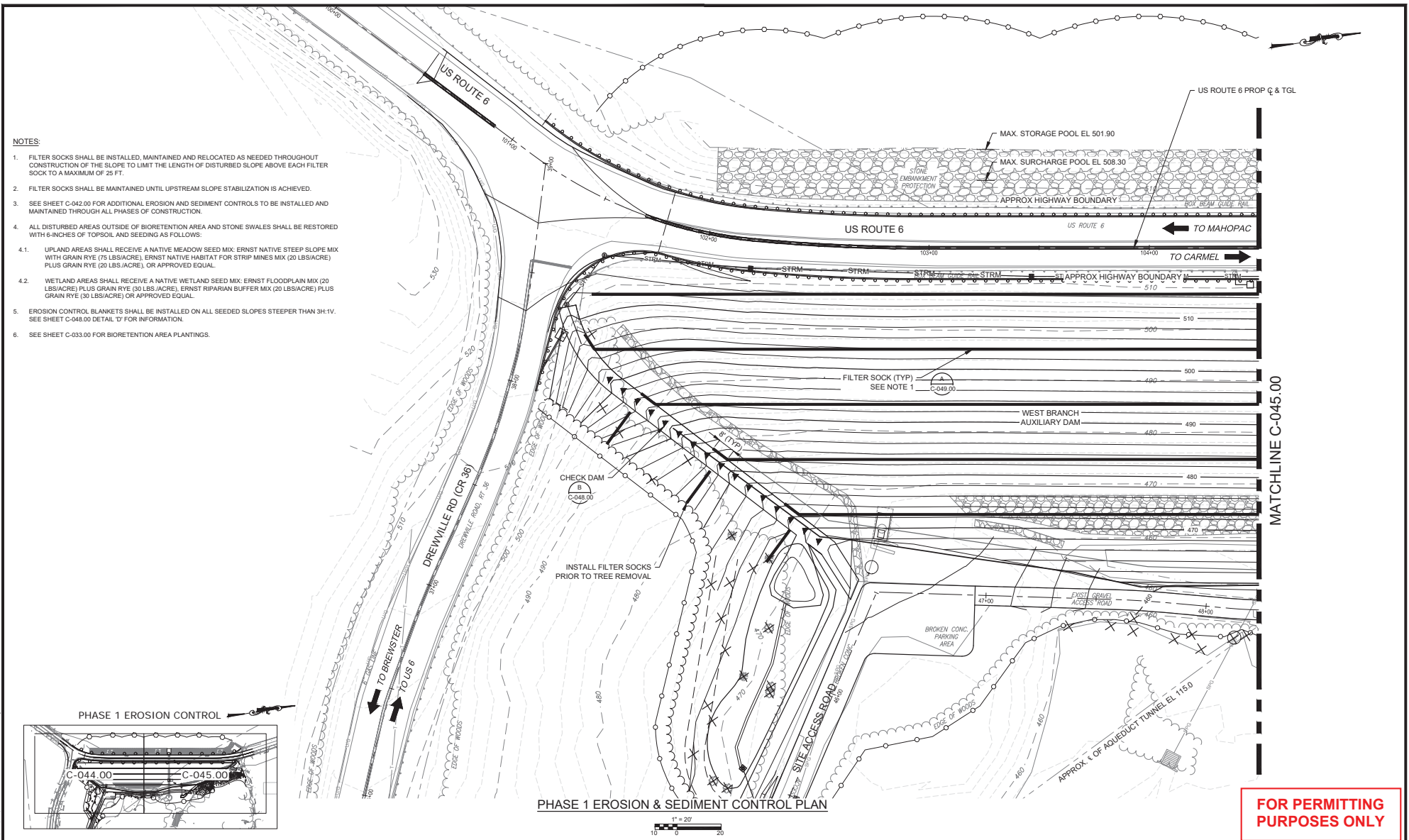
NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK

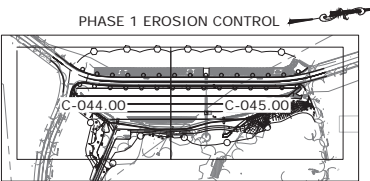
PHASE 0 SOIL EROSION & SEDIMENT CONTROL PLAN
 (1 OF 2)

DATE: 2/3/2022
SCALE: 1"=30'
SHEET NO.: 52 OF 81
DRAWING NO. C-042.00

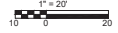
All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



- NOTES:**
1. FILTER SOCKS SHALL BE INSTALLED, MAINTAINED AND RELOCATED AS NEEDED THROUGHOUT CONSTRUCTION OF THE SLOPE TO LIMIT THE LENGTH OF DISTURBED SLOPE ABOVE EACH FILTER SOCK TO A MAXIMUM OF 25 FT.
 2. FILTER SOCKS SHALL BE MAINTAINED UNTIL UPSTREAM SLOPE STABILIZATION IS ACHIEVED.
 3. SEE SHEET C-042.00 FOR ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND MAINTAINED THROUGH ALL PHASES OF CONSTRUCTION.
 4. ALL DISTURBED AREAS OUTSIDE OF BIORETENTION AREA AND STONE SWALES SHALL BE RESTORED WITH 6-INCHES OF TOPSOIL AND SEEDING AS FOLLOWS:
 - 4.1. UPLAND AREAS SHALL RECEIVE A NATIVE MEADOW SEED MIX: ERNST NATIVE STEEP SLOPE MIX WITH GRAIN RYE (75 LBS/ACRE), ERNST NATIVE HABITAT FOR STRIP MINES MIX (20 LBS/ACRE) PLUS GRAIN RYE (20 LBS/ACRE), OR APPROVED EQUAL.
 - 4.2. WETLAND AREAS SHALL RECEIVE A NATIVE WETLAND SEED MIX: ERNST FLOODPLAIN MIX (20 LBS/ACRE) PLUS GRAIN RYE (30 LBS/ACRE), ERNST RIPARIAN BUFFER MIX (20 LBS/ACRE) PLUS GRAIN RYE (30 LBS/ACRE) OR APPROVED EQUAL.
 5. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL SEEDED SLOPES STEEPER THAN 3H:1V. SEE SHEET C-048.00 DETAIL 'D' FOR INFORMATION.
 6. SEE SHEET C-033.00 FOR BIORETENTION AREA PLANTINGS.



PHASE 1 EROSION & SEDIMENT CONTROL PLAN



FOR PERMITTING PURPOSES ONLY

Last Saved By: 6 Data-POMPEL.LMD, Thursday, February 03, 2022 at 04:16:43 PM
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 Drawing Name: & Location: C:\p\p\10\new\m\02268597\C-044.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: R. HANES	DRAWN BY: R. HANES
CHECKED BY: E. LECLAIR	
DESIGN LEAD: D. ROSENTHAL	
SECTION MANAGER: E. LECLAIR	



APPROVED FOR THE CITY OF NEW YORK	*WARNING! THIS IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2.*
L. SINGH ACCOUNTABLE MANAGER	
P. COSTA PORTFOLIO MANAGER	

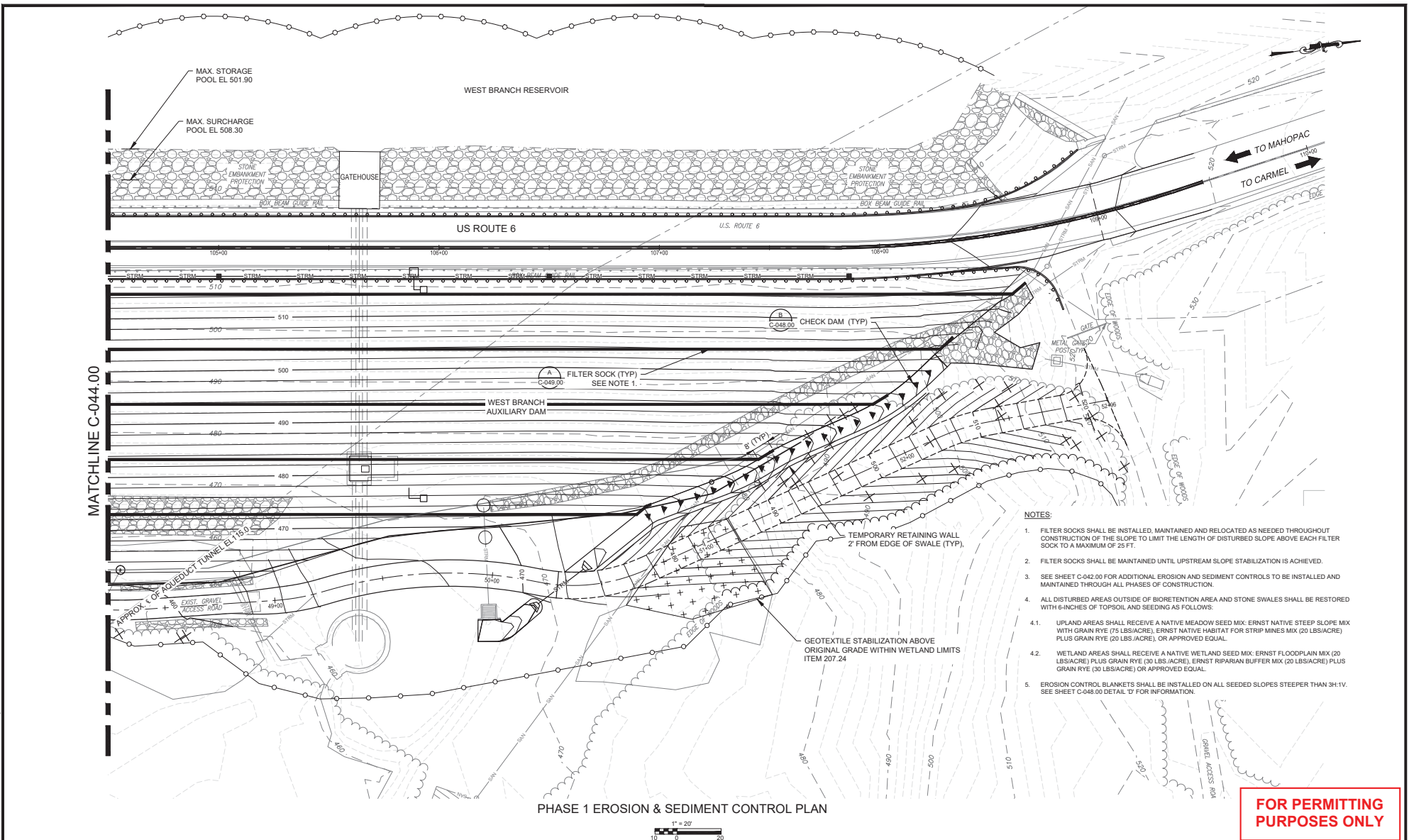
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 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
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WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
 PHASE 1 SOIL EROSION & SEDIMENT CONTROL PLAN
 (1 OF 2)

DATE: 2/3/2022
SCALE: 1"=20'
SHEET NO.: 54 OF 81
DRAWING NO. C-044.00

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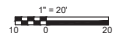
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- NOTES:**
1. FILTER SOCKS SHALL BE INSTALLED, MAINTAINED AND RELOCATED AS NEEDED THROUGHOUT CONSTRUCTION OF THE SLOPE TO LIMIT THE LENGTH OF DISTURBED SLOPE ABOVE EACH FILTER SOCK TO A MAXIMUM OF 25 FT.
 2. FILTER SOCKS SHALL BE MAINTAINED UNTIL UPSTREAM SLOPE STABILIZATION IS ACHIEVED.
 3. SEE SHEET C-042.00 FOR ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND MAINTAINED THROUGH ALL PHASES OF CONSTRUCTION.
 4. ALL DISTURBED AREAS OUTSIDE OF BIORETENTION AREA AND STONE SWALES SHALL BE RESTORED WITH 6-INCHES OF TOPSOIL AND SEEDING AS FOLLOWS:
 - 4.1. UPLAND AREAS SHALL RECEIVE A NATIVE MEADOW SEED MIX: ERNST NATIVE STEEP SLOPE MIX WITH GRASS RYE (75 LBS/ACRE), ERNST NATIVE HABITAT FOR STRIP MINES MIX (20 LBS/ACRE) PLUS GRASS RYE (20 LBS/ACRE), OR APPROVED EQUIVALENT.
 - 4.2. WETLAND AREAS SHALL RECEIVE A NATIVE WETLAND SEED MIX: ERNST FLOODPLAIN MIX (20 LBS/ACRE) PLUS GRASS RYE (30 LBS/ACRE), ERNST RIPARIAN BUFFER MIX (20 LBS/ACRE) PLUS GRASS RYE (30 LBS/ACRE) OR APPROVED EQUIVALENT.
 5. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL SEEDED SLOPES STEEPER THAN 3H:1V. SEE SHEET C-045.00 DETAIL 'D' FOR INFORMATION.

FOR PERMITTING PURPOSES ONLY

PHASE 1 EROSION & SEDIMENT CONTROL PLAN

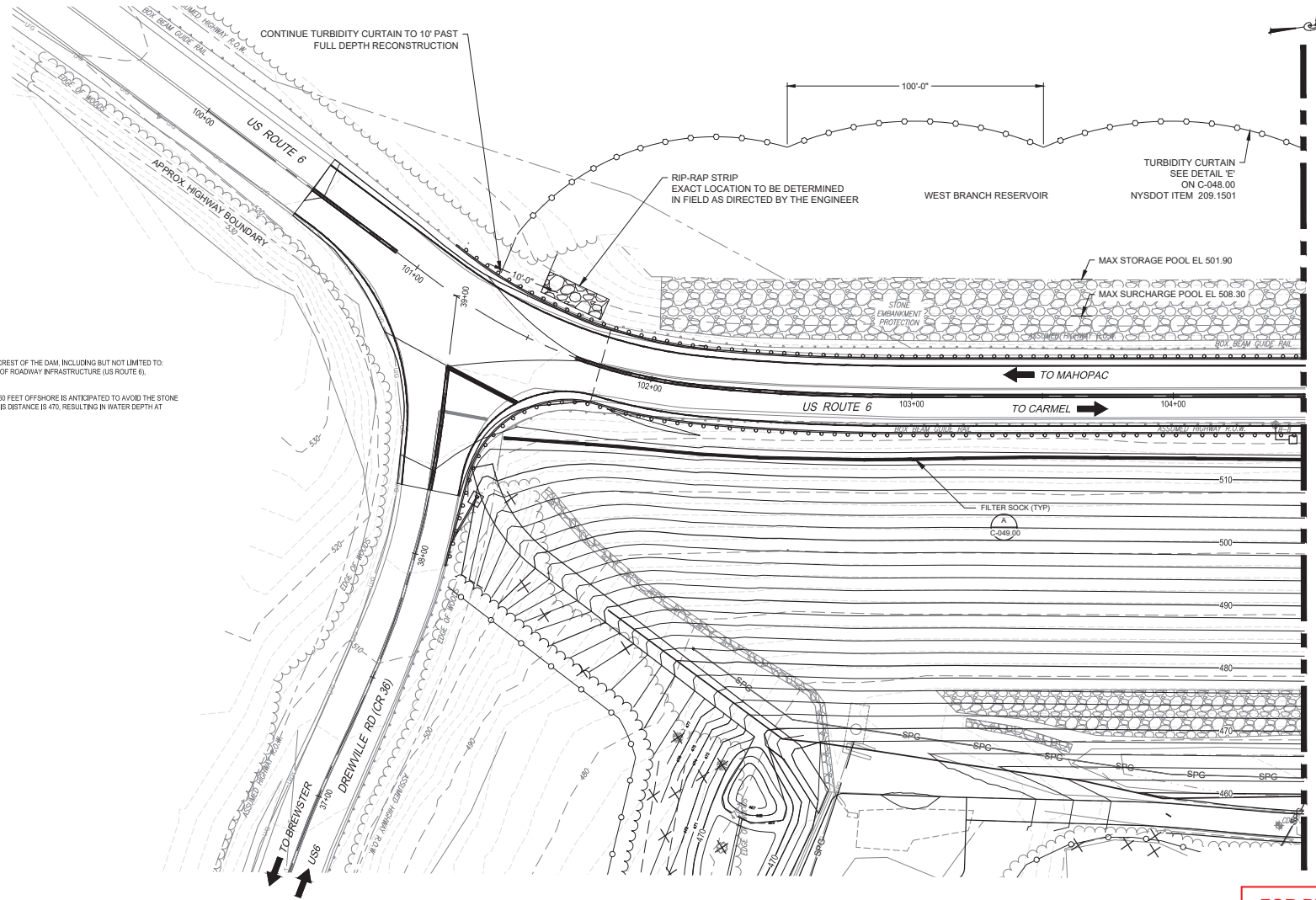


	DESIGNED BY: R. HANES CHECKED BY: E. LECLAR DESIGN LEAD: D. ROSENTHAL SECTION MANAGER: E. LECLAR	DRAWN BY: R. HANES 11 8100 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 782-6800		APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER D. COSTA PORTFOLIO MANAGER	*WARNING! THIS IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2.*	NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-45 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK PHASE 1 SOIL EROSION & SEDIMENT CONTROL PLAN (2 OF 2)	DATE: 2/3/2022 SCALE: 1"=20' SHEET NO.: 55 OF 81 DRAWING NO.: C-045.00
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All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

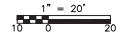
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 Drawing Name: & Location: C:\pwr_f\1\pwr\mtd\02886597\C-046.00.dwg

- NOTES:
1. INSTALL TURBIDITY CURTAIN PRIOR TO WORK AT THE CREST OF THE DAM, INCLUDING BUT NOT LIMITED TO: UTILITY POLE RELOCATION, REMOVAL OR PLACEMENT OF ROADWAY INFRASTRUCTURE (US ROUTE 6), PLACEMENT OF FILL AT THE CREST OF THE DAM.
 2. ANCHORING OF TURBIDITY CURTAIN APPROXIMATELY 60 FEET OFFSHORE IS ANTICIPATED TO AVOID THE STONE DAM SLOPE. APPROXIMATE GROUND ELEVATION AT THIS DISTANCE IS 470, RESULTING IN WATER DEPTH AT NORMAL POOL OF APPROXIMATELY 31 FT.



MATCHLINE C-047.00

PHASE 2 EROSION & SEDIMENT CONTROL



FOR PERMITTING PURPOSES ONLY

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: R. HANES
 CHECKED BY: E. LECLAR
 DESIGN LEAD: D. ROSENTHAL
 SECTION MANAGER: E. LECLAR

DRAWN BY: R. HANES

 11 8180 American Blvd, Suite 200
 Luben, NY 12110
 Tel: (518) 785-6600



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

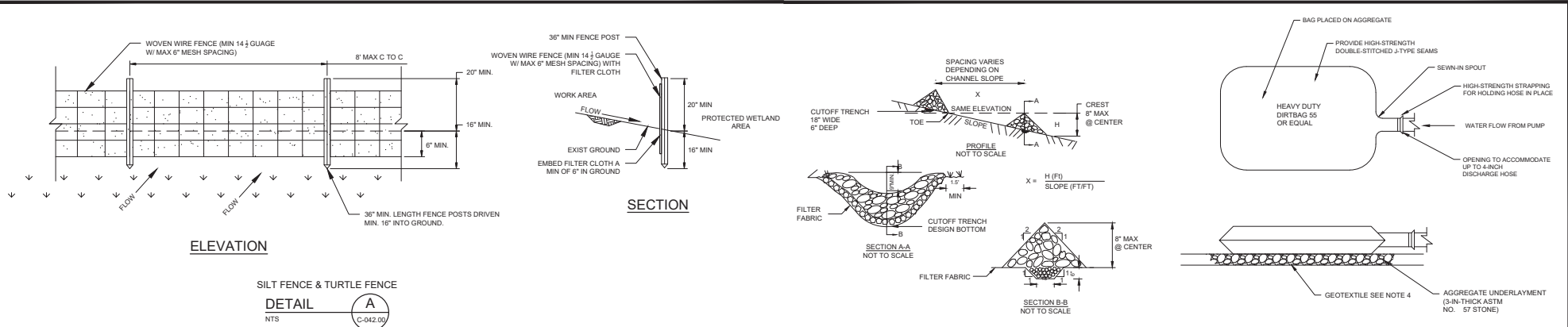
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 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
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WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
 PHASE II SOIL EROSION & SEDIMENT CONTROL PLAN
 (1 OF 2)

DATE: 2/23/2022
 SCALE: 1"=20'
 SHEET NO.: 56 OF 81
 DRAWING NO.: C-046.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



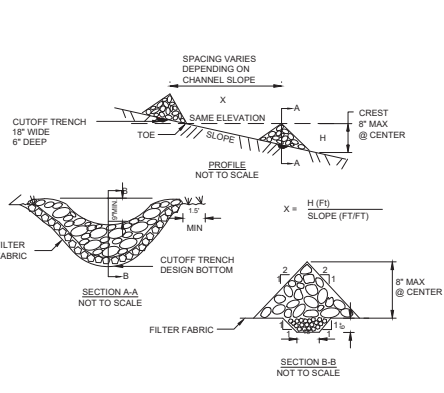
SILT FENCE & TURTLE FENCE
DETAIL A
 NTS C-042.00

TURTLE EXCLUSION FENCE NOTES:

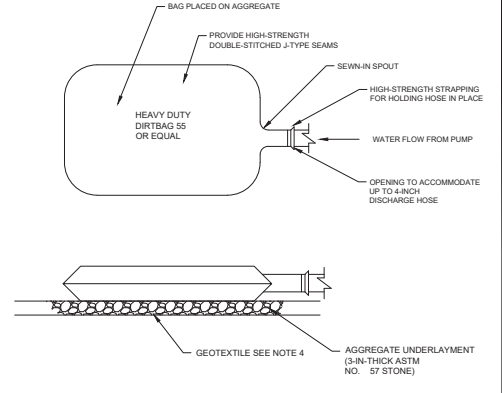
- PRIOR TO CONSTRUCTION ACTIVITY WITHIN THE WETLAND AREA, WORK AREA SHALL BE INVESTIGATED BY A QUALIFIED/TRAINED INDIVIDUAL (HERPETOLOGIST) TO ENSURE NO BOG TURTLES ARE PRESENT.
- TURTLE EXCLUSION FENCING (DOUBLE ROW SILT FENCE) SHALL BE INSTALLED AS SHOWN ON THE PLAN AND SPACED 12 INCHES APART.
- INSPECTION OF THE WORK AREA SHALL TAKE PLACE EACH MORNING BY THE QUALIFIED/TRAINED INDIVIDUAL (HERPETOLOGIST) PRIOR TO CONSTRUCTION ACTIVITIES.

SILT FENCE NOTES:

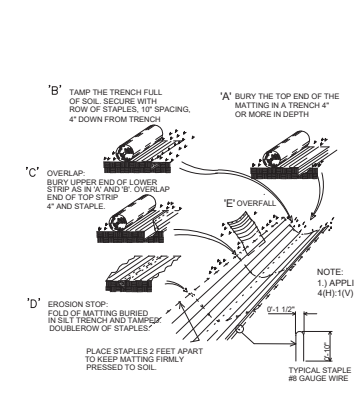
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "I" OR "U" TYPE, OR HARDWOOD.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTERCLOTH SHALL BE EITHER FILTER X, MIRAFL 100X, STABILINKA T140N OR APPROVED EQUIVALENT.
- PREFABRICATED UNITS SHALL BE GEOFAB, ENVIRONFENCE, OR APPROVED EQUIVALENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



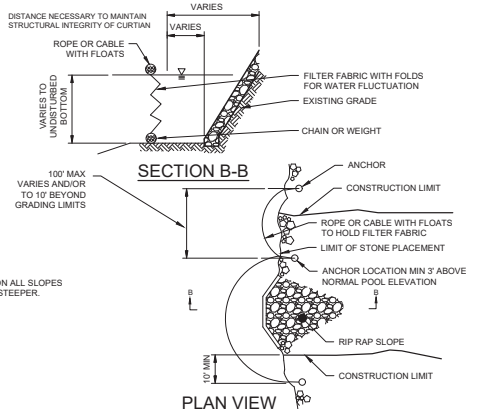
PERMANENT CHECK DAM (ITEM 209.110602)
DETAIL B
 NTS C-031.00, C-044.00, C-045.00



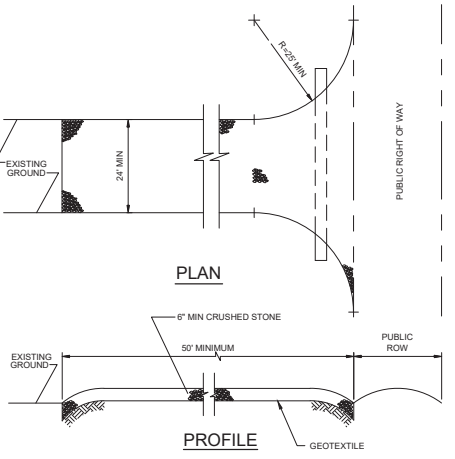
SEDIMENT BAG
DETAIL C
 NTS C-042.00



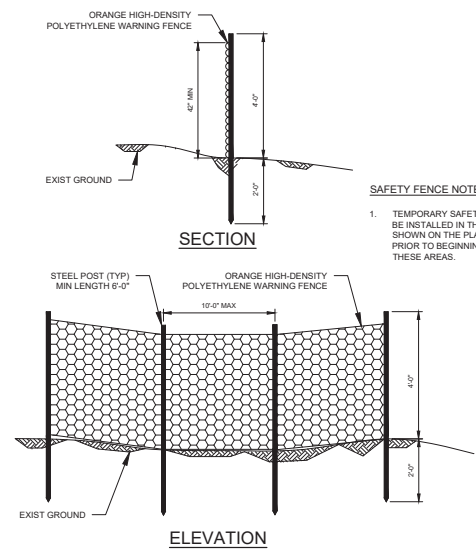
EROSION CONTROL BLANKET
DETAIL D
 NTS C-044.00, C-045.00



TURBIDITY CURTAIN (ITEM 209.1501)
DETAIL E
 NTS C-042.00, C-045.00, C-047.00



STABILIZED CONSTRUCTION ENTRANCE (ITEM 209.22)
DETAIL F
 NTS C-042.00



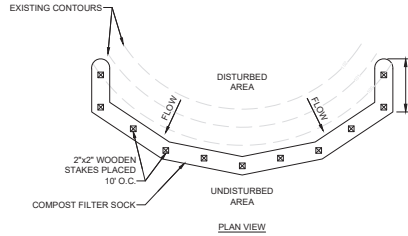
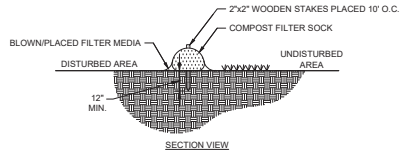
TEMPORARY SAFETY FENCE DETAIL
DETAIL G
 NTS C-001.00

- SAFETY FENCE NOTES:**
- TEMPORARY SAFETY FENCE SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLANS OR A.C.B.E. PRIOR TO BEGINNING ANY WORK IN THESE AREAS.

FOR PERMITTING PURPOSES ONLY

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 Date: 2/23/22 10:04 AM
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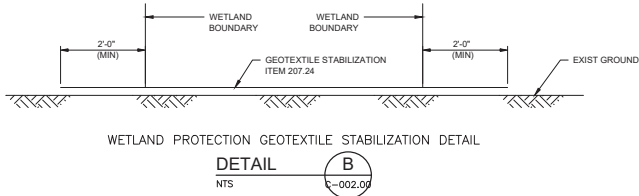
NO.	DATE	REVISIONS/DESCRIPTION	APPRD.	DESIGNED BY: R. HAINES	DRAWN BY: R. HAINES	 11 8100 American Blvd, Suite 200 Luben, NY 12110 Tel: (518) 726-6600	 APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER	*WARNING! THIS IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2.*	NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK SOIL EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)	DATE: 2/23/2022
				SECTION MANAGER: E. LECLAIR							SCALE: NA
All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.											



COMPOST FILTER SOCK
DETAIL A
NTS C-044.00, C-045.00

NOTES:

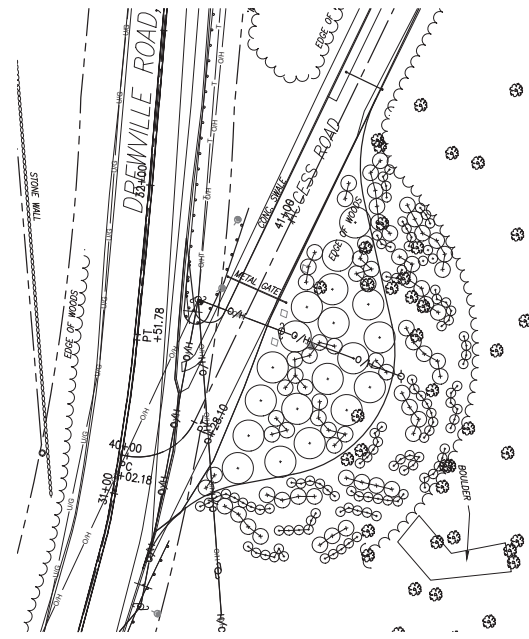
1. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
2. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
4. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTOGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
6. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.



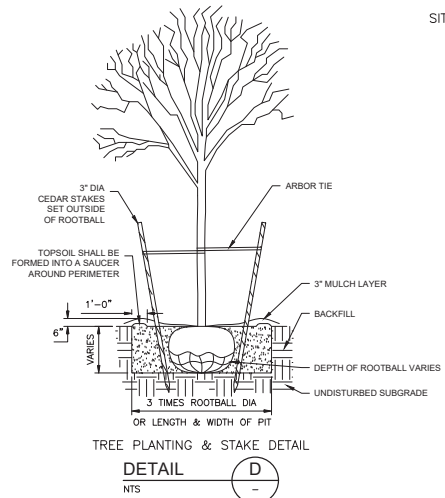
WETLAND PROTECTION GEOTEXTILE STABILIZATION DETAIL
DETAIL B
NTS C-002.00

NOTES:

1. PLACE GEOTEXTILE SEPARATION OVER WETLAND SURFACE PRIOR TO TEMPORARY ACCESS ROAD PLACEMENT.
2. PAYMENT FOR REMOVAL AND DISPOSAL OF THE GEOTEXTILE AFTER THE TEMPORARY ACCESS ROAD IS REMOVED IS INCLUDED UNDER LS-3, WORK RESULT.
3. PLACEMENT AND REMOVAL OF THE GEOTEXTILE SHALL BE COMPLETE WITH MINIMAL DISTURBANCE TO THE WETLAND SOIL.



SITE ENTRANCE RESTORATION PLANTINGS
DETAIL C
NTS C-005.00



TREE PLANTING & STAKE DETAIL
DETAIL D
NTS

PLANT SCHEDULE - UPPER FLATTENED AREA

QTY	BOTANICAL NAME	COMMON NAME
TREES		
3	QUERCUS ALBA	WHITE OAK
3	QUERCUS RUBRA	RED OAK
3	ACER SACCHARUM	SUGAR MAPLE
3	ACER RUBRUM	RED MAPLE
3	LIRIODENDRON TULIPIFERA	TULIP POPLAR
4	BETULA LENTA	SWEET BIRCH
SHRUBS		
6	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD
6	CORNUS FLORIDA	FLOWING DOGWOOD
6	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM
6	HAMAMELIS VIRGINIANA	AMERICAN WITCH HAZEL
5	AMELANCHIER CANADENSIS	SERVICEBERRY
SEED MIX		
20 LB/ACRE	ERNMX-123 NATIVE UPLAND FORAGE & COVER MIX	

PLANT SCHEDULE - LOWER SLOPED FILL AREA

QTY	BOTANICAL NAME	COMMON NAME
SHRUBS		
9	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD
9	CORNUS FLORIDA	FLOWING DOGWOOD
6	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM
9	HAMAMELIS VIRGINIANA	AMERICAN WITCH HAZEL
9	AMELANCHIER CANADENSIS	SERVICEBERRY
HERBACEOUS SHRUBS		
50	POLYSTICHUM ARISTICHOIDES	CHRISTMAS FERN
50	PARTHENOCISSUS QUIQUEFOLIA	VIRGINIA CREEPER
SEED MIX		
30 LB/ACRE	ERNMX-123 NATIVE UPLAND FORAGE & COVER MIX	

NOTES:

1. THE PLANTING SCHEDULE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. NYC DEP BWS NATURAL RESOURCES STAFF TO PROVIDE PLANTINGS LOCATION IN THE FIELD AT TIME OF INSTALLATION.
2. THE PLANTINGS ARE BROKEN INTO TWO SEPARATE AREAS. THE UPPER FLATTENED AREA OF THE WIDENED ENTRANCE, AND THE LOWER SLOPED FILL AREA.

FOR PERMITTING PURPOSES ONLY

NYSED, ESE-0626165, C. 0452, C04524, 05-24-2022, ESE-0626165_V_1710701_Images/1
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 Plot Style Table: BRED.ctb
 Drawing Name: & Location: C:\w\p\owelland\02626165\02626165.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: R. HAINES	DRAWN BY: R. HAINES
CHECKED BY: E. LECLAR	ACCOUNTABLE MANAGER: L. SINGH
DESIGN LEAD: D. ROSENTHAL	APPROVED FOR THE CITY OF NEW YORK: P. COSTA
SECTION MANAGER: E. LECLAR	PORTFOLIO MANAGER

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

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WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

SOIL EROSION & SEDIMENT CONTROL DETAILS
(2 OF 2)

DATE: 2/23/2022
SCALE: 1"=20'
SHEET NO.: 59 OF 81
DRAWING NO. C-049.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

**SECTION 31 23 19 – DEWATERING
CONTRACT CRO 534**

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish, install, operate and maintain dewatering equipment and systems as specified, shown on the Contract Drawings, or required during the Contract.
- B. The Contractor shall provide standby equipment and power supply for maintaining uninterrupted construction dewatering.
- C. The Contractor shall install groundwater monitoring wells/piezometers and measure, record and report the levels/hydraulic head of groundwater as required during the project.
- D. The Contractor shall obtain and comply with all necessary permits from Federal, State, and local agencies required for operation of the dewatering system, monitoring groundwater, and disposal of dewatering effluent.
- E. The Contractor shall collect samples of the dewatering effluent as required by the applicable permits and engage the services of a laboratory certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) for the analyses of the collected samples to determine the quality of dewatering effluent prior to disposal.
- F. The following index of this Section is presented for convenience:

Article	Title	Section Page
PART 1	GENERAL	1
1.01	Summary	1
1.02	Payment	2
1.03	Related Sections	2
1.04	References	2
1.05	Description	3
1.06	Quality Assurance	4
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1.02 PAYMENT

A. There is no separate payment provision for this Section.

1.03 RELATED SECTIONS

- A. Section 02 24 20 - Soil Sampling and Analysis
- B. Section 31 23 16 - Excavation
- C. Section 31 23 23 - Fill
- D. Section 31 25 00 - Dust, Soil Erosion and Sediment Control

1.04 REFERENCES

A. Definitions

- 1. Construction Dewatering: Controlling groundwater levels, hydrostatic pressures, and controlling surface water such that excavations required on the Contract Drawings can be performed to required depths in substantially dry and stable conditions.
- 2. Dewatering System: System of wells, well points, sumps, ejectors, pumps, piping, power supply, effluent treatment equipment, and other equipment designed by the Contractor, submitted to and approved by the Engineer prior to dewatering, that will effectively dewater excavations site as required herein. Adequate monitoring wells/piezometers shall be included in the dewatering system to verify drawdown levels inside the excavation area and monitor groundwater levels outside the limits of the excavation near adjacent structures.

B. Reference Standards

- 1. 6 NYCRR Part 750, State Pollutant Discharge Elimination System (SPDES) Permits
- 2. 6 NYCRR Part 601, Water Withdrawal Permitting, Reporting and Registration (Exclusive of Long Island Wells Regulated Under Part 602 of This Title)
- 3. 6 NYCRR Part 602, Applications for Long Island Wells
- 4. 6 NYCRR Part 621, Uniform Procedures
- 5. Water and Sewer Forms, New York City Department of Environmental Protection;
(http://www.nyc.gov/html/dep/html/forms_and_permits/wsforms.shtml)
- 6. New York City Construction Code
- 7. ASTM standards applicable to piping, equipment and other items required for a complete dewatering system

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1.05 DESCRIPTION

A. Design Requirements

1. The Contractor shall engage a Professional Engineer registered in the State of New York who shall be responsible for the design of the dewatering system.
2. The Contractor shall install, operate, maintain, and remove the dewatering system as necessary to:
 - a. Lower and maintain groundwater levels and hydrostatic pressures to at least 2 feet below the prevailing excavation level or to a point no higher than 2 feet above the top of an impermeable stratum, if the subgrade is in the impermeable stratum. Groundwater levels shall be lowered for a time period as deemed necessary by the Engineer to ensure adequate factor of safety for the constructed structure.
 - b. Maintain stable slopes and subgrades.
 - c. Control and remove seepage and surface water into excavations.
 - d. Allow subsequent work to be safely performed without damage to adjacent properties, buildings, structures, utilities, and other work.
 - e. The Contractor shall provide primary and standby power, including all costs for installation, energy, and fuel.
 - f. The Engineer will inspect and witness:
 - 1) Testing of sand and silt from dewatering wells.
 - 2) Drawdown and performance testing of Dewatering System.
 - 3) Performance testing of standby power source and backup Dewatering System.
3. The method of dewatering and control of water both inside and outside the excavation shall be selected by the Contractor who shall be solely responsible for the location, arrangement, and depth of any system(s) selected to accomplish the Work. The Contractor shall construct protective works as necessary to dewater, cut off porous zones of fill, and direct the flow of water from whatever source away from the excavations and adjacent areas. Protective works shall include slurry methods, grouting, clay seepage plugs, toe drains with appropriate filters, deep wells, well points, sumps, dikes, ditches, and all supporting features as required, but not specifically shown on the Contract Drawings.
 - a. The dewatering system shall be designed and implemented so as to maintain a minimum factor of safety against the uplift groundwater pressures in any soil strata. The factor of safety shall be calculated by considering the stabilizing pressure to consist of overburden soil weight alone. The dewatering system shall be maintained operational until the dead weight of the overburden soil plus any

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completed portion of the structure is able to provide the required factor of safety at static (normal) groundwater level / pressure.

4. The dewatering system shall be designed to treat dewatering effluent to comply with all necessary permits and/or applications for disposal of dewatering effluent.

B. Regulatory requirements

1. The Contractor shall manage and dispose of all groundwater removed during dewatering activities in accordance with either New York State Pollutant Discharge Elimination System (SPDES) standards set by the New York State DEC for discharge to surface water, or New York City DEP Sewer Discharge Criteria for discharge to the City wastewater collection system. The Contractor shall acquire, and update as necessary, all permits and/or applications for water withdrawal and disposal of dewatering effluent. It shall be the Contractor's responsibility to update permits to match their final dewatering system design.
2. For discharge to the City wastewater collection system, a comparison of the site groundwater quality data (before and after any treatment proposed by the Contractor) with the NYCDEP Limitations for Effluent to Sanitary or Combined Sewers (latest version issued by the Division of Pollution Control and Monitoring, Bureau of Wastewater Treatment) shall be required prior to and during effluent discharge.

1.06 QUALITY ASSURANCE

- A. The dewatering Work shall be performed by an entity specializing in and having experience with installing and operating dewatering systems in similar subsurface conditions for at least 5 years.
- B. The dewatering system shall be designed by a Professional Engineer registered in the State of New York having experience in designing a system in similar site conditions.
- C. Well drillers shall be licensed in the State of New York.

1.07 SUBMITTALS

- A. The Contractor shall submit Shop Drawings and the following for the approval by the Engineer:
 1. Pre-construction Submittals: A Dewatering Plan shall be submitted to the Engineer for approval, at least 30 calendar days prior to the scheduled date for commencement of the dewatering Work, and to the NYSDEC, as applicable. Approval of the Dewatering Plan by the Engineer or City shall not in any way relieve the Contractor from full responsibility for the complete and adequate design and performance of the dewatering system to provide the necessary construction dewatering. At a minimum, the Dewatering Plan shall include the following:

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- a. Design calculations confirming the adequacy of the proposed dewatering system, including depths to groundwater within the excavation limits.
 - b. Calculations and requisite technical data on well screens and filter materials and gradations to demonstrate the adequacy of proposed systems to prevent the pumping of fines.
 - c. Shop drawings showing the proposed types and planned locations of surface water control and the dewatering system to be used.
 - d. Shop drawings shall include the arrangements, locations, and depths of the dewatering system; including a complete description of equipment, materials to be used, and the procedures to be followed in installation, operation, and maintenance in relation to the proposed sequence of excavation, foundation construction, and backfilling.
 - e. The standby equipment and standby power supply details.
 - f. The proposed locations and sizes of effluent treatment equipment, effluent flow equalization tanks, and discharge of water.
 - g. Location and size of sumps, ditches, and water discharge lines; including their relation to water disposal points.
 - h. Submittals shall also include discharge details, metering, and monitoring schedules, and the details of the settling tank and oil/water separator.
 - i. Methods and equipment to be used for drilling, construction, and development of wells and piezometers.
 - j. Protocols to be followed for the sampling and analysis of dewatering effluent, and the name and qualifications of the laboratory that will be testing the quality of dewatering effluent prior to disposal.
 - k. Protocols to be followed for treatment of effluent in conformance with the requirements of the applicable permits.
2. As required in Section 02 24 20 - Soil Sampling and Analysis, the Contractor shall submit a completed EH&S Drilling and Boring Checklist for approval to the Engineer
 3. As-built Submittals: Prior to the start of construction dewatering, submit as-built conditions of the dewatering system. As-built data are to include but are not limited to:
 - a. Plans and sections showing as-built locations and surveyed elevations of the dewatering system and its components.
 - b. Drawings to indicate changes made to the original shop drawings to accommodate field conditions and to comply with design standards.

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- c. Details of installation including dimensions and materials used, description and drawings of all installations, all procedures, soil strata encountered and logs with descriptions of soil samples and stratification.
 - d. Details of each sump, well, well point, observation well, and piezometer installed; including, but not limited to, the diameters of the borehole and the components, screen type, screen opening size, screen top and bottom elevations, details of filter, seal and grout, pump type, and capacity if installed within. These details should be provided to the Engineer within one week of installation of each entity. The details shall be re-submitted if any part of the entity changes during construction.
 - e. Details of abandoning each sump, well, well point, observation well, and piezometer after its use has been completed.
4. Regulatory Compliance: Prior to the start of construction dewatering, submit a report comparing site groundwater quality data with the water quality standards to be complied with under permit(s) as applicable to the project. The permitting requirements to be considered under the Work of this section include, but may not be limited to:
- a. NYCDEP Dewatering Permit for temporary groundwater discharge into the public sewers of the City.
 - 1) Wastewater Quality Control Application and Letter of Approval, if applicable, from the Inspection & Permitting Section, Industrial Pollution Prevention (IPP) Program, Division of Pollution Control and Monitoring, Bureau of Wastewater Treatment (BWT).
 - 2) Letter of Approval from the Division of Connection and Permitting, Bureau of Water & Sewer Operations (BWSO), if applicable.
 - 3) NYC DEP Bureau of Customer Service Permit
 - b. NYSDEC SPDES Discharge Permit(s) - General or Individual Permits - for dewatering effluent or storm water discharges from construction activities at the project site.
 - c. Water Withdrawal and Long Island Well Permits, if applicable, in association with construction dewatering.
 - d. The Contractor shall be responsible for compliance with all dewatering permit requirements including renewals once construction dewatering begins.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Not Used

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1.09 SPARE PARTS, SPECIAL TOOLS, AND SUPPLIES

- A. Not Used

1.10 SPECIAL WARRANTY PROVISIONS / GUARANTEE PERIODS

- A. Not Used

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. The settling tank shall be concrete or steel as manufactured by Rockford, Belvidere, IL or an approved equal.
- B. The oil/water separator shall be concrete or steel as manufactured by Rockford, Belvidere, IL or an approved equal.

2.02 MATERIALS / EQUIPMENT

- A. Materials and equipment used in the dewatering system shall adhere to accepted industry standards, be in good operating condition, and able to perform satisfactorily over the required duration of construction dewatering.
- B. Back up equipment for the dewatering system shall be identical to the primary equipment and shall be available in operating condition at all times.
- C. Pipes and well screens shall consist of Schedule 40 PVC or stronger.
- D. Sand shall consist of clean, single-size filter sand of adequate gradation.
- E. Grout shall consist of cement-bentonite grout of adequate mix proportion and consistency. Seals shall consist of bentonite pellets.
- F. Pumps, meters, hoses and controls shall be suitable for the intended purpose and application.
- G. Power supply and effluent discharge are included in this Work.

2.03 FABRICATION / ASSEMBLING / FINISHES

- A. Not Used

2.04 SOURCE QUALITY CONTROL / SHOP TESTS

- A. Not Used

PART 3 EXECUTION

3.01 EXAMINATION / PREPARATION

- A. Construction dewatering is required to protect foundation subgrades and to maintain dry and stable conditions for construction. The Contractor shall maintain a continuous and completely effective Dewatering System for the required time as specified in Section 31 23 16 - Excavation.

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- B. The Contractor shall obtain and pay for all permits, applications, and licenses required by law that are associated with the disposal of dewatering effluent; including but not limited to the NYSDEC SPDES Permit, if applicable. The Contractor shall coordinate with the CM and DEP to obtain or modify permit(s), if necessary, sufficiently in advance of dewatering system startup. The Contractor shall also maintain the permits by applying for and following up on the applications for modifying or renewing the permits, if necessary, during the period of performance.
- C. The Contractor shall coordinate the operation of the dewatering system with any other Work.
- D. The Contractor is responsible for monitoring dewatering efforts to determine if the Contract and related permit requirements are being met. The Contractor shall provide observation wells and other means to monitor the dewatering as detailed in the Dewatering Plan.
- E. Surface areas adjacent to the excavation shall be graded and/or curbed to prevent flow of surface water into the excavation.
- F. Open pumping with sumps and ditches resulting in boils, loss of fines, softening of the ground or instability of slopes will not be permitted.
- G. The Contractor shall select and supply Personal Protective Equipment (PPE) in accordance with the Contractor's Site Health and Safety Plan.

3.02 IMPLEMENTATION

- A. The dewatering system shall provide for an uninterrupted flow of pumped water and shall be maintained and pumped as necessary to drawdown and maintain the groundwater levels as specified. Unless otherwise specified, pumping shall maintain those depressed levels until the permanent under drainage system has been installed, tested, accepted, and is operational; or until the permanent structure, or a portion thereof, is capable of withstanding hydrostatic pressures as determined by the Engineer.
- B. The Contractor shall furnish, operate, and maintain sufficient drainage and pumping facilities to dewater the site and its underlying soil. Dewatering operations shall operate in such a manner so that the excavation can proceed while maintaining stable slopes and the designed lateral support for the perimeter support of excavation walls, without disturbing the bearing subgrades for the structure and provide stable conditions. The ground water level as measured in observation wells shall be lowered and maintained at least two feet below the prevailing excavation level, or it shall be lowered to a point no higher than 2 feet above the top of impermeable stratum if the subgrade is in the impermeable stratum.
- C. The dewatering system shall be installed and operated in such a manner as to avoid the movement of fines or loss of ground below the bearing level and shall not influence the stability of surrounding areas. Well points and deep wells shall be properly sanded in and sumps shall be sheeted and provided with proper filter material.

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- D. Any sign of subgrade disturbance due to seepage or unaccountable reduction in effluent flow rate shall be immediately reported to the Engineer and steps immediately taken to correct the condition.
- E. The Contractor shall install observation wells / piezometers and monitor groundwater lowering at nearby structures due to construction dewatering. Any damage caused to nearby structures due to construction dewatering shall be repaired by the Contractor at no cost to the City.
- F. Surface Water
1. Surface water on and around the site shall be collected into local sumps by means of trenches, pipes, or other means. The Contractor shall discharge the water into the City wastewater collection system. Direct surface water to minimize surface erosion, ponding; and softening of slopes and berms, haul roads, and equipment working stations. Slope protection by means of polyethylene sheets, held in place by tires or otherwise, shall be provided locally as required. At the perimeter of the excavation, surface water is to be directed into the storm sewer system and not permitted to enter the excavation. Curbs shall be maintained and, where necessary, extended across intersections, curb cuts, and defective curb sections. Surface cracks in the adjacent streets are to be sealed and re-sealed as necessary. Should adjacent settlement occur during the work, curbs shall be raised, or water-tight mounds shall be installed as directed by the Engineer to prevent flow into the site. Measures for preventing the pollution of and discharging storm water shall be in accordance with Section 31 25 10 - Dust, Soil Erosion and Sediment Control.
 - a. If surface water flows to a point across a potentially contaminated surface (e.g., contaminated or hazardous soils) or otherwise unsuitable/impermeable surface (e.g., mud mat), removal of said water via pumping to storm sewers shall require the appropriate dewatering permits from the NYSDEC or NYCDEP Bureau of Water and Sewer Operations (BWSO) Division of Permitting and Connections. The Contractor shall obtain all necessary permits in a timely manner so as not to delay the Work.
- G. Pretreatment of dewatering effluent
1. The Contractor shall provide appropriately sized settling tanks to collect and store dewatering effluent commensurate with dewatering discharge rates to allow for settlement of suspended solids and sampling as required by disposal/discharge criteria. The tanks shall be equipped with an overflow collection system to prevent accidental release of dewatering effluent. Routine inspection of the tanks shall be carried out daily to ensure that tank integrity is being maintained, and that all valves or tank openings are properly locked out to avoid accidental discharge. Settling tanks shall be cleaned frequently to prevent excess deposition of solids which could overflow from the tank. Removed solids shall be classified and disposed of

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in accordance with the requirements of Section 02 24 20 - Soil Sampling and Analysis. Transportation and Disposal including waste manifests shall be in accordance with Section 31 23 16 - Excavation.

- a. The settling tank shall be sized based upon the maximum groundwater flow times a 1.5 safety factor.
2. The Contractor shall provide appropriately sized oil/water separators to prevent discharge of hydrocarbons, grease, and other floatable materials to surface water or the sewer system. Oil/water separators shall be cleaned frequently and collected materials classified and disposed of in accordance with Sections 02 24 20 - Soil Sampling and Analysis and 31 23 16 - Excavation requirements for manifests and material transport and disposal.
 - a. The oil/water separator shall be sized based upon the maximum groundwater flow times a 1.5 safety factor.
3. The Contractor shall provide treatment for, or remove from the site to an approved disposal facility, all dewatering effluent or groundwater which exceeds any limit set for surface water or sewer discharge, whichever is applicable. Classification and disposal shall conform to Sections 02 24 20 - Soil Sampling and Analysis and 31 23 16 - Excavation requirements for manifests and material transport and disposal.

H. Disposal of Dewatering Effluent

1. Dewatering effluent may be affected by rainfall. The Contractor shall provide adequate equalization and holding tanks to allow work to proceed in the case of restricted discharge capability during rain events.
2. The Contractor shall provide sufficient clean water to flush all sewers and drains when necessary. If any sewer, drain, catch basin, or inlet becomes filled or partially filled with sediment or debris, the Contractor shall promptly and satisfactorily remove such deposits.
3. The Contractor shall collect dewatering effluent samples as required by the permits and the Dewatering Plan. If pretreatment other than oil/water separators and settling tanks is required, the Contractor shall continue to collect effluent samples during dewatering operations and analyze for all listed parameters at intervals based on dewatering discharge volume as a verification of discharge compliance. Intervals will be as defined in the Dewatering Plan. A copy of all analytical results shall be submitted to the Engineer for review and approval no later than one day after receipt of such data. The Contractor shall provide for prompt sampling and turn-around times so as not to delay the project, but in no case shall turn-around time be longer than 5 calendar days.

3.03 FIELD TESTING / QUALITY CONTROL

- A. The Contractor shall determine the presence of contaminants in dewatering effluent, including the quantity of fines in the pumped water, by sampling and

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analyzing in accordance with permit requirements, or once every two weeks, whichever is more frequent.

- B. The fines content should be measured in each sump, well or well point being pumped. The permissible maximum fines content is 5 parts per million (ppm) as measured by the Rossum Sand Content tester. If the fines content is exceeded, the Contractor shall modify or re-install the well or wellpoint to satisfy the requirements.
- C. The Contractor shall measure water levels periodically in observation wells / piezometers installed adjacent to nearby structures to ensure drawdown outside the excavation is within allowable limits in accordance with applicable permits.
- D. A sufficient number of observation wells shall be installed and water levels monitored by the Contractor, at least weekly, to demonstrate that the goals of the Dewatering System are being met. If applicable, the Contractor may make use of existing observation wells as shown on the Contract Drawings.

3.04 STARTUP / DEMONSTRATION

- A. Not Used

3.05 ADJUSTING / PROTECTION / CLEANUP

- A. The Contractor shall be prepared to modify the dewatering system and methods as required by actual field conditions encountered during construction, at no additional cost to the City. Any component of the dewatering system that malfunctions or is damaged during its operation shall be promptly repaired or replaced by the Contractor at no additional cost to the City.
- B. All observation wells/ piezometers shall be abandoned at the completion of the work, except as directed by the Engineer, in accordance with NYSDEC guidelines.
- C. All observation wells/piezometers shall be abandoned in place and all other portions of the dewatering system shall be removed by the Contractor after completion of dewatering activities and in accordance with NYSDEC requirements.

END OF SECTION

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NO TEXT ON THIS PAGE

SECTION 31 25 10 - DUST, SOIL EROSION AND SEDIMENT CONTROL
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PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall provide all labor, materials, tools, equipment, and incidentals required to assure adequate environmental protection including implementation of all erosion and sediment control measures and maintenance of storage areas as directed by the Engineer.
- B. The Contractor shall provide an Erosion and Sediment Control Plan (E&SCP) that establishes methods and procedures to prevent migration of contaminated stormwater and sediment and to prevent erosion of features of the Work.
- C. The Contractor shall minimize erosion and prevent discharge of sediment to surface water features, watercourses, drainage systems, public streets or private property from construction activities. The Contractor shall provide methods to prevent construction activities from generating contaminated stormwater runoff. Methods of constructing berms and dikes to direct clean stormwater runoff around the work area to the local drainage system shall be included.
- D. The Contractor shall comply with all Federal, State, or local laws, codes, ordinances, and regulations which govern the control of sediment, erosion, and stormwater during construction activities.
- E. The Contractor shall provide Best Management Practices (BMPs) including, but not limited to silt fences, straw bales, diversion dikes, swales, sedimentation basins/traps, truck wash areas/decontamination stations, stabilized construction entrances and/or other means as a temporary structural practice to minimize erosion and sediment runoff.
- F. The Contractor shall implement dust, erosion, and sediment control and stormwater pollution prevention in accordance with the requirements of the current NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, and in accordance with the approved Stormwater Pollution Prevention Plan (SWPPP) for this contract prepared by the Engineer.
- G. The approved SWPPP for this contract will be made available to the Contractor upon request during the bidding process. Proposed modifications to the approved SWPPP shall be in accordance with the requirements of this Section.
- H. The Contractor shall control dust caused by operation and movement of vehicles and equipment in accordance with the latest DEP and OSHA standards, and all other applicable Federal, State and local regulations.
- I. The following index of this Section is presented for convenience:

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1.02 PAYMENT

- A. There is no separate payment provision for this Section.

1.03 RELATED SECTIONS

- A. Section 02 24 20 - Soil Sampling and Analysis
- B. Section 31 10 10 - Site Clearing
- C. Section 31 23 19 - Dewatering
- D. Section 31 23 16 - Excavation

1.04 REFERENCES

- A. Comply with applicable provisions and recommendations of the following except as otherwise shown or specified.
 1. NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001, or latest version)
 2. New York City Watershed Regulations (April 4, 2010, or latest version)
 3. New York State Standards and Specifications for Erosion and Sediment Control (aka “Blue Book”) (NYSDEC, Aug 2005, or latest version)
 4. New York State Stormwater Management Design Manual (latest version)

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1.05 DESCRIPTION

A. Definitions

1. Best Management Practices: Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce pollution of water, and have been approved by DEP or NYSDEC.
2. Commencement of Construction: The initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices.
3. Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as geological creep, detachment, movement of soil or rock fragments by water, wind, ice, or gravity.
4. Erosion/Sediment Control: Any temporary or permanent measures taken to reduce erosion, control siltation and sediment, and ensure that sediment-laden water does not leave the site.
5. Final Stabilization: All soil-disturbing activities at the site have been completed and uniform, perennial vegetative cover with the density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geo-textiles) have been employed on all unpaved areas and areas not covered by permanent structures, concrete or pavement.
6. Receiving Waters: Bodies of water or surface water systems receiving water from upstream manmade (or natural) streams
7. Sediment: Fragmented material that originates from weathering and erosion of rocks and unsolicited deposits, and is transported by, suspended in, or deposited in water.

B. Environmental Requirements

1. Soil Stabilization: The stabilization practices to be implemented shall include one or a combination of the following: temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control mats, protection of trees and shrubs, preservation of mature vegetation. Protection of trees shall be in accordance with Section 31 10 10 – Site Clearing. Stabilization practices shall be implemented as approved by the Engineer. The Contractor shall record the dates when the major grading activities occur (i.e. clearing and grubbing, excavation, embankment and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs 1.08A.1 and 1.08A.2 below, stabilization practices shall be initiated as soon as practicable, but no more

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than fourteen (14) days after construction activities have temporarily or permanently ceased.

- a. **Unsuitable Conditions:** Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather. Stabilization practices shall be initiated as soon as practicable after conditions become suitable.
 - b. **Temporary Inactivity Less than 14 Days:** Where construction activity will resume on a portion of the site within 14 days after it temporarily ceases, no stabilization practices will be required.
2. **Erosion and Sediment Control:** Erosion and Sediment control BMPs shall be operational at all times during the Work, specifically during excavation, backfilling and restoration, and decontamination operations. The sediment and erosion control system shall be capable of handling stormwater during construction. Damage to excavation slopes and the migration of contaminated soil to downstream areas resulting from storm events shall be repaired or remediated by the Contractor, at the Contractor's expense.
 3. **Stormwater:** At no time shall the Contractor allow stormwater runoff from soil excavation/stockpiling operations, or effluent from decontamination operations to migrate off to contaminate soils in other areas or percolate into the groundwater. The Engineer will monitor any overflow or leakage that occurs, and may at his discretion require the Contractor to perform soil sampling within all areas affected by such overflow. Any soils that have been contaminated by such overflow shall be removed, treated and disposed of by the Contractor at no additional cost to the City. All sampling and analyses of soils required to determine the contamination or remediation of these soils shall be performed in accordance with Section 02 24 20 – Soil Sampling and Analysis.
 4. **Disposal of Water:** Water collected from decontamination areas and dewatering operations shall be handled in accordance with Section 31 23 19 - Dewatering.

C. Project Conditions

1. **Existing Work:** All BMPS (e.g., silt fences, straw bales, swales, sumps, pumps, piping) and other sediment/stormwater controls shall be installed such that other aspects of the Work are not adversely impacted or endangered. All installations shall be subject to the approval of the Engineer.
2. **Dust Control:** The Contractor shall be responsible for controlling visible dust caused by Work operations and the moving of vehicles and equipment. Dust control shall be implemented when soils are exposed, before, during and after Work activity ceases. Dust control will also be required on the weekends. The Contractor shall utilize the application of water or other methods, subject to the Engineer's approval, when visible dust is present

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on-site, in accordance with the Health and Safety Plan. The use of chemicals for dust control, including calcium chloride, will not be permitted.

- a. All excavation, loading and transport of materials shall minimize the formation of dust and shall conform to Section 31 23 16 - Excavation. To prevent dust generation, application of water to roadways and active work areas shall be utilized as required. The Contractor's operations shall include air monitoring and dust minimization measures, consistent with the Health and Safety Plan (HASP) Specifications.
3. Silt and Sediment Disposal: All silt and sediment which accumulates behind any BMPs used on the site (i.e., straw bale berms or silt fences) shall be removed and disposed of off-site in accordance with all applicable Federal, State and local regulations.

D. Materials

1. All components/controls must be designed in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual. Where erosion and sediment control practices are not designed in conformance with these technical standards, the Contractor must demonstrate equivalence to the technical standard.

E. Installation and Maintenance

1. All installation of erosion and sediment control BMPs must be consistent with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual. Where erosion and sediment control practices are not designed in conformance with these technical standards, the Contractor must demonstrate equivalence to the technical standard.
2. Maintenance: The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition at all times consistent with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual.

1.06 QUALITY ASSURANCE

A. Permits and Regulations:

1. The Contractor shall obtain all necessary permits and be responsible for implementing the terms and requirements of these permits as needed and for payment of all fees.

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2. The Contractor shall handle all material in compliance with applicable requirements of OSHA and other governing authorities having jurisdiction.
3. Certifications. The Contractor must sign a copy of the certification statements below, as provided in GP-0-20-001 (or certifications in latest version), before undertaking any construction activity at the site identified in the SWPPP. All certifications must be included in the SWPPP.
 - a. “I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the NYCDEP must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001, or latest version) and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.”
 - b. The certification statements must include the name and title of the person providing the signature, address and telephone number of the contracting firm, the address of the site, and the date the certification is made. The certification must be signed by an authorized representative of the firm.
4. Inspections. The Contractor must have a qualified inspector conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following commencement of construction, site inspections shall be conducted at least once every seven (7) calendar days and twice a week for sites with soil disturbance greater than 5 acres. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. The inspection reports must be kept on file at the construction site with the SWPPP, if applicable, for review by a NYSDEC inspector.
5. Stabilization. The contractor shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
6. If a SWPPP is required, it shall be kept current on file at the construction site for review by a NYSDEC inspector. If there is a significant change in construction which may have a significant effect on the potential for the discharge of pollutants to surface waters of the State and which has not otherwise been addressed in the SWPPP, it would require that the SWPPP

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be updated to reflect those required changes. The SWPPP would also require an amendment if the SWPPP proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified in the SWPPP or achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity. Additionally, the SWPPP shall be amended to identify any new subcontractor and their associated responsibilities.

1.07 SUBMITTALS

- A. The Contractor shall submit Shop Drawings and other documentation, required to show conformance to the requirements of the Contract Drawings, for the approval to the Engineer. Shop Drawings shall show details of the Sediment and Stormwater Control System. The Submittals shall include, but not limited to the following:
1. Plan locations of all components of the Sediment/Stormwater Control System.
 2. Details of all applicable BMPs (e.g., silt fence, diversion dike, straw bale berm, decontamination stations, etc.).
 3. All of the planned components of the Erosion and Sediment Control Plan, as detailed below in Paragraph B.
 4. All components of the SWPPP to be constructed on site, as detailed in Paragraph C below.
 5. The Contractor shall submit manufacturer's descriptive literature and installation instructions for stockpile liner and cover material as specified in Paragraph 2.01.B and Part 3.02.
- B. Erosion and Sediment Control Plan (E&SCP): The Contractor shall develop and submit to the Engineer for approval, prior to commencement of construction activities, an E&SCP. The E&SCP shall address schedules and measures that will be taken to prevent migration of contaminated stormwater/sediment, and to prevent erosion of features of the Work. The E&SCP shall include the following at a minimum:
1. Measures to capture and mitigate stormwater runoff from active, disturbed areas.
 2. Provisions for silt fences and other measures to limit migration of sediments.
 3. Provisions for straw bale berms and silt fences or other measures to prevent contaminant and sediment migration.
 4. Diversion of stormwater: The Contractor shall include provisions for controlling stormwater runoff in and around excavation areas.
 5. Soil Storage Area: All details of temporary soil storage to be implemented as specified in this section.

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6. Soil Stabilization Practices: All details of soil stabilization practices to be implemented, as specified in this section.
 7. Provisions for all other applicable Best Management Practices.
- C. The Contractor shall adopt the approved SWPPP prepared by the Engineer for this Contract, if applicable. If the Contractor proposes to modify the approved SWPPP, the Contractor shall develop and submit to the Engineer for approval the modified SWPPP in accordance with the requirements of the current NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The modified SWPPP shall be developed and submitted to the Engineer for approval prior to the initiation of construction activities. The modified SWPPP must be in compliance with the requirements of this Section in all respects. The Contractor shall bear sole responsibility for all permitting requirements of, and coordination with, the governing authorities having jurisdiction, as well as for any costs and delays resulting from the modification(s).

The SWPPP shall include the following at a minimum:

1. Provide background information about the scope of the project, including the location, type and size of project;
2. Provide a site map for the project, including a general location map. The site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);
3. Provide a map and a description of the soil(s) present at the site;
4. Provide a Construction Phasing Plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001 or latest version), there shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the NYSDEC;
5. Provide a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the stormwater discharges;
6. Provide a description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to stormwater, and spill prevention response;

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7. Describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land clearing and grubbing to project closeout;
 8. Identify and show on a site map the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
 9. Provide the dimensions, material specifications, and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;
 10. Identify temporary practices that will be converted to permanent control measures;
 11. Provide an implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the placement and the duration that each practice should remain in place;
 12. Provide a maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practices;
 13. Provide the name(s) of the receiving water(s);
 14. Provide a delineation of SWPPP implementation responsibilities for each part of the site;
 15. Provide a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and
 16. Provide any existing data that describes the stormwater runoff characteristics at the site.
- D. Inspection Reports: The Contractor shall conduct inspections and submit inspection reports consistent with requirements of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001 or latest version) including:
1. Site inspections shall be conducted by the Qualified Inspector.
 2. Site inspections are conducted a minimum of once every seven (7) calendar days and twice every seven (7) calendar days for sites with greater than 5 acres of soil disturbance. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
 3. Inspection reports shall be maintained in a logbook at the site with SWPPP and other required documentation.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall store, handle, and remove material and equipment consistent with requirements of the SWPPP and NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-20-001) or latest version.

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- B. Removal of all waste shall be in accordance with the requirements of Section 01 74 20 – Construction Waste Management.

1.09 SPARE PARTS, SPECIAL TOOLS, AND SUPPLIES

- A. Not Used

1.10 SPECIAL WARRANTY PROVISIONS / GUARANTEE PERIODS

- A. Not Used

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Not Used

2.02 MATERIALS / EQUIPMENT

- A. Materials

- 1. Stockpile cover and liner fabric shall be a composite structure of fiber-reinforced polyethylene (RPE) fabric (minimum 20-mils). The fabric shall be inert to biological degradation and naturally encountered chemicals, alkalis and acids. Its permeability coefficient shall be less than 10^{-3} cm/sec.

2.03 FABRICATION / ASSEMBLING / FINISHES

- A. Not Used

2.04 SOURCE QUALITY CONTROL / SHOP TESTS

- A. Not Used

PART 3 EXECUTION

3.01 EXAMINATION / PREPARATION

- A. Not Used

3.02 IMPLEMENTATION

- A. Stockpiling

- 1. Cover and Liner Requirements

- a. Soil Stockpiles: Stockpiles of excavated soil to be used for backfilling on-site under the NYSDEC Pre-Determined or Case-Specific BUD, or stockpiles of other soil mixes being brought onsite for landscaping purposes, shall be stored as follows:

- 1) Contaminated Soil: Stockpiles of excavated soil that are known to be or potentially could be contaminated (pending analysis), shall be lined on the bottom and covered with an impermeable, RPE fabric, as specified in 2.02.A above.

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- 2) Uncontaminated Soil: Stockpiles of excavated uncontaminated soil shall have a cover only; a bottom liner is not required. The cover fabric shall be as specified in 2.01.B above.
 - b. Demolition Waste Stockpiles: Stockpiles of demolition waste that are to be recycled (on-site or off-site) or disposed of at a sanitary landfill shall be stored as follows:
 - 1) Contaminated Demolition Waste: Stockpiles of demolition waste that are known to be or potentially could be contaminated (pending analysis), shall be lined on the bottom and covered with an impermeable, RFP fabric, as specified in 2.01.B above.
 - 2) Uncontaminated Demolition Waste: Stockpiles of uncontaminated demolition waste shall have a cover only; a bottom liner is not required. The cover fabric shall be as specified in 2.01.B above.
 - c. Stockpiles of materials classified as contaminated, hazardous waste shall be stored with a cover and liner as specified above for contaminated soil or contaminated demolition waste, and transported off-site promptly in DOT-approved hazardous waste shipping containers. Temporary hazardous waste storage areas shall comply with and the requirements of the Contract and applicable Federal, State and local regulations.
 - d. All stockpiles shall be covered during non-working hours and during periods of no construction activity. The terminal edges of the fabric cover panels shall be secured to prevent uplift by wind.
2. Stockpile Areas and Placement
- a. Stockpiling of excavated materials will be permitted on-site within areas as designated on the Contract Drawings for construction staging, or as directed by the Engineer. All stockpiling areas on-site must be approved by the Engineer in advance.
 - b. The Contractor shall make his or her own arrangements to provide additional stockpiling area on-site or off-site, if required, for excavated material at no additional cost to the City. Additional stockpiling areas whether on-site or off-site shall be approved by the Engineer.
 - c. Stockpiles of excavated material to be used for backfilling on-site under the NYSDEC Pre-Determined or Case-Specific BUD shall be so piled and placed as not to encumber sidewalks or roadways, or wash away or obstruct the free flow of surface or drainage water. Stockpiles shall be suitably bermed for run-off containment of any water that drains from the soils.

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- d. Stockpiles shall not be placed closer to the edge of an excavation than a distance equal to 1-1/2 times the depth of the excavation, unless the excavation is in rock or the sides of the excavation have been sloped or sheeted and shored to withstand the lateral forces imposed by such superimposed loads.

3.03 FIELD TESTING / QUALITY CONTROL

- A. Inspections: Site Inspections shall be conducted consistent with the requirements of the SWPPP and the current NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001 or latest version). The Qualified Inspector shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, areas where vehicles exit the site daily and all other requirements listed in the most current NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002 or latest version).
- B. Inspection of soil and material stockpiles shall be done daily to ensure the integrity of the cover and liner is maintained.

3.04 STARTUP / DEMONSTRATION

- A. Not Used

3.05 ADJUSTING / PROTECTION / CLEANUP

- A. The Contractor shall clean the site and equipment consistent with requirements of the SWPPP and the current New York State Standards and Specifications for Erosion and Sediment Control. Where appropriate, truck washes/decontamination stations should be installed to minimize the migration of sediment off-site as specified herein.

END OF SECTION

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PART 1 GENERAL

1.01 SUMMARY

- A. Planting as specified herein includes, but is not limited to, the following:
1. Furnishing and installing new trees, shrubs, grasses, and all other plant materials.
 2. Furnishing and installing new seeded, hydro-seeded, and sodded areas.
 3. Staking and guying of trees, only where shown on the Drawings or as directed.
 4. Furnishing and installing filter fabric and drainage gravel under planted areas, in areas as shown on the Drawings.
 5. Furnishing and installing mulch.
 6. Protection and maintenance of all plant materials and the replacement of plantings as required until Substantial Completion.
 7. Guarantee of all new plant materials for 18 months after Substantial Completion, unless otherwise required in the Contract.
 8. Plant protection, maintenance and replacements during guarantee period.
- B. The Contractor shall implement practices and procedures to meet the project’s sustainability goals as identified in the Contract Documents. The Contractor shall ensure that the sustainability requirements of this Section are implemented to the fullest extent.
- C. The following index of this Section is presented for convenience:

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1.02 PAYMENT

- A. No separate payment will be made for performing any work of this Section and the Contractor shall include all costs thereof in its lump sum price bid for the Contract, except as provided for otherwise in the Contract.

1.03 RELATED SECTIONS

- A. Section 31 23 23 - Fill
- B. Section 31 25 10 - Dust, Soil Erosion & Sedimentation Control
- C. Section 32 90 05 - Soil Mixes

1.04 REFERENCES

- A. American Nursery and Landscape Association (ANLA)
 - 1. American Standard for Nursery Stock (ASNS), ANSI Z60, current edition
- B. International Society of Arboriculture (ISA)
 - 1. American National Standard for Arboricultural Operations – Pruning, Repairing, Maintenance, and Removing Trees, and Cutting Brush – Safety Requirements, ANSI Z133, current edition
- C. Tree Care Industry Association (TCIA), Standards
 - 1. American National Standard for Tree Care Operations – Tree, Shrub and Other Woody Plant Management – Standard Practices, ANSI A300, current edition.
- D. Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 2nd ed., 1991, by Henry A Gleason and Arthur Cronquist (G&C), New York Botanical Garden
- E. Revised Checklist of New York State Plants (NYSPC), Richard S. Mitchell and Gordon C. Tucker, New York State Museum
- F. New York Flora Atlas (<http://newyork.plantatlas.usf.edu/Default.aspx>)
- G. USDA Plant Database (<http://plants.usda.gov/java/>) & USDA Plant Hardiness Zone Map (<http://planthardiness.ars.usda.gov/PHZMWeb/>)

1.05 DESCRIPTION

- A. Contractor shall locate all required plant materials and be present for their inspection, as directed by the Engineer or the Engineer’s designated representative, at the nursery prior to transport or upon delivery of the materials on site. Notify

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the Engineer at least 14 days in advance of the Contractor's desired inspection dates and locations.

- B. Inspection at Nursery: All plants may be inspected and selected by the Engineer or designated representative at the nursery for conformity to the requirements of the Contract. Whether plant materials are inspected or not at the nursery, the Contractor shall make all preselection arrangements required by the Engineer to ensure an efficient selection procedure. Approval of plant materials at the nursery shall not affect the rights to inspect or reject the materials upon delivery or later.
 - C. Inspection at Delivery On-Site: Notify the Engineer at least five (5) working days in advance of delivery of plants to the site.
 - 1. The Engineer or Engineer's designated representative will inspect all plants upon delivery to site.
 - 2. Contractor shall schedule a time for on-site inspection prior to planting, and shall arrange for adequate labor and equipment on-site at the time of inspection to unload, open, and handle plants during inspection.
 - 3. The Engineer or Engineer's designated representative may reject any plant material prior to or upon delivery to the site.
 - a. All plant material that is dead, dying or appears unhealthy will be rejected.
 - b. All plant material that has been improperly maintained, dug, transported or handled in such a way as to impair its appearance or health will be rejected.
 - D. The Engineer or Engineer's designated representative will be the sole judge of the condition of the plants.
 - 1. All material that is rejected on site shall be removed immediately from site, and replaced with new material selected or approved by the Engineer, at no additional cost to the City.
 - E. Sustainable Design Requirements:
 - 1. Regional Materials: Provide plant materials that were grown and harvested, or extracted, within 250 miles of the project site unless otherwise required in the Contract or shown on the Drawings.
 - F. Project-specific system design requirements will be provided in the Contract, if necessary, to supplement requirements given herein or in the Contract Drawings.
- 1.06 QUALITY ASSURANCE
- A. Comply with all rules, regulations, laws and ordinances of local, state and federal authorities having jurisdiction. Provide labor, materials, equipment and services necessary for work to comply with such requirements at no additional cost to City.
 - B. Procure and pay for permits and licenses required for work of this Section. Obtain all required permits in a timely manner to avoid delays to the work.

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1.07 SUBMITTALS

- A. Submit a Statement of Qualifications for the landscape subcontractor. Qualifications shall show experience in the installation of landscape work of a similar type and scale to this project within the last six (6) years.
- B. Statement of Qualifications for the landscape subcontractor shall consist of the following information:
 - 1. Company name and address
 - 2. Number of years in business under this name
 - 3. Number of current full-time, part-time, and seasonal employees
 - 4. Estimated number of employees intended for this project
 - 5. Current workload:
 - a. Name and address of current projects
 - b. Types and dollar amounts of work for which landscape subcontractor is responsible in each current project
 - c. Estimated completion date for each current project
 - 6. References for three (3) projects completed within the last six (6) years, which are similar in scope to this project, including the following information for each project:
 - a. Name and address of project
 - b. General description of work
 - c. Dollar amount of landscape work performed
 - d. Dates landscape work was started and completed
 - e. Verified contact information for at least one (1) representative of the owner or prime construction contractors in each projects:
 - 1) Name,
 - 2) Mailing address,
 - 3) E-mail address, and
 - 4) Telephone numbers (Office and Direct).
 - 7. Contact information similar to above for at least one (1) representative of the Architect, Engineer, Landscape Architect, or other representative of the designer or construction manager for each project given as reference.
- C. Samples: Submit samples of the following items:
 - 1. Mulch: One (1) pound bag with manufacturer's certification of content
- D. Growers/Nurseries: Contractor shall submit a list of proposed growers/nurseries prior to the commencement of any landscaping work, with sufficient advance notice of at least 60 days or as stated in the Contract.

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- E. For nurseries, a copy of state inspection certificate for current year must be submitted.
 - F. Materials/Certificates: Contractor shall submit a list of all materials and certificates specified in this Section prior to the commencement of any landscaping work, with sufficient advance notice of at least 30 days or as stated in the Contract.
 - G. All necessary state, federal and other inspection certificates as may be required by law.
 - H. Product Data - Where applicable, the following product data shall be submitted:
 - 1. Manufacturers' product information for filter fabric, showing conformance with the specified requirements.
 - 2. Analysis of each seed or hydroseed mix to be used, showing percentage of purity, weed content and germination of seed.
 - 3. Identification of sod source and certification that all sod material is true to name, type, purity and other criteria in conformance with these specifications.
 - 4. Certified analysis for each treatment, amendment, and fertilizer material specified and as used, including weight for packaged material.
 - I. Documentation: The Contractor shall submit written documentation at least 30 days prior to scheduled start of planting that all plant material has been ordered.
 - J. Maintenance Program: Submit written schedule of maintenance operations proposed for the guarantee period. Schedule shall be in the form of a list of all proposed maintenance tasks, with dates showing when each maintenance task will be performed and its frequency of occurrence.
 - K. Sustainable Design Submittals:
 - 1. Environmental Materials Reporting Form (EMRF) Regional Materials. Provide the following information:
 - a. Name of Product and Manufacturer.
 - b. Material cost breakdowns. Cost breakdowns must include total material-only cost (excluding installation, labor and equipment).
 - c. Indicate the location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. For assemblies, include the percentage by weight that is considered regional.
- 1.08 DELIVERY, STORAGE, AND HANDLING
- A. Not Used
- 1.09 SPARE PARTS, SPECIAL TOOLS, AND SUPPLIES
- A. Not Used

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1.10 SPECIAL WARRANTY PROVISIONS / GUARANTEE PERIODS

A. All new plant material shall be guaranteed for a period of 18 months after the date of Substantial Completion, unless otherwise required in the Contract.

B. Protection and Maintenance

1. At least 30 days prior to the date of the written request for Substantial Completion, Contractor shall submit a written protection and maintenance program and schedule to the Engineer for approval.
2. Protection and Maintenance program shall be revised and resubmitted as required until approved by Engineer.
3. During the guarantee period, the Contractor shall maintain all plant materials as specified herein, and as noted in the approved maintenance schedule, and shall replace, at no additional cost to the City, any and all plant material that has died or, in the opinion of the Engineer or Engineer's designated representative, is in unhealthy or unsightly condition.
4. The Contractor is responsible for providing and maintaining adequate protection measures for all planted areas throughout the guarantee period in order to protect plantings from by any subsequent construction operations or other types of physical damage.
 - a. Protection measures may include, but not be limited to, approved temporary fencing, tree guards, signage and other measures as determined to be necessary during the guarantee period.
 - b. Local fence ordinances and guidelines may also apply to the work requiring the Contractor to submit at no additional cost to the City design drawings or other documents for obtaining the necessary local permits or approvals.

C. Replacements

1. There will be no limit to the number of times replacements are made of individual plants, unless conditions causing the failure can be proved to be beyond the control of the Contractor.
2. The Contractor is responsible for replacing any and all plant material and any associated compacted soils that are damaged by the Contractor's own operations or the operations of any of its subcontractors, or due to other damage resulting from a lack of adequate protective measures, at no additional cost to the City.
3. All replacements shall be in accordance with original specification or, if it is determined that specified plants are inappropriate for as-built conditions, they may be replaced with the approval of Engineer or Engineer's Representative to more appropriate species as identified by a Restoration Specialist, Landscape Architect or other qualified professional.

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4. Cost of all replacements shall be included in the Contract price. No additional payment will be made therefor.
 5. Replace unacceptable plant material no later than the next succeeding planting season.
 6. Guarantee all replaced material for a period of 18 months after the date of replacement, unless otherwise required in the Contract.
 7. All areas damaged or soiled by replacement planting operations are to be fully restored to their original condition at no additional cost to the City.
- D. Substantial Acceptance
1. Contractor shall submit a written request to the Engineer, for a formal inspection of the planting work for Substantial Completion.
 2. To be accepted at the time of formal inspection of planting work, all plant material must be alive, healthy, and installed as specified.
 - a. If plants are dead, dying, or unhealthy, or if landscaping does not serve its visual or soil stabilization functions, or if workmanship is unacceptable to the Engineer or Engineer's Representative for other reasons, written notice will be given to the Contractor in the form of a punch list that itemizes all remedial work required for Substantial Completion.
 - b. This work may include plant replacement or maintenance which must be carried out prior to issuance of the Certificate of Substantial Completion.
 - c. The Certificate of Substantial Completion will not be issued until a written maintenance program, as described herein below, has been approved by the Engineer and the Engineer's designated representative.
- E. Final Acceptance
1. Following the completion of all remedial work and replacement plantings, the Contractor shall request the Engineer in writing for a formal inspection of the landscape work for Final Acceptance.
 2. If replacement plantings are required, Final Acceptance will be provisional upon a final inspection at the end of the guarantee period for the plant replacements.
- F. All of the materials and labor required for plant protection, maintenance and replacements during the guarantee period shall be included in the Contractor's bid price. No additional payments will be made therefor.

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PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable manufacturers and suppliers of planting materials shall be as indicated below unless otherwise specified in the Contract.
1. Hardscrabble Farms Nursery, North Salem, NY (www.hardscrabblefarms.com);
 2. Pinelands Nursery, Columbus, NJ (www.pinelandsnursery.com);
 3. New England Wetland Plants, Inc., Amherst, PA (www.newp.com);
 4. Sylva Native Nursery & Seed Company, Glen Rock, PA (www.sylvanative.com);
 5. Octoraro Native Plant Nursery, Kirkwood, PA (www.octoraro.com);
 6. Northcreek Nurseries, Oxford, PA (<http://www.northcreeknurseries.com>);
 7. Or Approved Equal.
- B. All nurseries supplying plant material shall have a registration certificate from the Department of Agriculture and Markets, Division of Plant Industry, New York (or similar organization in the state from which plant material is obtained) certifying that the plant material is apparently free of injurious insects and diseases.

2.02 MATERIALS / EQUIPMENT

A. Plants

1. Provide plant material to meet or exceed applicable ANLA standards in all ways in addition to other standards specified. Plant names, size and grading standards shall conform to those prepared by American Nursery and Landscape Association (American National Standards Institute), American Standard for Nursery Stock (ANSI Z60.1, latest edition). Plants shall be true to species and, if specified as to variety or cultivar, shall be as listed in <http://newyork.plantatlas.usf.edu/Default.aspx> to determine nativity and as listed in <http://plants.usda.gov/java/> for taxonomy. Plants shall be typical of their species or variety with normal habits of growth, in accordance with ASNS: Sound, healthy and vigorous, well-branched and densely foliated when in leaf, with healthy well developed root systems; free from disease, abrasions of the bark, insect pests, eggs or larvae.
2. Plant species native to the Eastern United States, as specified in the planting plan and Contract, shall be provided by the Contractor. Non-native species shall not be considered as substitutes for native species.
3. Native plant material shall be derived from the local genotypes of the native plants specified to the greatest extent practicable. Plants must be nursery grown in hardiness zones no warmer or colder than the project sites as determined by the USDA Agricultural Research Service, Plant Hardiness Zone Map.

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4. Plants that have escaped cultivation, or have accidentally been introduced into native habitats, shall not be considered native to the Eastern United States. Refer to USDA Plants Database for taxonomy and to G&C, NYSPC and the New York Flora Atlas to determine nativity.
 - a. No plant material shall be collected or harvested from non-nursery areas.
 - b. All trees shall be freshly dug for this project.
5. Sources: Nursery sources of supply shall have been investigated by the Contractor prior to submitting its bid to confirm that size, variety, and quantity of plant material specified on the Plant List can be supplied. Failure to take this precaution will not relieve the Contractor from the responsibility for furnishing and installing all plant material in strict accordance with the Contract requirements and without additional expense to the City.
6. Quality: All woody plant material shall be nursery grown in accordance with good horticultural practice, for at least two (2) years under climatic conditions and soils similar to those at project site. All plants shall be of specimen quality. All trees are to be uniform and matched. All trees shall have straight trunks with leader intact, undamaged and uncut. Trees with damaged or crooked leaders, bark or abrasions, sunscald, disfiguring knots, or insect damage will not be accepted.
7. Depth of planting shall be checked on all trees being tagged at the nursery. Remove all soil or other fill material above the natural point where the tree trunk begins to spread, (the flare), prior to digging and ball and burlap operations.
8. Size:
 - a. Caliper measurement shall be taken on the trunk at 6 inches above the natural ground line for trees up to and including 4 inches in caliper, and 12 inches above the ground for trees greater than 4 inches in caliper.
 - b. Height and spread dimensions refer to the main body of plant, and not from branch tip to tip.
 - c. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified.
 - d. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.
 - e. Plants larger than specified may be used only if approved by Engineer. Use of such plants shall not increase the contract price. If larger plants are approved, the root ball shall be increased in

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proportion to the size of the plant. The Contractor shall verify that the size of the root ball will fit in prepared planting pits.

9. All trees shall be balled and burlapped stock (B&B), with a compact natural ball of earth, firmly wrapped and tied in burlap fabric.
 - a. Root ball sizes shall be in accordance with standards specified in ASNS.
 - b. Plants with cracked or broken rootballs will not be accepted.
 - c. Only natural burlap fabric shall be acceptable for balling. Plastic and other non-biodegradable fabrics will not be accepted.
- B. Staking and Guying Materials
 1. Stakes (where specified only): 3-inch diameter cedar, fir, or hemlock stakes, with pointed ends. Stakes shall be straight, sound, and free from defects that may impair strength.
 2. Tree tie: 3/4-inch thick polypropylene woven tree tie
- C. Drainage Gravel
 1. Drainage fill shall conform to the requirements of Section 31 23 23 –Fill, and shall be clean, free from silt and organic materials.
- D. Mulch
 1. Mulch shall be a double-shredded natural forest product of a uniform grade, partially decomposed, dark brown in color, free from sawdust, with no additives or any other treatment. Size of bark shall be from 5/8 inch to one and 1-1/4 inch. The pH range shall be 5.8 to 6.2.
 2. Mulch sources shall be free of diseases or pest infestations including but not limited to the Emerald Ash Borer or Asian Longhorned Beetle. Use of material from any areas that have been designated for quarantine of wood products by any state or federal agency is strictly prohibited.
- E. Sod Grass
 1. All sod shall be vigorously growing, thick, uniform, fully established, and well-developed turf grasses from an approved single source sod farm, New York State Certified.
 2. All sod shall conform to the following seed types and proportions:
 - a. 30% - One or two of the following Bluegrasses: Victa, Blacksberg, Preakness, Rugby, Dragon, Challenger or Unique
 - b. 35% - One or two of the following shade-tolerant Bluegrasses: Able, Eclipse, Nu-star, Warrens A-34, Bristol, Touchdown, or P-105
 - c. 30% - One of the following fine fescues: Aurora, Shadow or Discovery
 3. Quality

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- a. All sod shall be certified free of disease, insect pests, eggs, larvae, fungi, and blight, as required by regulatory authorities.
 - b. All sod shall be free from noxious weeds, annual grasses, moss, large stones, tree roots, or other materials harmful to growth or that will interfere with future mowing or other maintenance of the sodded areas.
 - c. Sod sections shall be strong enough to support their own weight when held vertically with a firm grasp on upper 10 percent of pad.
 - d. All sod sections shall be uniformly moist and not excessively dry or wet.
 - e. Broken pieces and torn or uneven ends shall not be accepted.
4. Size
- a. All sod shall be machine cut strips, in supplier's standard widths and lengths, but not less than 12 inches wide.
 - b. Thickness of pad shall be uniformly 3/4-inch ("1/4"), excluding top growth and thatch.
 - c. Each sod piece shall be cut to a uniform size with square corners.
5. Sod shall be freshly harvested, delivered, and installed within a period of 24 hours. Sod not installed within this time period shall be separately approved by the Engineer and shall be subject to conditions of material rejection.
- F. Grass Seed for Lawn Areas
1. Grass seed for lawn areas shall be fresh re-cleaned seed of the latest crop. Unless otherwise specified in the Plans or Contract, seed mixture shall have the following proportions by weight:
 - a. 60% Kentucky Blue-grass
 - b. 20% Fine Fescue
 - c. 20% Perennial Ryegrass
 2. Seed shall be Tri-Plex General seed mix by Lofts Seed Inc., or approved equal.
 3. All seed shall be delivered in standard size bags of the vendor, showing weight, purity, and percentage of seed varieties.
 4. Grass seed for lawn areas shall be provided only for areas where lawn is specified. It shall not be furnished for temporary stabilization prior to final site restoration in restoration projects.
- G. Grass Seed for Hydroseeded Areas
1. Grass seed mix for hydro-seeding shall be fresh re-cleaned seed of the latest crop. Seed mixture shall have the following proportions by weight:

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- a. 40% Creeping Red Fescue
 - b. 30% Perennial Ryegrass
 - c. 20% Annual Ryegrass
 - d. 10% Kentucky bluegrass
2. All seed shall be delivered in standard size bags of the vendor, showing weight, purity, and percentage of seed varieties.
 3. Grass seed for hydro-seeding shall be provided only for areas where hydro-seeded turf-grass is specified. It shall not be furnished for temporary stabilization prior to final site restoration in restoration projects.
- H. Native Grass and Wildflower Seed Mix
1. Seed for native grass and wildflower seeded areas shall be fresh re-cleaned seed of the latest crop. Seed mixture shall contain the following:
 2. Seed shall be as specified on the Drawings or in the Contract.
 3. All seed shall be delivered in standard size bags of the vendor, showing weight, purity, and percentage of seed varieties.
- I. Filter Fabric
1. Filter fabric shall be non-woven type conforming to the requirements of Section 31 25 10 - Dust, Soil Erosion & Sedimentation Control.
- J. Water
1. The Contractor shall be responsible for supplying all required water to the site at no additional cost to the City. In upstate projects, the Engineer of Record will coordinate with the Contractor to locate a source of water
 2. Where water is supplied from City hydrants, the Contractor shall obtain a free hydrant permit from the Department of Environmental Protection, Bureau of Consumer Service, (718 595 6699). Permits are issued for a 30-day period, and the Contractor is responsible for keeping the permit current. The permits are available from each borough office. To obtain a permit, the Contractor should bring a copy of their DEP contract indicating exemption from the permit fee, as described in Article 13, with a general description of the hydrant location(s) they propose to access.
 3. The Contractor must have all tools necessary for using city hydrants in his possession at time of planting to ensure that this section is adhered to. If conditions do not allow the use of New York City water sources, the Contractor must obtain his/her own source of water. No direct payment shall be made for water obtained from other than city sources, but the cost thereof shall be deemed included in of the contract.
 - a. All work injured or damaged because of the lack of water, or the use of too much water, or the use of contaminated water shall be the Contractor's responsibility to correct.

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b. Water shall be free from impurities injurious to vegetation.

K. Tree Irrigation Bags

1. Unless otherwise shown on the Drawings, required in the Contract, or directed by the Engineer, the Contractor shall furnish tree irrigation bags for all trees over 1-1/2 inch caliper. The irrigation bags shall be 100% reinforced UV stable polyethylene, at least 10 mils. thick with a polyester scrim lining, such as Tree-Gator, as manufactured by Spectrum Products, Raleigh, NC, or approved equal. The irrigation bags shall have a minimum 20-gallon capacity.

2.03 FABRICATION / ASSEMBLING / FINISHES

A. Not Used

2.04 SOURCE QUALITY CONTROL / SHOP TESTS

A. Not Used

PART 3 EXECUTION

3.01 EXAMINATION / PREPARATION

A. Examination

1. Approximately one (1) month prior to the expiration of the guarantee period, the Contractor shall arrange a site inspection by the Engineer.
2. At this time, the Engineer will prepare a list of all remedial work required, including plant replacement and maintenance.
3. This work shall be carried out before the end of the guarantee period, unless weather conditions cause delays, in which case such work shall be carried out as soon as is practical.
4. The Contractor shall coordinate its work with that of other Contractors. Such coordination shall include, but not be limited to:
 - a. Location of all underground utility lines and structures
 - b. Scheduling of planting operations
 - c. Scheduling of maintenance operations
5. Drainage at tree pits: Check drainage at tree pits prior to planting, by performing percolation tests (in dry weather) as follows:
 - a. Dig out planting hole to required depth and fill hole half full of water. Mark water level with stake.
 - b. Water level should decrease by a minimum of two (2) inches per hour.
 - c. If water does not drain adequately from plant pits, amend conditions at tree pits and planting beds as required for satisfactory drainage. If

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topsoil or subgrade has been over-compacted by the Contractor's operations, such as by compaction equipment or by allowing vehicles or equipment to pass over the area, the Contractor shall remove and replace over-compacted materials at its own expense.

- d. Obtain approval of Engineer for proposed amendments.
 - e. Do not place trees in pits until approval of drainage conditions by the Engineer.
6. The Contractor shall be liable for all damage to surrounding areas caused by planting operations and shall be required to restore or replace the damaged areas to their original condition.
7. Contractor is responsible for determining the location of all utilities, by contacting the appropriate utility company prior to any planting activities.
- a. Verify that underground utilities and irrigation systems in landscape areas are in place, at the proper location, tested (except final irrigation testing) and ready for use.
 - 1) Take proper precautions so as not to disturb or damage sub-surface elements.
 - b. Coordinate with other trades.
8. The Contractor is liable for any damage to such utilities during the course of construction, and is responsible for making necessary repairs to damaged utilities at its own expense.

B. Preparation

1. Planting
- a. Install filter fabric under planted areas, in areas shown on the Drawings.
 - 1) Fabric shall be overlapped by a minimum of six (6) inches.
 - 2) Fabric shall be held in place with wire staples of adequate quantities to prevent movement of fabric during planting operations.
 - 3) Fabric ends shall be secured in trenches as shown on the Drawings.
 - 4) No fabric shall be visible following completion of planting and seeding operations.
 - b. Planting soil mix materials and installation shall be as specified in Section 32 90 05 – Soil Mixes.
 - c. Exercise extreme caution during excavation to avoid damaging or interrupting existing underground utilities. Use appropriate detection equipment to locate utilities during excavation for planting.

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- d. Erect barricades, warning signs, or other protective devices as may be required by local, state, or federal laws and regulations to protect open excavations.
- 2. Seeding and Sodding
 - a. All areas to be seeded or sodded shall be thoroughly loosened to a depth of 6 inches and graded to true lines free from all unsightly variations, bumps, ridges or depressions. All sticks, stones, roots or other objectionable material shall be removed.
 - b. Provide 12 inches of lawn soil mix, spread evenly over all areas to be seeded or sodded. Prepare topsoil to provide a crumbly seedbed, firm and level after tilling.
 - c. After all materials have been worked in, firm up soil by rolling to eliminate all soft spots. Rake entire area into a crumbly state, with one inch of loose soil at the surface, using a wide-toothed rake or tine-harrow.
 - d. For additional requirements on the use of soil amendments refer to Section 32 90 05 – Soil Mixes.

3.02 INSTALLATION

- A. For projects within the immediate New York City area, plant only within the following dates, weather permitting. Refer to the Contract for approved planting dates for projects outside the City. Do not plant in times of high wind, rain, sleet, or snow when the ground is frozen or excessively wet; or when the soil is otherwise in an unsatisfactory condition for planting. Planting at times other than those specified will be at the Contractor's own risk, and will not invalidate any guarantees.
 - 1. B & B Deciduous trees and shrubs:
 - a. Spring: March 15 to May 15
 - b. Fall: October 15 to December 15
 - 2. The following trees shall be planted during the spring season only:
 - a. *Acer rubrum*
 - b. *Betula sp.*
 - c. *Crataegus sp.*
 - d. *Liquidambar styraciflua*
 - e. *Liriodendron tulipifera*
 - f. *Platanus acerifolia*
 - g. *Prunus sp.*

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- h. Quercus sp.
 - i. Salix babylonica
 - j. Tilia tomentosa
 - k. Zelkova sp.
 - 3. B & B Evergreen trees and shrubs
 - a. Spring: March 15 to May 15
 - b. Fall: September 1 to December 1
 - 4. Container-grown perennials, vines, and ground cover plants:
 - a. Spring: March 15 to July 1
 - b. Fall: September 1 to November 1
 - 5. Seeding, hydroseeding, and sodding shall be carried out during the following dates:
 - a. Spring: April 1 to June 1
 - b. Fall: September 1 to October 15
 - 6. Seeding shall be in moderately dry to moist soil, at such times when wind does not exceed five (5) miles per hour.
- B. Do not plant until plant material has been approved by the Engineer at site.
- C. Placement of Plants
 - 1. Plants shall be set in the center of pits, plumb and straight, in accordance with the planting details, and faced to give best appearance and relationship to adjacent plants and structures.
 - 2. Plant to such depth that the finished grade level of plant, after settlement, will be the same as that at which the plant was grown.
 - 3. Trees must be planted at the depth of the flare, where roots spread from the trunk. The flare must be located and placed at the correct level before continuing planting operations.
- D. Planting Balled and Burlapped Trees and Shrubs
 - 1. Excavate plant pits to minimum dimensions shown on the Drawings. If plant pits are mechanically dug, the sides of the pit shall be broken down or roughened with a shovel or other hand tool to eliminate surface glazing.
 - 2. Remove any platforms, wire, and surplus binding from top and sides of ball.
 - 3. Position plants in center of pit, using gentle handling to avoid damage to any part of the plant.
 - 4. Set plants on a bed of compacted soil mix, to position at the correct depth, as shown on the Drawings.

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5. Cut and remove burlap, rope ties, and wire baskets from the root ball, backfilling and gently removing burlap and wire basket in sections as needed to support the root ball.
 6. If wire baskets are used to contain the root ball, these shall be entirely removed before planting.
 7. Fully remove all burlap, non-biodegradable twine and other materials.
 8. Cleanly cut off all visible broken or frayed roots.
 9. Add mycorrhizal fungi inoculant, if specified, to each tree planting as per the approved manufacturer's or supplier's instructions.
 10. Apply water retention additive as per approved manufacturer's or supplier's instructions.
 11. Backfilling: Fill plant pit with soil mix by hand, in layers not more than six (6) inches deep, and with each layer thoroughly settled by hand tamping and with water, and free of all voids before next layer is put in place.
 12. Install tree irrigation bags and fill with water, unless otherwise specified or directed by the Engineer.
- E. Planting Perennials, Vines, and Container Grown Shrubs
1. Excavate plant holes to depth of container and twice the container diameter.
 2. Carefully remove plant from container using gentle handling to avoid damage to any part of plant.
 3. If roots are loose, spread roots out evenly over a mound of soil mix. If roots are tight and compact, loosen by pulling gently apart. If plant roots will not separate, use a sharp tool to make vertical slits in the root ball, approximately 1/2-inch deep at three or four locations around root mass.
 4. Set plants on a bed of compacted soil mix, so that the root ball is level with the surface of the soil.
 5. Backfilling: Fill plant pit with soil mix by hand, pushing the mix around and just over the surface of the root ball. Add soil mix in layers not more than four inches (4") deep, and with each layer thoroughly settled by hand tamping and with water, and free of all voids before next layer is put in place.
- F. Saucering
1. After backfilling is completed, a saucer shall be made for the retention of water around each plant, unless impracticable because of placement of tree gratings or other paving material over planted area.
 2. The saucer shall be of the same diameter as that of the hole dug.
 3. The lip shall be level all around and shall be at least 4 inches high for trees, and 2 inches high for shrubs.

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G. Watering

1. Immediately after installation of each plant, the soil around it shall be thoroughly saturated with water.
 - a. Apply water slowly so as to penetrate the entire root system.
 - b. Watering shall continue throughout the maintenance and guarantee period, as frequently as seasonal conditions require, until final acceptance of the work.
 - c. Contractor shall be responsible for adequate water both before and after installation of irrigation system.

H. Mulching

1. After planting operations are complete all plant bed areas shall be covered with approved mulch.
 - a. Unless otherwise specified in the Drawings, mulch shall be installed at an even depth of three (3) inches over tree pit and shrub areas and two (2) inches over groundcover beds.
 - b. Mulch shall be contained within the plant bed areas and shall not be permitted to spread onto paved areas. Mulch shall not cover plants.

I. Staking

1. Trees shall be staked only if shown on the Drawings, required in the Contract, or directed by the Engineer.
 - a. Trees shall stand plumb after staking.
 - b. Do not use tree wrap.

J. Pruning

1. Perform compensatory pruning following planting only as shown on the Drawings, required in the Contract, or directed by the Engineer.
 - a. Excessive pruning at the time of transplanting must be avoided. The extent of top pruning should be based upon the ability of the plant roots to function.
 - b. Pruning shall be performed by a Certified Arborist in accordance with current best practices of the International Society of Arboriculture.
 - c. All deadwood, suckers, and broken or badly bruised branches shall be removed.
 - d. Pruning shall be done with clean, sharp tools.
 - e. No leaders shall be cut. Each cut shall be made carefully, at the correct location, leaving a smooth surface with no jagged edges or torn bark. The correct anatomical location is just beyond the branch collar.

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- f. Large or heavy limbs should be removed using three (3) cuts. The first cut undercuts the limb one or two feet from the parent branch or trunk. The second cut is top cut which is made slightly further out on the limb than the undercut. The third cut is to remove the stub.
- K. Antidesiccant Spraying
 - 1. Use antidesiccant only as approved by Engineer. Approval is required for each condition of use.
- 3.03 FIELD TESTING / QUALITY CONTROL
 - A. Not Used
- 3.04 STARTUP / DEMONSTRATION
 - A. Sodding Operations
 - 1. Water the prepared soil bed between 12 and 24 hours prior to sod installation, sufficient to evenly moisten the soil mix, without over-watering or causing slipperiness.
 - a. Watering shall be carried out after the completion of soil mix placement, grading, settlement of soil surface, completion of remedial work and application of soil amendments.
 - 2. Lay sod strips, after watering as specified, perpendicular to slope and edge to edge.
 - a. Place first row of sod in a straight line.
 - b. Place all subsequent rows parallel with joints butted tightly together and with staggered ends of sod strips.
 - c. Perimeter and border areas shall not be laid with less than full width sod or with less than one-half length sod.
 - d. Handle and lay without stretching of sod material.
 - e. All ends, joints and cuts shall be fitted and tightly joined so there are no voids or overlaps.
 - f. The final appearance shall be of a continuous lawn.
 - 3. Tamp the sod lightly to ensure good contact with the soil surface and remove, replace, and re-tamp places of minor depressions or irregularities.
 - 4. Finished grades at sod lawn areas shall be within one (1) inch of finished grades indicated on Drawings, except where lawn meets paved areas, there shall be no change of grade between lawn and pavement.
 - a. Finished grades shall allow free flow of surface drainage to catch basins without ponding.
 - 5. Top Dressing

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- a. Following completion of all sod laying, the sod surface shall be top dressed with Lawn Soil Mix, conforming to Section 32 90 05 – Soil Mixes.
- b. The soil mix shall be screened to remove all materials larger than 1/2-inch.
- c. Soil Mix material shall be worked into the seams between the sod pieces with a brush.
- d. When finished, the sod shall present a smooth and uniform surface parallel to the finish grade.
- e. Water all sod areas immediately following sod installation so that the sod surface and sod bed surface are thoroughly soaked.

B. Seeding Operations

1. Prepare seedbeds in undisturbed areas by lightly tilling or harrowing to a depth of two (2) inches. No fertilizer is to be applied to wildflower or native grass areas. Prior to preparation of undisturbed sites, remove existing grass, vegetation and turf. Contractor shall take particular care so as not to damage existing plant material adjacent to seeding area while preparing seed bed. Dispose of removed vegetation off-site in accordance with all local laws: do not turn over into soil being prepared for native grass and wildflower seeding.
2. Moisten prepared seeding areas before planting if soil is dry. Do not create a muddy soil condition.
3. Apply seed with drop or cyclone spreader to uniformly cover seedbed at the rate required. In general, spring and summer seeding will be at a rate of 30 lbs./acre and winter seeding at a rate of 100 lbs./acre, per NYSDEC guidelines.
4. Small wildflower seeds should be mixed with damp sand and hand sown. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over the entire area.
5. Lightly rake seed into soil, and cover entire area with salt hay or straw, to a thickness of one (1) inch.
6. For larger areas, a mechanical power drawn seeder or combination grass planter and land packer or pulverizer may be used. Seed to be planted not deeper than 1/4 inch. Seeding operations shall be kept as close as possible to the contours and not up and down the slopes.
7. Water all seeded areas immediately upon installation, taking care not to wash out the seeds, and regularly during first four (4) weeks following seeding to maintain adequate moisture for deep root growth.

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8. Seeding shall not be done on frozen ground or when the temperature is 32° F or lower. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
 9. Seeded areas shall be protected during establishment.
- C. Hydroseeding
1. All areas to be hydroseeded shall be thoroughly loosened to a depth of 6 inches and graded to true lines free from all unsightly variations, bumps, ridges or depressions. All sticks, stones, roots, or other objectionable material shall be removed.
 2. Provide six (6) inches of soil mix and spread evenly over all areas to be hydroseeded. Prepare topsoil to provide a crumbly seedbed, firm and level after tilling. For additional requirements on the use of crushed limestone in the soil mix, see Section 32 90 05 – Soil Mixes.
 3. Apply hydroseeding solution with a mobile tank with a centrifugal pump, using a seeding nozzle of a design to produce an even distribution of the solution
 4. Clean and remove all hydroseeding solution from areas outside of the limits of hydroseeding, including removal from structures, walls, paving, trees and other plant material.
- D. Watering of Sodded, Seeded and Hydroseeded Areas
1. The Contractor shall provide all labor and arrange for all watering necessary to establish acceptable stands of planting in seeded areas. .
 - a. Begin watering immediately following installation.
 - b. Watering shall continue throughout the contract period until Substantial Completion.
 - c. During the first two (2) weeks after planting, in the absence of adequate rainfall, watering shall be performed up to three (3) times daily or as often as necessary and in sufficient quantities to maintain moist soil to a depth of at least two (2) inches.
 - d. After the first two weeks, the Contractor shall water the seeded areas to maintain adequate moisture in the upper two (2) inches of soil, necessary for the promotion of deep root growth.
 2. Watering shall be done in a manner that will provide uniform coverage, prevent erosion due to application of excessive quantities over small areas, and prevent damage to the finished surface by the watering equipment. The Contractor shall furnish sufficient watering equipment to apply one (1) complete coverage to the lawn areas in an eight (8) hour period.
- E. Reseeding

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1. Any areas that fail to show growth within three (3) weeks of seeding shall be immediately reseeded at no additional cost to the City.
2. Reseeding shall be carried out as many times as necessary until a uniform grass cover is established.
3. Scattered bare spots, none of which are larger than one square foot, will be allowed up to a maximum of 3 percent of any seeded or hydroseeded area.

F. Mowing

1. Mowing of all seeded, hydroseeded and sodded lawn areas shall begin when grasses and other plants are firmly rooted and secure, and shall continue until Substantial Completion.
2. Mow all grass lawn areas to maintain the grass height between 1-1/2 and 2-1/2 inches and meadow areas up to six (6) inches or as directed by the DEP Maintenance Supervisor.
3. Wildflower and native grass seeded areas shall be mown no more than two (2) times per year.
4. First mowing shall be carried out after seed set and shall not be carried out earlier than September 15 nor later than November 15. Mow to a height of not more than 9 inches.
 - a. Second mowing shall be carried out four (4) to six (6) weeks after first mowing, unless otherwise directed by DEP. Mow to a height of between 5 and 6 inches

3.05 ADJUSTING / PROTECTION / CLEANUP

A. Adjusting

1. Maintenance of all plant material shall begin immediately after planting, and continue until the end of the guarantee period, unless otherwise noted.
2. Defective work shall be corrected as soon as possible after it becomes apparent and when weather season permits. The Engineer shall be the sole judge of the condition of the plants.
3. Maintenance shall include:
 - a. Watering, replanting, reseeded, resodding, repair of ruts and erosion, repair of protection devices, weeding and continuous control of invasive species, fertilizing and mowing of lawn areas.
 - b. The removal of all dead, dying or unhealthy plant material, including lawns, and replacement of such material with new plants or seeding to meet all specifications of the original plantings.
 - c. Protection from insects, disease, and invasive species to maintain optimum health. Infection or infestation may require removal and disposal off-site followed by replacement with plants free of

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infection at the discretion of the Engineer's designated representative.

- d. The repeating of any or all phases of planting or lawn work as specified herein, or that may be required to obtain healthy plantings and a uniform, thick, and well developed stand of grass.
4. Specific Maintenance Tasks: Maintenance shall include, but not be limited to the following:
 5. Watering: Water lawns and planted areas as required. Do not permit plant material to wilt or to show signs of stress from lack of water. Contractor shall supply and distribute water to all lawns and plantings during the full time of their establishment at the site and provide all equipment for water distribution at no additional cost to the City. Plants and lawns shall be inspected by the Contractor for watering needs at least once each week, and watered as necessary to promote plant growth and vitality.
 6. Mowing: As described hereinbefore.
 7. Fertilizers: If applicable, apply any approved fertilizers, herbicides, pesticides or fungicides as required, or as directed by the Engineer, to keep all plantings healthy and pest-free throughout the guarantee period. Any fertilizers, herbicides or pesticides must be approved in advance by DEP.
 8. Rodents: Protect against and exterminate rodents, and repair of any damage caused by rodent activities.
 9. Weeding: Weed to keep all planted areas weed-free throughout the guarantee period.
 10. Mulching: Add mulch material as required to maintain mulch at specified depth.
 11. Resetting: Reset plant material that has settled, to proper grade and position.
 12. Pruning: Prune trees and shrubs to remove all dead or broken branches, throughout the guarantee period. Prune flowering shrubs as necessary to ensure flowering.
 13. Trimming: Cut back dead stalks, flowers and foliage from perennials in fall after the first frost. Trim or dead-head spent flower blossoms throughout the guarantee period.
 14. Anchoring: Maintain any approved tree stakes, ties and other tree anchoring systems, including tightening, repair or replacement as required, and removal at the end of the guarantee period, or as directed by the Engineer.
 15. Irrigation: If applicable, coordinate with irrigation system installer for all adjustments to irrigation as required.
 16. Instruct City's maintenance personnel in all maintenance procedures.

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17. Maintenance Program
 - a. Prior to Substantial Completion, the Contractor shall arrange a meeting with the Engineer, and with the City's designated maintenance personnel to review together the submitted maintenance program and any modifications required for the duration of the guarantee period.
 - b. The Contractor shall make periodic inspections, at no extra cost, during the guarantee period to determine what changes, if any, should be made in the maintenance program.
 - c. Any recommended changes shall be submitted in writing to the Engineer.
 - d. Additional remedial work not included in the maintenance program shall be carried out by the Contractor as deficiencies are identified and reported by the Engineer or designated maintenance personnel.

 18. Replacements
 - a. In accordance with the requirements for Warranty (Guarantee Period) under this Section, the Contractor shall replace, as soon as weather conditions permit, and within a specified planting period, all plants determined dead and/or dying by the Engineer or the City's designated personnel during and at the end of the guarantee period. Replacements shall be made at no additional cost to the City. Labor and all materials needed for installation of replacements shall be included in the warranty.
 - b. Plants shall be free of dead or dying branches and shall bear foliage of normal density, size, and color.
 - c. Trees having lost their central leader or exhibit crown dieback at the end of the guarantee shall be replaced.
 - d. Replacements shall match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this Section.
- B. Plant Protection
1. The Contractor shall provide at its own expense all protection that is deemed necessary for all plants and lawn areas against damage prior to Final Acceptance of the work.
 2. Removal of Temporary Protection Measures: All temporary protection measures employed during the construction period shall be removed prior to Substantial Completion unless otherwise directed by the Engineer. All stakes and ties used for temporary bracing of trees shall be removed and disposed of by the Contractor off site at its own expense at the end of the guarantee period, or earlier at the direction of the Engineer.

SECTION 32 90 00 – PLANTING
CONTRACT CRO-534

C. Clean Up

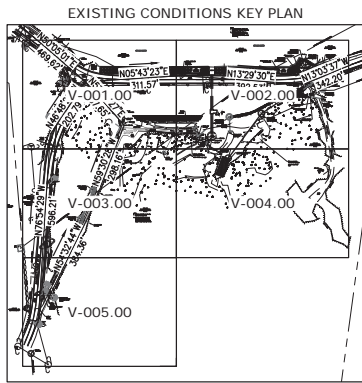
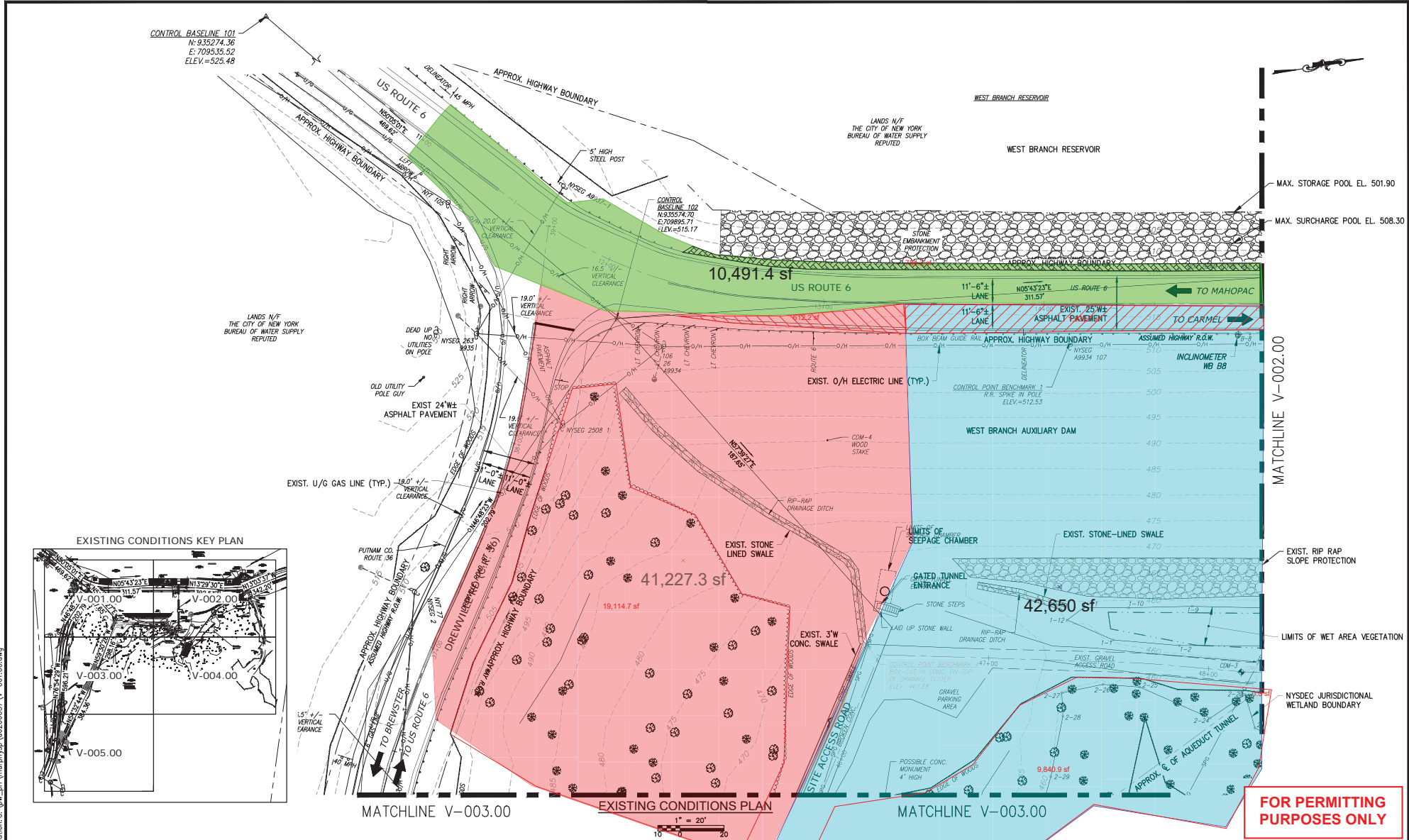
1. At the end of each work day the Contractor shall broom-clean the site, to remove all trash, debris, and loose soil materials. Store materials and equipment where directed.
2. Immediately following the completion of planting operations, the Contractor shall remove all excess materials, stockpiles, waste materials, tools, and equipment, and leave the site in a clear and clean condition.
3. Immediately remove all rejected materials from the site. All rejected materials and other waste or debris shall become the property of the Contractor, who shall legally dispose of same off-site.

END OF SECTION

SECTION 32 90 00 – PLANTING
CONTRACT CRO-534

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ATTACHMENT D
STORMWATER CALCULATIONS



Lead: S. Murphy & Date: March 05, Friday, Mar 15, 2020 3:25:13 PM
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 Drawing Name: & Location: C:\w\pl\m\m\physp\0206637\V-001.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPR'D.

DESIGNED BY: S. MURPHY	DRAWN BY: M. POWELL
CHECKED BY: E. LECLAIR	GDM Smith
DESIGN LEAD: S. MURPHY	11 8000 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 765-6400
SECTION MANAGER: E. LECLAIR	



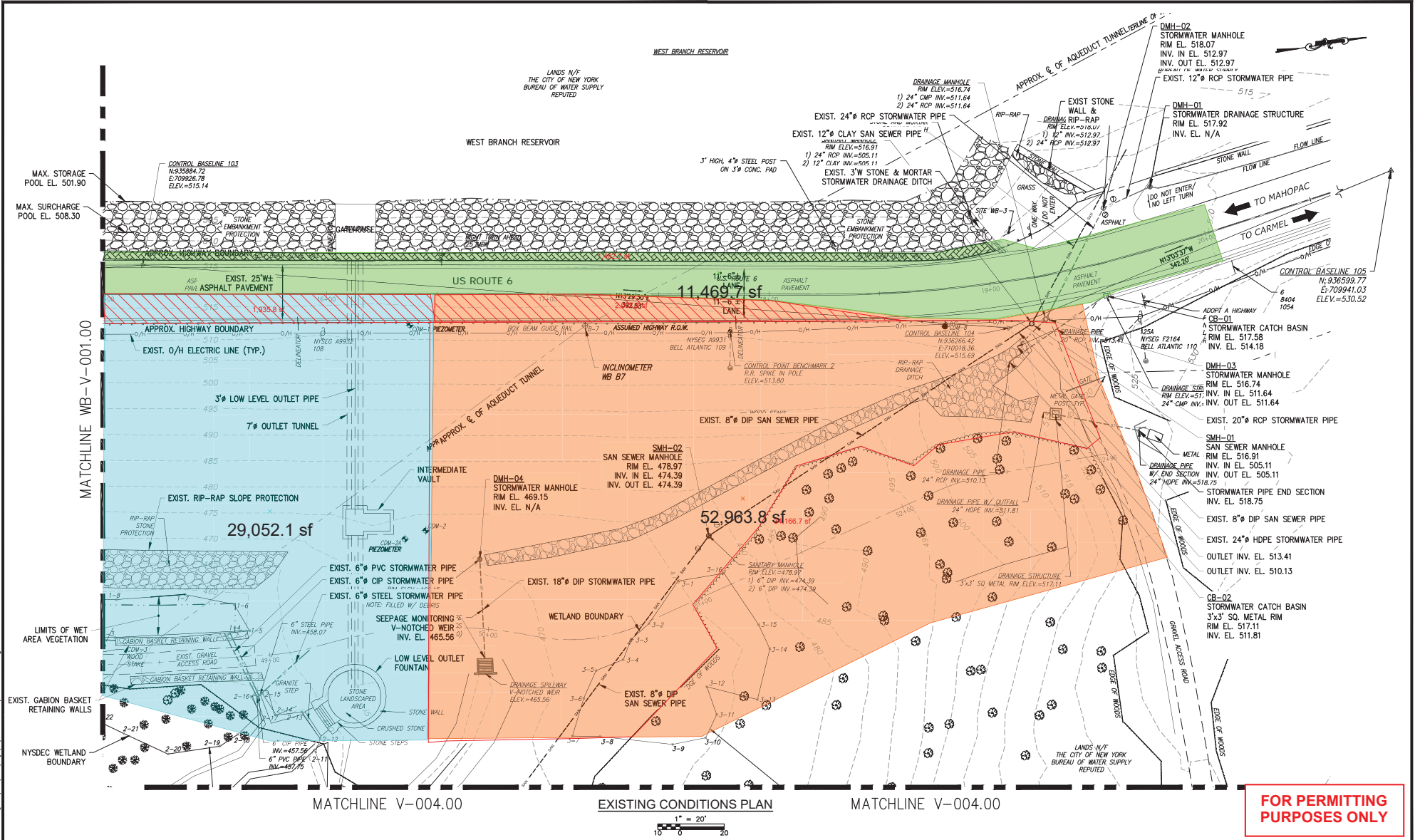
APPROVED FOR THE CITY OF NEW YORK
L. SINGH ACCOUNTABLE MANAGER
P. COSTA PORTFOLIO MANAGER

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ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK EXISTING CONDITIONS PLAN (1 OF 5)	DATE: SCALE: 1"=20' SHEET NO: 5 OF 69 DRAWING NO. V-001.00
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FOR PERMITTING PURPOSES ONLY

Left: Created By: & Date: Munch, G5, Friday, May 15, 2020, 10:25:17 PM
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 Drawing Name: & Location: C:\w...an\muphys\0206637-V-001.00.dwg

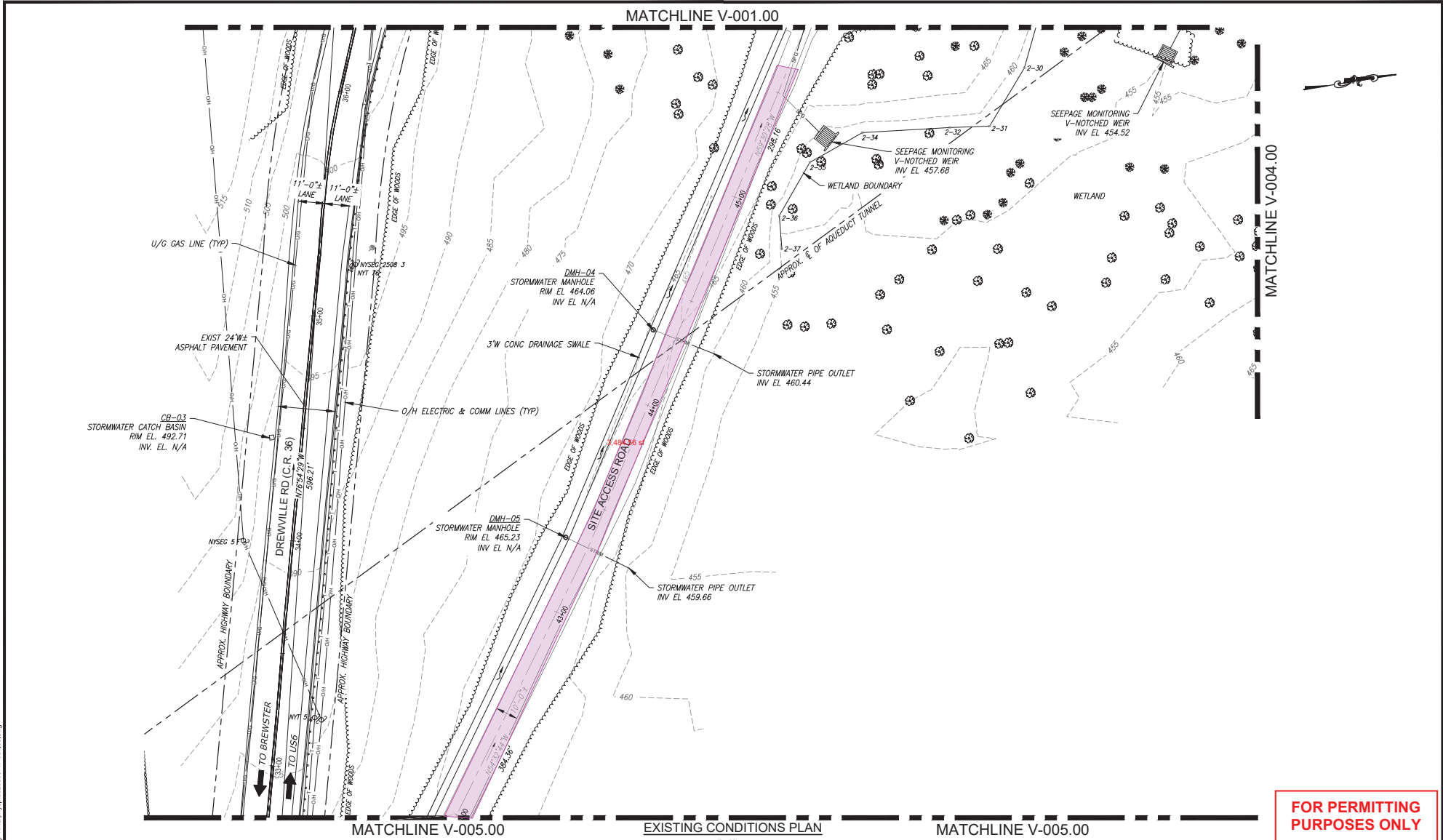
NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY: S. MURPHY	DRAWN BY: M. POWELL
CHECKED BY: E. LECLAIR	GDM Smith
DESIGN LEAD: S. MURPHY	118000 American Blvd, Suite 200 Latham, NY 12110 Tel: (518) 762-6600
SECTION MANAGER: E. LECLAIR	NYC Environmental Protection

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P. COSTA PORTFOLIO MANAGER	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK

EXISTING CONDITIONS PLAN (2 OF 5) DRAWING NO. V-002.00	DATE: 11/20/20 SCALE: 1"=20' SHEET NO: 6 OF 69 DRAWING NO. V-002.00
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1" = 20'



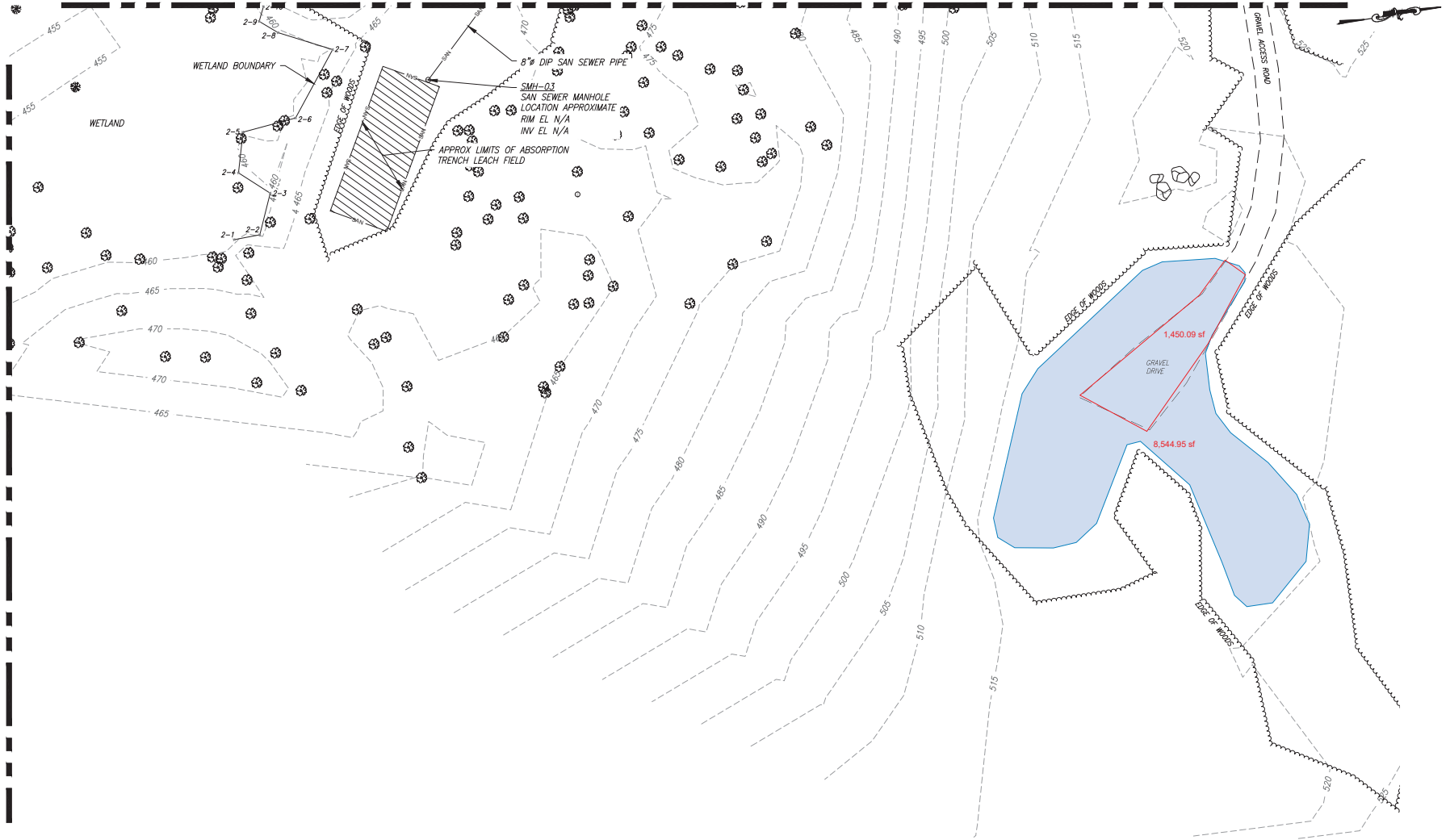
DESIGNED BY: S. MURPHY CHECKED BY: E. LECLAR DESIGN LEAD: S. MURPHY SECTION MANAGER: E. LECLAR		DRAWN BY: M. POWELL <small>11000 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 785-6600</small>		APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER		*WARNING—IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2.* NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp		WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK EXISTING CONDITIONS PLAN (3 OF 5)		DATE: 1/20/20 SCALE: 1"=20' SHEET NO: 3 OF 80 DRAWING NO. V-003.00	
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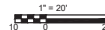
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MATCHLINE V-002.00

MATCHLINE V-003.00



EXISTING CONDITIONS PLAN



FOR PERMITTING PURPOSES ONLY

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 Plot Date: 6/25/2021 10:20:00 AM
 Plot Scale: 1"=20'
 Drawing Name: S:\Location\City\planning\phd\2020\626863\TV-001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPR'D.

DESIGNED BY: S. MURPHY
CHECKED BY: E. LECLAR
DESIGN LEAD: S. MURPHY
SECTION MANAGER: E. LECLAR

DRAWN BY:
 M. POWELL

 11 8100 American Blvd, Suite 200
 Latham, NY 12110
 Tel: (518) 765-6800



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WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK
 EXISTING CONDITIONS PLAN (4 OF 5)

DATE:	6/25/2021
SCALE:	1"=20'
SHEET NO.:	9 OF 80
DRAWING NO.:	V-004.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

South Area

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.43 60	----- 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.43 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	----- 61	----- 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.066 98	----- 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0.014 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 0.94 0 0

Total Acres 0.94

Weighted Runoff Curve Number (RCN) 67

Middle Area

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D	
CULTIVATED AGRICULTURAL LANDS			hydrologic condition				
Fallow	Bare soil	----	77	86	91	94	
	Crop residue (CR)	poor	76	85	90	93	
Row Crops	Crop residue (CR)	good	74	83	88	90	
	Straight row (SR)	poor	72	81	88	91	
	Straight row (SR)	good	67	78	85	89	
	SR + Crop residue	poor	71	80	87	90	
	SR + Crop residue	good	64	75	82	85	
	Contoured (C)	poor	70	79	84	88	
	Contoured (C)	good	65	75	82	86	
	C + Crop residue	poor	69	78	83	87	
	C + Crop residue	good	64	74	81	85	
	Cont & terraced(C&T)	poor	66	74	80	82	
	Cont & terraced(C&T)	good	62	71	78	81	
	C&T + Crop residue	poor	65	73	79	81	
	C&T + Crop residue	good	61	70	77	80	
	Small Grain	Straight row (SR)	poor	65	76	84	88
Straight row (SR)		good	63	75	83	87	
SR + Crop residue		poor	64	75	83	86	
SR + Crop residue		good	60	72	80	84	
Contoured (C)		poor	63	74	82	85	
Contoured (C)		good	61	73	81	84	
C + Crop residue		poor	62	73	81	84	
C + Crop residue		good	60	72	80	83	
Cont & terraced(C&T)		poor	61	72	79	82	
Cont & terraces(C&T)		good	59	70	78	81	
C&T + Crop residue		poor	60	71	78	81	
C&T + Crop residue		good	58	69	77	80	
Close-seeded or broadcast legumes or rotation meadow		Straight row	poor	66	77	85	89
		Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85	
	Contoured	good	55	69	78	83	
	Cont & terraced	poor	63	73	80	83	
	Cont & terraced	good	51	67	76	80	
OTHER AGRICULTURAL LANDS							
Pasture, grassland or range	poor		68	79	86	89	
	fair		49	69	79	84	
	good		39	61	74	80	
Meadow -cont. grass (non graze	----		30	58	71	78	
Brush - brush, weed, grass mix	poor		48	67	77	83	
	fair		35	56	70	77	
	good		30	48	65	73	

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.22 60	----- 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	1.15 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	----- 61	----- 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.11 98	----- 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0.075 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0.076 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 1.631 0 0

Total Acres	1.6
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Weighted Runoff Curve Number (RCN)	71
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North Area

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.35 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.72 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.046 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0.033 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0.055 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 1.204 0 0

Total Acres	1.20
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Weighted Runoff Curve Number (RCN)	69
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Reservoir Area

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.05 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.452 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 0.502 0 0

Total Acres 0.50

Weighted Runoff Curve Number (RCN) 95



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch	By: DAR			Date:
Detail: Existing North	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Present
 Description: Area that drains to existing rip-rap apron on North side of dam.

1. Runoff Curve Number

Area: 1.20 acres
 Weighted CN: 69

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.59	2.24	4.69

Storage, S 4.49

Where $S = 1000 / CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch	By: DAR			Date:
Detail: Existing South	Date: 6/17/2017			Last revised: 1/29/2018

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Present
 Description: Area that drains to existing rip-rap apron on south side of dam

1. Runoff Curve Number

Area: 0.94 acres
 Weighted CN: 67

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.51	2.07	4.46

Storage, S 4.93

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch	By: DAR		Date:
Detail: Existing Middle	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Present
Description: Area that drains to existing wet area along access road

1. Runoff Curve Number

Area: 1.63 acres
Weighted CN: 71

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.67	2.41	4.93

Storage, S 4.08

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch	By: DAR			Date:
Detail: Existing Reservoir	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Present
 Description: Area that drains to existing wet area along access road

1. Runoff Curve Number

Area: 0.50 acres
 Weighted CN: 95

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	2.29	4.80	7.80

Storage, S 0.53

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam North	Date: 6/17/2017		Last revised: 1/29/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	100	0.25	f	0.24	n/a	n/a	n/a	0.082 hours
SHALLOW CONCENTRATED	50	0.20	u	n/a	n/a	n/a	7.22	0.002 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL	118	0.09	n/a	0.035	1	4	5.05	0.006 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.090 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam South	Date: 6/17/2017		Last revised: 1/29/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	140	0.28	h	0.4	n/a	n/a	n/a	0.155 hours
SHALLOW CONCENTRATED	18	0.08	u	n/a	n/a	n/a	4.42	0.001 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.156 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam Middle	Date: 6/17/2017		Last revised: 1/29/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	100	0.40	f	0.24	n/a	n/a	n/a	0.068 hours
SHALLOW CONCENTRATED	50	0.50	u	n/a	n/a	n/a	11.41	0.001 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.069 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: To Reservoir	Date: 5/18/2020		Last revised: 5/18/2020

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	12	0.02	a	0.011	n/a	n/a	n/a	0.004 hours
SHEET	8	0.10	e	0.15	n/a	n/a	n/a	0.011 hours
SHALLOW CONCENTRATED	10	0.40	u	n/a	n/a	n/a	10.20	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.015 hours

Sheet Flow Surface Codes

- a Smooth Surface
- b fallow (no residue)
- c cultivated < 20% Res.
- d cultivated > 20% Res.
- e grass - range, short

- f grass, dense
- g grass, bermuda
- h woods, light
- i woods, dense
- j range, natural

Shallow Concentrated Surface Codes

- u unpaved surface
- p paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * S^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Existing North	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Present

1. Data

Area: 0.002 square miles
 Weighted CN: 69
 Time of Concentration: 0.09 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia in	0.899	0.899	0.899	* Table 4-1 tab
Compute Ia/P	0.317	0.167	0.107	
Unit Peak Discharge, qu csm/in	575	630	650	* See Exhibit 4-III Tab
Runoff, Q in	0.59	2.24	4.69	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp cfs	0.6	2.7	5.7	



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch D am	By: DAR		Date:
Detail: Existing South	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Present

1. Data

Area: 0.001 square miles
 Weighted CN: 67
 Time of Concentration: 0.16 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia in	0.985	0.985	0.985	* Table 4-1 tab
Compute Ia/P	0.347	0.183	0.117	
Unit Peak Discharge, qu csm/in	460	550	580	* See Exhibit 4-III Tab
Runoff, Q in	0.51	2.07	4.46	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp cfs	0.3	1.7	3.8	



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch D am	By: DAR		Date:
Detail: Existing Middle	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Present

1. Data

Area: 0.0025 square miles
 Weighted CN: 71
 Time of Concentration: 0.07 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia in	0.817	0.817	0.817	* Table 4-1 tab
Compute Ia/P	0.288	0.152	0.097	
Unit Peak Discharge, qu csm/in	600	625	650	* See Exhibit 4-III Tab
Runoff, Q in	0.67	2.41	4.93	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp cfs	1.0	3.84	8.2	



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch D am	By: DAR		Date:
Detail: Existing Reservoir	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Present

1. Data

Area: 0.0008 square miles
 Weighted CN: 95
 Time of Concentration: 0.01 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia in	0.105	0.105	0.105	* Table 4-1 tab
Compute Ia/P	0.037	0.020	0.013	
Unit Peak Discharge, qu csm/in	650	650	650	* See Exhibit 4-III Tab
Runoff, Q in	0.67	2.41	4.93	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp cfs	0.3	1.23	2.51	

curve number	la (in)	la CALCULATED (in)
30	4.667	4.6666667
31	4.452	4.4516129
32	4.250	4.25
33	4.061	4.0606061
34	3.882	3.8823529
35	3.714	3.7142857
36	3.556	3.5555556
37	3.405	3.4054054
38	3.263	3.2631579
39	3.128	3.1282051
40	3	3
41	2.878	2.8780488
42	2.762	2.7619048
43	2.651	2.6511628
44	2.545	2.5454545
45	2.444	2.4444444
46	2.348	2.3478261
47	2.255	2.2553191
48	2.167	2.1666667
49	2.082	2.0816327
50	2	2
51	1.922	1.9215686
52	1.846	1.8461538
53	1.774	1.7735849
54	1.704	1.7037037
55	1.636	1.6363636
56	1.571	1.5714286
57	1.509	1.5087719
58	1.448	1.4482759
59	1.39	1.3898305
60	1.333	1.3333333
61	1.279	1.2786885
62	1.226	1.2258065
63	1.175	1.1746032
64	1.125	1.125
65	1.077	1.0769231
66	1.03	1.030303
67	0.985	0.9850746
68	0.941	0.9411765
69	0.899	0.8985507
70	0.857	0.8571429
71	0.817	0.8169014
72	0.778	0.7777778
73	0.74	0.739726
74	0.703	0.7027027

75	0.667	0.6666667
76	0.632	0.6315789
77	0.597	0.5974026
78	0.564	0.5641026
79	0.532	0.5316456
80	0.5	0.5
81	0.469	0.4691358
82	0.439	0.4390244
83	0.41	0.4096386
84	0.381	0.3809524
85	0.353	0.3529412
86	0.326	0.3255814
87	0.299	0.2988506
88	0.273	0.2727273
89	0.247	0.247191
90	0.222	0.2222222
91	0.198	0.1978022
92	0.174	0.173913
93	0.151	0.1505376
94	0.128	0.1276596
95	0.105	0.1052632
96	0.083	0.0833333
97	0.062	0.0618557
98	0.041	0.0408163

Exhibit 4-III Unit peak discharge ($q_{u,p}$) for NRCS (SCS) type III rainfall distribution

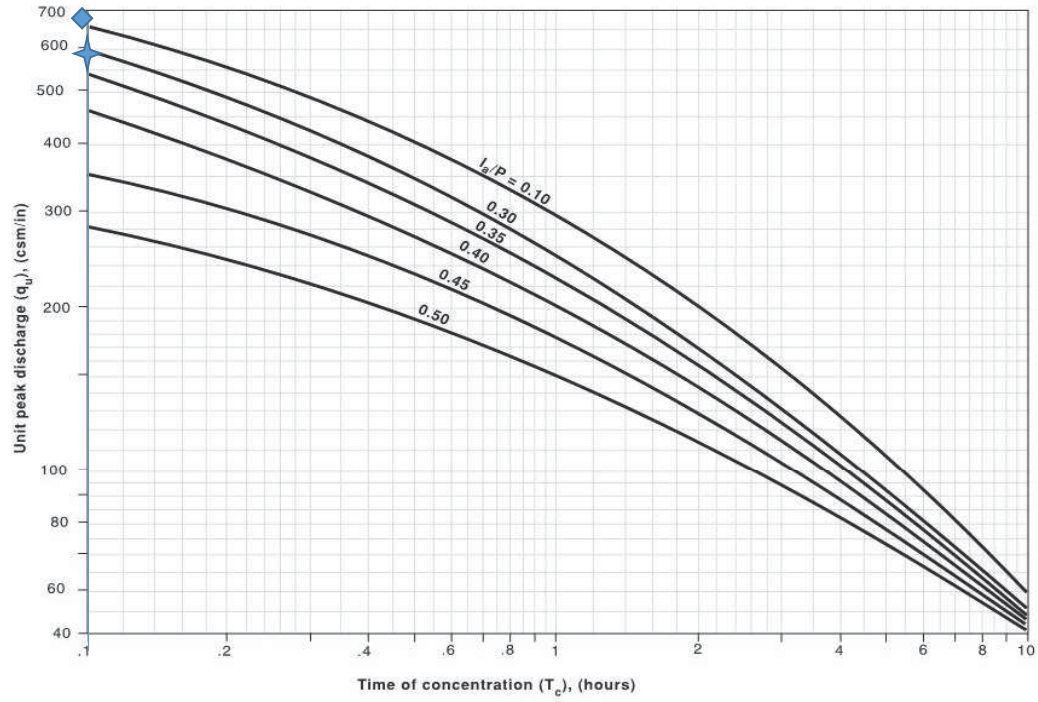


Exhibit 4-III Unit peak discharge ($q_{u,p}$) for NRCS (SCS) type III rainfall distribution

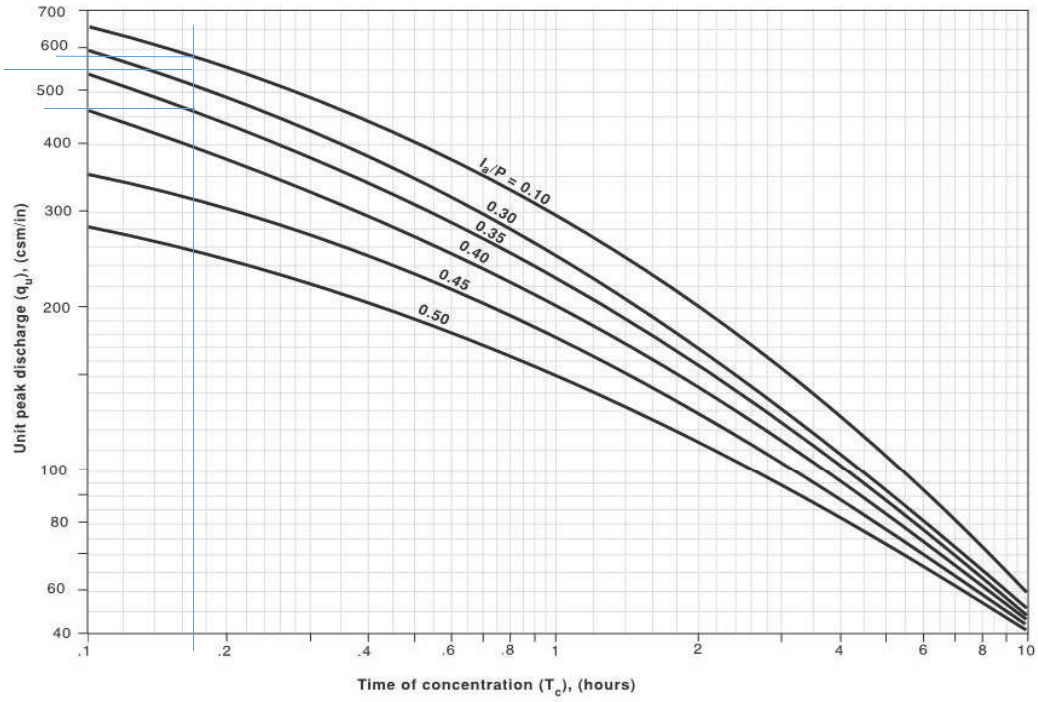
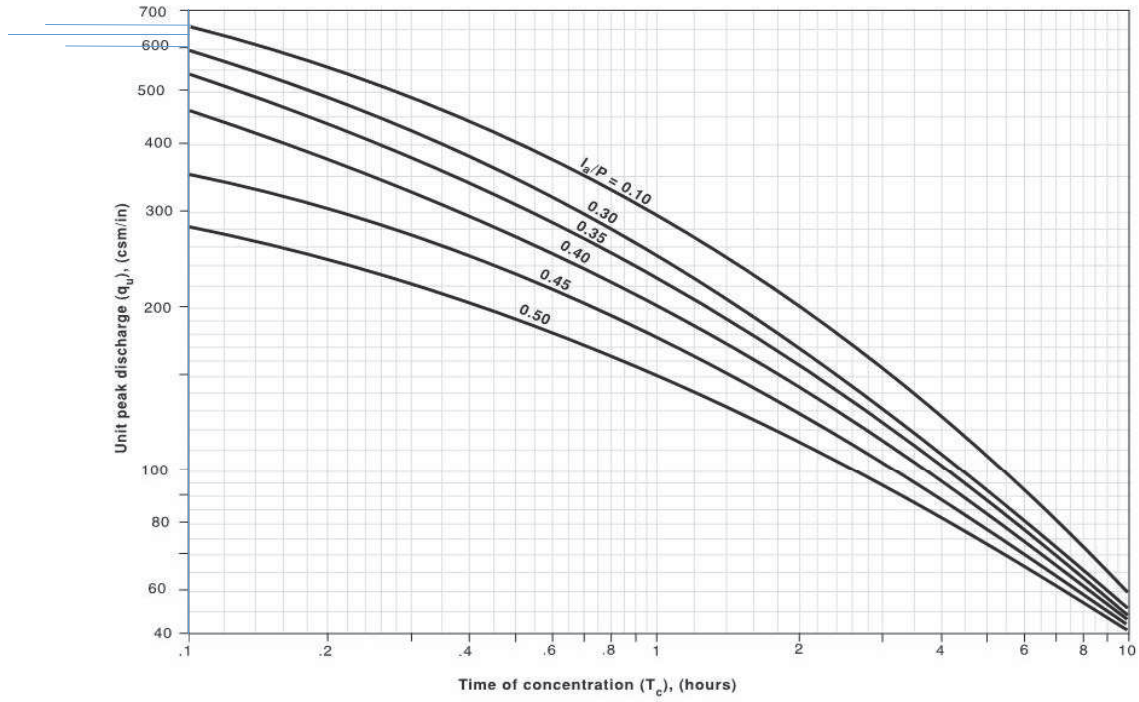


Exhibit 4-III Unit peak discharge ($q_{u,p}$) for NRCS (SCS) type III rainfall distribution





NOAA Atlas 14, Volume 10, Version 2
 Location name: Carmel Town of, New York, USA*
 Latitude: 41.3954°, Longitude: -73.7062°
 Elevation: 666.7 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

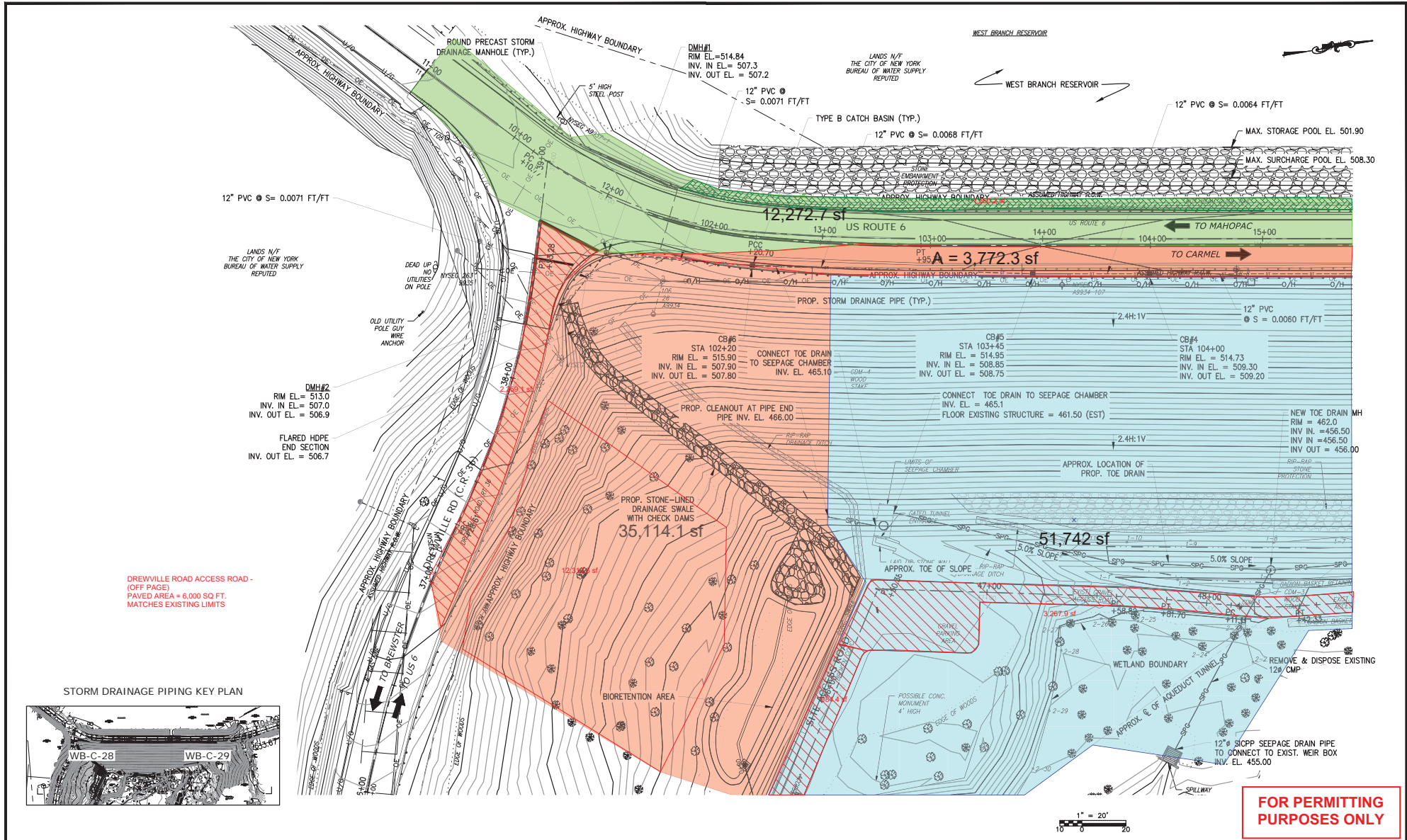
[PF tabular](#) | [PF graphical](#) | [Maps & aenals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.349 (0.279-0.434)	0.410 (0.327-0.509)	0.508 (0.405-0.634)	0.590 (0.467-0.740)	0.703 (0.535-0.916)	0.790 (0.567-1.05)	0.877 (0.629-1.20)	0.977 (0.663-1.38)	1.11 (0.721-1.62)	1.21 (0.765-1.80)
10-min	0.495 (0.396-0.615)	0.580 (0.464-0.722)	0.720 (0.573-0.898)	0.836 (0.661-1.05)	0.996 (0.758-1.30)	1.12 (0.832-1.49)	1.24 (0.891-1.71)	1.38 (0.940-1.95)	1.57 (1.02-2.29)	1.71 (1.08-2.54)
15-min	0.582 (0.466-0.723)	0.683 (0.546-0.849)	0.847 (0.674-1.06)	0.984 (0.778-1.23)	1.17 (0.892-1.53)	1.32 (0.978-1.75)	1.46 (1.05-2.01)	1.63 (1.11-2.29)	1.85 (1.20-2.69)	2.01 (1.27-2.99)
30-min	0.825 (0.660-1.02)	0.961 (0.768-1.19)	1.18 (0.941-1.47)	1.37 (1.08-1.71)	1.62 (1.23-2.11)	1.81 (1.35-2.41)	2.01 (1.44-2.75)	2.23 (1.51-3.13)	2.51 (1.63-3.66)	2.73 (1.73-4.05)
60-min	1.07 (0.855-1.33)	1.24 (0.990-1.54)	1.52 (1.21-1.89)	1.75 (1.38-2.19)	2.07 (1.57-2.69)	2.31 (1.72-3.06)	2.56 (1.83-3.50)	2.82 (1.92-3.98)	3.18 (2.07-4.63)	3.44 (2.18-5.12)
2-hr	1.39 (1.12-1.71)	1.61 (1.30-1.99)	1.98 (1.58-2.45)	2.28 (1.82-2.85)	2.70 (2.07-3.50)	3.03 (2.26-3.99)	3.35 (2.41-4.56)	3.72 (2.54-5.20)	4.20 (2.74-6.07)	4.56 (2.90-6.73)
3-hr	1.60 (1.29-1.96)	1.86 (1.50-2.29)	2.30 (1.85-2.84)	2.67 (2.13-3.31)	3.17 (2.44-4.09)	3.56 (2.67-4.68)	3.94 (2.85-5.36)	4.39 (3.00-6.13)	4.99 (3.26-7.19)	5.44 (3.46-8.00)
6-hr	2.00 (1.62-2.44)	2.37 (1.92-2.89)	2.97 (2.40-3.64)	3.47 (2.79-4.28)	4.16 (3.22-5.35)	4.70 (3.55-6.16)	5.23 (3.81-7.10)	5.90 (4.04-8.17)	6.78 (4.44-9.71)	7.44 (4.75-10.9)
12-hr	2.44 (1.99-2.96)	2.94 (2.40-3.57)	3.77 (3.07-4.59)	4.45 (3.60-5.45)	5.39 (4.20-6.90)	6.12 (4.65-8.00)	6.84 (5.03-9.28)	7.81 (5.37-10.8)	9.10 (5.98-13.0)	10.1 (6.44-14.6)
24-hr	2.84 (2.34-3.43)	3.48 (2.86-4.20)	4.52 (3.70-5.47)	5.38 (4.38-6.55)	6.57 (5.15-8.37)	7.49 (5.73-9.75)	8.40 (6.23-11.4)	9.69 (6.69-13.3)	11.4 (7.51-16.1)	12.7 (8.13-18.3)
2-day	3.20 (2.65-3.83)	3.93 (3.26-4.72)	5.14 (4.24-6.18)	6.14 (5.03-7.43)	7.52 (5.93-9.53)	8.58 (6.61-11.1)	9.65 (7.20-13.0)	11.2 (7.74-15.2)	13.2 (8.74-18.6)	14.7 (9.49-21.1)
3-day	3.47 (2.89-4.14)	4.26 (3.54-5.09)	5.56 (4.60-6.66)	6.64 (5.46-8.00)	8.12 (6.43-10.3)	9.27 (7.16-12.0)	10.4 (7.79-14.0)	12.1 (8.38-16.3)	14.2 (9.45-19.9)	15.9 (10.3-22.7)
4-day	3.71 (3.10-4.42)	4.55 (3.79-5.42)	5.91 (4.90-7.06)	7.05 (5.80-8.46)	8.60 (6.82-10.8)	9.81 (7.60-12.6)	11.0 (8.25-14.7)	12.7 (8.86-17.2)	15.0 (9.97-21.0)	16.7 (10.8-23.8)
7-day	4.37 (3.67-5.18)	5.29 (4.43-6.27)	6.79 (5.66-8.07)	8.03 (6.65-9.59)	9.74 (7.76-12.2)	11.1 (8.59-14.1)	12.4 (9.29-16.4)	14.2 (9.93-19.1)	16.7 (11.1-23.1)	18.5 (12.0-26.2)
10-day	5.04 (4.24-5.94)	6.01 (5.05-7.09)	7.59 (6.35-8.99)	8.91 (7.40-10.6)	10.7 (8.56-13.3)	12.1 (9.43-15.4)	13.5 (10.1-17.8)	15.4 (10.8-20.6)	17.9 (11.9-24.7)	19.7 (12.8-27.8)
20-day	7.15 (6.05-8.37)	8.23 (6.96-9.65)	10.0 (8.43-11.8)	11.5 (9.61-13.6)	13.5 (10.8-16.6)	15.1 (11.8-18.9)	16.7 (12.5-21.5)	18.5 (13.0-24.5)	20.9 (14.0-28.7)	22.7 (14.8-31.8)
30-day	8.93 (7.59-10.4)	10.1 (8.58-11.8)	12.0 (10.2-14.1)	13.6 (11.4-16.0)	15.8 (12.7-19.3)	17.5 (13.7-21.7)	19.2 (14.3-24.6)	21.0 (14.8-27.7)	23.3 (15.7-31.8)	25.1 (16.4-35.0)
45-day	11.1 (9.51-12.9)	12.4 (10.6-14.5)	14.5 (12.3-16.9)	16.3 (13.7-19.1)	18.7 (15.0-22.6)	20.5 (16.0-25.3)	22.3 (16.7-28.3)	24.1 (17.1-31.7)	26.4 (17.8-35.9)	28.2 (18.4-39.1)
60-day	13.0 (11.1-15.1)	14.4 (12.3-16.7)	16.6 (14.1-19.3)	18.5 (15.6-21.6)	21.0 (17.0-25.4)	23.0 (18.0-28.3)	25.0 (18.7-31.6)	26.8 (19.0-35.1)	29.1 (19.7-39.5)	30.9 (20.2-42.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

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DREWVILLE ROAD ACCESS ROAD -
(OFF PAGE)
PAVED AREA = 6,000 SQ FT
MATCHES EXISTING LIMITS

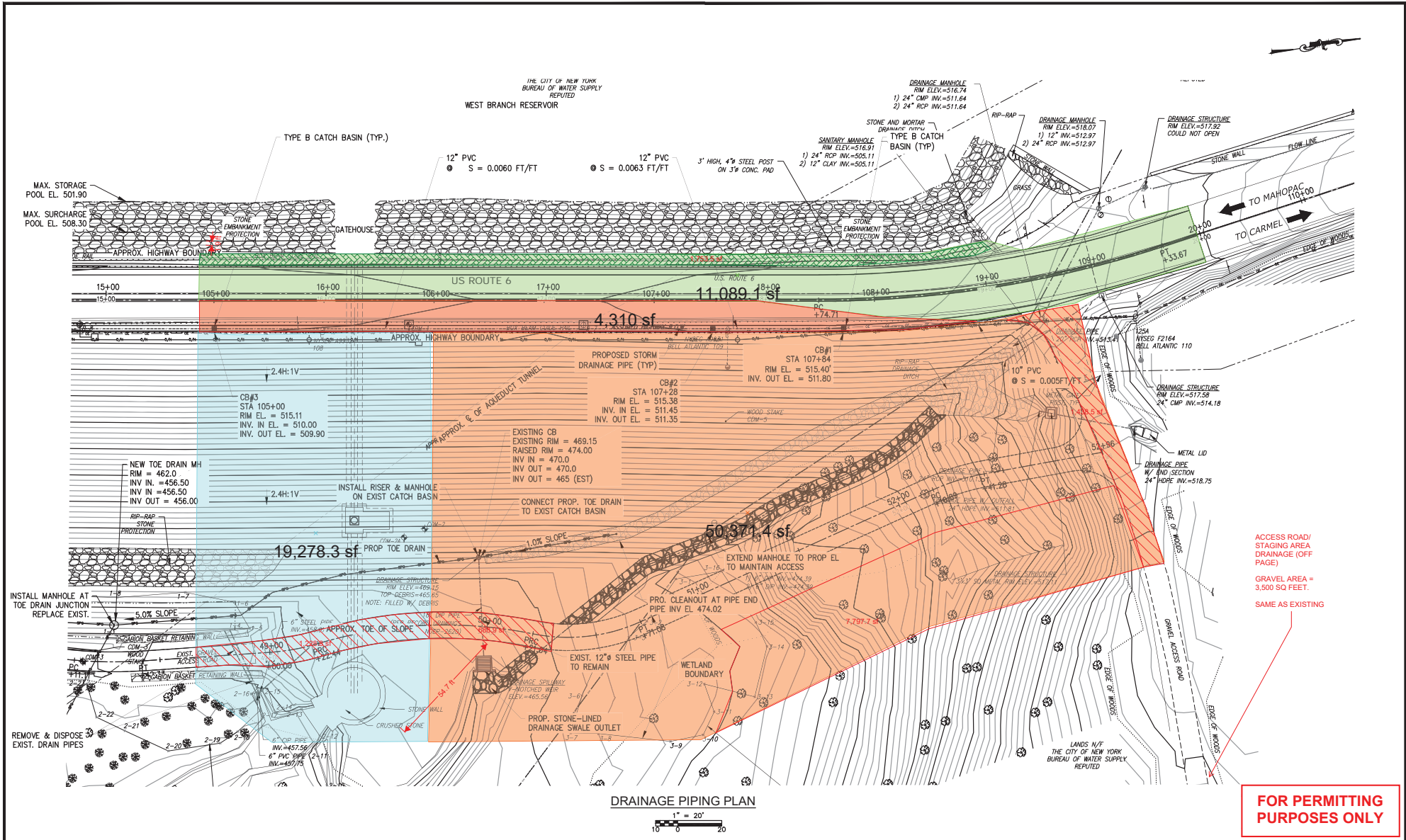
STORM DRAINAGE PIPING KEY PLAN



**FOR PERMITTING
PURPOSES ONLY**

DESIGNED BY: S. MURPHY CHECKED BY: E. LECLAIR DESIGN LEAD: E. LECLAIR SECTION MANAGER: E. LECLAIR		DRAWN BY: S. MURPHY  11 8000 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 782-6800				APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER		<p>WARNING—IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY, IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2."</p> <p>NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp</p>		<p>WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK</p> <p>DRAINAGE PIPING PLAN (1 OF 2)</p>		DATE: SCALE: 1" = 20' SHEET NO.: 31 OF 39 DRAWING NO. WB-C-28	
NO.	DATE	REVISIONS/DESCRIPTION		APPROV'D.									

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

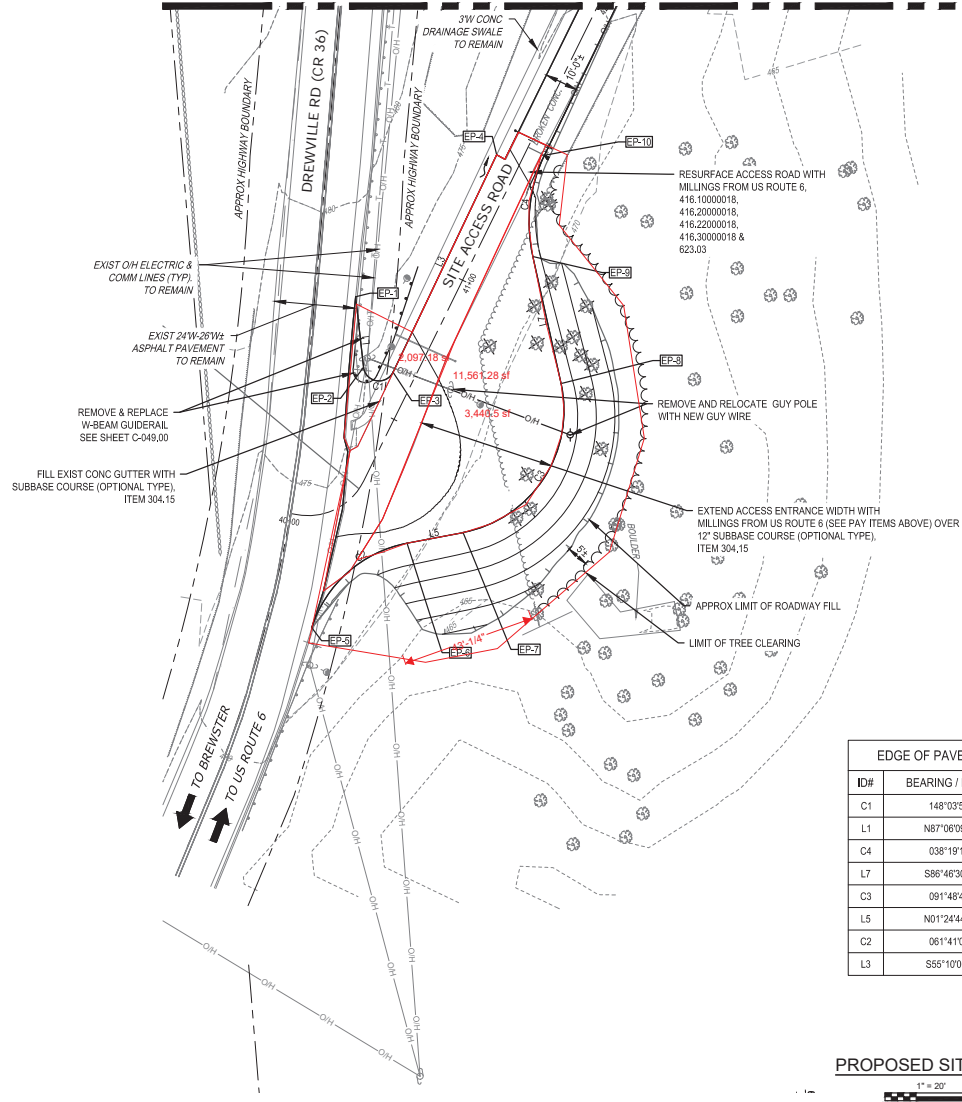


FOR PERMITTING
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	DESIGNED BY: S. MURPHY	DRAWN BY: S. MURPHY		APPROVED FOR THE CITY OF NEW YORK	*WARNING-IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2.*	NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK	DATE: 1" = 20" SCALE: SHEET NO: 32 OF 39 DRAWING NO. WB-C-29
	CHECKED BY: E. LECLAIR			L. SINGH ACCOUNTABLE MANAGER			DRAINAGE PIPING PLAN (2 OF 2)	
	DESIGN LEAD: E. LECLAIR	SECTION MANAGER: E. LECLAIR		P. COSTA PORTFOLIO MANAGER				
NO. DATE	REVISIONS/DESCRIPTION	APPROD.						

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

MATCHLINE C-003.00



ID#	BEARING / DELTA	RADIUS	LENGTH
C1	148°03'51"	5.00'	12.92'
L1	N87°06'09"W		22.84'
C4	038°19'10"	50.00'	33.44'
L7	S86°46'30"W		41.87'
C3	091°48'47"	40.00'	64.10'
L5	N01°24'44"W		18.34'
C2	061°41'03"	40.00'	43.06'
L3	S55°10'00"E		77.53'



POINT #	DESCRIPTION	NORTHING	EASTING
3	EP-1	935329.09	710524.03
4	EP-2	935327.94	710546.84
5	EP-3	935337.04	710549.95
6	EP-4	935381.32	710486.31
7	EP-5	935297.87	710626.91
8	EP-6	935332.56	710605.02
9	EP-7	935350.89	710604.57
10	EP-8	935389.84	710562.33
11	EP-9	935387.48	710520.53
12	EP-10	935396.49	710488.97

PROPOSED SITE PLAN



FOR PERMITTING PURPOSES ONLY

Last Saved By: 6 DataMush@ES Friday, March 13, 2025 11:07:09 AM
 Plot Style Table: BECD_Drawing.ctb
 Drawing Name: C:\work\p11\murphy\p11\266637C-01.dwg

		DESIGNED BY: M. POWELL CHECKED BY: E. LECLAR DESIGN LEAD: S. MURPHY	DRAWN BY: M. POWELL  11 8100 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 765-6900		APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER	<p style="font-size: small;">*WARNING—IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2.*</p> <p style="text-align: center;">NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp</p>	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK PROPOSED SITE PLAN (5 OF 5)	DATE: 1/20/25 SCALE: 1"=20' SHEET NO: 15 OF 79 DRAWING NO. C-005.00
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All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Developed North

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.178 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.87 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0.049 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0.064 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 1.161 0 0

Total Acres	1.16
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Weighted Runoff Curve Number (RCN)	69
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Developed South

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D	
CULTIVATED AGRICULTURAL LANDS			hydrologic condition				
Fallow	Bare soil	----	77	86	91	94	
	Crop residue (CR)	poor	76	85	90	93	
Row Crops	Crop residue (CR)	good	74	83	88	90	
	Straight row (SR)	poor	72	81	88	91	
	Straight row (SR)	good	67	78	85	89	
	SR + Crop residue	poor	71	80	87	90	
	SR + Crop residue	good	64	75	82	85	
	Contoured (C)	poor	70	79	84	88	
	Contoured (C)	good	65	75	82	86	
	C + Crop residue	poor	69	78	83	87	
	C + Crop residue	good	64	74	81	85	
	Cont & terraced(C&T)	poor	66	74	80	82	
	Cont & terraced(C&T)	good	62	71	78	81	
	C&T + Crop residue	poor	65	73	79	81	
	C&T + Crop residue	good	61	70	77	80	
	Small Grain	Straight row (SR)	poor	65	76	84	88
Straight row (SR)		good	63	75	83	87	
SR + Crop residue		poor	64	75	83	86	
SR + Crop residue		good	60	72	80	84	
Contoured (C)		poor	63	74	82	85	
Contoured (C)		good	61	73	81	84	
C + Crop residue		poor	62	73	81	84	
C + Crop residue		good	60	72	80	83	
Cont & terraced(C&T)		poor	61	72	79	82	
Cont & terraces(C&T)		good	59	70	78	81	
C&T + Crop residue		poor	60	71	78	81	
C&T + Crop residue		good	58	69	77	80	
Close-seeded or broadcast legumes or rotation meadow		Straight row	poor	66	77	85	89
		Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85	
	Contoured	good	55	69	78	83	
	Cont & terraced	poor	63	73	80	83	
	Cont & terraced	good	51	67	76	80	
OTHER AGRICULTURAL LANDS							
Pasture, grassland or range	poor		68	79	86	89	
	fair		49	69	79	84	
	good		39	61	74	80	
Meadow -cont. grass (non graze	----		30	58	71	78	
Brush - brush, weed, grass mix	poor		48	67	77	83	
	fair		35	56	70	77	
	good		30	48	65	73	

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.303 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.4 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.24 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	0.045 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 0.988 0 0

Total Acres	0.99
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Weighted Runoff Curve Number (RCN)	74
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Developed Middle

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0.226 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	1.278 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.022 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0.103 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	----- 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 1.629 0 0

Total Acres	1.63
--------------------	-------------

Weighted Runoff Curve Number (RCN)	69
---	-----------

Developed Reservoir

Cover Type Treatment

Curve Numbers for Hydrologic Soil Type

			A	B	C	D
CULTIVATED AGRICULTURAL LANDS			hydrologic condition			
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	85	89
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
Small Grain	C&T + Crop residue	good	61	70	77	80
	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	83	87
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
Close-seeded or broadcast legumes or rotation meadow	C&T + Crop residue	good	58	69	77	80
	Straight row	poor	66	77	85	89
	Straight row	good	58	72	81	85
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83
OTHER AGRICULTURAL LANDS	Cont & terraced	good	51	67	76	80
	Pasture, grassland or range	poor	68	79	86	89
		fair	49	69	79	84
		good	39	61	74	80
	Meadow -cont. grass (non graze	----	30	58	71	78
	Brush - brush, weed, grass mix	poor	48	67	77	83
		fair	35	56	70	77
		good	30	48	65	73

Woods - grass combination	poor	----- 57	----- 73	----- 82	----- 86
	fair	----- 43	----- 65	----- 76	----- 82
	good	----- 32	----- 58	----- 72	----- 79
Woods	poor	----- 45	----- 66	----- 77	----- 83
	fair	----- 36	0 60	0 73	----- 79
	good	----- 30	----- 55	----- 70	----- 77
Farmsteads	----	----- 59	----- 74	----- 82	----- 86
FULLY DEVELOPED URBAN AREAS (Veg Established)					
Open space (Lawns,parks etc.)					
	Poor condition; grass cover < 50%	----- 68	----- 79	----- 86	----- 89
	Fair condition; grass cover 50% to 75 %	----- 49	0.076 69	----- 79	----- 84
	Good condition; grass cover > 75%	----- 39	0 61	0 74	----- 80
Impervious Areas					
	Paved parking lots, roofs, driveways	----- 98	0.46 98	0 98	----- 98
	Streets and roads				
	Paved; curbs and storm sew	----- 98	----- 98	----- 98	----- 98
	Paved; open ditches (w/right-of-way)	----- 83	----- 89	----- 92	----- 93
	Gravel (w/ right-of-way)	----- 76	0 85	----- 89	----- 91
	Dirt (w/ right-of-way)	----- 72	----- 82	----- 87	----- 89
Urban Districts					
	Avg % impervious				
	Commercial & business	85	----- 89	----- 92	----- 94
	Industrial	72	----- 81	----- 88	----- 91
Residential districts by average lot size					
	Avg % impervious				
	1/8 acre (town houses)	65	----- 77	----- 85	----- 90
	1/4 acre	38	----- 61	----- 75	----- 83
	1/3 acre	30	----- 57	----- 72	----- 81
	1/2 acre	25	----- 54	----- 70	----- 80
	1 acre	20	----- 51	----- 68	----- 79
	2 acre	12	----- 46	----- 65	----- 77
	User defined urban		----- **	----- **	----- **
DEVELOPING URBAN AREA (No Vegetation)					
	Newly graded area (pervious on		----- 77	----- 86	----- 91

0 0.536 0 0

Total Acres 0.54

Weighted Runoff Curve Number (RCN) 94



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch	By: DAR		Date:
Detail: Developed North	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Developed
Description: Area that drains to existing rip-rap apron on North side of dam.

1. Runoff Curve Number

Area: 1.16 acres
Weighted CN: 69

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.59	2.24	4.69

Storage, S 4.49

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch	By: DAR			Date:
Detail: South Developed	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Developed
 Description: Area that drains to existing rip-rap apron on south side of dam

1. Runoff Curve Number

Area: 0.99 acres
 Weighted CN: 74

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.81	2.67	5.28

Storage, S 3.51

Where $S = 1000 / CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch	By: DAR			Date:
Detail: Middle Developed	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Developed
 Description: Area that drains to middle of dam

1. Runoff Curve Number

Area: 1.63 acres
 Weighted CN: 69

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	0.59	2.24	4.69

Storage, S 4.49

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch	By: DAR		Date:
Detail: Reservoir Developed	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 2 - Runoff Curve Number and Runoff

Site Status: Developed
Description: Area that drains to Reservoir

1. Runoff Curve Number

Area: 0.54 acres
Weighted CN: 94

2. Runoff

	Storm 1	Storm 2	Storm 3
Frequency, yr	1	10	100
Rainfall, P (24-hr), in.	2.84	5.38	8.4 * See NOAA Rainfall tab
Runoff, Q, in.	2.20	4.68	7.68

Storage, S 0.64

Where $S = 1000/CN - 10$ (TR-55 Equation 2-3)

Where $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$ (TR-55 Equation 2-4)



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam North	Date: 6/17/2017		Last revised: 2/1/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	88	0.25	f	0.24	n/a	n/a	n/a	0.074 hours
SHALLOW CONCENTRATED			u	n/a	n/a	n/a	0.00	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL	116	0.17	n/a	0.035	1	4	6.94	0.005 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.079 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam South Hill	Date: 6/17/2017		Last revised: 2/1/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	100	0.26	h	0.4	n/a	n/a	n/a	0.121 hours
SHALLOW CONCENTRATED	45	0.15	u	n/a	n/a	n/a	6.25	0.002 hours
SHALLOW CONCENTRATED	30	0.16	u	n/a	n/a	n/a	6.45	0.001 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.125 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Dam Middle Hill	Date: 6/17/2017		Last revised: 2/1/2018

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	100	0.40	f	0.24	n/a	n/a	n/a	0.068 hours
SHALLOW CONCENTRATED	38	0.40	u	n/a	n/a	n/a	10.20	0.001 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.069 hours

Sheet Flow Surface Codes

- a** Smooth Surface
- b** fallow (no residue)
- c** cultivated < 20% Res.
- d** cultivated > 20% Res.
- e** grass - range, short

- f** grass, dense
- g** grass, bermuda
- h** woods, light
- i** woods, dense
- j** range, natural

Shallow Concentrated Surface Codes

- u** unpaved surface
- p** paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * s^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail: Reservoir	Date: 6/17/2017		Last revised: 5/18/2020

Worksheet 3 - Time of Concentration or travel time

Site Status: Present

FLOW TYPE	LENGTH (feet)	SLOPE (ft./ft.)	SURFACE Code	MANNINGS "n"	AREA (sq.ft.)	WP (feet)	VELOCITY (ft./sec.)	TRAVEL TIME
SHEET	14	0.02	a	0.011	n/a	n/a	n/a	0.004 hours
SHEET	10	0.10	e	0.15	n/a	n/a	n/a	0.013 hours
SHALLOW CONCENTRATED	10	0.40	u	n/a	n/a	n/a	10.20	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
SHALLOW CONCENTRATED				n/a	n/a	n/a	-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL							-----	0.000 hours
OPEN CHANNEL			n/a				-----	0.000 hours
Time of Concentration								0.017 hours

Sheet Flow Surface Codes

- a Smooth Surface
- b fallow (no residue)
- c cultivated < 20% Res.
- d cultivated > 20% Res.
- e grass - range, short

- f grass, dense
- g grass, bermuda
- h woods, light
- i woods, dense
- j range, natural

Shallow Concentrated Surface Codes

- u unpaved surface
- p paved surface

$$\text{Travel Time (Sheet Flow)} = \frac{0.007 * (nL)^{0.8}}{(P_2)^{0.5} * S^{0.4}}$$

$$\text{Travel Time (Shallow Concentrated)} = \frac{L}{3600V}$$

$$V = 16.1345(s)^{0.5}$$



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch Dam	By: DAR			Date:
Detail: Developed North	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Future

1. Data

Area: 0.002 square miles
 Weighted CN: 69
 Time of Concentration: 0.08 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia	0.899	0.899	0.899	* Table 4-1 tab
Compute Ia/P	0.317	0.167	0.107	
Unit Peak Discharge, qu	580	630	650	* See Exhibit 4-III Tab
Runoff, Q	0.59	2.24	4.69	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp	0.6	2.6	5.5	



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch Dam	By: DAR			Date:
Detail: Developed South (hill)	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Future

1. Data

Area: 0.002 square miles
 Weighted CN: 74
 Time of Concentration: 0.12 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia	0.703	0.703	0.703	* Table 4-1 tab
Compute Ia/P	0.248	0.131	0.084	**
Unit Peak Discharge, qu	580	625	640	* See Exhibit 4-III Tab
Runoff, Q	0.81	2.67	5.28	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp	0.7	2.6	5.2	

** Ia/P is less than lowest Ia/P plotted on Exhibit 4-III. Per TR-55, Page 4-1 limiting value of Ia/P was used



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch Dam	By: DAR			Date:
Detail: Developed Middle	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Future

1. Data

Area: 0.0025 square miles
 Weighted CN: 69
 Time of Concentration: 0.07 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia	0.899	0.899	0.899	* Table 4-1 tab
Compute Ia/P	0.317	0.167	0.107	
Unit Peak Discharge, qu csm/in	580	630	650	* See Exhibit 4-III Tab
Runoff, Q	0.59	2.24	4.69	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp	0.9	3.6	7.8	



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch Dam	By: DAR			Date:
Detail: Developed Reservoir	Date: 6/17/2017			Last revised: 5/18/2020

Worksheet 4 - Graphical Peak Discharge Method

Site Status: Future

1. Data

Area: 0.0008 square miles
 Weighted CN: 94
 Time of Concentration: 0.02 hr
 Rainfall Distribution: III (I, IA, II, III)

	Storm 1	Storm 2	Storm 3	
Frequency, yr	1	10	100	
Rainfall, P, In.	2.84	5.38	8.4	
Initial Abstraction, Ia	0.128	0.128	0.128	* Table 4-1 tab
Compute Ia/P	0.045	0.024	0.015	
Unit Peak Discharge, qu csm/in	650	650	650	* See Exhibit 4-III Tab
Runoff, Q	0.59	2.24	4.69	
Pond/Swamp Adjustment Factor	1	1	1	
Peak Discharge, qp	0.3	1.22	2.55	

** Ia/P is less than lowest Ia/P plotted on Exhibit 4-III. Per TR-55, Page 4-1 limiting value of Ia/P was used

curve number	la (in)	la CALCULATED (in)
30	4.667	4.6666667
31	4.452	4.4516129
32	4.250	4.25
33	4.061	4.0606061
34	3.882	3.8823529
35	3.714	3.7142857
36	3.556	3.5555556
37	3.405	3.4054054
38	3.263	3.2631579
39	3.128	3.1282051
40	3	3
41	2.878	2.8780488
42	2.762	2.7619048
43	2.651	2.6511628
44	2.545	2.5454545
45	2.444	2.4444444
46	2.348	2.3478261
47	2.255	2.2553191
48	2.167	2.1666667
49	2.082	2.0816327
50	2	2
51	1.922	1.9215686
52	1.846	1.8461538
53	1.774	1.7735849
54	1.704	1.7037037
55	1.636	1.6363636
56	1.571	1.5714286
57	1.509	1.5087719
58	1.448	1.4482759
59	1.39	1.3898305
60	1.333	1.3333333
61	1.279	1.2786885
62	1.226	1.2258065
63	1.175	1.1746032
64	1.125	1.125
65	1.077	1.0769231
66	1.03	1.030303
67	0.985	0.9850746
68	0.941	0.9411765
69	0.899	0.8985507
70	0.857	0.8571429
71	0.817	0.8169014
72	0.778	0.7777778
73	0.74	0.739726
74	0.703	0.7027027

75	0.667	0.6666667
76	0.632	0.6315789
77	0.597	0.5974026
78	0.564	0.5641026
79	0.532	0.5316456
80	0.5	0.5
81	0.469	0.4691358
82	0.439	0.4390244
83	0.41	0.4096386
84	0.381	0.3809524
85	0.353	0.3529412
86	0.326	0.3255814
87	0.299	0.2988506
88	0.273	0.2727273
89	0.247	0.247191
90	0.222	0.2222222
91	0.198	0.1978022
92	0.174	0.173913
93	0.151	0.1505376
94	0.128	0.1276596
95	0.105	0.1052632
96	0.083	0.0833333
97	0.062	0.0618557
98	0.041	0.0408163

Developed North

Exhibit 4-III Unit peak discharge ($q_{u,p}$) for NRCS (SCS) type III rainfall distribution

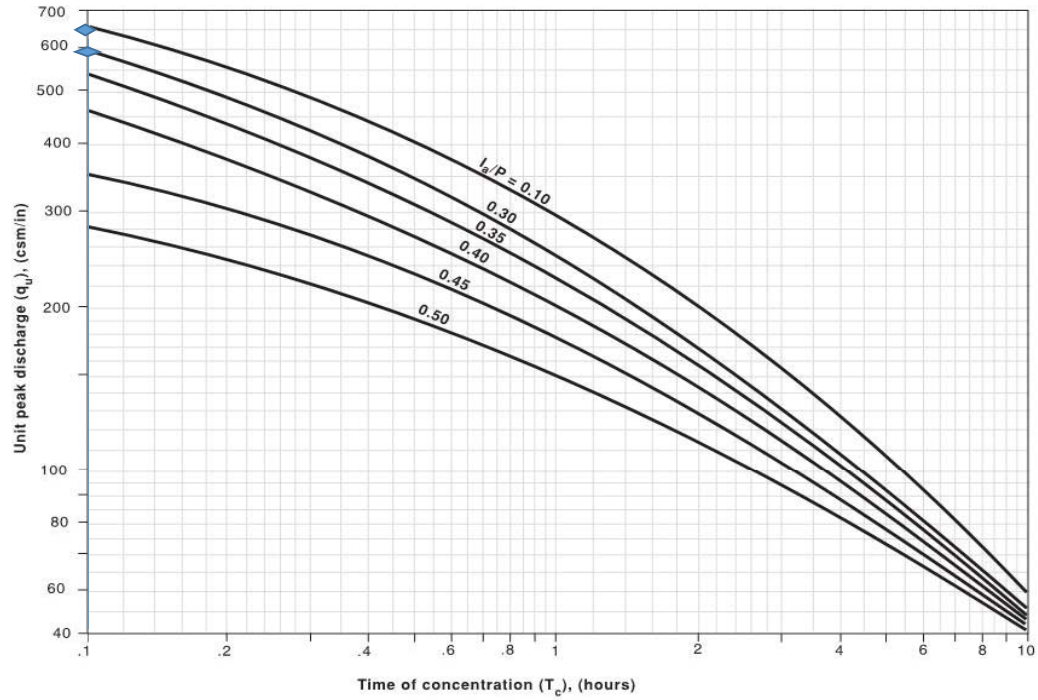
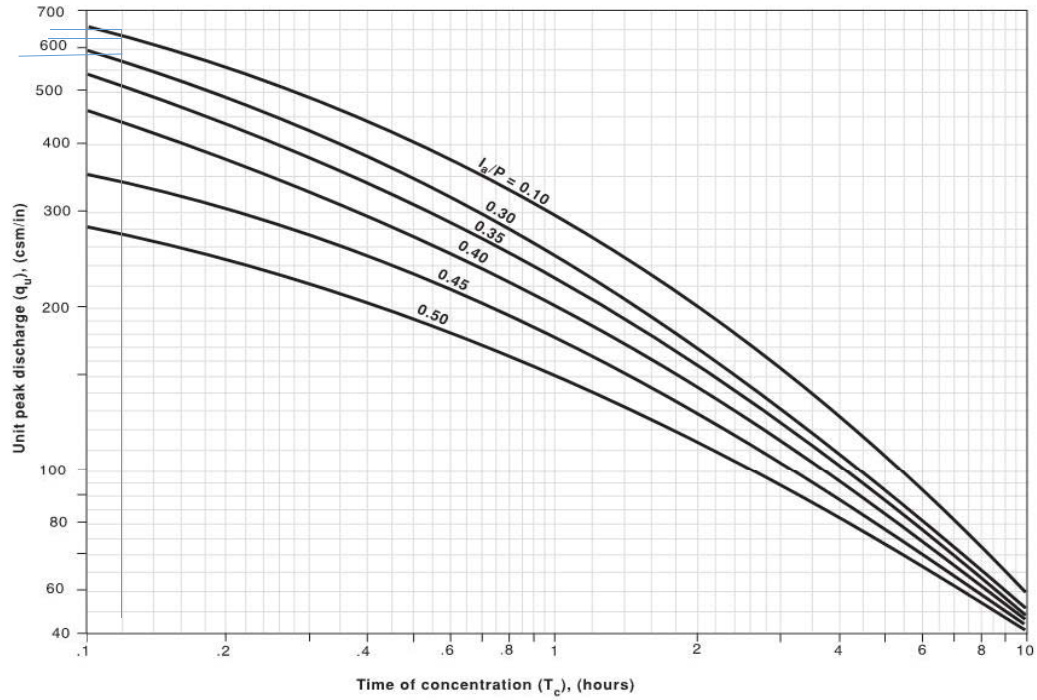
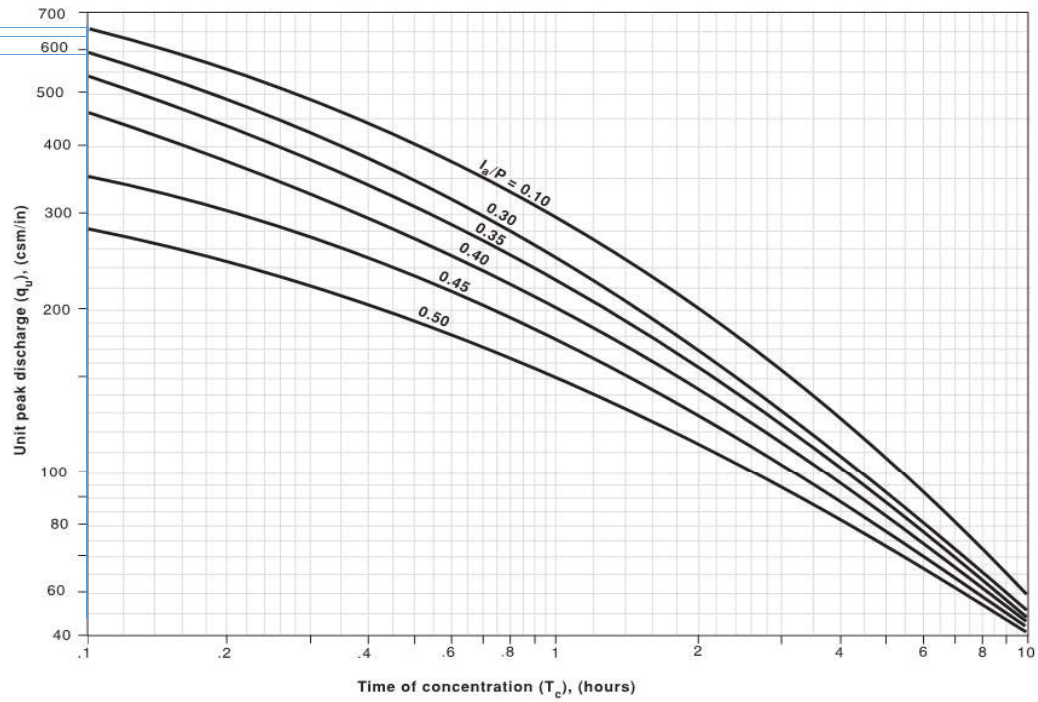


Exhibit 4-III Unit peak discharge ($q_{u,p}$) for NRCS (SCS) type III rainfall distribution



Developed Middle

Exhibit 4-III Unit peak discharge (q_{up}) for NRCS (SCS) type III rainfall distribution





Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Dam	By: DAR		Date:
Detail:	Date: 6/22/2017		Last revised: 5/18/2020

Worksheet 6A - Detention Basin Storage - Peak Outflow known

Site Status: Developed

1. Data

Area: 0.002 square miles South Area Only

Rainfall Distribution III (I, IA, II, III)

Pond and Swamp Area 0.00 Percent of Area

		Storm 1	Storm 2	Storm 3	
Frequency, yr	yr	1	10	100	
Rainfall, P, In.	in	2.84	5.38	8.4	
Peak Inflow	cfs	2.20	8.72	18.52	* Peak Discharge, Developed Area Worksheet 4, all areas
Peak Outflow	cfs	2.00	8.16	17.70	* Peak Discharge, Existing Area Worksheet 4, all areas
Compute qo/qi		0.908	0.936	0.956	
Volume Storage/Volume Runoff		0.15	0.14	0.12	* Figure 6-1
Runoff, Q	in	0.81	2.67	5.28	South Area only - only area where runoff increases.
Runoff Volume	acre-feet	0.1	0.2	0.4	
Storage Volume	acre-feet	0.01	0.03	0.05	
Storage Volume	cubic feet	435	1,341	2,274	



Client: NYCDEP	Job:			Checked By: CM
Project: West Branch Dam	By: DAR			Date:
Detail:	Date: 6/22/2017			Last revised: 7/1/2021

Worksheet 6A - Detention Basin Storage - Storage Volume known

Site Status: Developed

1. Data

Area: 0.002 square miles South Area Only

Rainfall Distribution III (I, IA, II, III)

Pond and Swamp Area 0.00 Percent of Area

		Storm 1	Storm 2	Storm 3	
Frequency, yr	yr	1	10	100	
Rainfall, P, In.	in	2.84	5.38	8.4	
Storage Volume	acre-feet	0.053	0.053	0.053	(Forebay and bioretention area)
Runoff, Q	in	0.81	2.67	5.28	South Area
Runoff Volume	acre-feet	0.1	0.2	0.4	South Area only
Volume Storage/Volume Runoff		0.80	0.24	0.12	
Estimate qo/qi		0.1	0.66	0.95	Figure 6-1
Peak Inflow cfs		0.7	2.6	5.2	South Area
Peak Outflow cfs		0.1	1.7	5.0	
TOTAL SITE OUTFLOW		1.6	7.8	18.25	

Input requirements and procedures

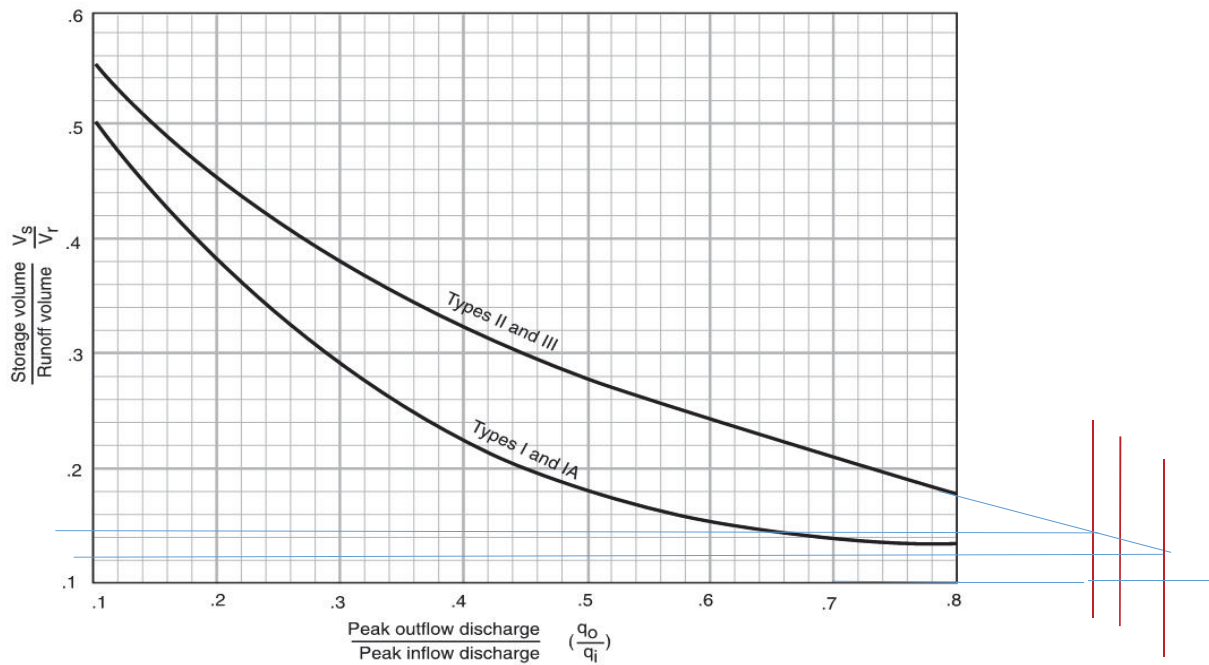
Use figure 6-1 estimate storage volume (V_s) required or peak outflow discharge (q_o). The most frequent application is to estimate V_s , for which the required inputs are runoff volume (V_r), q_o , and peak inflow discharge (q_i). To estimate q_o , the required inputs are V_r , V_s , and q_i .

Estimating V_s

Use worksheet 6a to estimate V_s , storage volume required, by the following procedure.

1. Determine q_o . Many factors may dictate the selection of peak outflow discharge. The most common is to limit downstream discharges to a desired level, such as predevelopment discharge. Another factor may be that the outflow device has already been selected.
2. Estimate q_i by procedures in chapters 4 or 5. Do not use peak discharges developed by other procedure. When using the Tabular Hydrograph method to estimate q_i for a subarea, only use peak discharge associated with $T_t = 0$.

Figure 6-1 Approximate detention basin routing for rainfall types I, IA, II, and III



Input requirements and procedures

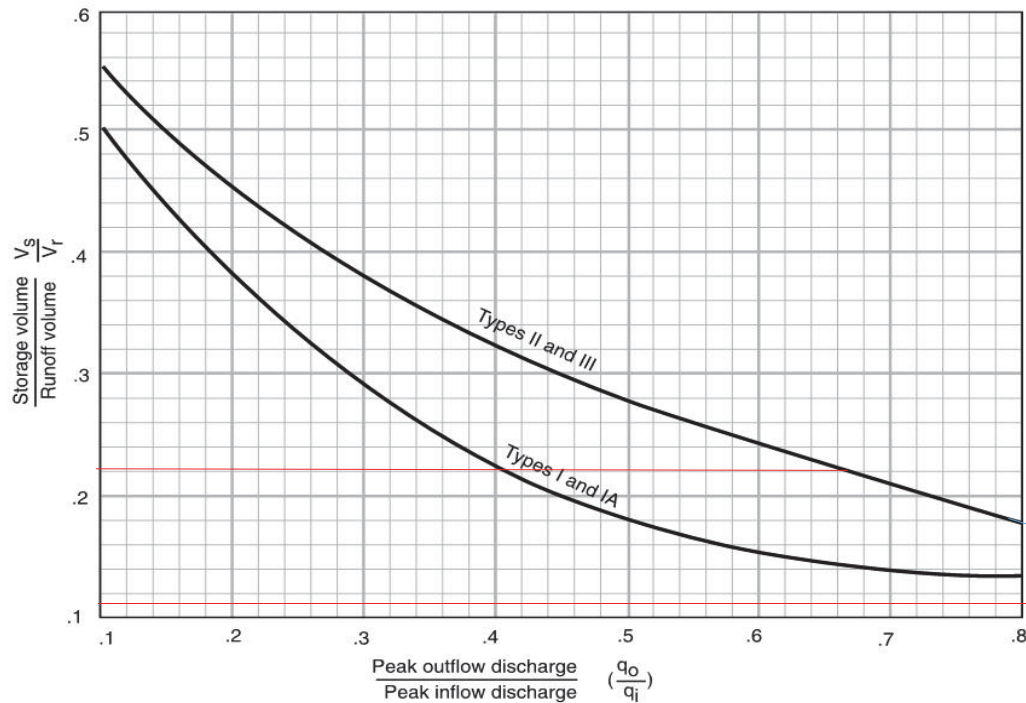
Use figure 6-1 estimate storage volume (V_s) required or peak outflow discharge (q_o). The most frequent application is to estimate V_s , for which the required inputs are runoff volume (V_r), q_o , and peak inflow discharge (q_i). To estimate q_o , the required inputs are V_r , V_s , and q_i .

Estimating V_s

Use worksheet 6a to estimate V_s , storage volume required, by the following procedure.

1. Determine q_o . Many factors may dictate the selection of peak outflow discharge. The most common is to limit downstream discharges to a desired level, such as predevelopment discharge. Another factor may be that the outflow device has already been selected.
2. Estimate q_i by procedures in chapters 4 or 5. Do not use peak discharges developed by other procedure. When using the Tabular Hydrograph method to estimate q_i for a subarea, only use peak discharge associated with $T_t = 0$.

Figure 6-1 Approximate detention basin routing for rainfall types I, IA, II, and III





NOAA Atlas 14, Volume 10, Version 2
Location name: Carmel Town of, New York, USA*
Latitude: 41.3954°, Longitude: -73.7062°
Elevation: 668.7 ft**
* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.349 (0.279-0.434)	0.410 (0.327-0.509)	0.508 (0.405-0.634)	0.590 (0.467-0.740)	0.703 (0.535-0.916)	0.790 (0.587-1.05)	0.877 (0.629-1.20)	0.977 (0.663-1.38)	1.11 (0.721-1.62)	1.21 (0.765-1.80)
10-min	0.495 (0.396-0.615)	0.580 (0.464-0.722)	0.720 (0.573-0.898)	0.836 (0.661-1.05)	0.996 (0.758-1.30)	1.12 (0.832-1.49)	1.24 (0.891-1.71)	1.38 (0.940-1.95)	1.57 (1.02-2.29)	1.71 (1.08-2.54)
15-min	0.582 (0.466-0.723)	0.683 (0.546-0.849)	0.847 (0.674-1.06)	0.984 (0.778-1.23)	1.17 (0.892-1.53)	1.32 (0.978-1.75)	1.46 (1.05-2.01)	1.63 (1.11-2.29)	1.85 (1.20-2.69)	2.01 (1.27-2.99)
30-min	0.825 (0.660-1.02)	0.961 (0.768-1.19)	1.18 (0.941-1.47)	1.37 (1.08-1.71)	1.62 (1.23-2.11)	1.81 (1.35-2.41)	2.01 (1.44-2.75)	2.23 (1.51-3.13)	2.51 (1.63-3.66)	2.73 (1.73-4.05)
60-min	1.07 (0.855-1.33)	1.24 (0.990-1.54)	1.52 (1.21-1.89)	1.75 (1.38-2.19)	2.07 (1.57-2.69)	2.31 (1.72-3.06)	2.56 (1.83-3.50)	2.82 (1.92-3.98)	3.18 (2.07-4.63)	3.44 (2.18-5.12)
2-hr	1.39 (1.12-1.71)	1.61 (1.30-1.99)	1.98 (1.58-2.45)	2.28 (1.82-2.85)	2.70 (2.07-3.50)	3.03 (2.26-3.99)	3.35 (2.41-4.56)	3.72 (2.54-5.20)	4.20 (2.74-6.07)	4.56 (2.90-6.73)
3-hr	1.60 (1.29-1.96)	1.86 (1.50-2.29)	2.30 (1.85-2.84)	2.67 (2.13-3.31)	3.17 (2.44-4.09)	3.56 (2.67-4.68)	3.94 (2.85-5.36)	4.39 (3.00-6.13)	4.99 (3.26-7.19)	5.44 (3.46-8.00)
6-hr	2.00 (1.62-2.44)	2.37 (1.92-2.89)	2.97 (2.40-3.64)	3.47 (2.79-4.28)	4.16 (3.22-5.35)	4.70 (3.55-6.16)	5.23 (3.81-7.10)	5.90 (4.04-8.17)	6.78 (4.44-9.71)	7.44 (4.75-10.9)
12-hr	2.44 (1.99-2.96)	2.94 (2.40-3.57)	3.77 (3.07-4.59)	4.45 (3.60-5.45)	5.39 (4.20-6.90)	6.12 (4.65-8.00)	6.84 (5.03-9.28)	7.81 (5.37-10.8)	9.10 (5.98-13.0)	10.1 (6.44-14.6)
24-hr	2.84 (2.34-3.43)	3.48 (2.86-4.20)	4.52 (3.70-5.47)	5.38 (4.38-6.55)	6.57 (5.15-8.37)	7.49 (5.73-9.75)	8.40 (6.23-11.4)	9.69 (6.69-13.3)	11.4 (7.51-16.1)	12.7 (8.13-18.3)
2-day	3.20 (2.65-3.83)	3.93 (3.26-4.72)	5.14 (4.24-6.18)	6.14 (5.03-7.43)	7.52 (5.93-9.53)	8.58 (6.61-11.1)	9.65 (7.20-13.0)	11.2 (7.74-15.2)	13.2 (8.74-18.6)	14.7 (9.49-21.1)
3-day	3.47 (2.89-4.14)	4.26 (3.54-5.09)	5.56 (4.60-6.66)	6.64 (5.46-8.00)	8.12 (6.43-10.3)	9.27 (7.16-12.0)	10.4 (7.79-14.0)	12.1 (8.38-16.3)	14.2 (9.45-19.9)	15.9 (10.3-22.7)
4-day	3.71 (3.10-4.42)	4.55 (3.79-5.42)	5.91 (4.90-7.06)	7.05 (5.80-8.46)	8.60 (6.82-10.8)	9.81 (7.60-12.6)	11.0 (8.25-14.7)	12.7 (8.86-17.2)	15.0 (9.97-21.0)	16.7 (10.8-23.8)
7-day	4.37 (3.67-5.18)	5.29 (4.43-6.27)	6.79 (5.66-8.07)	8.03 (6.65-9.59)	9.74 (7.76-12.2)	11.1 (8.59-14.1)	12.4 (9.29-16.4)	14.2 (9.93-19.1)	16.7 (11.1-23.1)	18.5 (12.0-26.2)
10-day	5.04 (4.24-5.94)	6.01 (5.05-7.09)	7.59 (6.35-8.99)	8.91 (7.40-10.6)	10.7 (8.56-13.3)	12.1 (9.43-15.4)	13.5 (10.1-17.8)	15.4 (10.8-20.6)	17.9 (11.9-24.7)	19.7 (12.8-27.8)
20-day	7.15 (6.05-8.37)	8.23 (6.96-9.65)	10.0 (8.43-11.8)	11.5 (9.61-13.6)	13.5 (10.8-16.6)	15.1 (11.8-18.9)	16.7 (12.5-21.5)	18.5 (13.0-24.5)	20.9 (14.0-28.7)	22.7 (14.8-31.8)
30-day	8.93 (7.59-10.4)	10.1 (8.58-11.8)	12.0 (10.2-14.1)	13.6 (11.4-16.0)	15.8 (12.7-19.3)	17.5 (13.7-21.7)	19.2 (14.3-24.6)	21.0 (14.8-27.7)	23.3 (15.7-31.8)	25.1 (16.4-35.0)
45-day	11.1 (9.51-12.9)	12.4 (10.6-14.5)	14.5 (12.3-16.9)	16.3 (13.7-19.1)	18.7 (15.0-22.6)	20.5 (16.0-25.3)	22.3 (16.7-28.3)	24.1 (17.1-31.7)	26.4 (17.8-35.9)	28.2 (18.4-39.1)
60-day	13.0 (11.1-15.1)	14.4 (12.3-16.7)	16.6 (14.1-19.3)	18.5 (15.6-21.6)	21.0 (17.0-25.4)	23.0 (18.0-28.3)	25.0 (18.7-31.6)	26.8 (19.0-35.1)	29.1 (19.7-39.5)	30.9 (20.2-42.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

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Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQv 1	Date: 6/12/2017		Last revised: 5/18/2020
Note: Water Quality Volume for new/existing Pavement US Route 6 - Draining to Bioretention Area			

Water Quality Treatment Required Calculation (Volume Required)

New Impervious Area

Existing Impervious		Future Impervious		Difference	
Total =	0.20 Acres	Total =	0.23 Acres	Total =	0.03 Acres

Area of Work	=	0.23	Acres
--------------	---	------	-------

WQV for New Impervious

$$W_{QV(Req)} = ((P * R_v * A)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A =	0.03	Area of Work

$$I = (\text{New Impervious} / \text{Area of Work})$$

I =	1.000	100.0%
-----	-------	--------

$$R_v = 0.05 + 0.009(I)$$

R _v =	0.950	95.0%
------------------	-------	-------

W _{QV(Req)} =	0.00	Acre-Feet
W _{QV(Req)} =	171	FT ³

$$W_{QV(Req) Treatment} = W_{QV(Req)}$$

W _{QV(Req) Treatment} =	171	FT ³
----------------------------------	-----	-----------------

WQV for Existing Impervious

$$W_{QV(Req)} = ((P * R_v * A)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A =	0.20	Existing Impervious Area to be disturbed

$$I = 100$$

I =	1.000	100.0%
-----	-------	--------

$$R_v = 0.05 + 0.009(I)$$

R _v =	0.950	95.0%
------------------	-------	-------

W _{QV(Req)} =	0.02	Acre-Feet
W _{QV(Req)} =	1,026	FT ³

$$W_{QV(Req) Treatment} = 25\% W_{QV(Req)}$$

W _{QV(Req) Treatment} =	257	FT ³
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W _{QV(Req) Treatment TOTAL} =	428	FT ³
--	-----	-----------------

$$RR_{V(Req)} = ((P * R_v * A_i)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A _i =	0.01	(S)*(Aic)

$$A_i = (S)*(Aic)$$

S =	0.40	From Page 4-5 (NYS Stormwater Design Manual) for HSG B
Aic =	0.03	Total Area of New Impervious Cover

$$RR_{V(Req) Treatment} =$$

0.0016	Acres-Feet
--------	------------

RR _{V(Req) Treatment} =	68.4	FT ³
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Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQv 2	Date: 6/12/2017		Last revised: 5/18/2020
Note: Water Quality Volume of US Route 6 draining to reservoir			

Water Quality Treatment Required Calculation (Volume Required)

New Impervious Area

Existing Impervious		Future Impervious		Difference	
Total =	0.20 Acres	Total =	0.23 Acres	Total =	0.03 Acres

Area of Work	=	Acres
--------------	---	-------

WQV for New Impervious

$$W_{QV(Req)} = ((P * R_v * A) / 12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A =	0.03	Area of Work

$$I = (\text{Impervious} / \text{Area of Work})$$

I =	1.000	100.0%
-----	-------	--------

$$R_v = 0.05 + 0.009(I)$$

R _v =	0.950	95.0%
------------------	-------	-------

W _{QV(Req)} =	0.00	Acre-Feet
W _{QV(Req)} =	166	FT ³

$$W_{QV(Req) Treatment} = W_{QV(Req)}$$

W _{QV(Req) Treatment} =	166	FT ³
----------------------------------	-----	-----------------

WQV for Existing Impervious

$$W_{QV(Req)} = ((P * R_v * A) / 12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A =	0.20	Existing Impervious Area to be disturbed

$$I = 100$$

I =	1.000	100.0%
-----	-------	--------

$$R_v = 0.05 + 0.009(I)$$

R _v =	0.950	95.0%
------------------	-------	-------

W _{QV(Req)} =	0.02	Acre-Feet
W _{QV(Req)} =	1,024	FT ³

$$W_{QV(Req) Treatment} = 25\% W_{QV(Req)}$$

W _{QV(Req) Treatment} =	256	FT ³
----------------------------------	-----	-----------------

W _{QV(Req) Treatment TOTAL} =	422	FT ³
--	-----	-----------------

$$RR_{V(Req)} = ((P * R_v * A_i) / 12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A _i =	0.013	(S)*(Aic)

$$A_i = (S)*(Aic)$$

S =	0.40	From Page 4-5 (NYS Stormwater Design Manual) for HSG B
Aic =	0.03	Total Area of New Impervious Cover

$$RR_{V(Req) Treatment} =$$

0.0015	Acre-Feet
--------	-----------

RR _{V(Req) Treatment} =	66.2	FT ³
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Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQv 3	Date: 6/12/2017		Last revised: 5/18/2020
Note: Water Quality Volume for access road extension (In north and middle areas)			

Water Quality Treatment Required Calculation (Volume Required)

New Impervious Area

Existing Impervious	
Total =	Acres

Future Impervious	
Total =	0.04 Acres

Difference	
Total =	0.04 Acres

Area of Work	=	Acres
--------------	---	-------

WQV for New Impervious

$$W_{QV (Req)} = ((P * R_v * A)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A =	0.04	Area of Work

W _{QV (Req)} =	0.01	Acre-Feet
W _{QV (Req)} =	226	FT ³

$$W_{QV (Req) Treatment} = W_{QV (Req)}$$

W _{QV (Req) Treatment} =	226	FT ³
-----------------------------------	-----	-----------------

$$I = (\text{Impervious} / \text{Area of Work})$$

I =	1.000	100.0%
R _v =	0.950	95.0%

$$R_v = 0.05 + 0.009(I)$$

$$RR_{V (Req)} = ((P * R_v * A_i)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A _i =	0.017	(S)*(A _{ic})

RR _{V (Req) Treatment} =	0.0021	Acre-Feet
-----------------------------------	--------	-----------

RR _{V (Req) Treatment} =	90.3	FT ³
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$$A_i = (S)*(A_{ic})$$

S =	0.40	From Page 4-5 (NYS Stormwater Design Manual) for HSG B
A _{ic} =	0.04	Total Area of New Impervious Cover



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQv4	Date: 6/12/2017		Last revised: 5/18/2020
Note: Water Quality Volume of entire area draining to the bioretention Area			

Water Quality Treatment Required Calculation (Volume Required)

New Impervious Area

Existing Impervious			Future Impervious			Difference		
Total =	0.26	Acres	Total =	0.29	Acres	Total =	0.03	Acres

Area of Work	=	0.99	Acres
--------------	---	------	-------

WQV for New Impervious

$$W_{QV (Req)} = ((P * R_v * A)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.31	
A =	0.99	Area of Work

W _{QV (Req)} =	0.04	Acre-Feet
W _{QV (Req)} =	1,666	FT ³

$$W_{QV (Req) Treatment} = W_{QV (Req)}$$

W _{QV (Req) Treatment} =	1,666	FT ³
-----------------------------------	-------	-----------------

$$RR_{V (Req)} = ((P * R_v * A_i)/12)$$

P =	1.50	From Figure 4.1 (NYS Stormwater Design Manual)
R _v =	0.95	
A _i =	0.01	(S)*(A _{ic})

RR _{V (Req) Treatment} =	0.0012	Acre-Feet
-----------------------------------	--------	-----------

RR _{V (Req) Treatment} =	51.7	FT ³
-----------------------------------	------	-----------------

$$I = (\text{Impervious} / \text{Area of Work})$$

I =	0.288	28.8%
-----	-------	-------

$$R_v = 0.05 + 0.009(I)$$

R _v =	0.310	31.0%
------------------	-------	-------

$$A_i = (S)*(A_{ic})$$

S =	0.40	From Page 4-5 (NYS Stormwater Design Manual) for HSG C
A _{ic} =	0.03	Total Area of New Impervious Cover



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQ Treatment	Date: 6/12/2017		Last revised: 7/1/2021

Bioretention Area Sizing

Treatment Provided						
Bioretention Basin Design Calculations- 90% Design						
WQv	1,666	FT3				TREATMENT VOLUME REQUIRED
Df	30	INCHES	=	2.5	FEET	DEPTH BIORETENTION SOIL
Hf	6	INCHES	=	0.5	FEET	DEPTH OF ABOVE FILTER (6" PONDING)
K	0.50	FT/DAY				COEFFICIENT OF PERMEABILITY*
Tf	2.00	DAYS				DESIGN FIITER DRAIN TIME*

* From Page 6-52 of NYS Stormwater Management Design Manual

Required Filter Area

$$Af = \frac{(WQv) \times Df}{[K \times (Hf + Df) \times Tf]}$$

Af = 1,388 FT2 Required to treat WQv of South Drainage Area

Area of Filter = 1520 sf
 Volume of Forebay = 500 cubic feet



Client: NYCDEP	Job:		Checked By: CM
Project: West Branch Auxillary Dam	By: DAR		Date:
Detail: WQ Treatment	Date: 6/12/2017		Last revised: 7/1/2021

Water Quality Volume Provided

Treatment Provided						
Bioretention Basin Design Calculations- 90% Design						
Af	1,520	FT2				AREA OF BIORETENTION BASIN
Df	30	INCHES	=	2.5	FEET	DEPTH BIORETENTION SOIL
Hf	6	INCHES	=	0.5	FEET	DEPTH OF ABOVE FILTER (6" PONDING)
K	0.50	FT/DAY				COEFFICIENT OF PERMEABILITY*
Tf	2.00	DAYS				DESIGN FIITER DRAIN TIME*

* From Page 6-52 of NYS Stormwater Management Design Manual

WQv Treated

$$WQv = \frac{Af \times [K \times (Hf + Df) \times Tf]}{Df}$$

WQv = 1,824 FT3

Area of Filter = 1520 sf
 Volume of Forebay = 500 cubic feet

ATTACHMENT E
CONTRACTOR CERTIFICATIONS

Contractor Certification

West Branch Auxiliary Dam Slope Improvement Project
New York City Department of Environmental Protection

Company: _____

Trained Individual (name & title): _____

SWPPP Elements to be implemented by this Contractor:

“I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (“SPDES”) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.”

Signature: _____ Date: _____

Name: _____

Title: _____

Address: _____

Telephone Number: _____

ATTACHMENT F
EROSION AND SEDIMENT CONTROL
INSPECTION REPORTS

APPENDIX F
CONSTRUCTION SITE INSPECTION
AND MAINTENANCE LOG BOOK

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____
Permit No. _____ **Date of Authorization** _____
Name of Operator _____
Prime Contractor _____

a. Preamble to Site Assessment and Inspections

The Following Information To Be Read By All Person’s Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector¹ conduct an assessment of the site prior to the commencement of construction² and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State’s standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization³ using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to “Qualified Inspector” inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.

2 “Commencement of construction” means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 “Final stabilization” means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

- Has a Notice of Intent been filed with the NYS Department of Conservation?
- Is the SWPPP on-site? Where? _____
- Is the Plan current? What is the latest revision date? _____
- Is a copy of the NOI (with brief description) onsite? Where? _____
- Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

- Are construction limits clearly flagged or fenced?
- Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
- Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

- Clean stormwater runoff has been diverted from areas to be disturbed.
- Bodies of water located either on site or in the vicinity of the site have been identified and protected.
- Appropriate practices to protect on-site or downstream surface water are installed.
- Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

- A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
- Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
- Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

- Silt fence material and installation comply with the standard drawing and specifications.
- Silt fences are installed at appropriate spacing intervals

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

- The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
- The plan is contained in the SWPPP on page _____
- Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

- 1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- 2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- 3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- 4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- 5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- 6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

Maintaining Water Quality

Yes No NA

- Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
- Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
- All disturbance is within the limits of the approved plans.
- Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

- Is construction site litter, debris and spoils appropriately managed?
- Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- Is construction impacting the adjacent property?
- Is dust adequately controlled?

2. Stabilized Construction Access

Yes No NA

- Stone is clean enough to effectively remove mud from vehicles.
- Installed per standards and specifications?
- Does all traffic use the stabilized entrance to enter and leave site?
- Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

- Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- Clean water from upstream pool is being pumped to the downstream pool.
- Sediment laden water from work area is being discharged to a silt-trapping device.
- Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Stone Check Dam

Yes No NA

- Is channel stable? (flow is not eroding soil underneath or around the structure).
- Check is in good condition (rocks in place and no permanent pools behind the structure).
- Has accumulated sediment been removed?.

3. Rock Outlet Protection

Yes No NA

- Installed per plan.
- Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

- Stockpiles are stabilized with vegetation and/or mulch.
- Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

- Temporary seedings and mulch have been applied to idle areas.
- 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

- Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
 - Joints constructed by wrapping the two ends together for continuous support.
 - Fabric buried 6 inches minimum.
 - Posts are stable, fabric is tight and without rips or frayed areas.
- Sediment accumulation is ____% of design capacity.

Site Sketch Attached documenting current erosion control measures and status.

Inspector (print name)

Date of Inspection

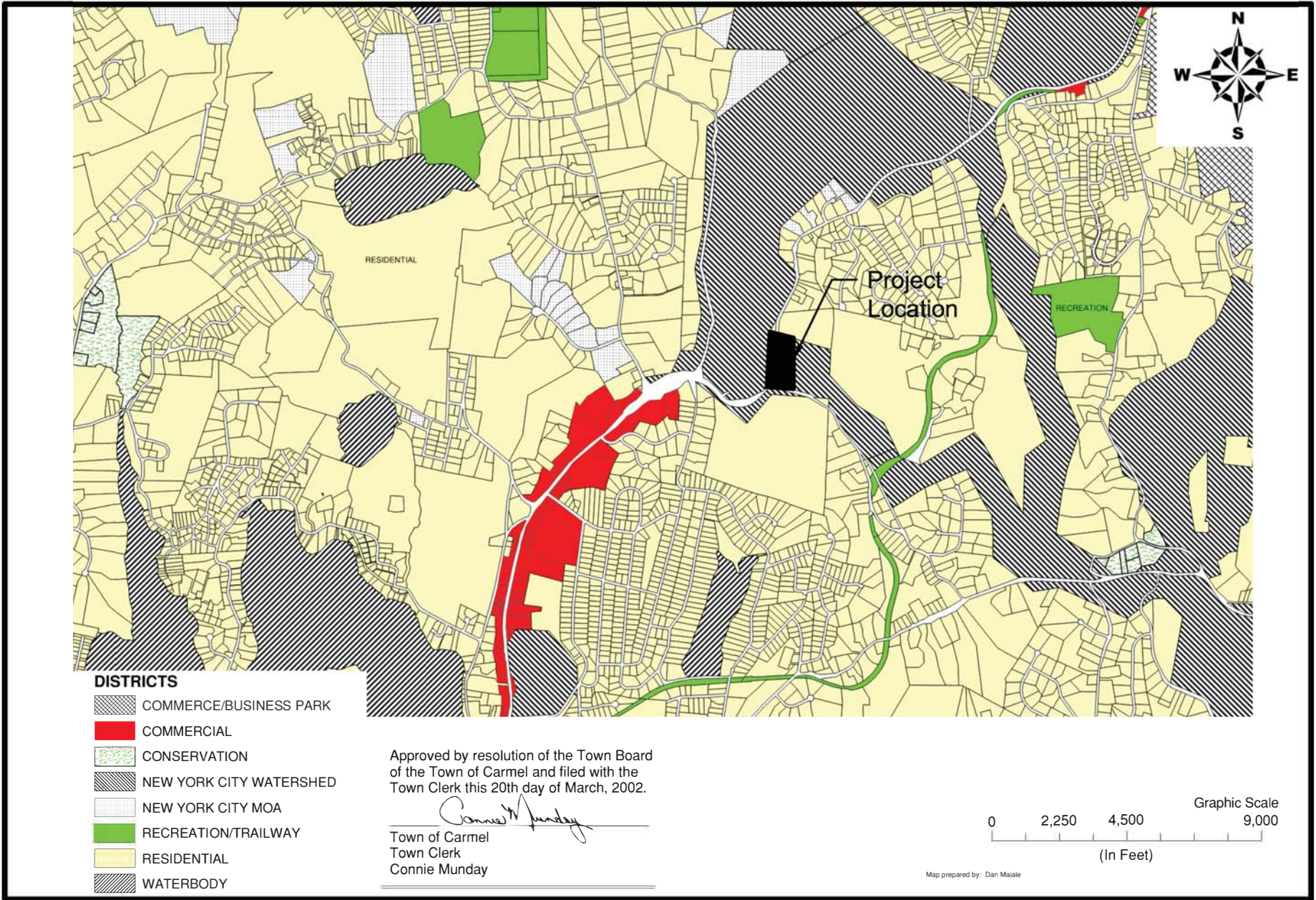
Qualified Inspector (print name)

Qualified Inspector Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

WEST BRANCH AUXILIARY SLOPE IMPROVEMENT
PRELIMINARY SITE PLAN APPLICATION

Attachment 4
Project Area Zoning Map



Attachment 4
Zoning Map - Town Of Carmel
NYCDEP West Branch Reservoir Auxiliary Dam
Slope Safety Improvements

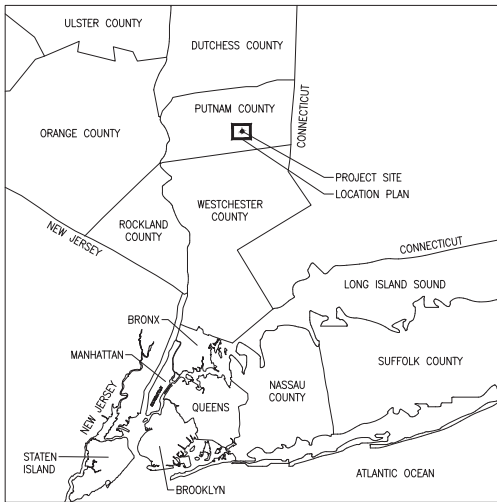


TOWN OF CARMEL
 PRELIMINARY SITE PLAN
 APPLICATION
 DATE SUBMITTED: 7/7/2022

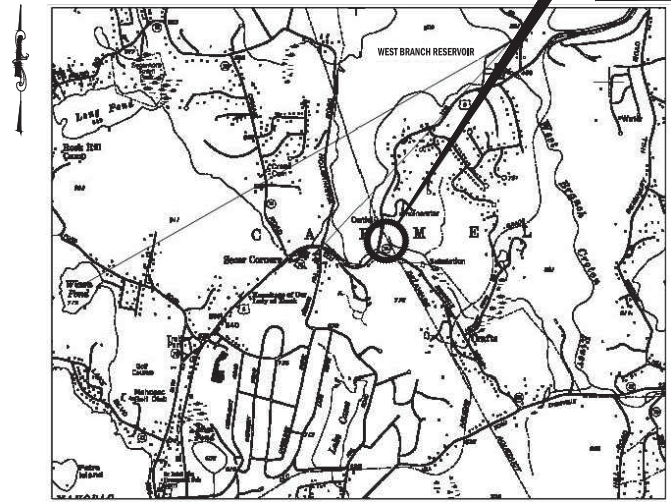
**NEW YORK CITY
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION**

**WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS
 CONTRACT CRO-534**

**PUTNAM COUNTY, NEW YORK
 JULY 2022**



KEY PLAN
 NOT TO SCALE



LOCATION PLAN

1" = 500'
 250 0 500

**PROJECT SITE
 WEST BRANCH
 AUXILIARY DAM**

**PRELIMINARY SITE PLAN APPLICATION
 TOWN OF CARMEL**

SEAN McANDREW, P.E.
 EXECUTIVE DIRECTOR
 WATER SYSTEM CAPITAL PROGRAM

ANA BARRIO
 DEPUTY COMMISSIONER
 BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION

ROHIT T. AGGARWALA
 COMMISSIONER
 DEPARTMENT OF ENVIRONMENTAL PROTECTION



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SHEET #	SHEET TITLE
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3	PARCEL MAP
4	SITE PLAN OVERVIEW - EXISTING CONDITIONS
5	SITE PLAN OVERVIEW - PROPOSED CONDITIONS
6	EXISTING CONDITIONS PLAN (1 OF 5)
7	EXISTING CONDITIONS PLAN (2 OF 5)
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47	WORK ZONE TRAFFIC CONTROL STAGING SECTIONS (1 OF 2)
48	WORK ZONE TRAFFIC CONTROL STAGING SECTIONS (2 OF 2)
49	TRUCK ROUTES

SUMMARY OF PROPOSED WORK & CONSTRUCTION SEQUENCE

1. PROVIDE REQUIRED SUBMITTALS & OBTAIN APPROVALS
2. MOBILIZE TO PROJECT SITE
3. IMPLEMENT SWPPP & INSTALL SOIL & WATER POLLUTION CONTROL MEASURES
4. INSTALL WORK ZONE TRAFFIC CONTROL SYSTEMS
5. COMPLETE TREE REMOVALS
6. CONSTRUCT TEMPORARY SITE ACCESS ROAD & ENTRANCE WIDENING
7. INSTALL EMBANKMENT TOE DRAIN & SEEPAGE INSTRUMENTATION
8. CONSTRUCT BIOSWALE
9. INSTALL SLOPE MONITORING INSTRUMENTATION
10. ACCESS LOW LEVEL OUTLET TUNNEL & REMOVE OUTLET PIPE
11. CONSTRUCT EMBANKMENT FILL
12. INSTALL HIGHWAY DRAINAGE SYSTEM
13. CONSTRUCT ROUTE 6 IMPROVEMENTS
14. PARTIALLY REMOVE TEMPORARY SITE ACCESS ROAD
15. RESURFACE EXISTING SITE ACCESS ROAD
16. SITE RESTORATION
17. CONTRACT CLOSEOUT

**TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
 M. POWELL
 CHECKED BY:
 E. LECLAIR
 DESIGN LEAD:
 S. MURPHY
 SECTION MANAGER:
 E. LECLAIR

DRAWN BY:
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 11 8180 American Blvd, Suite 200
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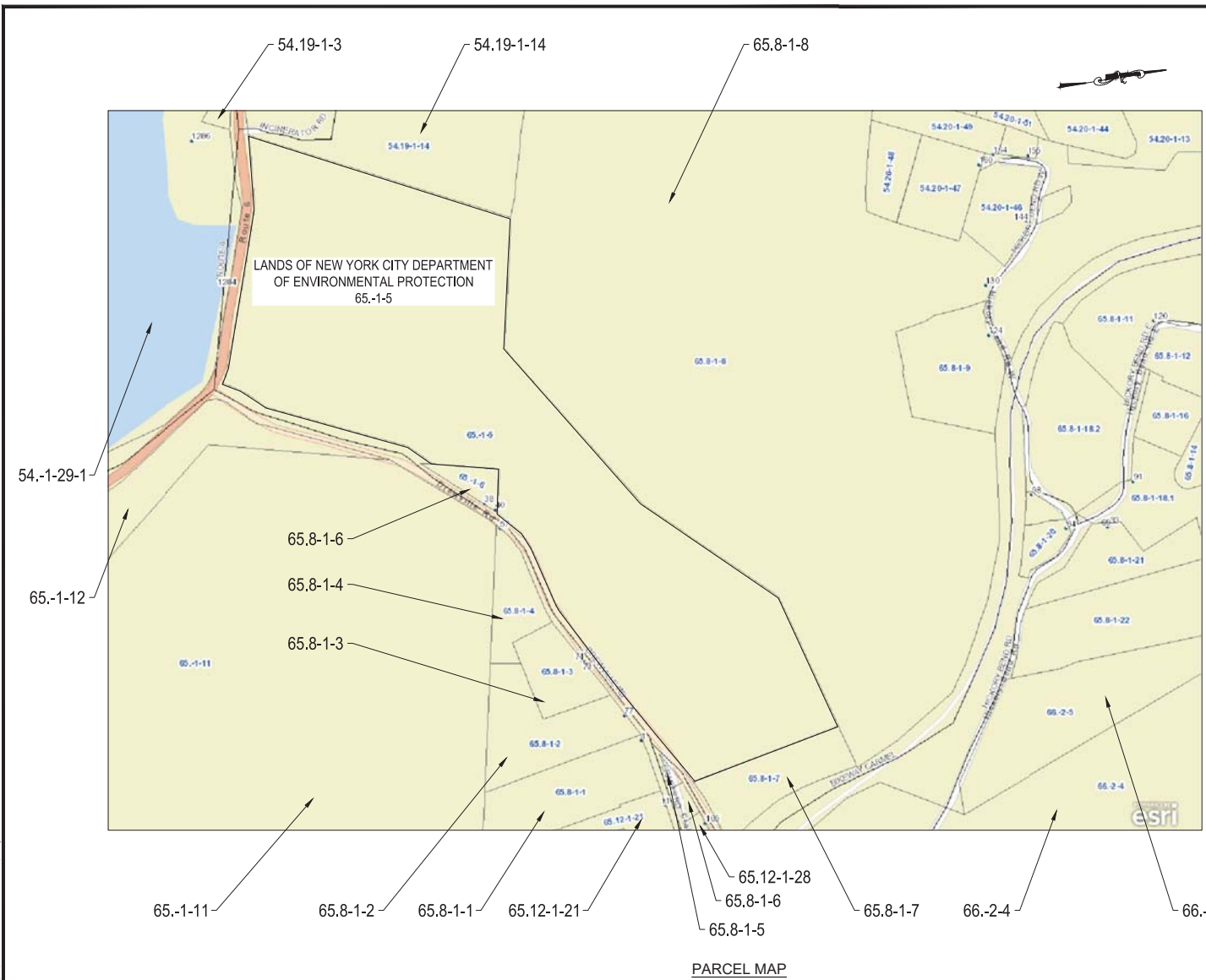
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 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

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 www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK**
 INDEX
 DATE: 5/5/2022
 SCALE: NA
 SHEET NO.: 2 OF 49
 DRAWING NO. G-001.00

Last Saved By: E. Leclair, M. Powell, Thursday, May 05, 2022, 2:42:09 PM
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65.-1-5	CITY OF NEW YORK	45.8

TAX BLOCK	NAME OF OWNER (S)	AREA (AC)
54.-1-29-1	CITY OF NEW YORK	261.1
54.19-1-3	MERRIEWEATHER EST INC	1.40
54.19-1-14	TOWN OF CARMEL	14.9
65.8-1-8	FEDERICO LOPARDO	83.8
65.8-1-7	CITY OF NEW YORK	2.4
66.-2-5	PUTNAM COUNTY FISH & GAME ASSO	59.9
66.-2-4	CITY OF NEW YORK	184.8
65.12-1-28	RONALD KLEIN & AMY WEITZNER KLEIN	0.72
65.8-1-6	PAULA J. NIGRI	0.17
65.8-1-5	COUNTY OF PUTNAM	0.096
65.12-2-32	PAULA J. NIGRI	1.3
65.8-1-1	ALLEN J JULIER	3.6
65.8-1-2	AXEL & RITA KLUCINSKIS	3.4
65.8-1-3	ARMAND & DEBRA PAPSODERO	1.7
65.8-1-4	SANCHEZ FAMILY TRUST	1.6
65.-1-6	JAMES EVANS	0.5
65.-1-11	PECKHAM MATERIALS CORP.	95.5
65.-1-12	CITY OF NEW YORK	6.8

NOTES:
 1) PROPOSED CONSTRUCTION AFFECTS APPROXIMATELY 4 ACRES OF PARCEL 65.-1-5

PARCEL MAP

TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION

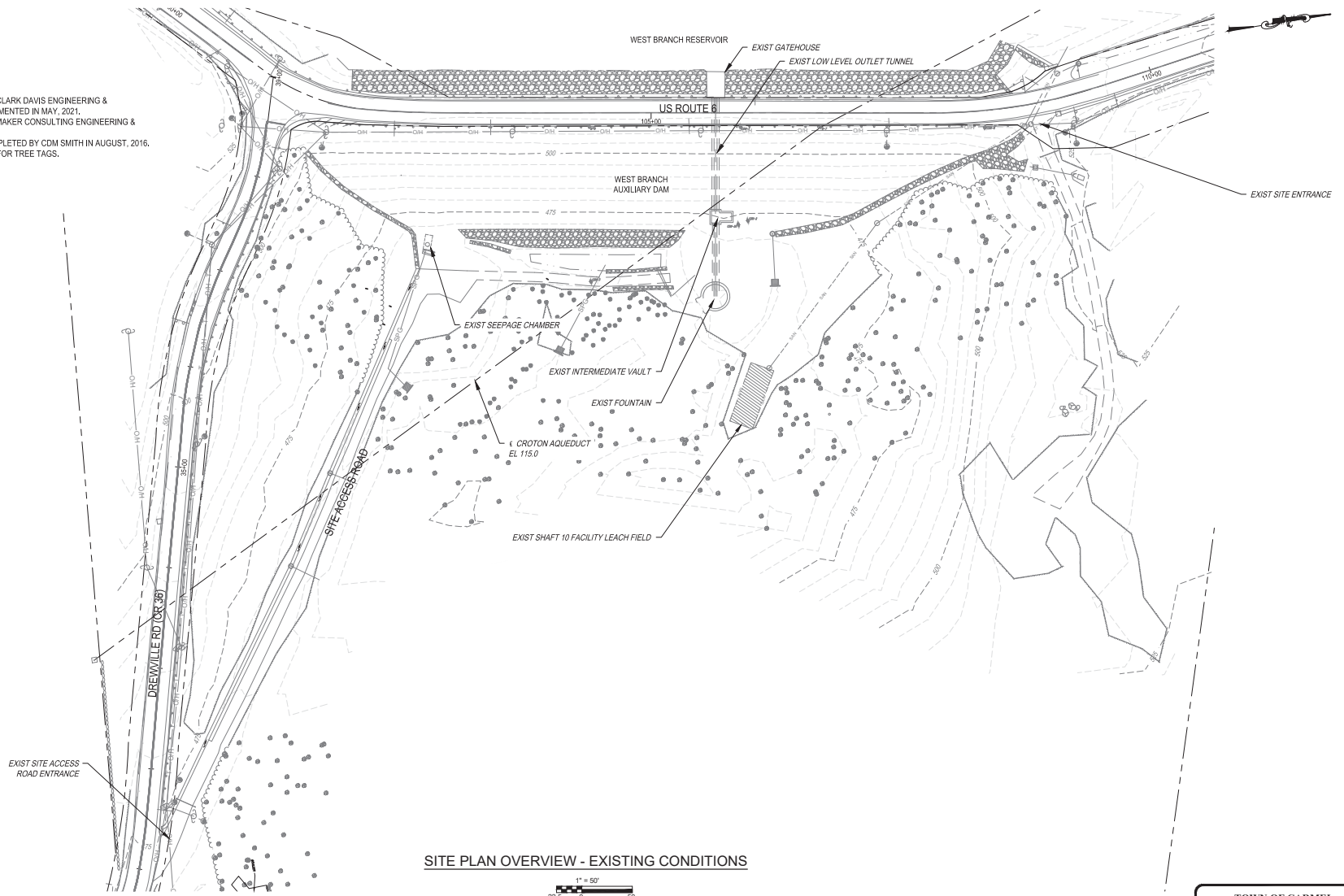
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CHECKED BY: E. LECLAIR	ACCOUNTABLE MANAGER: L. SINGH			SCALE:					
DESIGN LEAD: S. MURPHY	SECTION MANAGER: E. LECLAIR			PORTFOLIO MANAGER: D. COSTA				SHEET NO: 3 OF 49	
NO.	DATE	REVISIONS/DESCRIPTION	APPRD.					DRAWING NO.	

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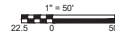
NOTES:

- 1) FIELD SURVEY PERFORMED BY RYAN BIGGS CLARK DAVIS ENGINEERING & SURVEYING IN DECEMBER, 2016 AND SUPPLEMENTED IN MAY, 2021.
- 2) BATHYMETRIC SURVEY PERFORMED BY SHUMAKER CONSULTING ENGINEERING & LAND SURVEYING IN SEPTEMBER, 2016.
- 3) WETLAND DELINEATION FLAGGING WAS COMPLETED BY CDM SMITH IN AUGUST, 2016.
- 4) REFERENCE DRAWINGS L-001.00 TO L-005.00 FOR TREE TAGS.

PROPERTY PARCEL NUMBER: 65-1-1
 OWNER: CITY OF NEW YORK
 ZONING: NEW YORK CITY WATERSHED



SITE PLAN OVERVIEW - EXISTING CONDITIONS



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NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: M. POWELL
CHECKED BY: E. LECLAIR
DESIGN LEAD: S. MURPHY
SECTION MANAGER: E. LECLAIR

CDM Smith
 11 8100 American Blvd, Suite 200
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P. COSTA PORTFOLIO MANAGER

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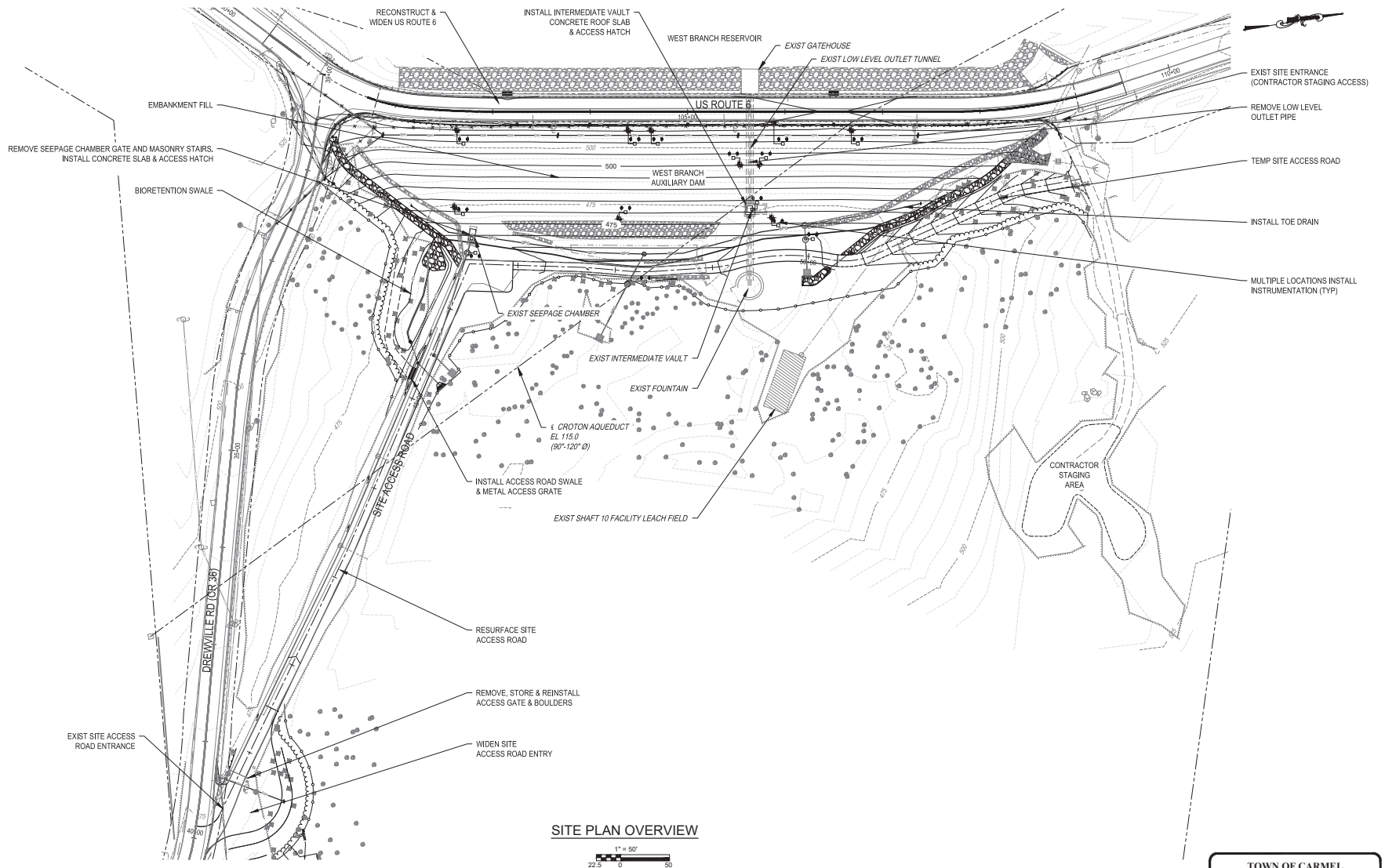
**WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK**

SITE PLAN OVERVIEW - EXISTING CONDITIONS

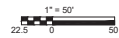
**TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION**

DATE: 5/5/2022
SCALE: 1"=50'
SHEET NO.: 4 OF 49
DRAWING NO. G-004.00

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SITE PLAN OVERVIEW



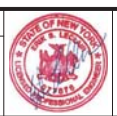
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

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CHECKED BY: E. LECLAIR	SECTION MANAGER: E. LECLAIR
DESIGN LEAD: S. MURPHY	

GDM Smith
 11000 American Blvd, Suite 200
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L. SINGH ACCOUNTABLE MANAGER	
D. COSTA PORTFOLIO MANAGER	

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**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**

SITE PLAN OVERVIEW - PROPOSED CONDITIONS

DATE: 5/26/2022
SCALE: 1"=50'
SHEET NO.: 5 OF 81
DRAWING NO. G-004.00

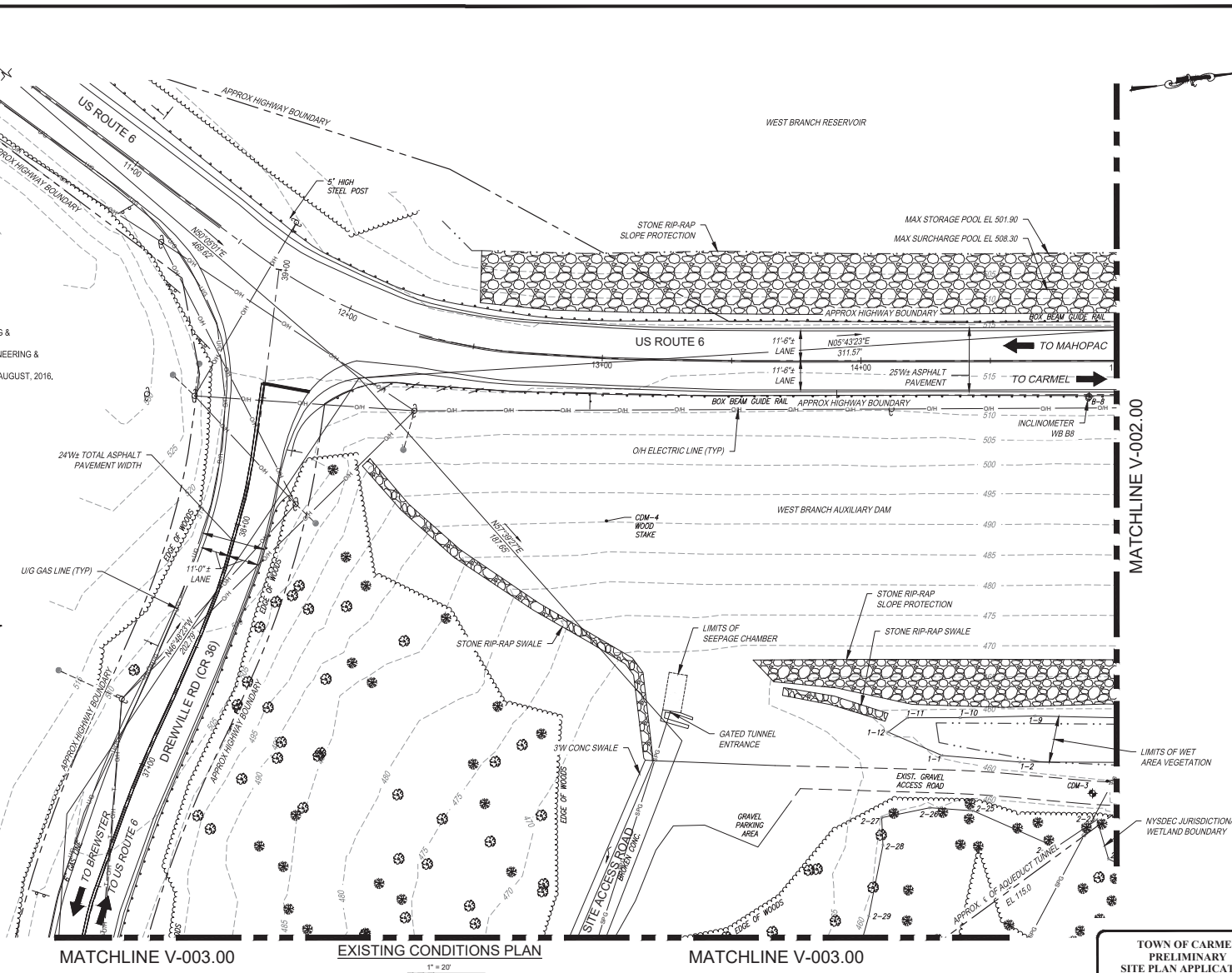
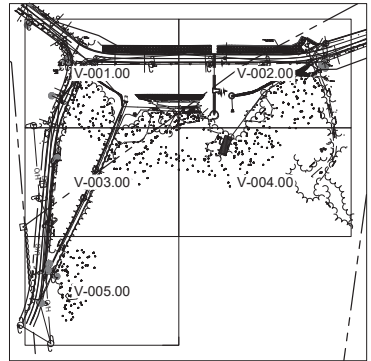
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CONTROL BASELINE 101
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 E 709035.52
 EL=525.48

- NOTES:
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 - 4) REFERENCE DRAWINGS L-001.00 TO L-005.00 FOR TREE TAGS.

PROPERTY PARCEL NUMBER: 65,-1-1
 OWNER: CITY OF NEW YORK
 ZONING: NEW YORK CITY WATERSHED

EXISTING CONDITIONS KEY PLAN



1" = 20'
 10 0 20

TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION

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NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
 CHECKED BY:
E. LECLAIR
 DESIGN LEAD:
S. MURPHY
 SECTION MANAGER:
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APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

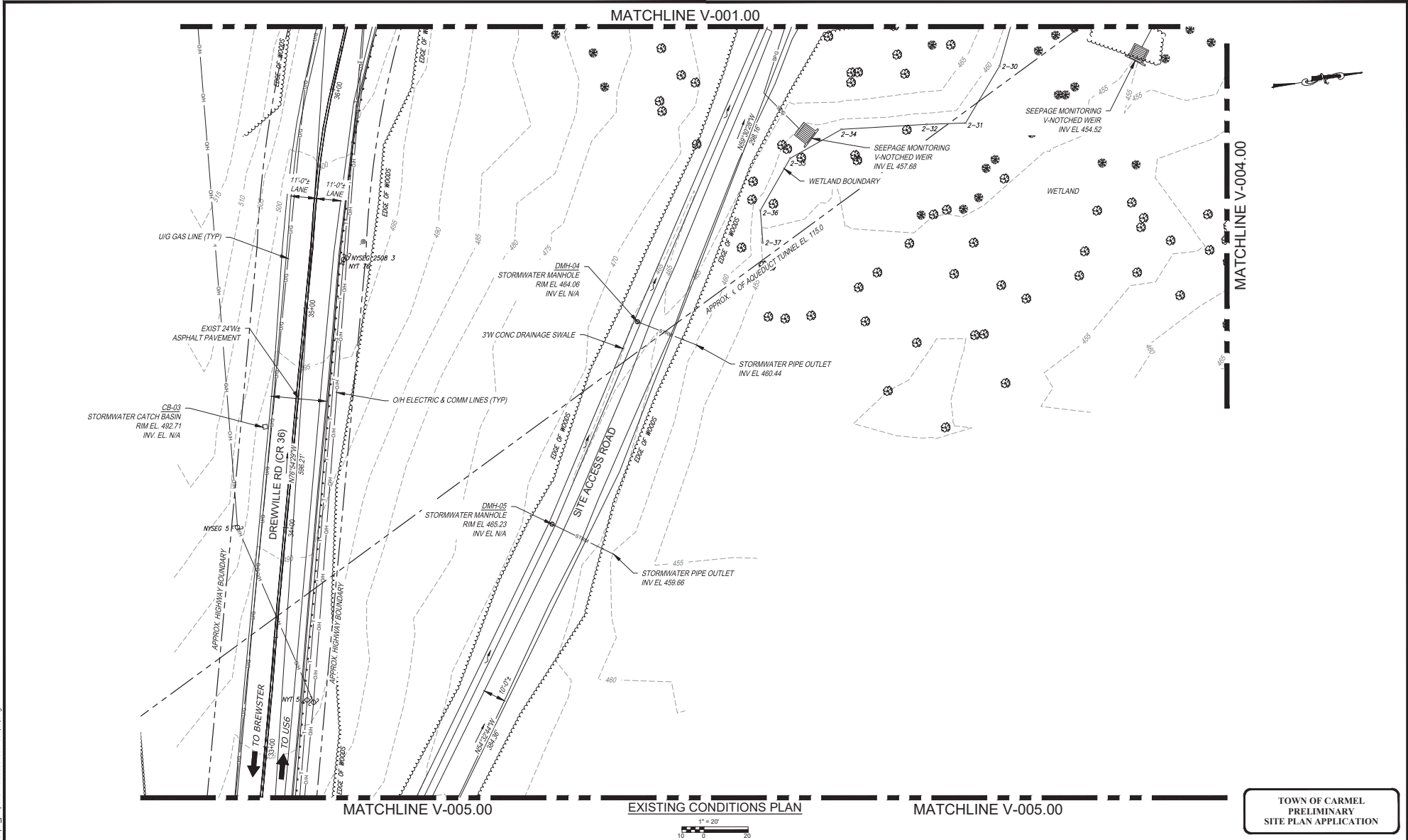
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NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
 EXISTING CONDITIONS PLAN (1 OF 5)

DATE: 5/5/2022
 SCALE: 1"=20'
 SHEET NO.:
6 OF 49
 DRAWING NO.:
V-001.00

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NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
 S. MURPHY
 CHECKED BY:
 E. LECLAIR
 DESIGN LEAD:
 S. MURPHY
 SECTION MANAGER:
 E. LECLAIR

DRAWN BY:
 M. POWELL

 11500 American Blvd, Suite 200
 Luben, NY 12110
 Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

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 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 95-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
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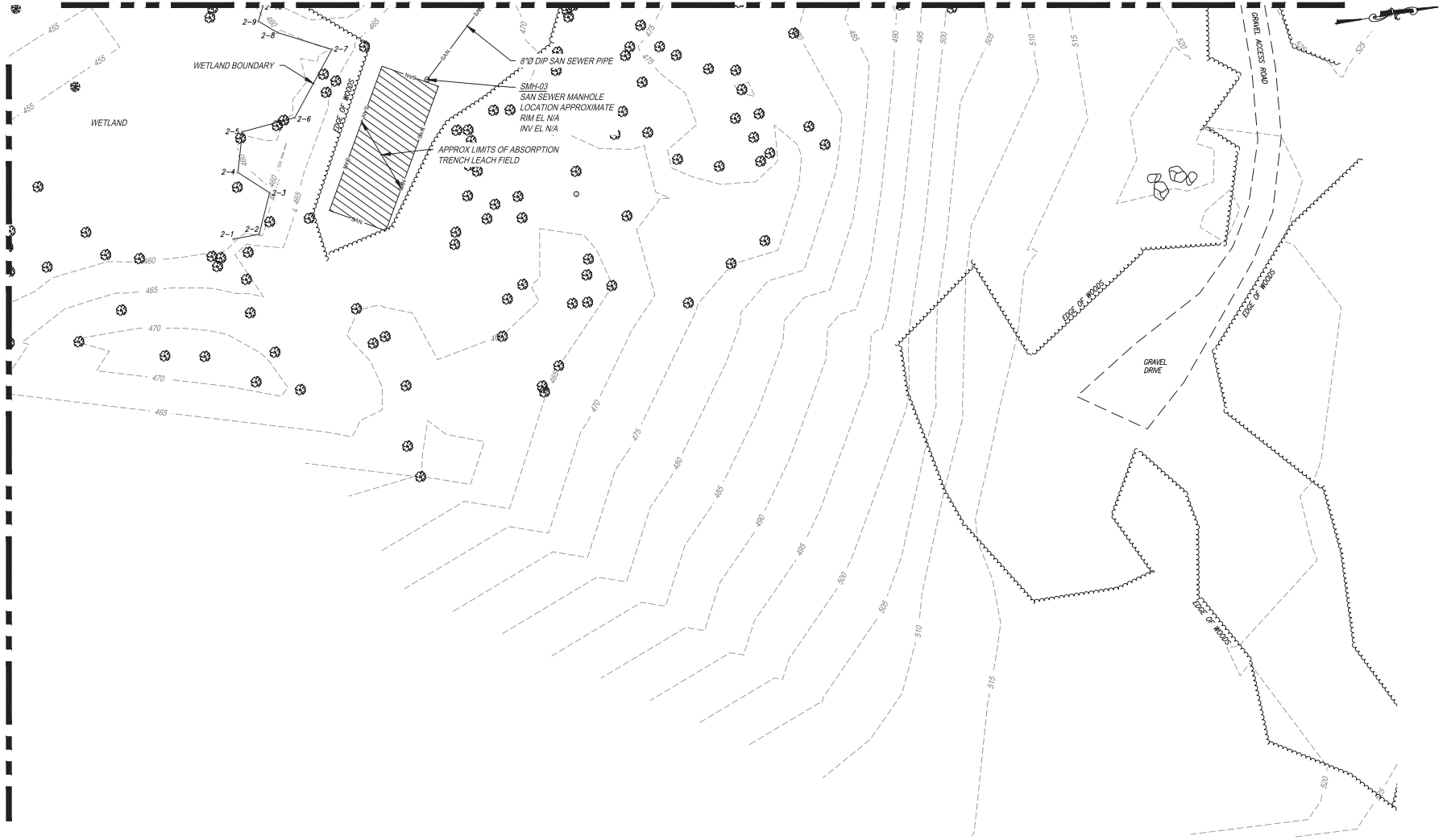
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION
 WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK
 EXISTING CONDITIONS PLAN (3 OF 5)

DATE: 9/5/2022
 SCALE: 1"=20'
 SHEET NO.:
 8 OF 49
 DRAWING NO.:
 V-003,00

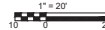
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MATCHLINE V-002.00

MATCHLINE V-003.00



EXISTING CONDITIONS PLAN



TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. POWELL, Wednesday, April 27, 2022 and Date Plotted/Plotted: Wednesday, May 4, 2022 11:09:24 PM
 Paper Size (ANSI): D (24.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name & Location: C:\pwr_ej\powell\mca\26081300\001_001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: S. MURPHY	DRAWN BY: M. POWELL
CHECKED BY: E. LECLAIR	ACCOUNTABLE MANAGER: L. SINGH
DESIGN LEAD: S. MURPHY	PORTFOLIO MANAGER: D. COSTA
SECTION MANAGER: E. LECLAIR	


 11500 American Blvd, Suite 200
 Luban, NY 12110
 Tel: (518) 782-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 D. COSTA
 PORTFOLIO MANAGER

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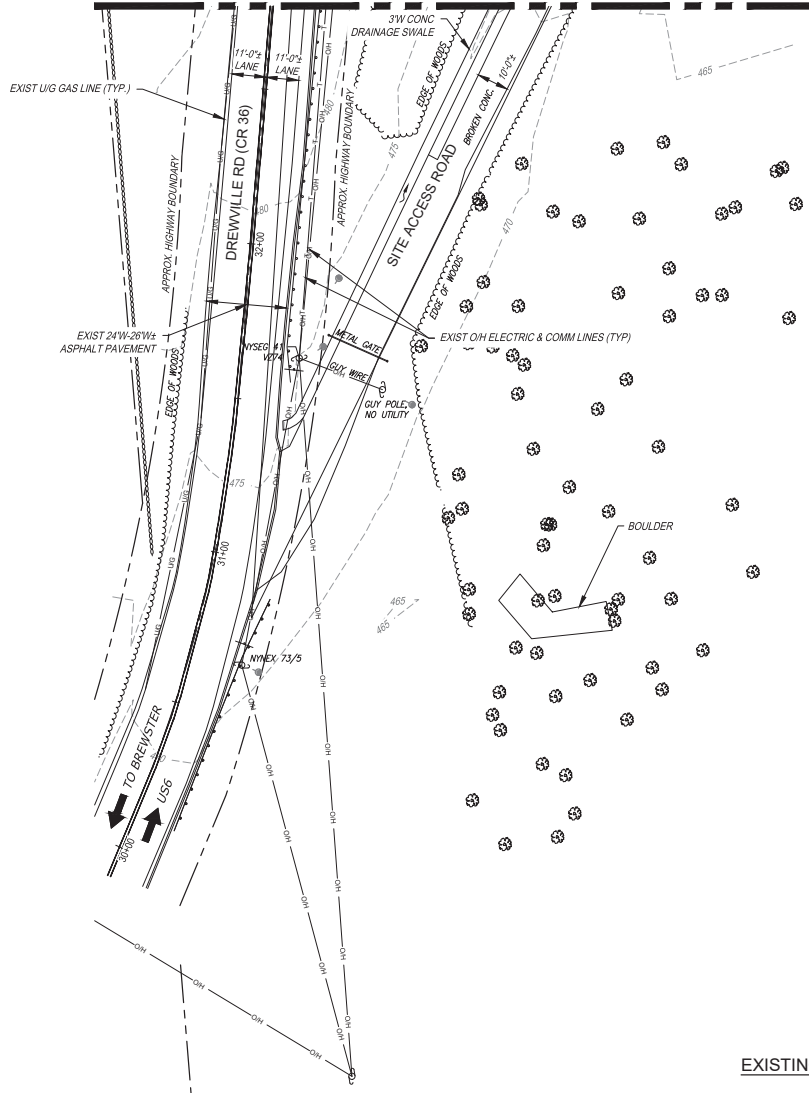
NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
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WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK
 EXISTING CONDITIONS PLAN (4 OF 5)

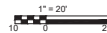
DATE: 5/5/2022
SCALE: 1"=20'
SHEET NO.: 9 OF 49
DRAWING NO. V-004_00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

MATCHLINE V-003.00



EXISTING CONDITIONS PLAN



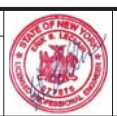
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair; File Path: C:\Users\leclair\OneDrive\Documents\Drawings; Date: 2/2/2022 11:09:50 AM; Plot Style: TbltblrBECO_Drawing.ctb; Drawing Name: S:\Location\C:\p\leclair\1001\1001.dwg; Scale: 1"=20'

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GDM Smith
11500 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

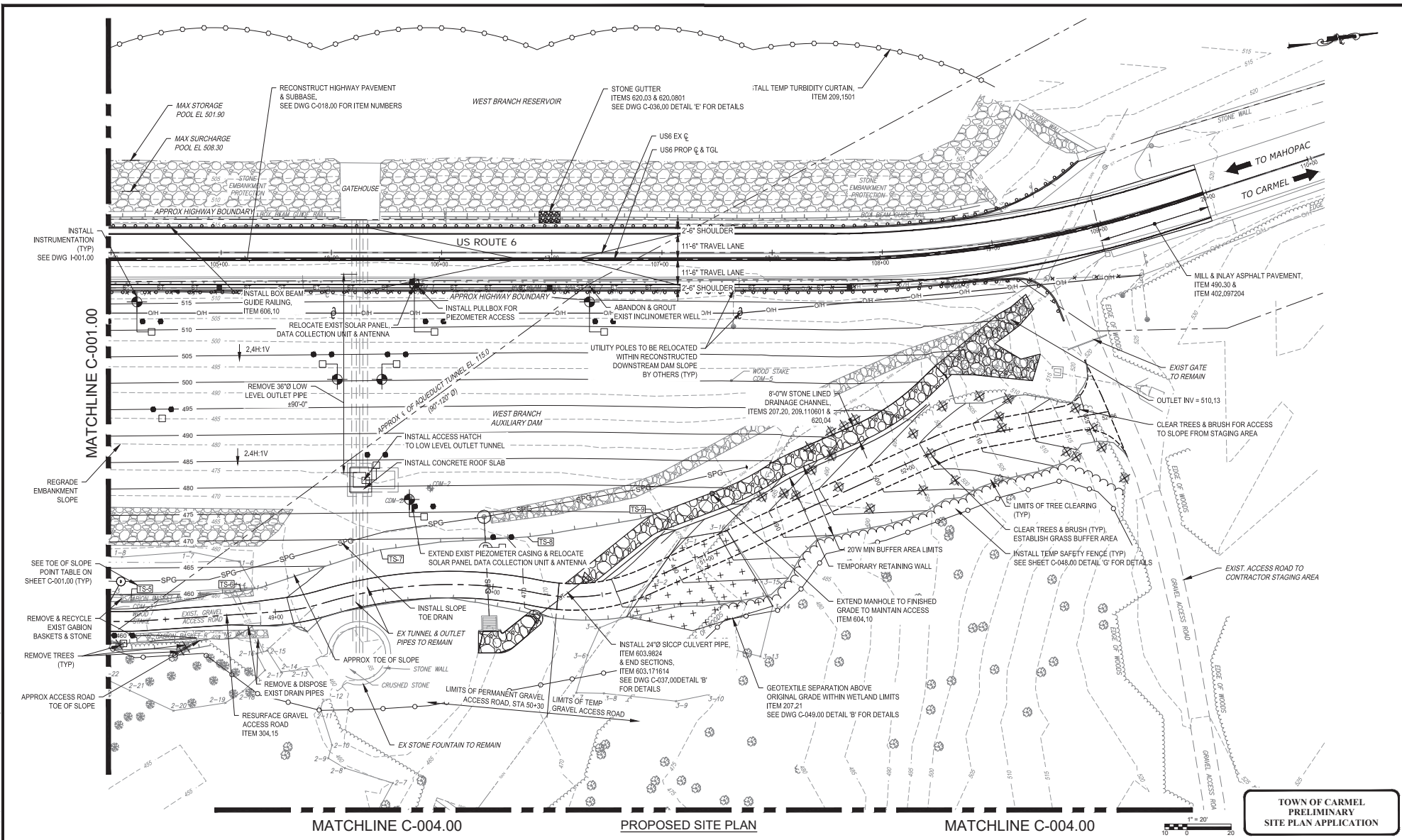
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CORONA, NEW YORK 11368
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WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
EXISTING CONDITIONS PLAN (5 OF 5)

DATE: 9/5/2022
SCALE: 1"=20'
SHEET NO.:
10 OF 49
DRAWING NO.:
V-005_00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

Lead: David B. & Chris POWELL LLC, Thursday, May 24, 2023 and Date Plotted: Thursday, May 25, 2023 11:38:21 AM
 Plot Size: 24.00 X 34.00 INCHES Plot Scale: 1"=20'
 Drawing Name: & Location: C:\p\l\powell\m\0268657\C-001.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
M. POWELL
 CHECKED BY:
E. LECLAR
 DESIGN LEAD:
S. MURPHY
 SECTION MANAGER:
E. LECLAR

DRAWN BY:
M. POWELL

 115000 American Blvd, Suite 200
 Luban, NY 12110
 Tel: (518) 782-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

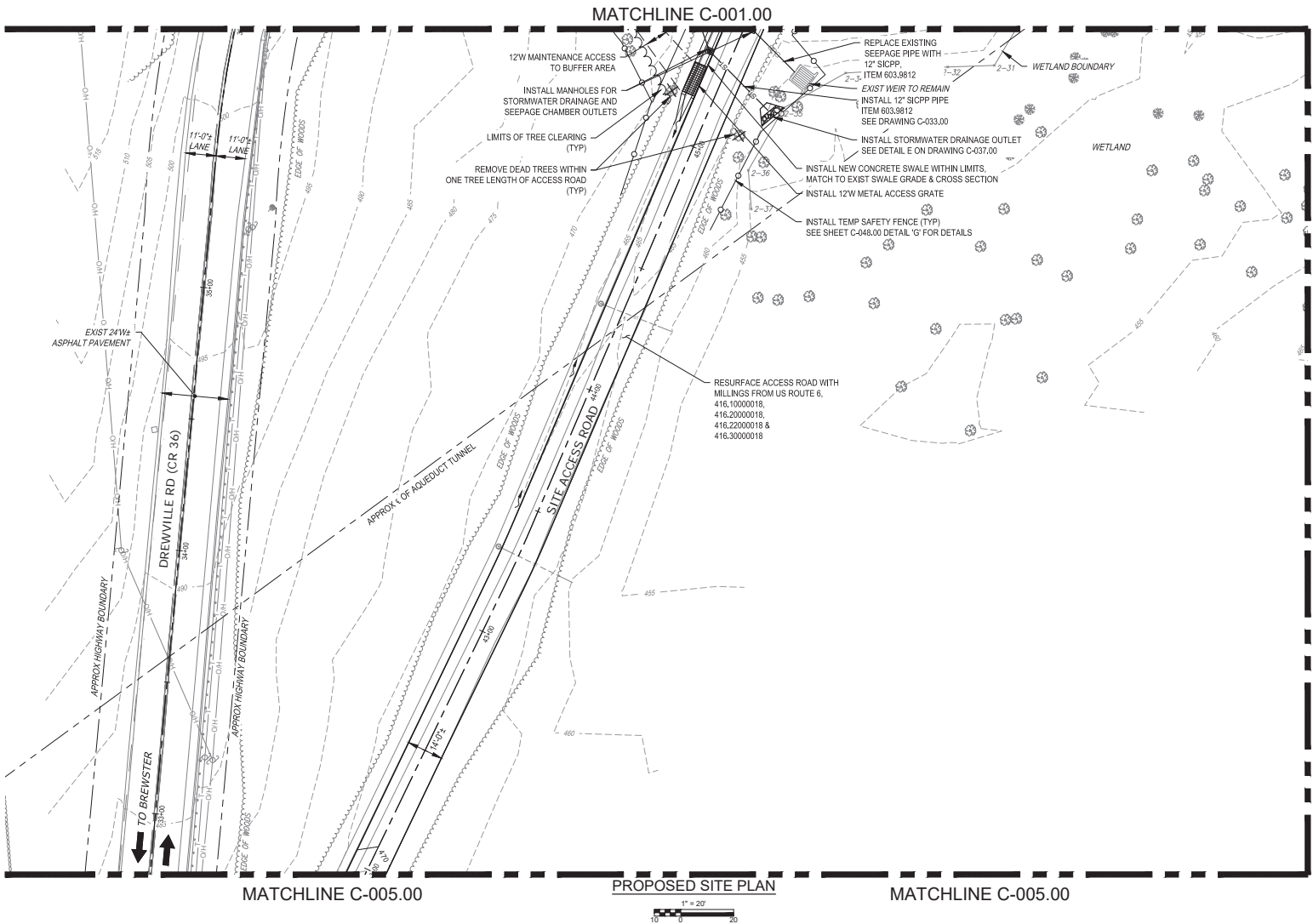
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**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS**
 PUTNAM COUNTY, NEW YORK
 PROPOSED SITE PLAN (2 OF 5)
 DATE: 5/26/2022
 SCALE: 1"=20'
 SHEET NO.:
 12 OF 81
 DRAWING NO.:
 C-002.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Last Saved By: E. Leclair; Date: 5/26/2022 11:58:30 AM
 Plot Style Table: BDDC_Drawing.ctb
 Drawing Name: C:\projects\1106\mtd\028657\c-001.dwg



TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
M. POWELL

CHECKED BY:
E. LECLAIR

DESIGN LEAD:
S. MURPHY

SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL

GDM Smith

11800 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

J. COSTA
PORTFOLIO MANAGER

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WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

PROPOSED SITE PLAN (3 OF 5)

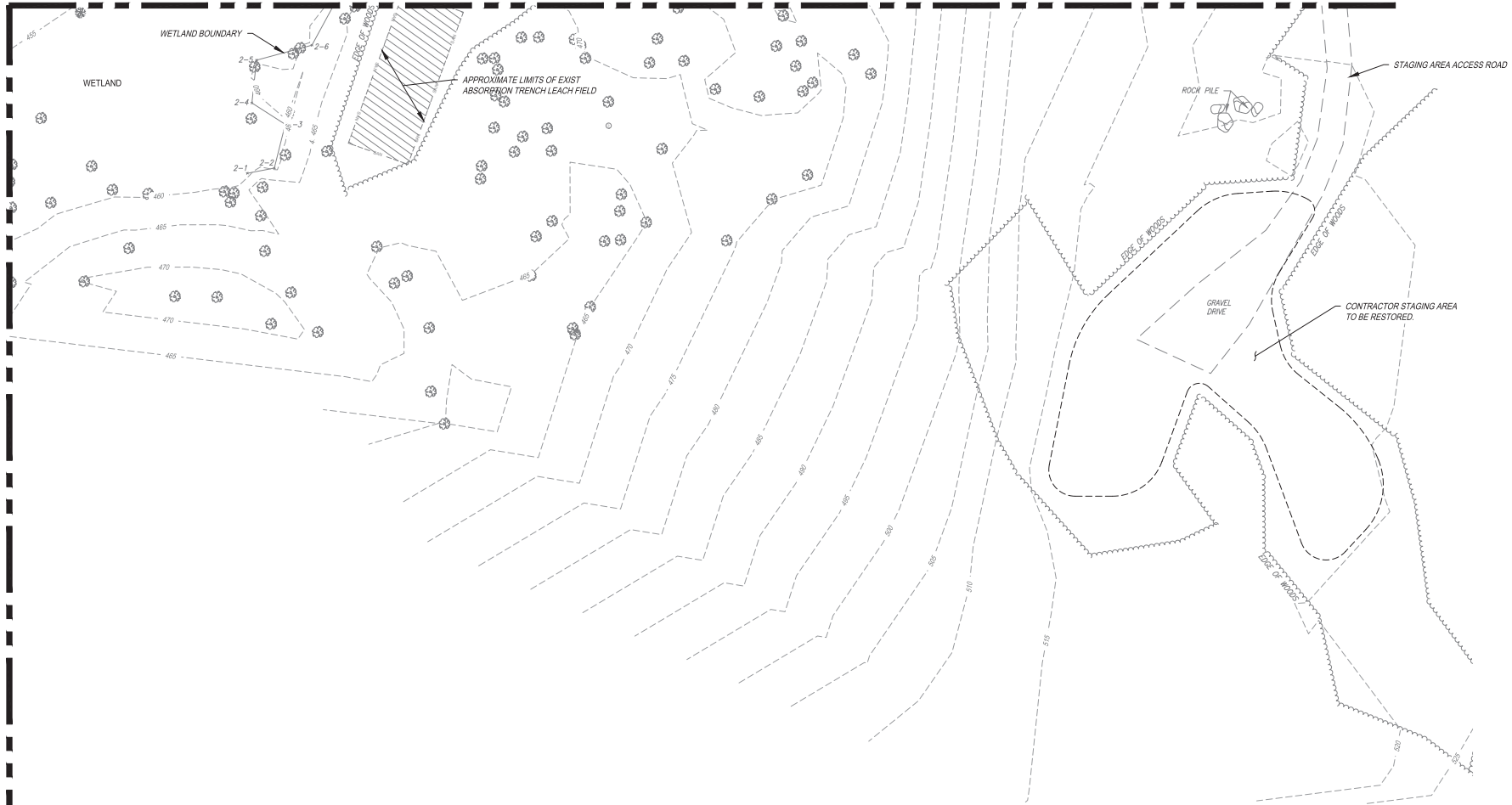
DATE: 5/26/2022
SCALE: 1"=20'
SHEET NO.: 13 OF 81
DRAWING NO.: C-003.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



MATCHLINE C-002.00

MATCHLINE C-003.00



PROPOSED SITE PLAN



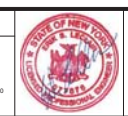
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair@NYCEDP.Ltd., Thursday, May 24, 2023 at 11:58:40 AM
 Plot Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwr_f\powellm\0268657\C-001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
M. POWELL
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GDM Smith
17500 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



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L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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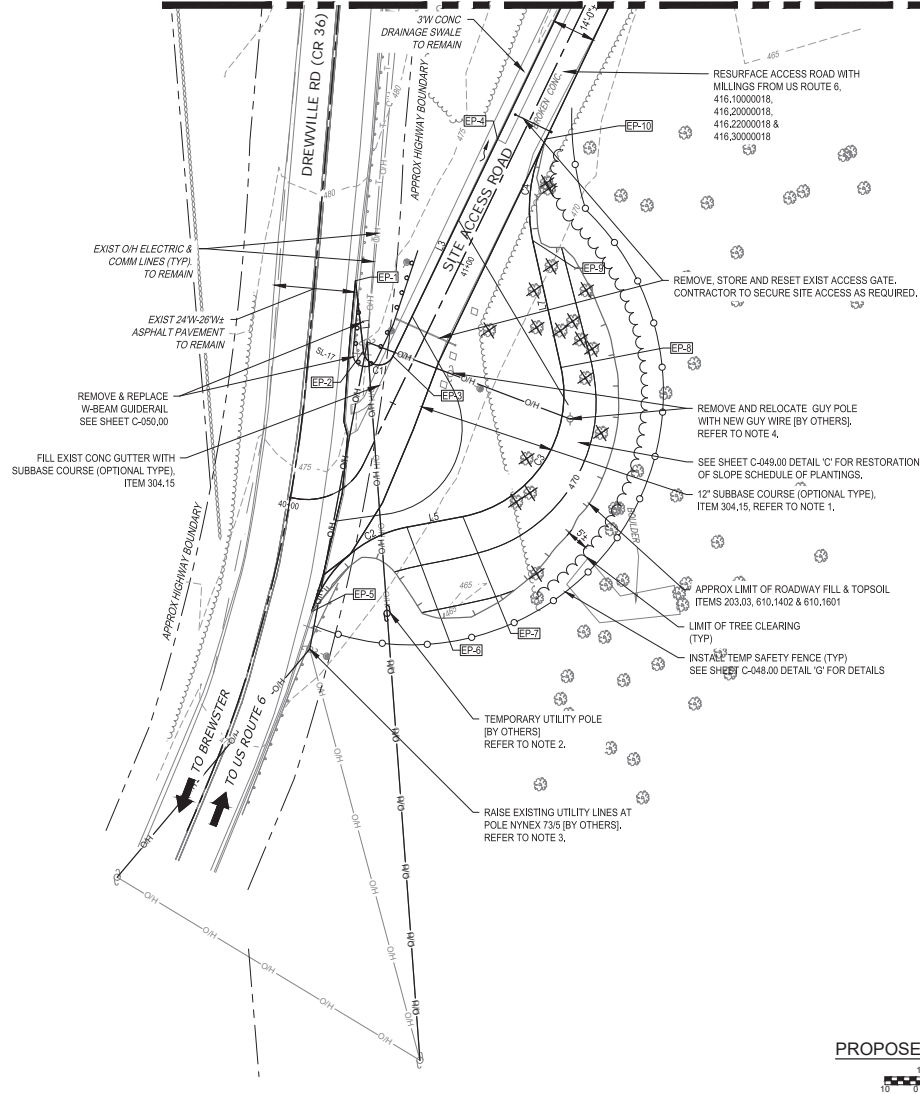
**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS**
PUTNAM COUNTY, NEW YORK

PROPOSED SITE PLAN (4 OF 5)

DATE: 5/26/2022
SCALE: 1"=20'
SHEET NO.:
14 OF 81
DRAWING NO.
C-004.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

MATCHLINE C-003.00



NOTE:

1. CONTRACTOR SHALL RESTORE SITE ENTRANCE AT THE COMPLETION OF WORK BY REMOVING 6" OF SUBBASE COURSE AND REPLACING WITH 6" TOPSOIL & SEED, ITEMS 203.02, 610,1402 & 610,1601 SEE DWG C-049.00 DETAILS 'C' & 'D'
2. A TEMPORARY UTILITY POLE SHALL BE INSTALLED BY NYSEG TO RAISE THE NEUTRAL WIRE TO HIGHEST PRACTICAL EXTENT TO OBTAIN INCREASED VERTICAL CLEARANCE AT ENTRANCE.
3. OVERHEAD UTILITIES ON POLE NYNEX 73/5 (DIRECTLY EAST OF THE DREWILLE RD CONSTRUCTION ENTRANCE) TO BE RASIED TO HIGHEST PRACTICAL EXTENT TO OBTAIN INCREASED VERTICAL CLEARANCE AT ENTRANCE.
4. GUY POLE SHALL BE RELOCATED BY NYSEG, OUTSIDE OF THE WIDENED CONSTRUCTION ENTRANCE.

EDGE OF PAVEMENT LINE & CURVE TABLE			
ID#	BEARING / DELTA	RADIUS	LENGTH
C1	148°03'51"	5.00'	12.92'
L1	N87°06'09"W		22.84'
C4	037°28'08"	50.00'	32.70'
L7	S86°46'53"W		41.87'
C3	091°48'47"	40.00'	64.10'
L5	N01°24'44"W		18.34'
C2	061°41'03"	40.00'	43.06'
L3	S54°53'28"E		77.52'

EDGE OF PAVEMENT POINT TABLE			
POINT #	DESCRIPTION	NORTHING	EASTING
3	EP-1	935329.09	710524.03
4	EP-2	935327.94	710546.84
5	EP-3	935337.04	710549.95
6	EP-4	935381.62	710486.54
7	EP-5	935297.87	710626.91
8	EP-6	935332.56	710605.02
9	EP-7	935350.89	710604.57
10	EP-8	935389.84	710562.33
11	EP-9	935387.48	710520.53
12	EP-10	935396.49	710488.97

PROPOSED SITE PLAN



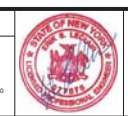
TOURN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair Powell, Thursday, May 24, 2023 11:37:04 AM
 Plot Size: 11x17 (ANSI) (10.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwr_e\powell\mcd0268657\C-001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
M. POWELL
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GDM Smith
11800 American Blvd, Suite 200
Luthers, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
J. COSTA
PORTFOLIO MANAGER

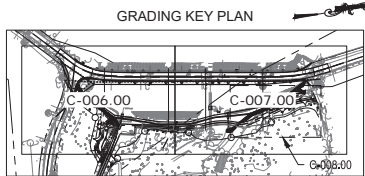
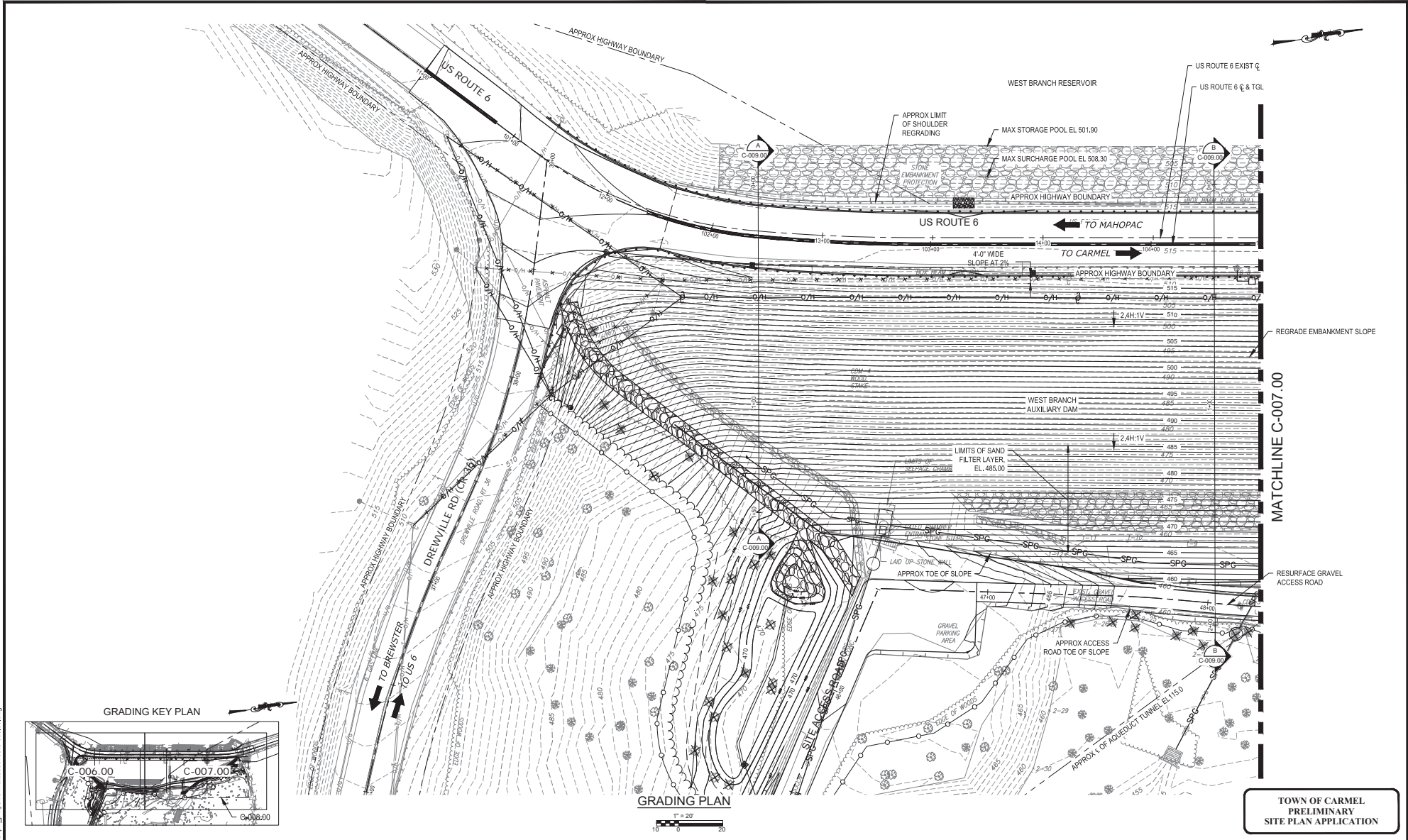
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WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
PROPOSED SITE PLAN (5 OF 5)

DATE: 5/26/2022
SCALE: 1"=20'
SHEET NO.:
15 OF 81
DRAWING NO.:
C-005.00

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GRADING PLAN
1" = 20'

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: S. Bate-Powell Ltd., Wednesday, April 27, 2022 and Date Plotted: Thursday, May 5, 2022, 10:55:28 AM
 Paper Size: ANSI (D) (24.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Plot Style Table: BEECD_Drawing.ctb
 Drawing Name: S:\Location\C:\pwr_p\lowell\mca2698130\C-006.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAR



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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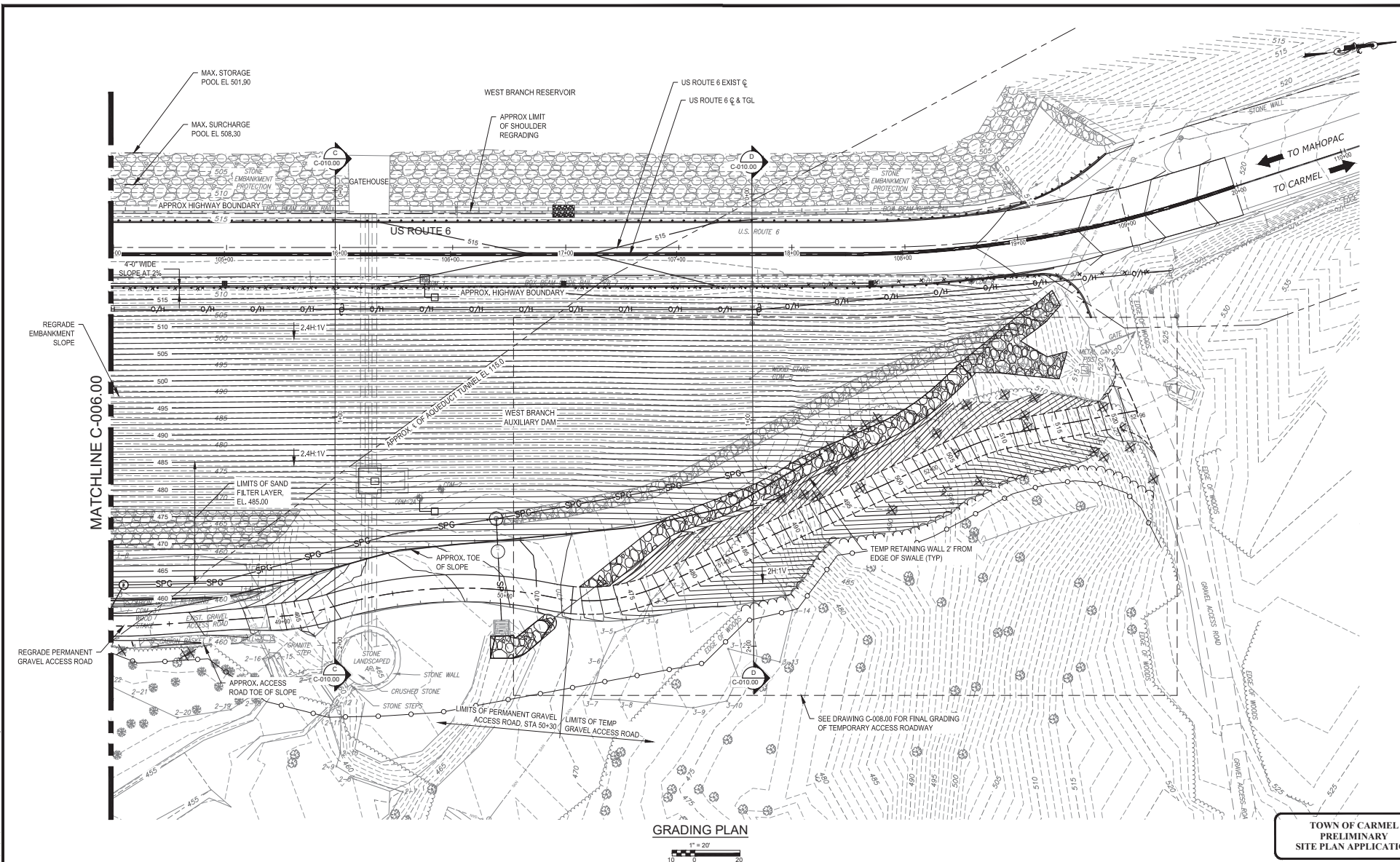
NEW YORK CITY
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BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
96-45 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS**
PUTNAM COUNTY, NEW YORK
GENERAL SITE GRADING PLAN (1 OF 2)

DATE: 9/5/2022
SCALE: 1"=20'
SHEET NO.:
16 OF 49
DRAWING NO.:
C-006.00

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Last Saved By: E. Leclair, Wednesday, April 27, 2022 and Date Plotted: Thursday, May 5, 2022, 10:05:43 AM
 Paper Size: ANSI (D) (24.00 X 36.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: S:\Location\C:\pwworking\jpowellm\226281\200\C-006.00.dwg




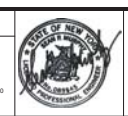
GRADING PLAN
1" = 20'

**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
 CHECKED BY:
E. LECLAIR
 DESIGN LEAD:
S. MURPHY
 SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL

 11 8100 American Blvd, Suite 200
 Luthers, NY 12110
 Tel: (518) 785-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

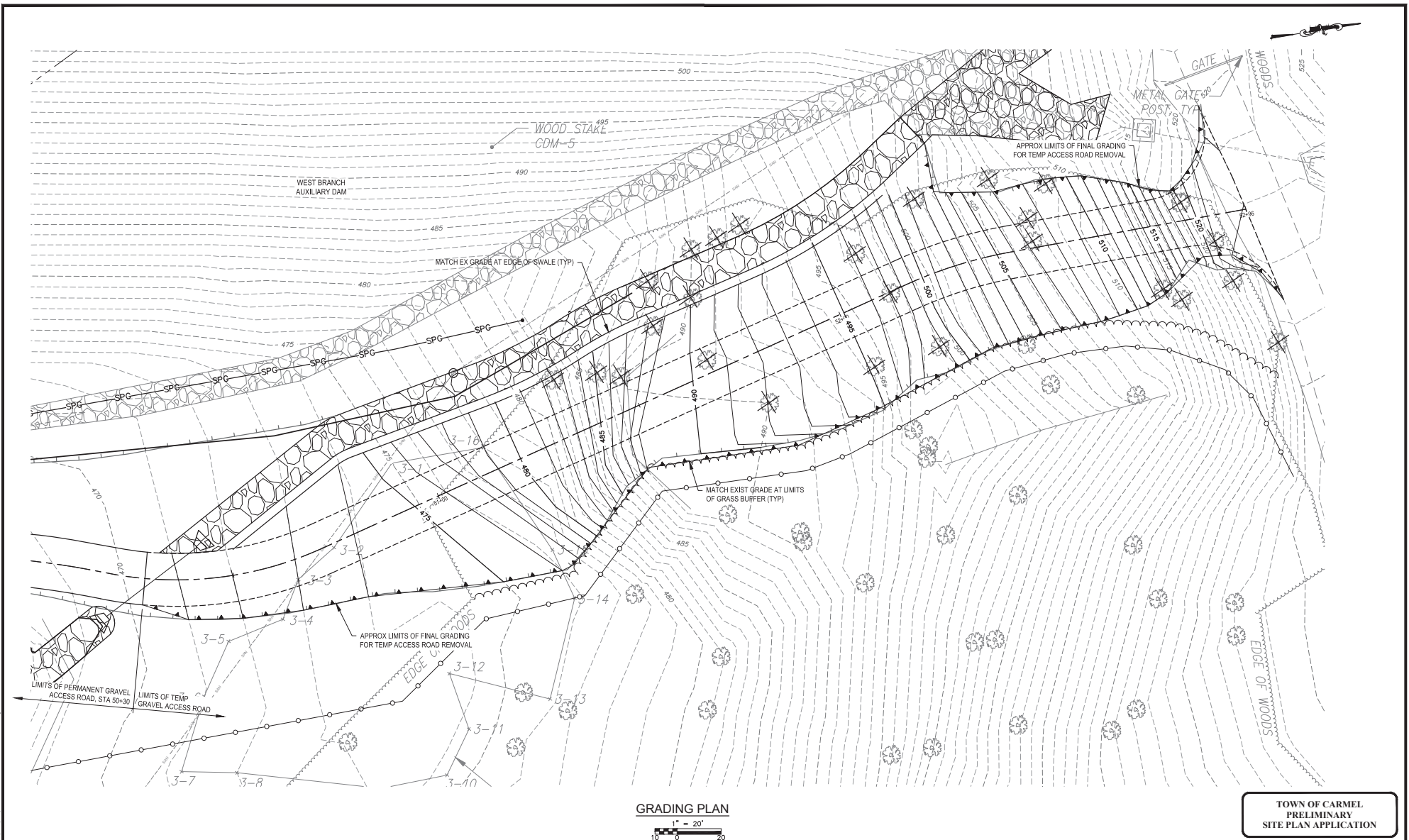
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**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
 GENERAL SITE GRADING PLAN (2 OF 2)

DATE: 9/5/2022
 SCALE: 1"=20'
 SHEET NO.:
17 OF 49
 DRAWING NO.:
C-007.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



GRADING PLAN
 1" = 20'
 10' 0' 20'

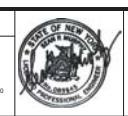
**TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION**

Last Saved By: B. & B. POWELL L.L.P., Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022 9:10:39 PM
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwr_b\1106wellm\226261180-C-008.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
S. MURPHY
 CHECKED BY:
E. LECLAIR
 DESIGN LEAD:
S. MURPHY
 SECTION MANAGER:
E. LECLAIR

DRAWN BY:
S. MURPHY
GDM Smith
 11 8100 American Blvd, Suite 200
 Latham, NY 12110
 Tel: (518) 762-6600



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

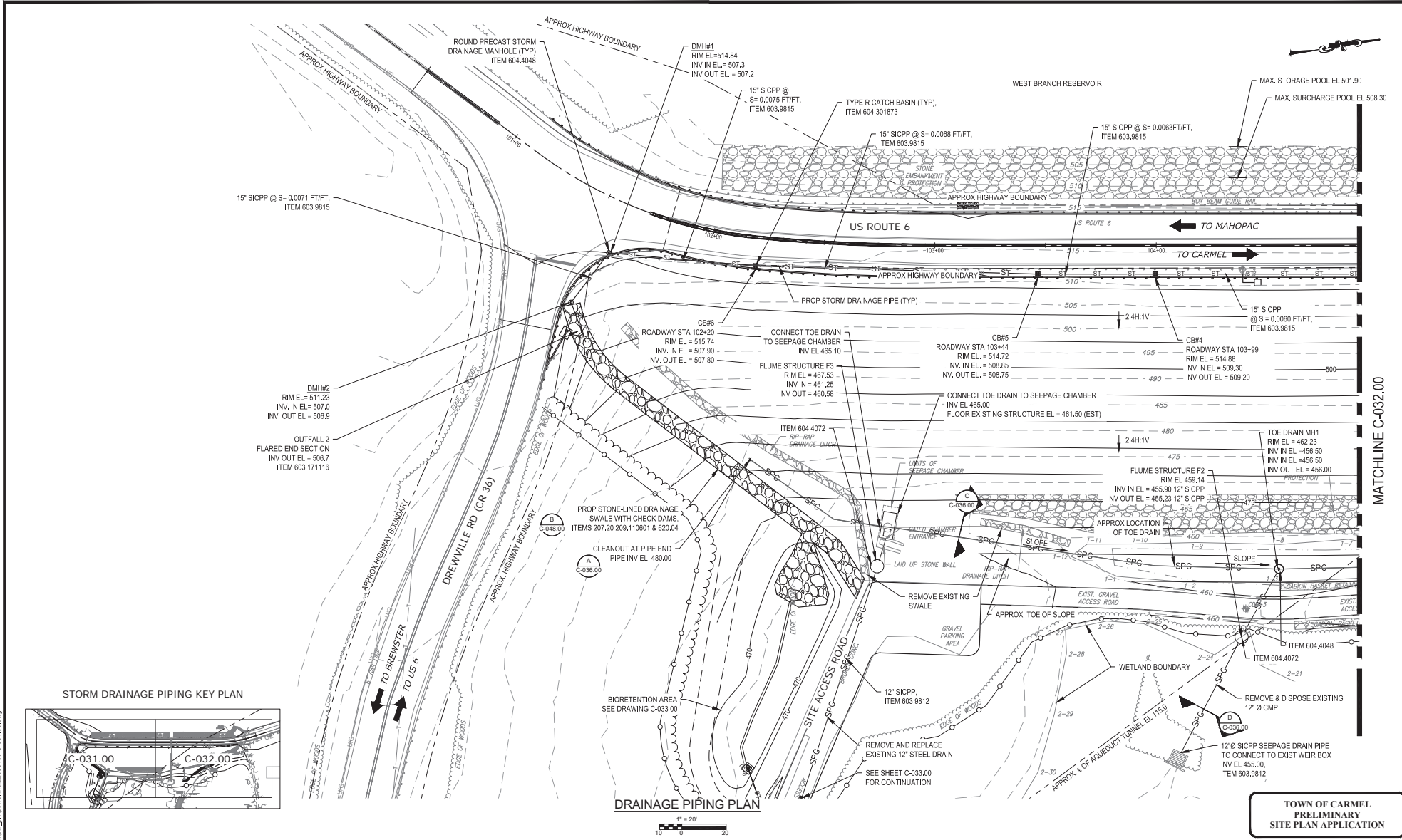
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 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
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**WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK**
 FINAL SITE GRADING PLAN - TEMPORARY ACCESS
 ROAD

DATE: 5/5/2022
 SCALE: 1"=20'
 SHEET NO.:
 18 OF 49
 DRAWING NO.
 C-008.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



Last Saved By: GDM-POMMEL, Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022 10:04:56 PM
 Paper Size (ANSI) (D:22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: S:\Location\C:\ow_g1\owelmd\26981\800\C-031.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
D. ROSENTHAL

CHECKED BY:
E. LECLAR

DESIGN LEAD:
D. ROSENTHAL

SECTION MANAGER:
E. LECLAR

DRAWN BY:
R. JAMES

11800 American Blvd, Suite 200
Luthers, NY 12110
Tel: (518) 782-4800

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

D. COSTA
PORTFOLIO MANAGER

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 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

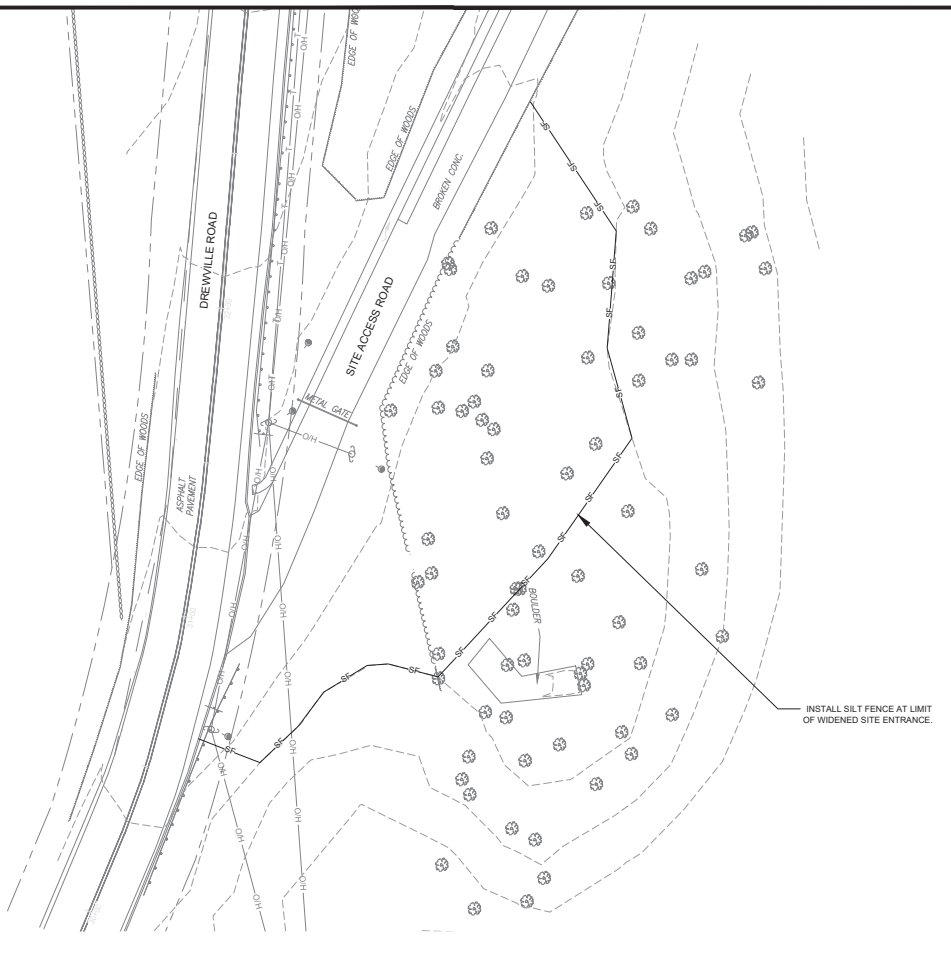
WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK

DRAINAGE & PIPING PLAN (1 OF 2)

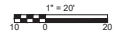
DATE: 5/5/2022
 SCALE: 1"=20'
 SHEET NO.: 19 OF 49
 DRAWING NO.: C-031.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Last Saved By: & Date: POWELL LMD, Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022, 10:10:00 PM.
 Paper Size: ANSI (D) (24.00 X 36.00 INCHES) Plot Scale: 1"=30'
 Drawing Name: & Location: C:\pwr_f\1\powellmd\26935190\C-043.dwg



PHASE 0 EROSION AND SEDIMENT CONTROL PLAN



LEGEND:
 —SF— SF— SILT FENCE

TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
 CHECKED BY:
 DESIGN LEAD:

SECTION MANAGER:
 E. LECLAIR



APPROVED FOR THE CITY OF NEW YORK

L. SINGH
 ACCOUNTABLE MANAGER

P. COSTA
 PORTFOLIO MANAGER

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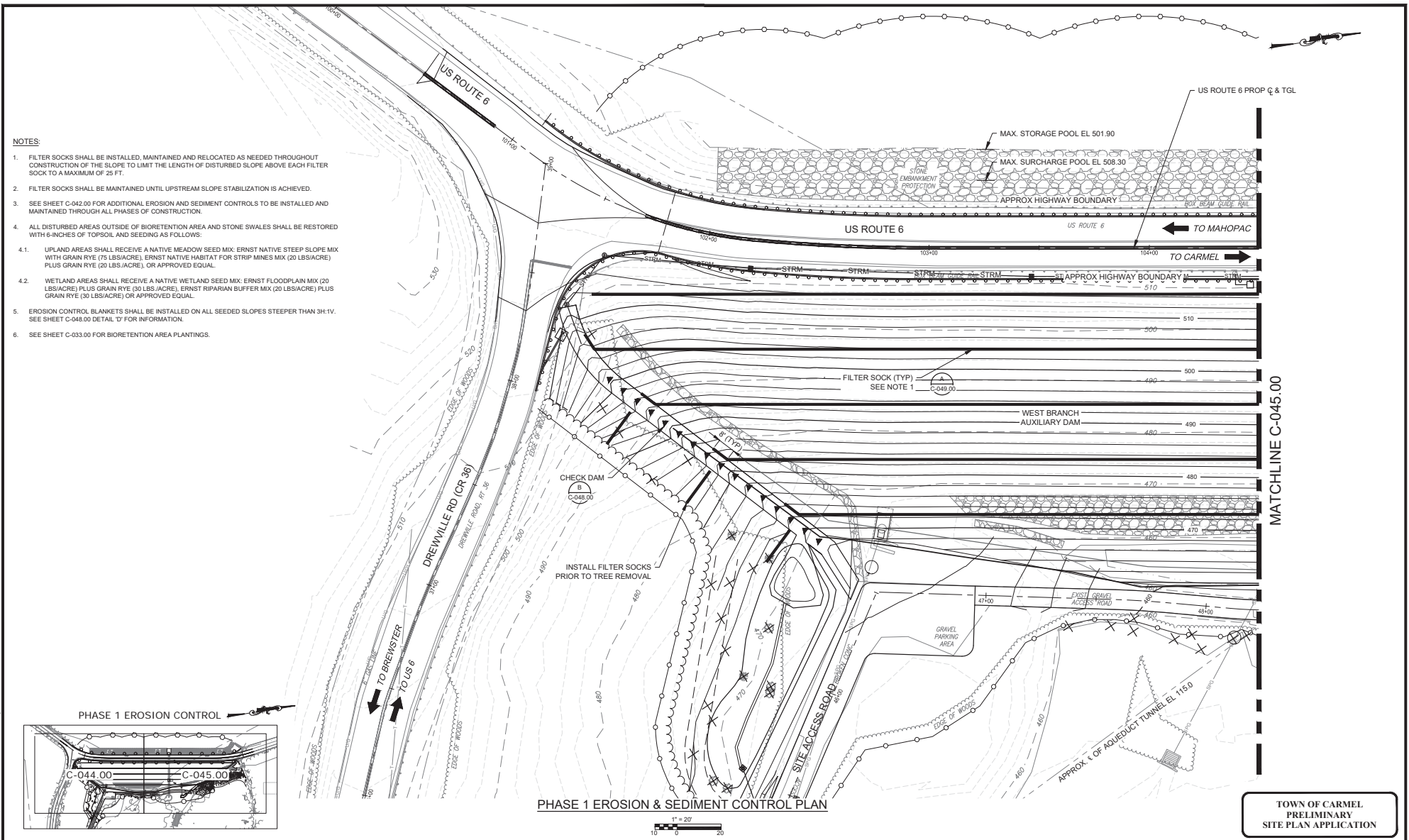
NEW YORK CITY
ENVIRONMENTAL PROTECTION
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK

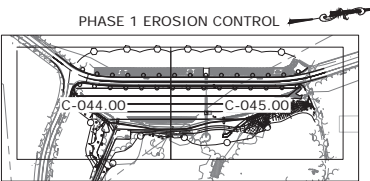
PHASE 0 SOIL EROSION & SEDIMENT CONTROL PLAN
 (2 OF 2)

DATE: 5/5/2022
 SCALE: 1"=30'
 SHEET NO.:
 23 OF 49
 DRAWING NO.
 C-043.00

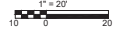
All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.





- NOTES:**
1. FILTER SOCKS SHALL BE INSTALLED, MAINTAINED AND RELOCATED AS NEEDED THROUGHOUT CONSTRUCTION OF THE SLOPE TO LIMIT THE LENGTH OF DISTURBED SLOPE ABOVE EACH FILTER SOCK TO A MAXIMUM OF 25 FT.
 2. FILTER SOCKS SHALL BE MAINTAINED UNTIL UPSTREAM SLOPE STABILIZATION IS ACHIEVED.
 3. SEE SHEET C-042.00 FOR ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE INSTALLED AND MAINTAINED THROUGH ALL PHASES OF CONSTRUCTION.
 4. ALL DISTURBED AREAS OUTSIDE OF BIORETENTION AREA AND STONE SWALES SHALL BE RESTORED WITH 6-INCHES OF TOPSOIL AND SEEDING AS FOLLOWS:
 - 4.1. UPLAND AREAS SHALL RECEIVE A NATIVE MEADOW SEED MIX: ERNST NATIVE STEEP SLOPE MIX WITH GRAIN RYE (75 LBS/ACRE), ERNST NATIVE HABITAT FOR STRIP MINES MIX (20 LBS/ACRE) PLUS GRAIN RYE (20 LBS/ACRE), OR APPROVED EQUAL.
 - 4.2. WETLAND AREAS SHALL RECEIVE A NATIVE WETLAND SEED MIX: ERNST FLOODPLAIN MIX (20 LBS/ACRE) PLUS GRAIN RYE (30 LBS/ACRE), ERNST RIPARIAN BUFFER MIX (20 LBS/ACRE) PLUS GRAIN RYE (30 LBS/ACRE) OR APPROVED EQUAL.
 5. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL SEEDED SLOPES STEEPER THAN 3H:1V. SEE SHEET C-048.00 DETAIL 'D' FOR INFORMATION.
 6. SEE SHEET C-033.00 FOR BIORETENTION AREA PLANTINGS.



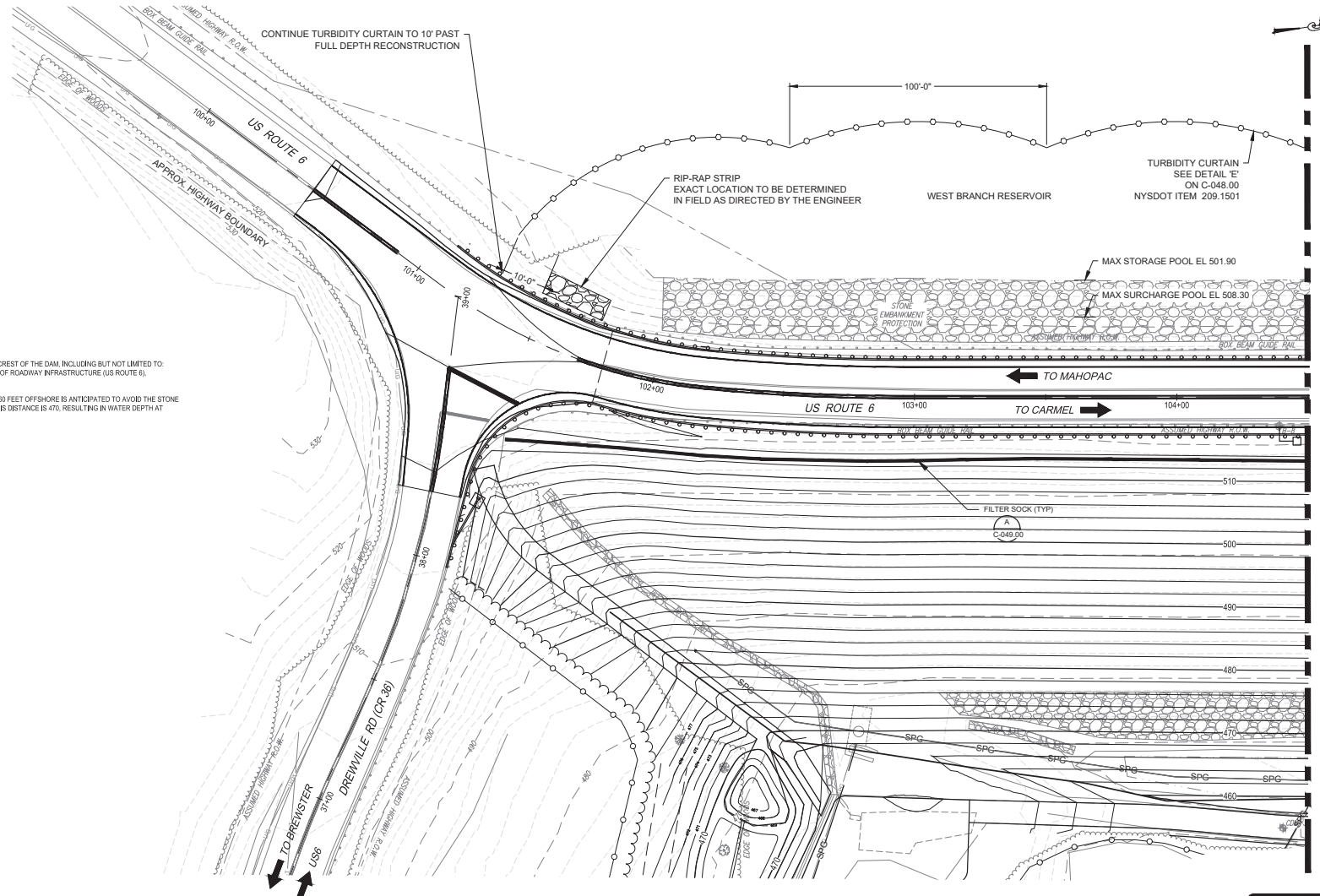
PHASE 1 EROSION & SEDIMENT CONTROL PLAN



Last Saved By: B. Dea-POMER L.L.P., Wednesday, April 27, 2023 and Date Plotted: Wednesday, May 4, 2023, 10:27:00 PM.
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\p\c_pl\lowell\mca26263180\C-044.00.dwg

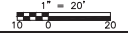
NO. DATE REVISIONS/DESCRIPTION APPRD.		DESIGNED BY: R. HANES CHECKED BY: E. LECLAR DESIGN LEAD: D. ROSENTHAL SECTION MANAGER: E. LECLAR	DRAWN BY: R. HANES  11 8100 American Blvd, Suite 200 Luthers, NY 12110 Tel: (518) 782-6800		APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER	*WARNING! THIS IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION LAW, SECTION 7209.2.* NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp	WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS PUTNAM COUNTY, NEW YORK PHASE 1 SOIL EROSION & SEDIMENT CONTROL PLAN (1 OF 2)	DATE: 9/5/2022 SCALE: 1"=20' SHEET NO.: 24 OF 49 DRAWING NO. C-044.00
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All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



- NOTES:
1. INSTALL TURBIDITY CURTAIN PRIOR TO WORK AT THE CREST OF THE DAM, INCLUDING BUT NOT LIMITED TO: UTILITY POLE RELOCATION, REMOVAL OR PLACEMENT OF ROADWAY INFRASTRUCTURE (US ROUTE 6), PLACEMENT OF FILL AT THE CREST OF THE DAM.
 2. ANCHORING OF TURBIDITY CURTAIN APPROXIMATELY 60 FEET OFFSHORE IS ANTICIPATED TO AVOID THE STONE DAM SLOPE. APPROXIMATE GROUND ELEVATION AT THIS DISTANCE IS 470, RESULTING IN WATER DEPTH AT NORMAL POOL OF APPROXIMATELY 31 FT.

PHASE 2 EROSION & SEDIMENT CONTROL



MATCHLINE C-047.00

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: 6 Data-POMPEL LMD, Wednesday, April 27, 2022 and Date Plotted Wednesday, May 4, 2022 10:29:04 AM
Paper Size (ANSI) (D) (24.00 X 36.00 INCHES) Plot Scale: 1"=20'
Drawing Name: & Location: C:\pwr_f\1\pwr\mca\262631\100\C-046.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
R. HAINES
CHECKED BY:
E. LECLAR
DESIGN LEAD:
D. ROSENTHAL
SECTION MANAGER:
E. LECLAR

DRAWN BY:
R. HAINES
CDM Smith
11 8180 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 785-6600



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
P. COSTA
PORTFOLIO MANAGER

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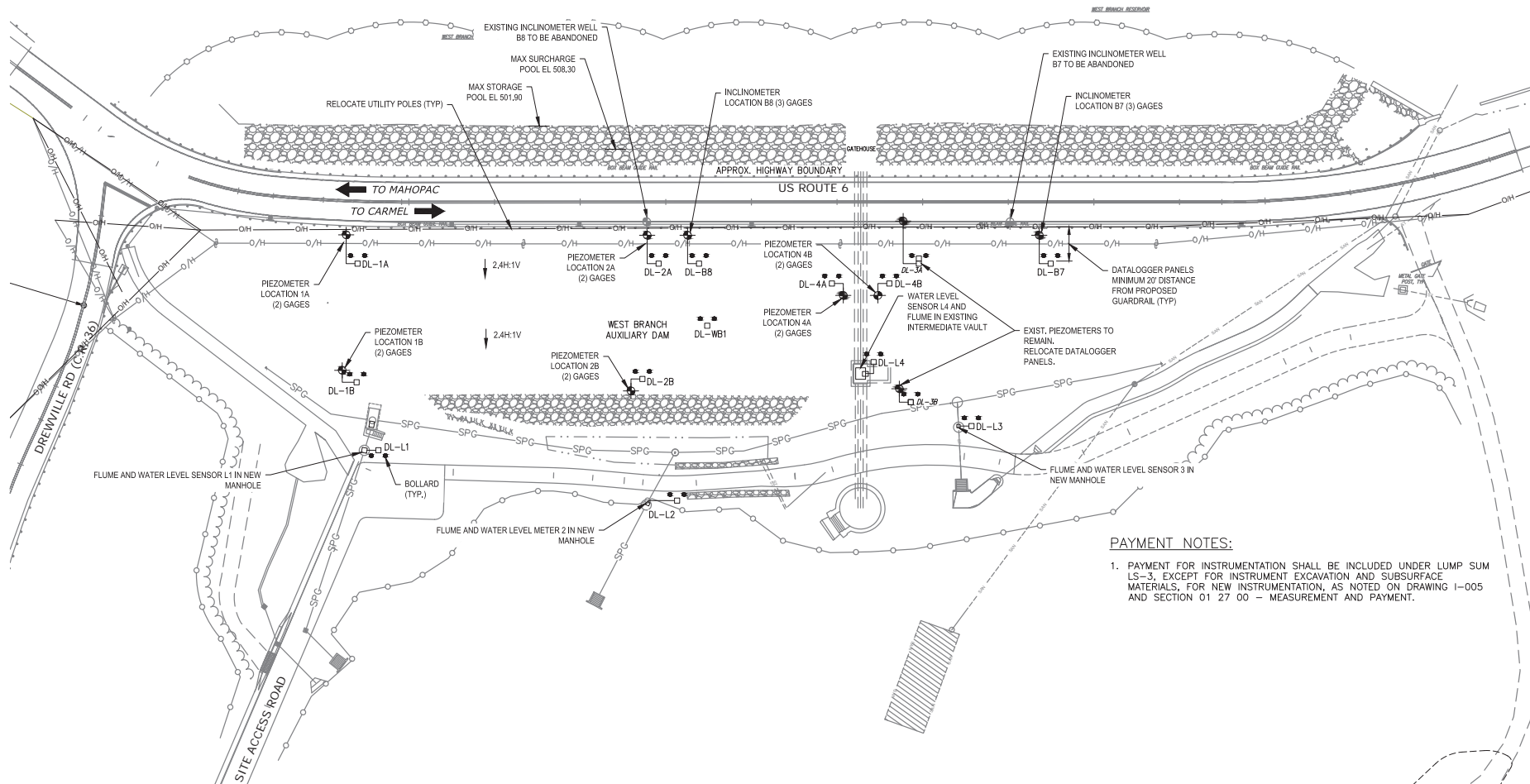
NEW YORK CITY
ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
PHASE II SOIL EROSION & SEDIMENT CONTROL PLAN
(1 OF 2)

DATE: 5/5/2022
SCALE: 1"=20'
SHEET NO.:
26 OF 49
DRAWING NO.:
C-046.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Last Saved By: P. JENKINS Thursday, May 05, 2022 11:55:04 AM
 Plot Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1" = 30'
 Drawing Name: & Location: C:\pwr_gf1\powell\mcd02686901\001.dwg



PAYMENT NOTES:

- PAYMENT FOR INSTRUMENTATION SHALL BE INCLUDED UNDER LUMP SUM LS-3, EXCEPT FOR INSTRUMENT EXCAVATION AND SUBSURFACE MATERIALS, FOR NEW INSTRUMENTATION, AS NOTED ON DRAWING I-005 AND SECTION 01 27 00 - MEASUREMENT AND PAYMENT.

INSTRUMENTATION PLAN
 1" = 30'
 15 0 30

**TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
P. JENKINS
 CHECKED BY:
J. LAROSA
 DESIGN LEAD:
P. JENKINS
 SECTION MANAGER:
E. LECLAIR

DRAWN BY:
P. JENKINS

 11500 American Blvd, Suite 200
 Luben, NY 12110
 Tel: (518) 782-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

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 CORONA, NEW YORK 11368
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**WEST BRANCH AUXILIARY DAM
 SLOPE SAFETY IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK**

INSTRUMENTATION PLAN

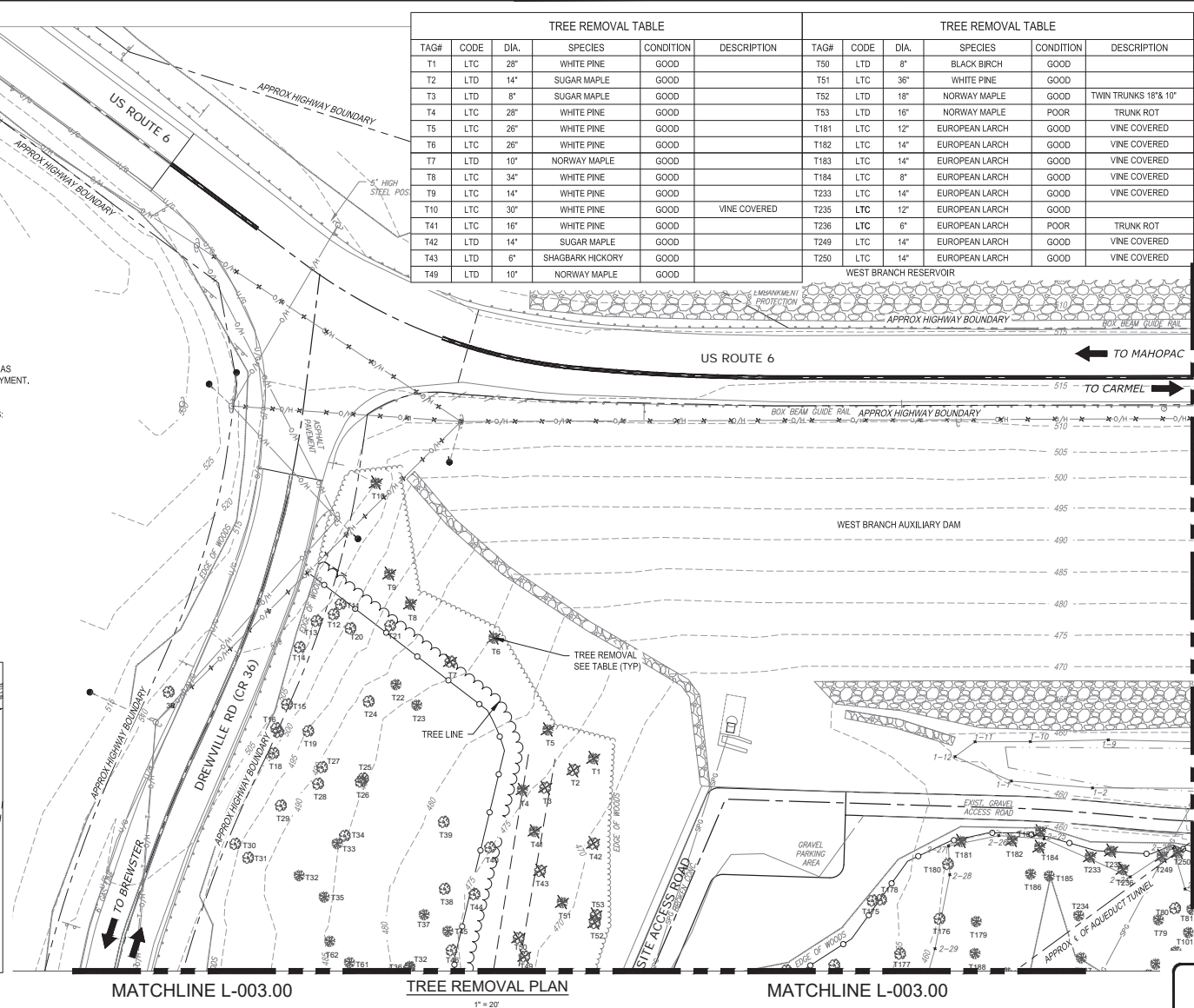
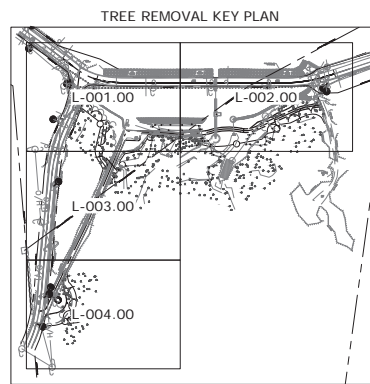
DATE: 5/26/2022
 SCALE: 1" = 30'
 SHEET NO.: 77 OF 81
 DRAWING NO. I-001.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

TREE REMOVAL TABLE					TREE REMOVAL TABLE						
TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION	TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION
T1	LTC	28"	WHITE PINE	GOOD		T50	LTD	8"	BLACK BIRCH	GOOD	
T2	LTD	14"	SUGAR MAPLE	GOOD		T51	LTC	36"	WHITE PINE	GOOD	
T3	LTD	8"	SUGAR MAPLE	GOOD		T52	LTD	18"	NORWAY MAPLE	GOOD	TWIN TRUNKS 18' & 10"
T4	LTC	28"	WHITE PINE	GOOD		T53	LTD	16"	NORWAY MAPLE	POOR	TRUNK ROT
T5	LTC	26"	WHITE PINE	GOOD		T181	LTC	12"	EUROPEAN LARCH	GOOD	VINE COVERED
T6	LTC	26"	WHITE PINE	GOOD		T182	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T7	LTD	10"	NORWAY MAPLE	GOOD		T183	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T8	LTC	34"	WHITE PINE	GOOD		T184	LTC	8"	EUROPEAN LARCH	GOOD	VINE COVERED
T9	LTC	14"	WHITE PINE	GOOD		T233	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T10	LTC	30"	WHITE PINE	GOOD	VINE COVERED	T235	LTC	12"	EUROPEAN LARCH	GOOD	
T41	LTC	16"	WHITE PINE	GOOD		T236	LTC	6"	EUROPEAN LARCH	POOR	TRUNK ROT
T42	LTD	14"	SUGAR MAPLE	GOOD		T249	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T43	LTD	6"	SHAGBARK HICKORY	GOOD		T250	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T49	LTD	10"	NORWAY MAPLE	GOOD							

TREE REMOVAL TABLE					TREE REMOVAL TABLE						
TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION	TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION
T50	LTD	8"	BLACK BIRCH	GOOD		T181	LTC	12"	EUROPEAN LARCH	GOOD	VINE COVERED
T51	LTC	36"	WHITE PINE	GOOD		T182	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T52	LTD	18"	NORWAY MAPLE	GOOD	TWIN TRUNKS 18' & 10"	T183	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T53	LTD	16"	NORWAY MAPLE	POOR	TRUNK ROT	T184	LTC	8"	EUROPEAN LARCH	GOOD	VINE COVERED
T181	LTC	12"	EUROPEAN LARCH	GOOD	VINE COVERED	T233	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T182	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED	T235	LTC	12"	EUROPEAN LARCH	GOOD	
T183	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED	T236	LTC	6"	EUROPEAN LARCH	POOR	TRUNK ROT
T184	LTC	8"	EUROPEAN LARCH	GOOD	VINE COVERED	T249	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T233	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED	T250	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED
T235	LTC	12"	EUROPEAN LARCH	GOOD							
T236	LTC	6"	EUROPEAN LARCH	POOR	TRUNK ROT						
T249	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED						
T250	LTC	14"	EUROPEAN LARCH	GOOD	VINE COVERED						

- NOTES:
- PAYMENT OF TREE REMOVAL SHALL BE BASED ON UNIT PRICE AS OUTLINED IN SPECIFICATION 01 27 00 - MEASUREMENT AND PAYMENT.
 - TREE PROTECTION AS DESCRIBED IN THE SITE CLEARING SPECIFICATION WILL BE REQUIRED ON THE FOLLOWING TREES:
T11; 20, 21, 40, 44, 169, 173, 175, 178, 180, 185 AND 186.



MATCHLINE L-002.00

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair, Wednesday, April 27, 2022 and Date Plotted Wednesday, May 4, 2022 11:05:27 AM.
 Plot Size: ANSI (D) (24.00 X 36.00 INCHES) Plot Scale: 1"=20'
 Drawing Name & Location: C:\pwworking\mca2698190\1\001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

D. COSTA
PORTFOLIO MANAGER

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CORONA, NEW YORK 11368
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WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

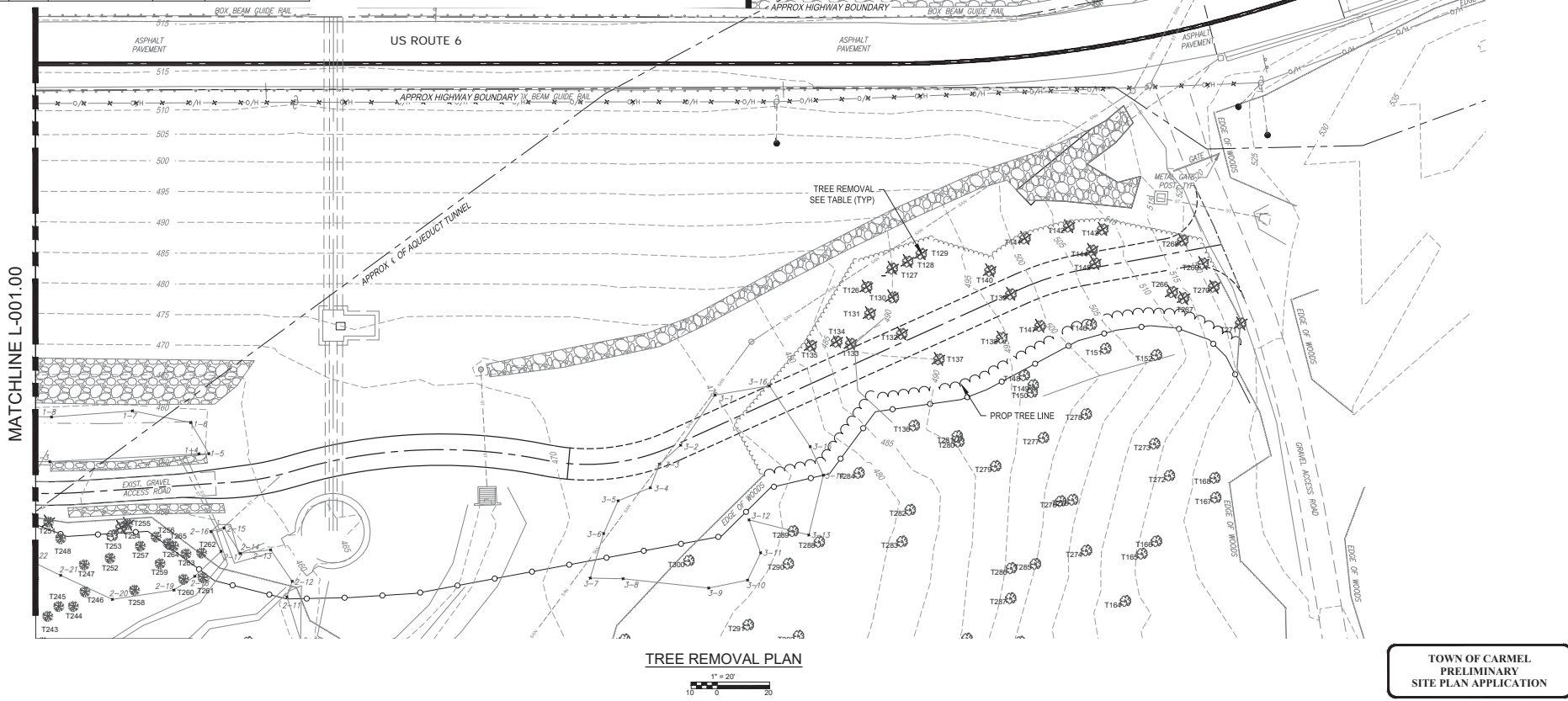
TREE REMOVAL PLAN (1 OF 3)

DATE: 9/9/2022
SCALE: 1"=20'
SHEET NO.:
31 OF 49
DRAWING NO.:
L-001.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

TREE REMOVAL TABLE					TREE REMOVAL TABLE						
TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION	TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION
T126	LTD	16"	NORWAY MAPLE	GOOD	VINE COVERED	T142	LTD	8"	RED MAPLE	POOR	TRUNK ROT
T127	LTD	6"	BLACK BIRCH	GOOD	VINE COVERED	T143	LTD	6"	SLIPPERY ELM	GOOD	
T128	LTD	8"	BLACK BIRCH	GOOD	VINE COVERED	T144	LTD	8"	RED MAPLE	GOOD	
T129	LTD	10"	BLACK BIRCH	GOOD	VINE COVERED	T145	LTD	16"	RED MAPLE	GOOD	
T130	LTD	10"	BLACK BIRCH	GOOD		T147	LTD	10"	SLIPPERY ELM	GOOD	
T131	LTD	16"	BLACK BIRCH	GOOD		T251	LTC	16"	EUROPEAN LARCH	GOOD	VINE COVERED
T132	LTD	16"	BLACK BIRCH	GOOD		T254	LTD	10"	WHITE ASH	GOOD	VINE COVERED
T133	LTD	12"	BLACK BIRCH	GOOD	VINE COVERED	T255	LTC	16"	EUROPEAN LARCH	GOOD	VINE COVERED
T134	LTD	8"	BLACK BIRCH	GOOD		T266	LTD	10"	SHAGBARK HICKORY	GOOD	VINE COVERED
T135	LTD	10"	NORWAY MAPLE	GOOD		T267	LTD	10"	RED MAPLE	GOOD	
T137	LTD	6"	AMELANCHIER SP.	GOOD		T268	LTD	10"	BLACK BIRCH	GOOD	VINE COVERED
T138	LTD	12"	BLACK BIRCH	GOOD		T269	LTD	14"	RED MAPLE	GOOD	VINE COVERED
T139	LTD	14"	RED MAPLE	GOOD		T270	LTD	14"	RED MAPLE	GOOD	VINE COVERED
T140	LTD	10"	RED MAPLE	GOOD		T271	LTD	8"	SUGAR MAPLE	GOOD	VINE COVERED
T141	LTD	10"	SHAGBARK HICKORY	GOOD							

- NOTES:
- PAYMENT OF TREE REMOVAL SHALL BE BASED ON UNIT PRICE AS OUTLINED IN SPECIFICATION 01 27 00 - MEASUREMENT AND PAYMENT.
 - TREE PROTECTION AS DESCRIBED IN THE SITE CLEARING SPECIFICATION WILL BE REQUIRED ON THE FOLLOWING TREES:
136; 146; 148; 149; 253; 256; 257; 265; 284; AND 300.



TREE REMOVAL PLAN
1" = 20'

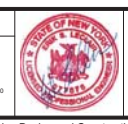
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair, Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022 11:05:57 AM.
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwworking\m269813001_001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GPM Smith
11800 American Blvd, Suite 200
Luthers, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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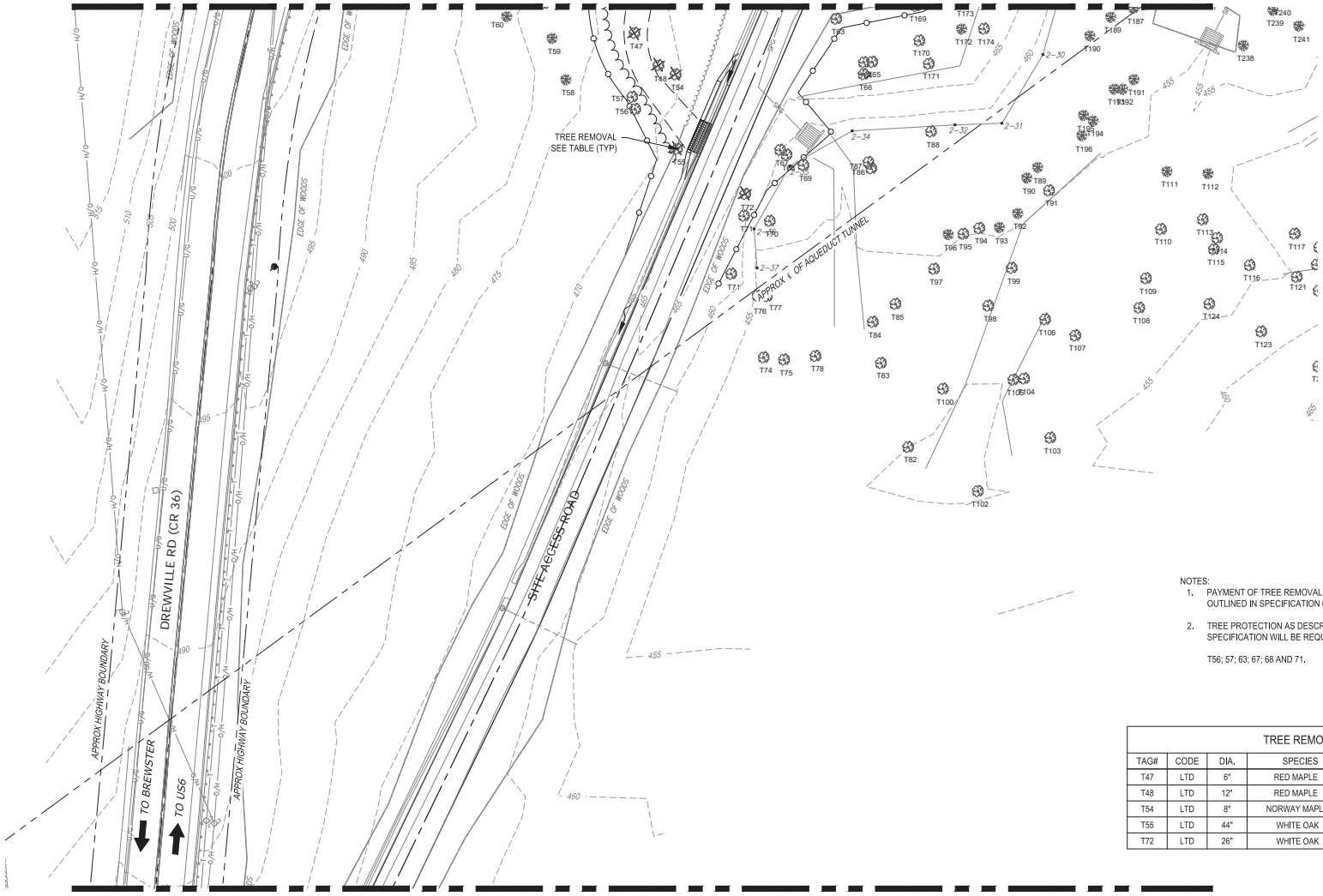
NEW YORK CITY
ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
TREE REMOVAL PLAN (2 OF 3)

DATE: 5/5/2022
SCALE: 1"=20'
SHEET NO.:
32 OF 49
DRAWING NO.:
L-002.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

MATCHLINE L-001.00



MATCHLINE L-004.00

TREE REMOVAL PLAN

- NOTES:
- PAYMENT OF TREE REMOVAL SHALL BE BASED ON UNIT PRICE AS OUTLINED IN SPECIFICATION 01 27 00 - MEASUREMENT AND PAYMENT.
 - TREE PROTECTION AS DESCRIBED IN THE SITE CLEARING SPECIFICATION WILL BE REQUIRED ON THE FOLLOWING TREES:
T56; 57; 63; 67; 68 AND 71.

TREE REMOVAL TABLE					
TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION
T47	LTD	6"	RED MAPLE	GOOD	
T48	LTD	12"	RED MAPLE	GOOD	
T54	LTD	8"	NORWAY MAPLE	GOOD	VINE COVERED
T55	LTD	44"	WHITE OAK	POOR	TRUNK ROT
T72	LTD	26"	WHITE OAK	POOR	TRUNK ROT

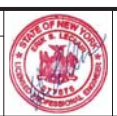
**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

Last Saved By: E. Leclair, Wednesday, April 27, 2023 and Date Plotted: Wednesday, May 4, 2023 11:05:47 PM.
 Paper Size: ANSI (D) (24.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name: & Location: C:\pwr_f\1\powell\mca26981\90L-001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GDM Smith
11500 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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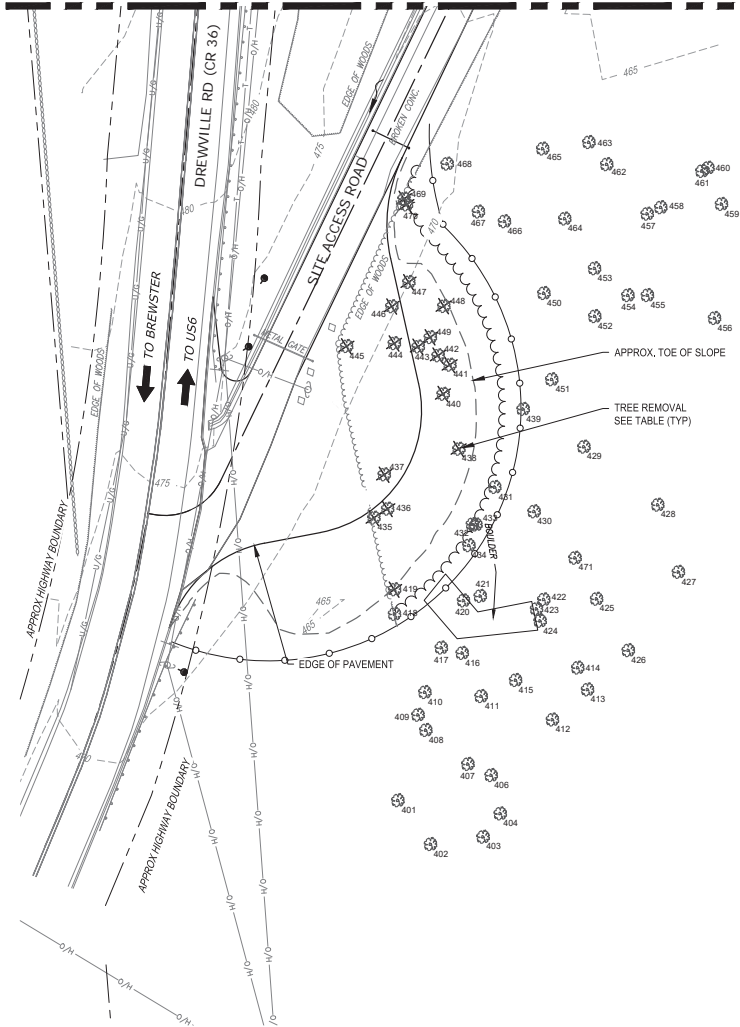
**NEW YORK CITY
ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION**
96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
TREE REMOVAL PLAN (3 OF 3)

DATE: 5/5/2022
SCALE: 1"=20'
SHEET NO.:
33 OF 49
DRAWING NO.:
L-003.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

MATCHLINE L-003.00



TREE REMOVAL TABLE					
TAG#	CODE	DIA.	SPECIES	CONDITION	DESCRIPTION
T419	LTD	15"	SUGAR MAPLE	GOOD	
T435	LTD	6"	SUGAR MAPLE	GOOD	
T436	LTD	28"	SUGAR MAPLE	POOR	TRUNK ROT
T437	LTD	5"	SUGAR MAPLE	GOOD	
T438	LTD	5"	SUGAR MAPLE	GOOD	
T440	LTD	8"	RED MAPLE	GOOD	
T441	LTD	16"	WHITE ASH	GOOD	
T442	LTD	5"	HOP HORNBEAM	GOOD	
T443	LTD	4"	SUGAR MAPLE	GOOD	
T444	LTD	9"	SUGAR MAPLE	GOOD	
T445	LTD	7"	AMERICAN ELM	GOOD	
T446	LTD	8"	HOP HORNBEAM	GOOD	
T447	LTD	8"	SUGAR MAPLE	GOOD	
T448	LTD	11"	RED MAPLE	GOOD	
T449	LTD	23"	WHITE ASH	GOOD	
T469	LTD	6"	AMERICAN ELM	GOOD	
T470	LTD	10"	RED MAPLE	GOOD	

- NOTES:
- PAYMENT OF TREE REMOVAL SHALL BE BASED ON UNIT PRICE AS OUTLINED IN SPECIFICATION 01 27 00 - MEASUREMENT AND PAYMENT.
 - TREE PROTECTION AS DESCRIBED IN THE SITE CLEARING SPECIFICATION WILL BE REQUIRED ON THE FOLLOWING TREES:
T418; 420; 421; 431; 432; 433; 434; 439; 450; 451; 466; 467 AND 468.



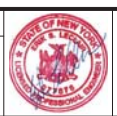
TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: E. Leclair; L. S. Murphy; Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022, 11:05:57 AM.
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=20'
 Drawing Name & Location: C:\pwworking\mca\planning\26931300\1_00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GDM Smith
11800 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

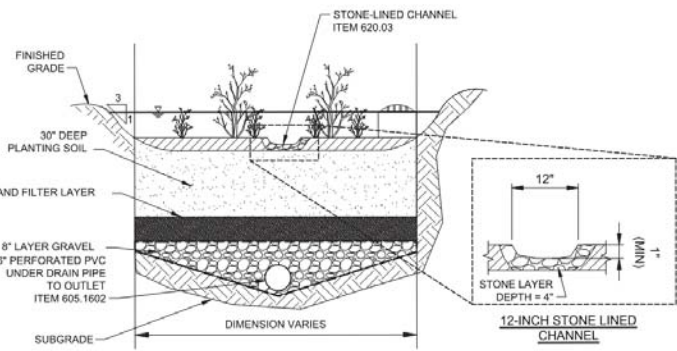
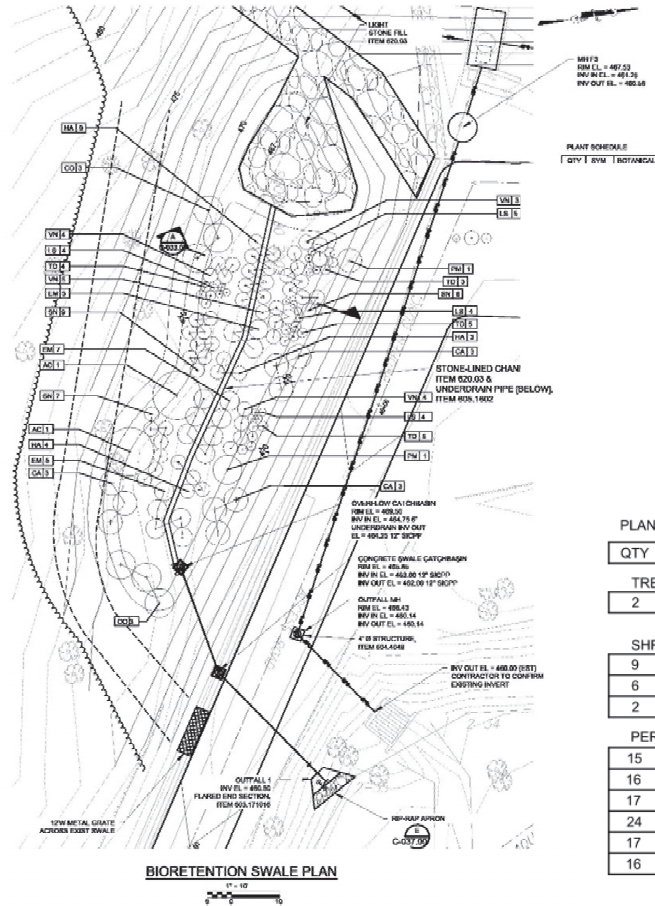
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CORONA, NEW YORK 11368
www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
TREE REMOVAL PLAN (4 OF 4)
DATE: 5/5/2022
SCALE: 1"=20'
SHEET NO.:
34 OF 49
DRAWING NO.
L-004.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Last Saved By: P. JENKINS, Tuesday, February 01, 2022 12:27:03 PM
 Plot Style: ANSI (D) (24.00 X 36.00 INCHES) Plot Scale: 1" = 30'
 Drawing Name: & Location: C:\pwr_gf1\pwwel\mcd\02666901\001.dwg



PLANT SCHEDULE

QTY	SYM	BOTANICAL NAME	COMMON NAME	COND	SIZE
TREES					
2	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	B&B	4 - 5'
SHRUBS					
9	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CONT.	2 GALLON
6	CO	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	CONT.	2 GALLON
2	PM	PHOTINIA MELANOCARPA	BLACK CHOKEBERRY	CONT.	2 GALLON
PERENNIALS					
15	EM	EUTROCHIMUM MACULATUM	JOE PYE WEED	CONT.	1 GALLON
16	HA	HELENIUM AUTUMNALE	SNEEZEWEED	CONT.	1 GALLON
17	LS	LOBELIA SIPHILITICA	PURPLE CONEFLOWER	CONT.	1 GALLON
24	SN	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	CONT.	1 GALLON
17	TD	THALICTRUM DIOICUM	EARLY MEADOW-RUE	CONT.	1 GALLON
16	VN	VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED	CONT.	1 GALLON

BIORETENTION PLANTING

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

NO	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
P. JENKINS
CHECKED BY:
J. LAROSA
DESIGN LEAD:
P. JENKINS
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
P. JENKINS

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

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96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
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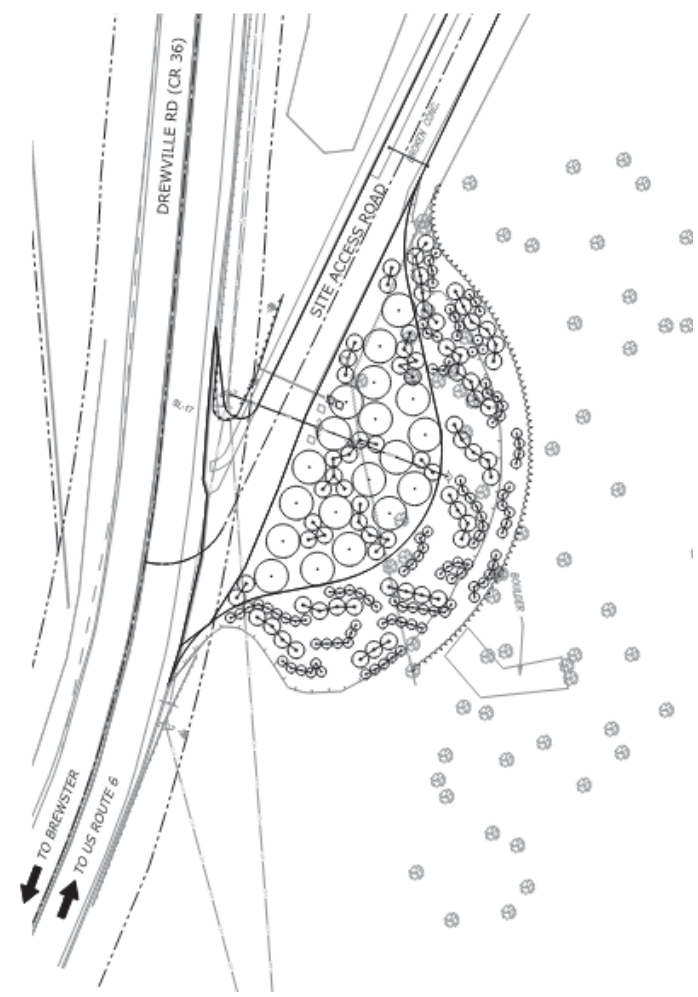
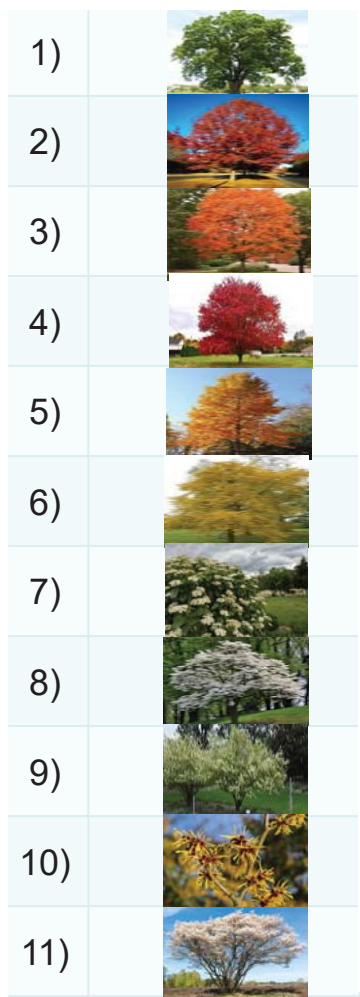
WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

BIORETENTION PLANTING

DATE: 9/5/2022
SCALE: 1" = 30'
SHEET NO.:
35 OF 49
DRAWING NO.
L-005.00

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Last Saved By: P. JENKINS, Tuesday, February 2, 2022 12:27:43 PM
 Plot Size: ANSI D (24.00 X 36.00 INCHES) Plot Scale: 1" = 30'
 Drawing Name: & Location: C:\pwr_gf1\pwr\mcd\02666901\001.dwg



PLANT SCHEDULE

QTY	BOTANICAL NAME	COMMON NAME
TREES		
3	QUERCUS ALBA	WHITE OAK
3	QUERCUS RUBRA	RED OAK
3	ACER SACCHARUM	SUGAR MAPLE
3	ACER RUBRUM	RED MAPLE
3	LIRIODENDRON TULIPIFERA	TULIP POPLAR
4	BETULA LENTA	SWEET BIRCH

SHRUBS		
6	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD
6	CORNUS FLORIDA	FLOWING DOGWOOD
6	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM
6	HAMAMELIS VIRGINIANA	AMERICAN WITCH HAZEL
5	AMELANCHIER CANADENSIS	SERVICEBERRY

SEED MIX	
20 LB/ACRE	ERNMX-123 NATIVE UPLAND FORAGE & COVER MIX

PLANT SCHEDULE

QTY	BOTANICAL NAME	COMMON NAME
SHRUBS		
9	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD
9	CORNUS FLORIDA	FLOWING DOGWOOD
6	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM
9	HAMAMELIS VIRGINIANA	AMERICAN WITCH HAZEL
9	AMELANCHIER CANADENSIS	SERVICEBERRY

HERBACEOUS SHRUBS		
50	POLYSTICHUM ARISTICHOIDES	CHRISTMAS FERN
50	PARTHENOCISSUS QUIQUEFOLIA	VIRGINIA CREEPER


SEED MIX	
30 LB/ACRE	ERNMX-123 NATIVE UPLAND FORAGE & COVER MIX

SITE ENTRANCE PLANTING

**TOWN OF CARMEL
 PRELIMINARY
 SITE PLAN APPLICATION**

NO	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
 P. JENKINS
 CHECKED BY:
 J. LAROSA
 DESIGN LEAD:
 P. JENKINS
 SECTION MANAGER:
 E. LECLAIR

DRAWN BY:
 P. JENKINS

 11 5100 American Blvd, Suite 200
 Latham, NY 12110
 Tel: (518) 765-6800



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

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 CORONA, NEW YORK 11368
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WEST BRANCH AUXILIARY DAM
 SLOPE IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK
 SITE ENTRANCE PLANTING

DATE: 9/5/2022
 SCALE: 1" = 30'
 SHEET NO.:
 36 OF 49
 DRAWING NO.
 L-006.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

GENERAL

- 1. THE CONTRACTOR SHALL MAINTAIN TRAFFIC THROUGHOUT THE LENGTH AND DURATION OF THE CONTRACT IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 619 OF THE NEW YORK STATE STANDARD SPECIFICATIONS...

- 1. WHEN TWO OR MORE WORK ARE ADJACENT, OVERLAP, OR ARE IN CLOSE PROXIMITY AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL ENSURE THERE IS NO CONFLICT IN SIGNING AND THAT LANE CONTINUITY IS MAINTAINED THROUGHOUT ALL WORK AREAS.

LANE CLOSURES

- 1. THE CONTRACTOR SHALL SCHEDULE WORK SO THAT ALL TRAVEL LANES IN EACH DIRECTION ARE OPEN WHEN THE CONTRACTOR'S OPERATIONS ARE CLOSED DOWN OR SUBSTANTIALLY CLOSED DOWN...

CONES, DRUMS, BARRICADES AND MARKERS

- 1. ALL CHANNELIZING/DELINEATION DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM OF 2 FEET CLEARANCE TO THE TRAVELED WAY UNLESS OTHERWISE SHOWN ON THE PLANS...

- 10. ALL SIGNS NECESSARY FOR THE BASIC WORK ZONE TRAFFIC CONTROL, INCLUDING RELOCATION AND/OR MODIFICATION AND/OR RESTORATION OF EXISTING SIGN PANELS AS NOTED IN THE PLANS, STANDARD SPECIFICATIONS, NATIONAL MUTCD AND NYS SUPPLEMENT, OR AOBEE SHALL BE INCLUDED IN THE PRICE FOR BID ITEM TRAFFIC CONTROL.

- 8. THE ENGINEER SHALL DETERMINE THE NUMBER OF FLAGGERS NEEDED FOR EACH WORK ZONE. UNDER CERTAIN GEOMETRIC AND TRAFFIC SITUATIONS, MORE THAN ONE FLAGGER STATION MAY BE REQUIRED FOR EACH DIRECTION OF TRAFFIC AT TWO WAY, UNUSUALLY LOW-VOLUME AND/OR UNUSUALLY LOW-SPEED SHORT LANE CLOSINGS...

PUBLIC INGRESS AND EGRESS

- 1. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AT LEAST ONE DAY IN ADVANCE OF CLOSING DRIVEWAYS AND SHALL PROVIDE PROPERTY OWNERS WITH PROPER ACCESS ADOE TO THEIR DRIVEWAYS AND SHALL MAINTAIN THEM THROUGH ALL WORK AREAS...

NIGHTTIME OPERATIONS AND LIGHTING PLAN

- 1. THE CONTRACTOR IS TO SUBMIT A NIGHTTIME OPERATIONS AND LIGHTING PLAN TO THE ENGINEER FOR APPROVAL. THE PLAN SHALL BE UPDATED AS NECESSARY AND INCLUDE ALL DETAILS FOR TRAFFIC CONTROL AND LIGHTING PLAN AS IN ACCORDANCE WITH SECTION 619 OF THE NYSDOT STANDARD SPECIFICATIONS...

PAVEMENT EDGE DROP-OFF

- 1. THE CONTRACTOR SHALL SUBMIT ALTERNATE TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL AT LEAST 30 CALENDAR DAYS PRIOR TO PROPOSED WORK WHICH WILL CREATE A DROP-OFF OF OVER 24 INCHES WITHIN 10 FEET FROM THE EDGE OF THE TRAVELED WAY...

CONSTRUCTION INGRESS AND EGRESS

- 1. VEHICLES, MATERIALS, AND/OR EQUIPMENT, INCLUDING OUT OF SERVICE SIGNS, SHALL NOT BE PARKED OR STORED WITHIN 10 FEET OF A ROADWAY USED BY THE GENERAL PUBLIC OR ANY OTHER AREAS DEEMED HAZARDOUS BY THE ENGINEER.

PAVEMENT MARKINGS

- 1. PRIOR TO THE BEGINNING OF ANY WORK, THE CONTRACTOR SHALL INVENTORY ALL EXISTING PAVEMENT MARKINGS SO THAT THE PAVEMENT MARKINGS CAN BE LAID OUT AND REPLACED IN KIND BY THE CONTRACTOR UPON COMPLETION OF WORK...

PRELIMINARY WORK

- 1. PRIOR TO THE START OF ANY WORK OPERATIONS, ALL RELATED WORK FOR PROPOSED WORK ZONE TRAFFIC CONTROL, AS DETERMINED BY THE ENGINEER, SHALL BE COMPLETE, THIS INCLUDES, BUT IS NOT LIMITED TO, ALL SIGNS, SIGNALS, PAVEMENT MARKINGS, BARRIERS, DELINEATION (CONES, DRUMS, ETC.), FLAGGERS, PAVEMENT MODIFICATIONS, AND ANY OTHER RELATED WORK.

SIGNS

- 1. THE CORRECT SEQUENCE AND SPACING OF APPROPRIATE SIGNS MUST BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT, THE PROPOSAL, AND AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.

FLAGGERS

- 1. ALL FLAGGERS MUST BE ADEQUATELY TRAINED IN FLAGGING OPERATIONS BY NYSDOT RECOGNIZED TRAINING PROGRAMS. THE CONTRACTOR SHALL SUBMIT A LIST OF CERTIFIED FLAGGERS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ADVANCE OF ANY FLAGGING OPERATIONS.

WORK RESTRICTIONS FOR HOLIDAYS AND OTHER EVENTS

- 1. THE CONTRACTOR WILL NOT BE ALLOWED TO PERFORM ANY WORK DISRUPTIVE TO TRAFFIC, INCLUDING, BUT NOT LIMITED TO, LANE OR SHOULDER CLOSURES ON THE FOLLOWING HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING, CHRISTMAS DAY AND THE RELIGIOUS HOLIDAYS LISTED IN SPECIFICATION SECTION 01 14 00 - WORK RESTRICTIONS...

Table with columns: HOLIDAY, FALLS ON, TEMPORARY LANE CLOSURES ARE NOT ALLOWED FROM. Rows include New Year's Day, Independence Day, Christmas Day, Memorial Day, Thanksgiving Day, Religious Holidays.

WORK AREA COORDINATION

Table with columns: NO, DATE, REVISIONS/DESCRIPTION, APPRD, SECTION MANAGER: E. LECLAIR.

Logos for GPM Smith and NYC Environmental Protection. Includes text: APPROVED FOR THE CITY OF NEW YORK, L. SINGH, ACCOUNTABLE MANAGER.

NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION. 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR, CORONA, NEW YORK 11368. www.nyc.gov/dcp

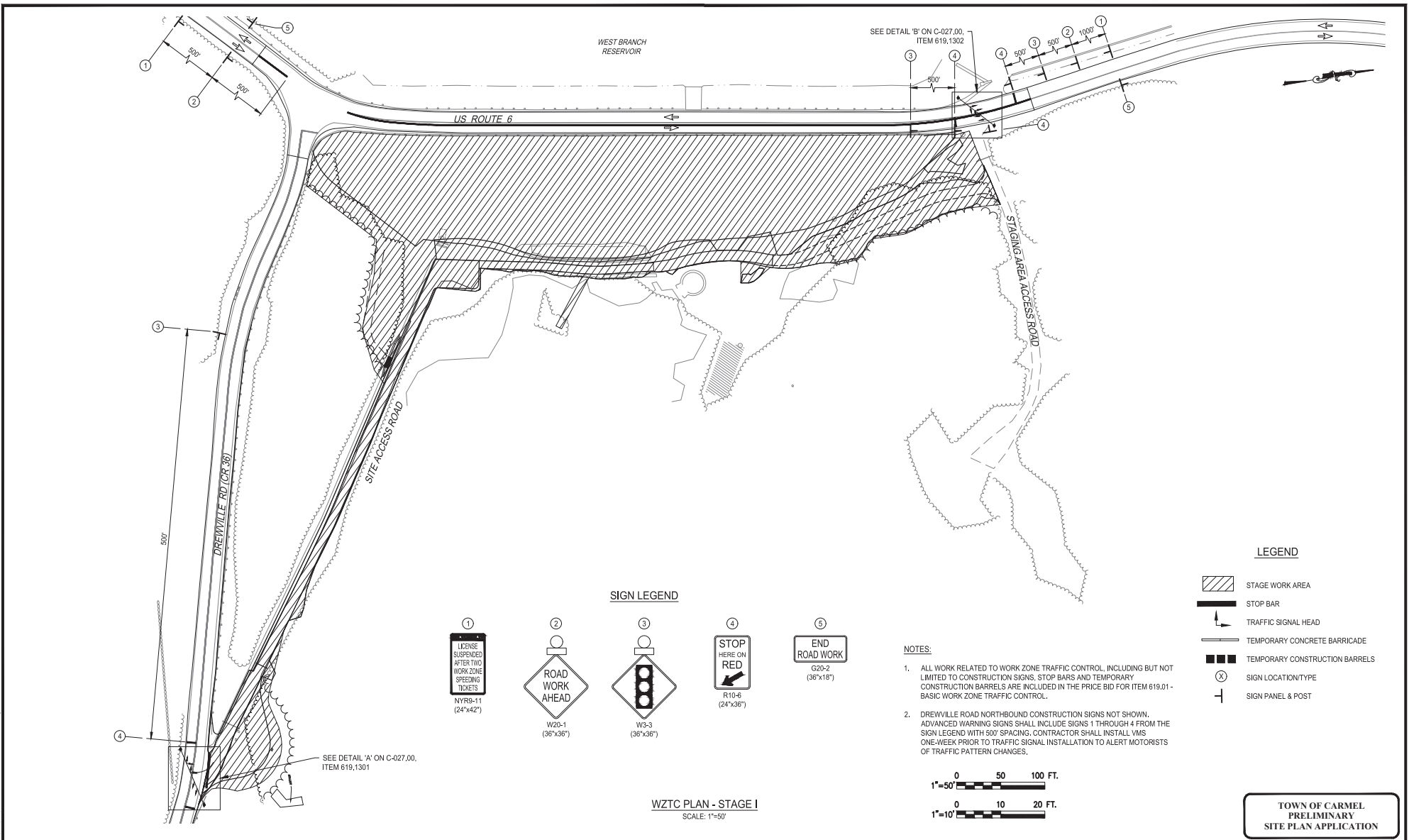
PAVEMENT EDGE DROP-OFF PROTECTION TABLE. Table with columns: DROP-OFF HEIGHT, DRUM / VERTICAL PANEL SPACING (FT), TUBULAR MARKER SPACING (FT), TALL CONE SPACING (FT), SIGNS.

TOWN OF CARMEL PRELIMINARY SITE PLAN APPLICATION

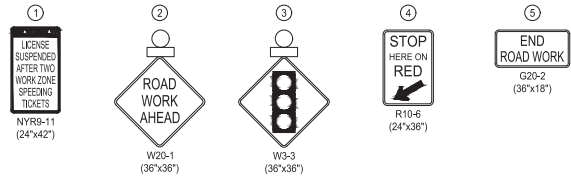
WEST BRANCH AUXILIARY DAM SLOPE SAFETY IMPROVEMENTS PUTNAM COUNTY, NEW YORK. WORK ZONE TRAFFIC CONTROL NOTES. DATE: 5/26/2022, SCALE: N/A, SHEET NO.: 29 OF 81, DRAWING NO.: C-019.00

East Cayuga & Dryden Rd, Friday, July 20, 2018, 10:46:00 AM. File Path: S:\p11\1106\110602\01\01.dwg

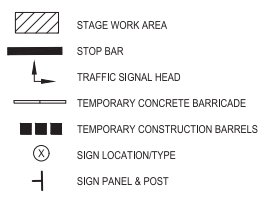
Lead: S. Murphy & Date: 05/26/2022, Thursday, May 26, 2022, 11:41:03 AM
 Plot Size: ANSI D (24.00 X 36.00 INCHES) Plot Scale: 1"=50'
 Drawing Name: & Location: C:\pwworking\m0268697\C-020.00.dwg



SIGN LEGEND



LEGEND



NOTES:

- ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRELS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.
- DREVVILLE ROAD NORTHBOUND CONSTRUCTION SIGNS NOT SHOWN. ADVANCED WARNING SIGNS SHALL INCLUDE SIGNS 1 THROUGH 4 FROM THE SIGN LEGEND WITH 500' SPACING. CONTRACTOR SHALL INSTALL VMS ONE-WEEK PRIOR TO TRAFFIC SIGNAL INSTALLATION TO ALERT MOTORISTS OF TRAFFIC PATTERN CHANGES.



**TOWN OF WEST BRANCH
 PRELIMINARY
 SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
 S. MURPHY
 CHECKED BY:
 E. LECLAIR
 DESIGN LEAD:
 S. MURPHY
 SECTION MANAGER:
 E. LECLAIR

DRAWN BY:
 S. MURPHY

APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 D. COSTA
 PORTFOLIO MANAGER

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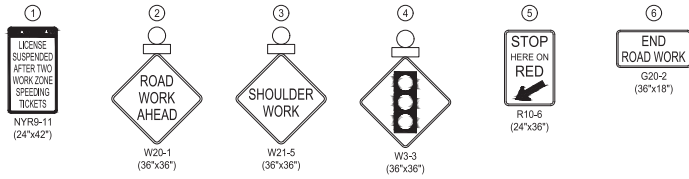
**WEST BRANCH AUXILIARY DAM
 SLOPE SAFETY IMPROVEMENTS
 PUTNAM COUNTY, NEW YORK**

WORK ZONE TRAFFIC CONTROL PLAN - STAGE I

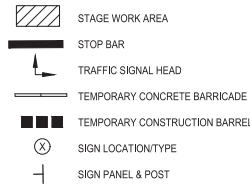
DATE: 5/26/2022	SCALE: 1"=50'
SHEET NO.: 30 OF 81	DRAWING NO. C-020.00

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SIGN LEGEND

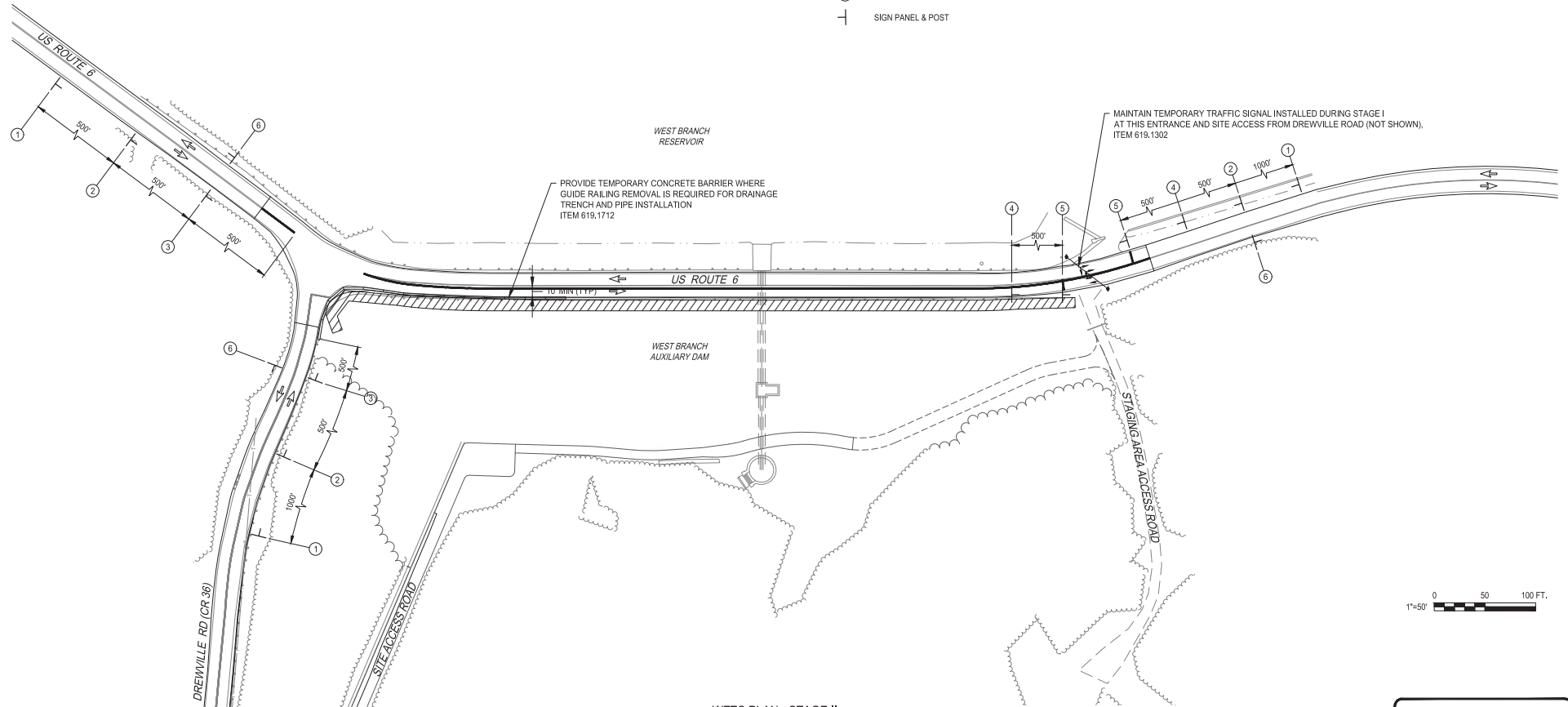


LEGEND



NOTE:

ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRELS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.



WZTC PLAN - STAGE II
SCALE: 1"=50'

**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

Last Saved By: 6 Data-Powell Ltd., Thursday, May 05, 2022, and Date Plotted: Thursday, May 05, 2022, 11:41:56 AM.
 Plot Size (ANSI) (D: 24.00 X 34.00 INCHES) Plot Scale: 1"=50'
 Drawing Name: & Location: C:\pwr_gf\powell\mtd\0268657\TC-021.001.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: S. MURPHY	DRAWN BY: S. MURPHY
CHECKED BY: E. LECLAIR	SECTION MANAGER: E. LECLAIR
DESIGN LEAD: S. MURPHY	

GDM Smith
 11 BROADWAY, SUITE 200
 LITTLETON, NY 12110
 TEL: (518) 762-6800



NYC Environmental Protection

APPROVED FOR THE CITY OF NEW YORK
L. SINGH ACCOUNTABLE MANAGER
D. COSTA PORTFOLIO MANAGER

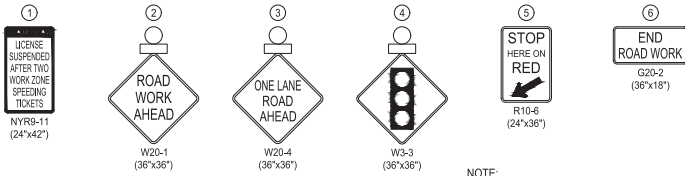
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**NEW YORK CITY
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 CORONA, NEW YORK 11368
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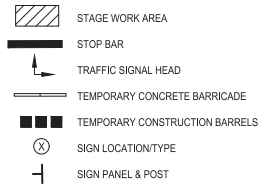
WEST BRANCH AUXILIARY DAM SLOPE SAFETY IMPROVEMENTS PUTNAM COUNTY, NEW YORK WORK ZONE TRAFFIC CONTROL PLAN - STAGE II	DATE: 5/26/2022
	SCALE: 1"=50'
	SHEET NO.: 31 OF 81
	DRAWING NO. C-021.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

SIGN LEGEND



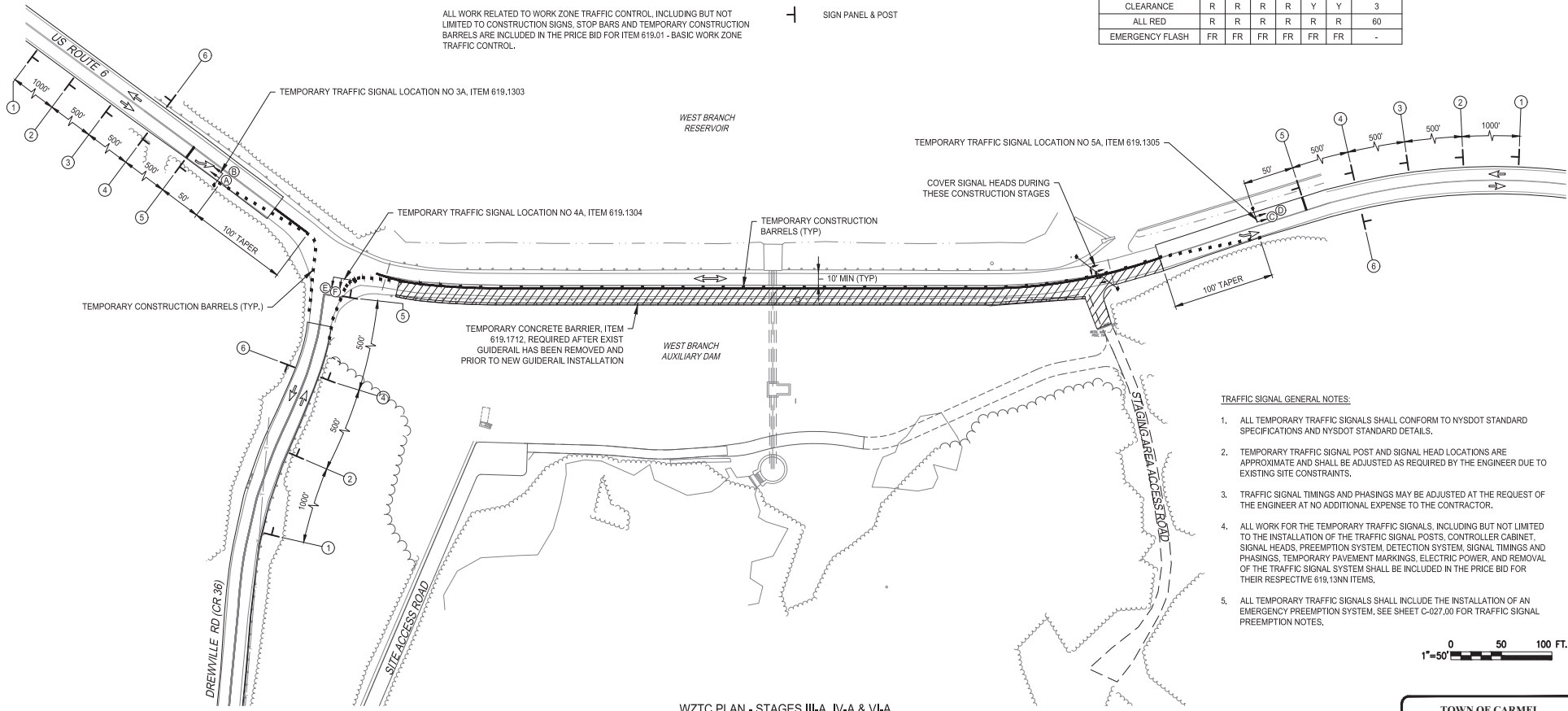
LEGEND



PHASE	FACE	(A)	(B)	(C)	(D)	(E)	(F)	TIME (S)
1	G	G	R	R	R	R	R	75
	CLEARANCE	Y	Y	R	R	R	R	3
2	ALL RED	R	R	R	R	R	R	60
	CLEARANCE	R	R	G	G	R	R	75
3	ALL RED	R	R	R	R	R	R	60
	CLEARANCE	R	R	R	R	Y	Y	3
EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	FR	-

NOTE:

ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRELS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.



TRAFFIC SIGNAL GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC SIGNALS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATIONS AND NYSDOT STANDARD DETAILS.
2. TEMPORARY TRAFFIC SIGNAL POST AND SIGNAL HEAD LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED AS REQUIRED BY THE ENGINEER DUE TO EXISTING SITE CONSTRAINTS.
3. TRAFFIC SIGNAL TIMINGS AND PHASINGS MAY BE ADJUSTED AT THE REQUEST OF THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE CONTRACTOR.
4. ALL WORK FOR THE TEMPORARY TRAFFIC SIGNALS, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE TRAFFIC SIGNAL POSTS, CONTROLLER CABINET, SIGNAL HEADS, PREEMPTION SYSTEM, DETECTION SYSTEM, SIGNAL TIMINGS AND PHASINGS, TEMPORARY PAVEMENT MARKINGS, ELECTRIC POWER, AND REMOVAL OF THE TRAFFIC SIGNAL SYSTEM SHALL BE INCLUDED IN THE PRICE BID FOR THEIR RESPECTIVE 619.13NN ITEMS.
5. ALL TEMPORARY TRAFFIC SIGNALS SHALL INCLUDE THE INSTALLATION OF AN EMERGENCY PREEMPTION SYSTEM, SEE SHEET C-027.00 FOR TRAFFIC SIGNAL PREEMPTION NOTES.



WZTC PLAN - STAGES III-A, IV-A & VI-A
SCALE: 1"=50'

**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

Lead: David B. & Dana P. Powell LLP, Thursday, May 05, 2022, and Date: Thursday, May 05, 2022, 11:41:55 AM.
 Plot Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=50'
 Drawing Name: & Location: C:\pwr_f11\powlmtd\0268657\TC-022.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
S. MURPHY
GPM Smith
11800 American Blvd, Suite 200
Luthers, NY 12110
Tel: (518) 762-6800



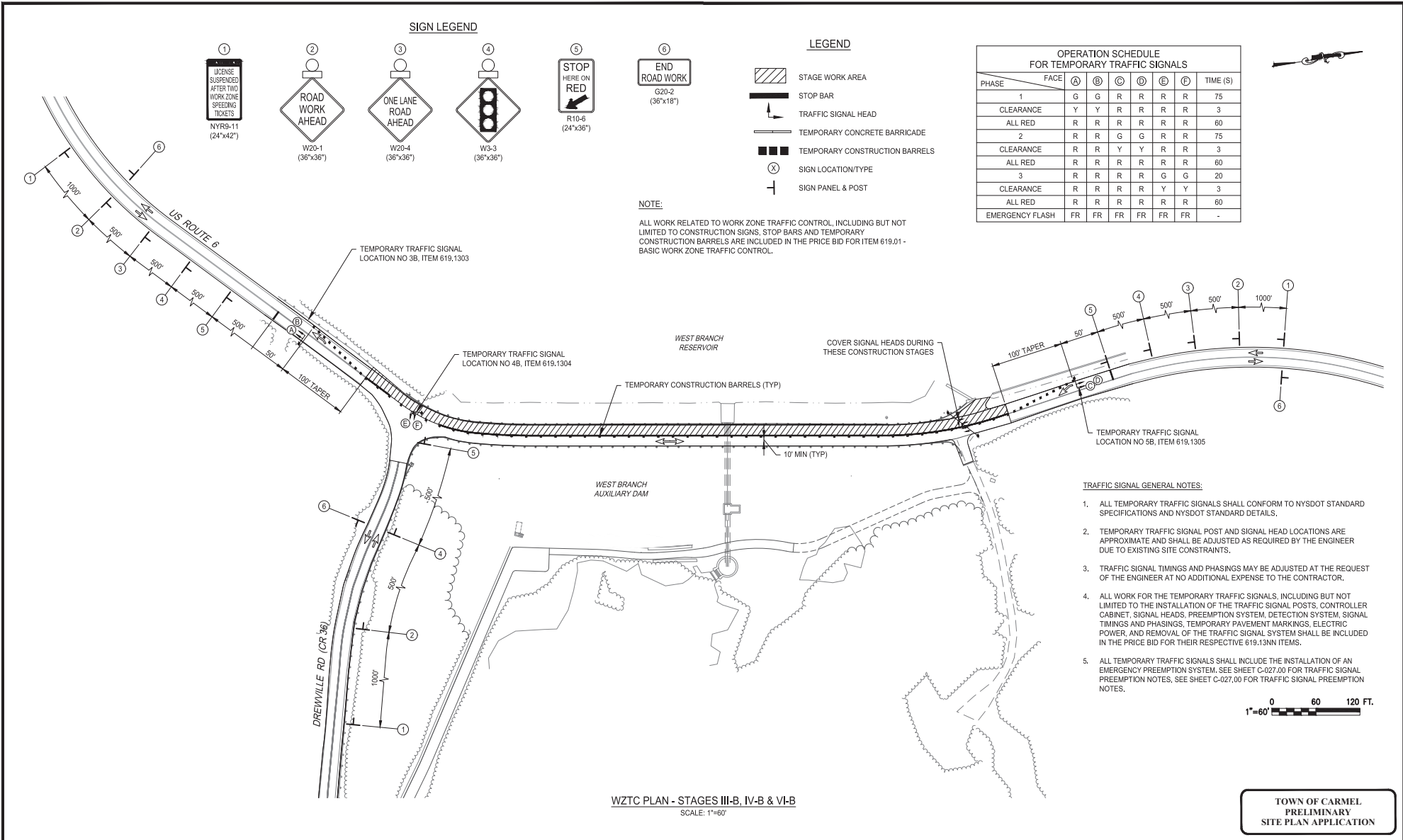
APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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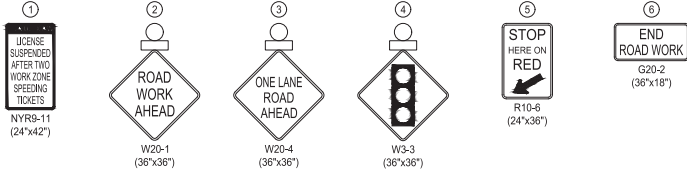
**NEW YORK CITY
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BUREAU OF ENGINEERING DESIGN & CONSTRUCTION**
96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
WORK ZONE TRAFFIC CONTROL PLAN - STAGES III-A,
IV-A & VI-A
DATE: 5/26/2022
SCALE: 1"=50'
SHEET NO.:
32 OF 81
DRAWING NO.
C-022.00

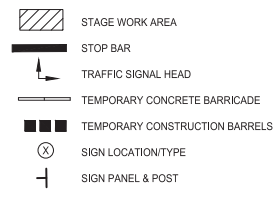
All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



SIGN LEGEND



LEGEND



NOTE:
ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRIERS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.

OPERATION SCHEDULE FOR TEMPORARY TRAFFIC SIGNALS

PHASE	FACE	(A)	(B)	(C)	(D)	(E)	(F)	TIME (S)
1	G	G	R	R	R	R	R	75
	CLEARANCE	Y	Y	R	R	R	R	3
2	ALL RED	R	R	R	R	R	R	60
	CLEARANCE	R	R	G	G	R	R	75
3	ALL RED	R	R	R	R	R	R	60
	CLEARANCE	R	R	R	R	Y	Y	3
4	ALL RED	R	R	R	R	R	R	60
	CLEARANCE	R	R	R	R	G	G	20
5	ALL RED	R	R	R	R	R	R	60
	EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	-

TRAFFIC SIGNAL GENERAL NOTES:

- ALL TEMPORARY TRAFFIC SIGNALS SHALL CONFORM TO NYS DOT STANDARD SPECIFICATIONS AND NYS DOT STANDARD DETAILS.
- TEMPORARY TRAFFIC SIGNAL POST AND SIGNAL HEAD LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED AS REQUIRED BY THE ENGINEER DUE TO EXISTING SITE CONSTRAINTS.
- TRAFFIC SIGNAL TIMINGS AND PHASINGS MAY BE ADJUSTED AT THE REQUEST OF THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE CONTRACTOR.
- ALL WORK FOR THE TEMPORARY TRAFFIC SIGNALS, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE TRAFFIC SIGNAL POSTS, CONTROLLER CABINET, SIGNAL HEADS, PREEMPTION SYSTEM, DETECTION SYSTEM, SIGNAL TIMINGS AND PHASINGS, TEMPORARY PAVEMENT MARKINGS, ELECTRIC POWER, AND REMOVAL OF THE TRAFFIC SIGNAL SYSTEM SHALL BE INCLUDED IN THE PRICE BID FOR THEIR RESPECTIVE 619.13NN ITEMS.
- ALL TEMPORARY TRAFFIC SIGNALS SHALL INCLUDE THE INSTALLATION OF AN EMERGENCY PREEMPTION SYSTEM. SEE SHEET C-027.00 FOR TRAFFIC SIGNAL PREEMPTION NOTES. SEE SHEET C-027.00 FOR TRAFFIC SIGNAL PREEMPTION NOTES.



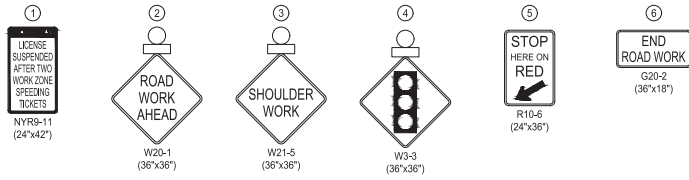
WZTC PLAN - STAGES III-B, IV-B & VI-B
SCALE: 1"=60'

**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

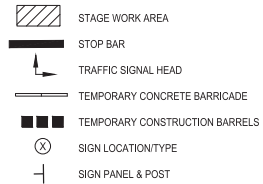
DESIGNED BY: S. MURPHY CHECKED BY: E. LECLAR DESIGN LEAD: E. LECLAR SECTION MANAGER: E. LECLAR		DRAWN BY: S. MURPHY 11 Bldg American Blvd, Suite 200 Latham, NY 12110 Tel: (518) 762-6800		APPROVED FOR THE CITY OF NEW YORK L. SINGH ACCOUNTABLE MANAGER P. COSTA PORTFOLIO MANAGER		*WARNING! THIS IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2.* NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dcp		WEST BRANCH AUXILIARY DAM SLOPE SAFETY IMPROVEMENTS PUTNAM COUNTY, NEW YORK WORK ZONE TRAFFIC CONTROL PLAN - STAGES III-B, IV-B & VI-B DATE: 5/26/2022 SCALE: 1" = 60' SHEET NO.: 33 OF 81 DRAWING NO. C-023.00	
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SIGN LEGEND

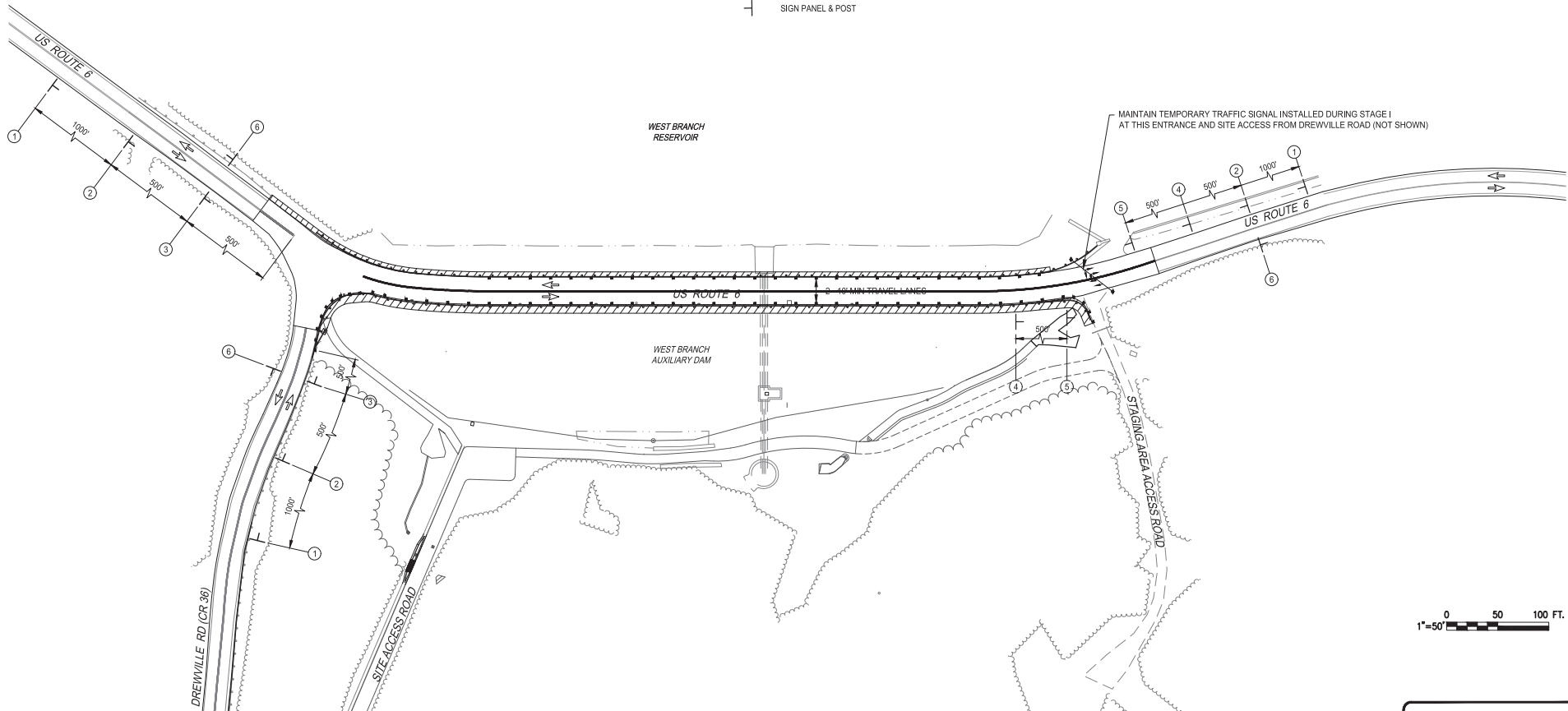


LEGEND



NOTE:

ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRELS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.



WZTC PLAN - STAGE V
SCALE: 1"=50'



**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

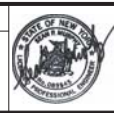
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 Paper Size (ANSI): D (22.00 X 34.00 INCHES) Plot Scale: 1"=50'
 Drawing Name: & Location: C:\pwr_gf\1\powell\mcd0286597\C-024.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: S. MURPHY	SECTION MANAGER: E. LECLAIR
CHECKED BY: E. LECLAIR	
DESIGN LEAD: S. MURPHY	
APPROVED BY: E. LECLAIR	

DRAWN BY:
S. MURPHY

11800 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 762-6800



**NEW YORK CITY
Environmental
Protection**

APPROVED FOR THE CITY OF NEW YORK
L. SINGH ACCOUNTABLE MANAGER
D. COSTA PORTFOLIO MANAGER

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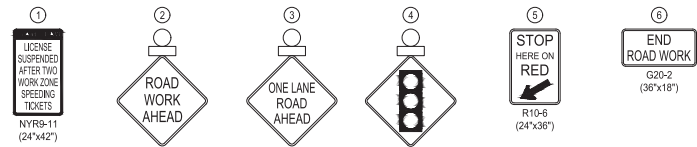
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96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM SLOPE SAFETY IMPROVEMENTS PUTNAM COUNTY, NEW YORK	DATE: 5/26/2022
WORK ZONE TRAFFIC CONTROL PLAN - STAGE V	SCALE: 1"=50'
	SHEET NO.: 34 OF 81
	DRAWING NO. C-024,00

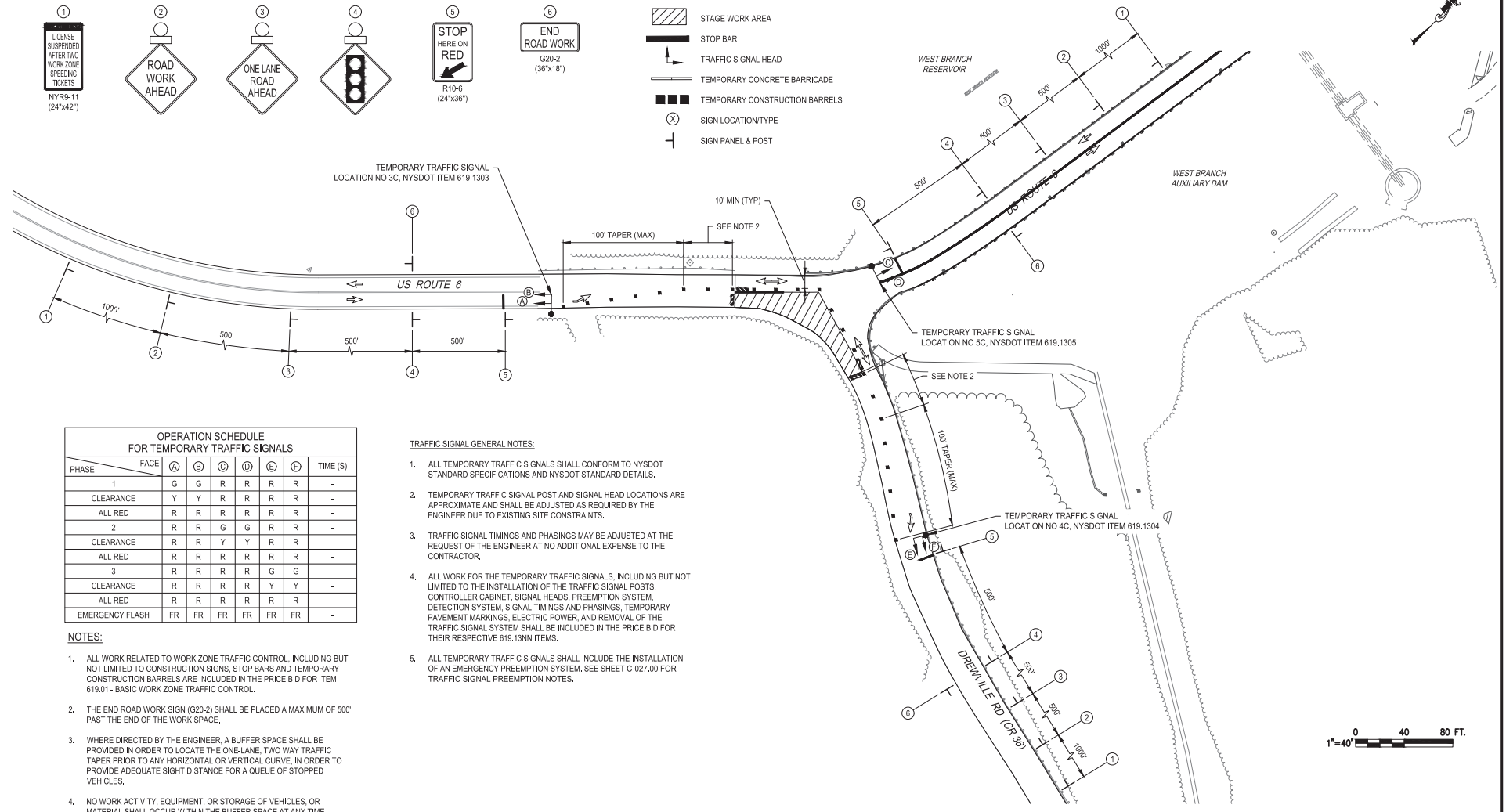
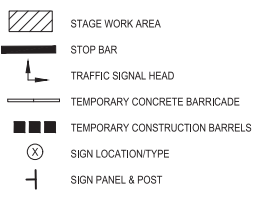
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Last Saved By & Date: POMELOD, Thursday, May 26, 2022 11:42:58 AM
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=50'
 Drawing Name & Location: C:\new_pfl\pawell\mfd\20220527\C-025.00.dwg

SIGN LEGEND



LEGEND



OPERATION SCHEDULE FOR TEMPORARY TRAFFIC SIGNALS

PHASE	FACE	(A)	(B)	(C)	(D)	(E)	(F)	TIME (S)
1	G	G	R	R	R	R	R	-
	CLEARANCE	Y	Y	R	R	R	R	-
2	R	R	R	R	R	R	R	-
	CLEARANCE	R	R	Y	Y	R	R	-
3	R	R	R	R	R	R	R	-
	CLEARANCE	R	R	R	R	Y	Y	-
EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	FR	-

- TRAFFIC SIGNAL GENERAL NOTES:**
- ALL TEMPORARY TRAFFIC SIGNALS SHALL CONFORM TO NYSDOT STANDARD SPECIFICATIONS AND NYSDOT STANDARD DETAILS.
 - TEMPORARY TRAFFIC SIGNAL POST AND SIGNAL HEAD LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED AS REQUIRED BY THE ENGINEER DUE TO EXISTING SITE CONSTRAINTS.
 - TRAFFIC SIGNAL TIMINGS AND PHASINGS MAY BE ADJUSTED AT THE REQUEST OF THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE CONTRACTOR.
 - ALL WORK FOR THE TEMPORARY TRAFFIC SIGNALS, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE TRAFFIC SIGNAL POSTS, CONTROLLER CABINET, SIGNAL HEADS, PREEMPTION SYSTEM, DETECTION SYSTEM, SIGNAL TIMINGS AND PHASINGS, TEMPORARY PAVEMENT MARKINGS, ELECTRIC POWER, AND REMOVAL OF THE TRAFFIC SIGNAL SYSTEM SHALL BE INCLUDED IN THE PRICE BID FOR THEIR RESPECTIVE 619.13NN ITEMS.
 - ALL TEMPORARY TRAFFIC SIGNALS SHALL INCLUDE THE INSTALLATION OF AN EMERGENCY PREEMPTION SYSTEM. SEE SHEET C-027.00 FOR TRAFFIC SIGNAL PREEMPTION NOTES.

- NOTES:**
- ALL WORK RELATED TO WORK ZONE TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRIERS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.
 - THE END ROAD WORK SIGN (G20-2) SHALL BE PLACED A MAXIMUM OF 500' PAST THE END OF THE WORK SPACE.
 - WHERE DIRECTED BY THE ENGINEER, A BUFFER SPACE SHALL BE PROVIDED IN ORDER TO LOCATE THE ONE-LANE, TWO WAY TRAFFIC TAPER PRIOR TO ANY HORIZONTAL OR VERTICAL CURVE, IN ORDER TO PROVIDE ADEQUATE SIGHT DISTANCE FOR A QUEUE OF STOPPED VEHICLES.
 - NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.

WZTC PLAN - STAGE VI-C
SCALE: 1"=40'



**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
S. MURPHY
 CHECKED BY:
E. LECLAIR
 DESIGN LEAD:
S. MURPHY
 SECTION MANAGER:
E. LECLAIR

DRAWN BY:
S. MURPHY

 11 Ellison Avenue
Latham, NY 12110
Tel: (518) 784-4500



APPROVED FOR THE CITY OF NEW YORK
 L. SINGH
 ACCOUNTABLE MANAGER
 P. COSTA
 PORTFOLIO MANAGER

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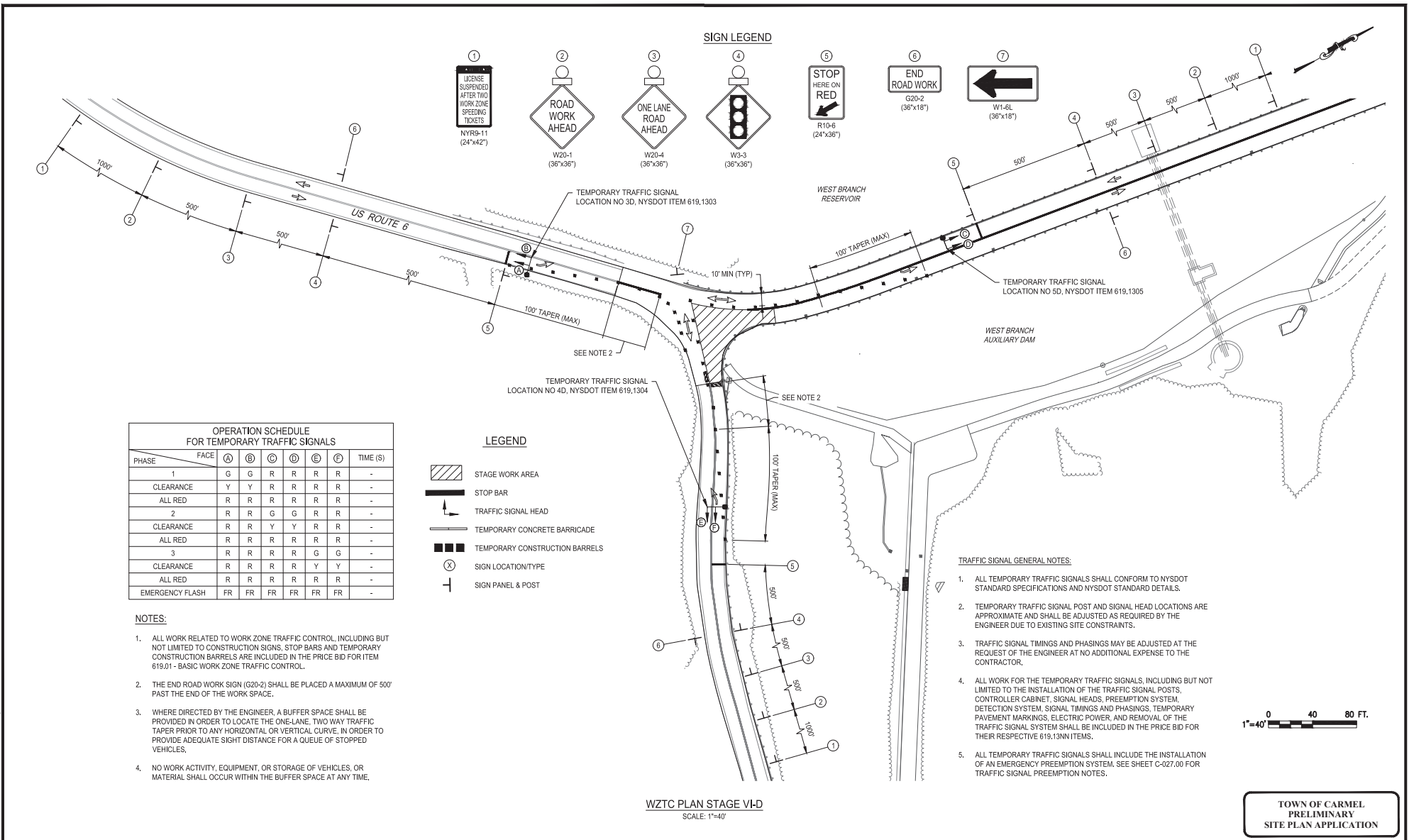
**NEW YORK CITY
ENVIRONMENTAL PROTECTION
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 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
 WORK ZONE TRAFFIC CONTROL PLAN - STAGE VI-C

DATE: 5/26/2022
 SCALE: 1"=50'
 SHEET NO.:
 35 OF 81
 DRAWING NO.:
 C-025.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Lead: David B. & Dave POMEYLL, Thursday, May 05, 2022, and Date Plotted: Thursday, May 05, 2022, 11:45:29 AM
 Plot Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1"=40'
 Drawing Name: & Location: C:\p\p\11\p\w\m\m\0206657\TC-026.00.dwg



OPERATION SCHEDULE FOR TEMPORARY TRAFFIC SIGNALS								
PHASE	FACE	(A)	(B)	(C)	(D)	(E)	(F)	TIME (S)
1	G	G	R	R	R	R	R	-
CLEARANCE	Y	Y	R	R	R	R	R	-
ALL RED	R	R	R	R	R	R	R	-
2	R	R	Y	Y	R	R	R	-
CLEARANCE	R	R	Y	Y	R	R	R	-
ALL RED	R	R	R	R	R	R	R	-
3	R	R	R	R	G	G	-	-
CLEARANCE	R	R	R	R	Y	Y	-	-
ALL RED	R	R	R	R	R	R	-	-
EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	-	-

NOTES:

- ALL WORK RELATED TO CONSTRUCTION SIGNS, STOP BARS AND TEMPORARY CONSTRUCTION BARRIERS ARE INCLUDED IN THE PRICE BID FOR ITEM 619.01 - BASIC WORK ZONE TRAFFIC CONTROL.
- THE END ROAD WORK SIGN (G20-2) SHALL BE PLACED A MAXIMUM OF 500' PAST THE END OF THE WORK SPACE.
- WHERE DIRECTED BY THE ENGINEER, A BUFFER SPACE SHALL BE PROVIDED IN ORDER TO LOCATE THE ONE-LANE, TWO WAY TRAFFIC TAPER PRIOR TO ANY HORIZONTAL OR VERTICAL CURVE, IN ORDER TO PROVIDE ADEQUATE SIGHT DISTANCE FOR A QUEUE OF STOPPED VEHICLES.
- NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.

TRAFFIC SIGNAL GENERAL NOTES:

- ALL TEMPORARY TRAFFIC SIGNALS SHALL CONFORM TO NYS DOT STANDARD SPECIFICATIONS AND NYS DOT STANDARD DETAILS.
- TEMPORARY TRAFFIC SIGNAL POST AND SIGNAL HEAD LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED AS REQUIRED BY THE ENGINEER DUE TO EXISTING SITE CONSTRAINTS.
- TRAFFIC SIGNAL TIMINGS AND PHASINGS MAY BE ADJUSTED AT THE REQUEST OF THE ENGINEER AT NO ADDITIONAL EXPENSE TO THE CONTRACTOR.
- ALL WORK FOR THE TEMPORARY TRAFFIC SIGNALS, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE TRAFFIC SIGNAL POSTS, CONTROLLER CABINET, SIGNAL HEADS, PREEMPTION SYSTEM, DETECTION SYSTEM, SIGNAL TIMINGS AND PHASINGS, TEMPORARY PAVEMENT MARKINGS, ELECTRIC POWER, AND REMOVAL OF THE TRAFFIC SIGNAL SYSTEM SHALL BE INCLUDED IN THE PRICE BID FOR THEIR RESPECTIVE 619.13N ITEMS.
- ALL TEMPORARY TRAFFIC SIGNALS SHALL INCLUDE THE INSTALLATION OF AN EMERGENCY PREEMPTION SYSTEM. SEE SHEET C-027.00 FOR TRAFFIC SIGNAL PREEMPTION NOTES.



WZTC PLAN STAGE VI-D
SCALE: 1"=40'

**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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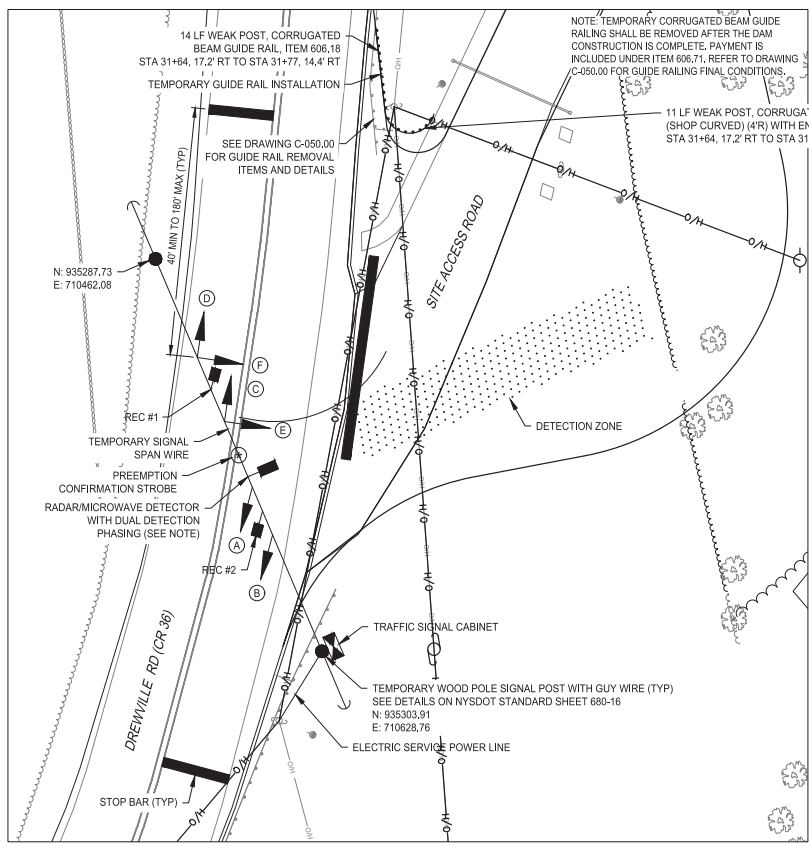
**NEW YORK CITY
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BUREAU OF ENGINEERING DESIGN & CONSTRUCTION**
96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
WORK ZONE TRAFFIC CONTROL PLAN - STAGE VI-D

DATE: 5/26/2022
SCALE: 1"=40'
SHEET NO.: 36 OF 81
DRAWING NO. C-026.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.

Last Saved By: E. Leclair, Thursday, May 05, 2022 11:43:57 AM
 Plot Size: ANSI (D) 22.00 X 34.00 (INCHES) Plot Scale: 1"=10'
 Drawing Name: S:\Location\C:\p\1\onwell\mcd0268597\C-027.dwg



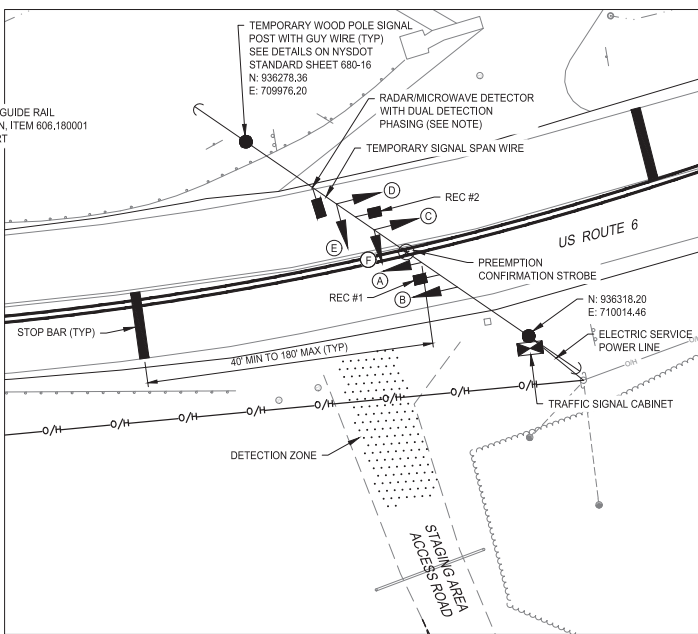
DETAIL 'A' - TEMPORARY TRAFFIC SIGNAL LOCATION NO. 1 - ITEM 619.1301
SCALE: 1"=10'

TRAFFIC SIGNAL GENERAL NOTES:

- ALL TEMPORARY TRAFFIC SIGNALS SHALL CONFORM TO NYS DOT STANDARD SPECIFICATIONS AND NYS DOT STANDARD DETAILS.
- TEMPORARY TRAFFIC SIGNAL POST AND SIGNAL HEAD LOCATIONS ARE APPROXIMATE AND SHALL BE ADJUSTED AS REQUIRED BY THE ENGINEER DUE TO EXISTING SITE CONSTRAINTS.
- TRAFFIC SIGNAL TIMINGS AND PHASINGS MAY BE ADJUSTED AT THE REQUEST OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- ALL WORK FOR THE TEMPORARY TRAFFIC SIGNALS, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE TRAFFIC SIGNAL POSTS, CONTROLLER CABINET, SIGNAL HEADS, DETECTION SYSTEM, SIGNAL TIMINGS AND PHASINGS, TEMPORARY PAVEMENT MARKINGS, ELECTRIC POWER, AND REMOVAL OF THE TRAFFIC SIGNAL SYSTEM SHALL BE INCLUDED IN THE PRICE BID FOR THEIR RESPECTIVE 619.1301 ITEMS.

TRAFFIC SIGNAL DETECTION NOTES:

- CONTRACTOR SHALL INSTALL DETECTION SYSTEM USING CONTRACTOR'S OPTION OF RADIO OR MICROWAVE DETECTION. CONTRACTOR MAY ELECT TO USE VIDEO DETECTION AT NO ADDITIONAL COST. LOOP DETECTION IS NOT ACCEPTABLE.
- DETECTION SHALL HAVE DELAY FEATURE WITH DELAY DETECTION OF 10 SECONDS AFTER INITIAL DETECTION (DREWWILLE ROAD SITE ACCESS) AND 5.0 SECONDS (US ROUTE 6 CONTRACTOR STAGING AREA ENTRANCE).



DETAIL 'B' - TEMPORARY TRAFFIC SIGNAL LOCATION NO. 2 - ITEM 619.1302
SCALE: 1"=10'

EMERGENCY VEHICLE PREEMPTION NOTES

- THE EMERGENCY VEHICLE PREEMPTION SYSTEM SHALL BE INSTALLED IN THE SAME CABINET AS THE CONTROLLER. THE MAKE AND MODEL OF THE PREEMPTION SYSTEM FOR THIS PROJECT SHALL BE FULLY COMPATIBLE WITH THE LOCAL EMERGENCY SERVICES SYSTEM. THE CONTRACTOR SHALL COORDINATE WITH ALL LOCAL EMERGENCY SERVICES TO SELECT THE PROPER MAKE AND MODEL OF THE PREEMPTION EQUIPMENT PRIOR TO INSTALLATION OF THE PREEMPTION SYSTEM. THE CABLE FOR THE PREEMPTION SYSTEM SHALL BE SEPARATE FROM THE CABLE ASSOCIATED WITH THE TRAFFIC SIGNAL SYSTEM.
- THE EMERGENCY VEHICLE PREEMPTION CONTROL SYSTEM SHALL CONSIST OF A DATA-ENCODED PHASE SELECTOR TO BE INSTALLED WITHIN THE TRAFFIC SIGNAL CABINET. THIS UNIT WILL SERVE TO VALIDATE, IDENTIFY, CLASSIFY AND RECORD THE SIGNAL FROM THE OPTICAL DETECTORS LOCATED ON SUPPORT STRUCTURES AT THE INTERSECTION. UPON RECEIVING A VALID SIGNAL FROM THE DETECTOR, THE PHASE SELECTOR SHALL GENERATE A PREEMPT CALL TO THE CONTROLLER INITIATING A PREEMPTION OPERATION. ONCE PREEMPTION HAS CLEARED, NORMAL OPERATION SHALL START UP IN THE MAIN LINE GREEN PHASE.
- THE OPTICAL DETECTORS SHALL BE SINGLE INPUT, SINGLE OUTPUT UNITS USED TO CONTROL ONE APPROACH. ALL TRAFFIC SIGNAL INSTALLATIONS SHALL BE SUPPLIED WITH A MINIMUM OF TWO OPTICAL DETECTORS.
- THE PHASE SELECTOR SHALL BE A RACK MOUNTED PLUG-IN TWO OR FOUR CHANNEL DUAL PRIORITY DEVICE. THE PHASE SELECTOR SHALL PLUG INTO A SHELF MOUNTED SINGLE CARD SLOT CHASSIS. PROGRAMMING THE PHASE SELECTOR SHALL BE VIA A PC-BASED COMPUTER UTILIZING UNIT SPECIFIC SOFTWARE. A HARD COPY OF FINAL PROGRAMMING DATA SHALL BE LEFT IN THE CONTROL CABINET. THE CONTRACTOR SHALL SUPPLY A COMPLETE SET OF INTERFACE CABLES FOR PHASE SELECTOR TO LAPTOP CONNECTION.
- THE CONTRACTOR SHALL INSTALL A CONFIRMATION STROBE AT THE TRAFFIC SIGNAL LOCATION AS SHOWN ON THE PLANS. THE CONFIRMATION STROBE SHALL SERVE TO VALIDATE TO THE DRIVER OF THE EMERGENCY VEHICLE THAT THE TRAFFIC SIGNAL HAS RECOGNIZED THE PREEMPTION CALL AND WILL INITIATE THE PROPER PREEMPTION SEQUENCE. THE CONFIRMATION STROBE SHALL HAVE A CLEAR/WHITE LENS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROGRAMMING OF THE PHASE SELECTOR, ORIENTATION OF THE OPTICAL DETECTORS, AND ALL OTHER WORK NECESSARY TO PROVIDE A COMPLETE AND OPERATING EMERGENCY VEHICLE PREEMPTION SYSTEM. THE CONTRACTOR MAY BE REQUIRED TO FIELD ADJUST THE LOCATION OF THE OPTICAL DETECTORS IN THE PRESENCE OF THE ENGINEER TO PROPERLY DETECT PREEMPTION CALLS FROM APPROACHING VEHICLES.
- CONTRACTOR SHALL INSTALL EMERGENCY PREEMPTION CONTROL SYSTEM AS DESCRIBED IN THE ABOVE NOTES FOR EACH OF THE TEMPORARY TRAFFIC SIGNALS RELATED TO ITEMS 619.1303, 619.1304, 619.1305

LEGEND

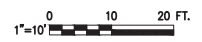
- TRAFFIC SIGNAL POST WITH GUY WIRE
- TRAFFIC SIGNAL HEAD
- TRAFFIC SIGNAL DETECTOR
- TRAFFIC SIGNAL CABINET
- TRAFFIC SIGN FACE

OPERATION SCHEDULE FOR TEMPORARY TRAFFIC SIGNALS - LOCATION NO. 1

PHASE	FACE	A	B	C	D	E	F	TIME (S)
1	G	G	G	G	R	R	R	-
CLEARANCE	Y	Y	Y	Y	R	R	R	3
ALL RED	R	R	R	R	R	R	R	3
2	R	R	R	R	G	G	G	20
CLEARANCE	R	R	R	R	Y	Y	Y	3
ALL RED	R	R	R	R	R	R	R	3
EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	FR	-

OPERATION SCHEDULE FOR TEMPORARY TRAFFIC SIGNALS - LOCATION NO. 2

PHASE	FACE	A	B	C	D	E	F	TIME (S)
1	G	G	G	G	R	R	R	-
CLEARANCE	Y	Y	Y	Y	R	R	R	3
ALL RED	R	R	R	R	R	R	R	3
2	R	R	R	R	G	G	G	12
CLEARANCE	R	R	R	R	Y	Y	Y	3
ALL RED	R	R	R	R	R	R	R	3
EMERGENCY FLASH	FR	FR	FR	FR	FR	FR	FR	-



**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY: E. LECLAIR
 CHECKED BY: E. LECLAIR
 DESIGN LEAD: S. MURPHY
 SECTION MANAGER: E. LECLAIR

DRAWN BY: S. MURPHY

GDM Smith
 11500 American Blvd, Suite 200
 Lubbock, TX 79424
 Tel: 817-782-6800

NYC Environmental Protection

APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

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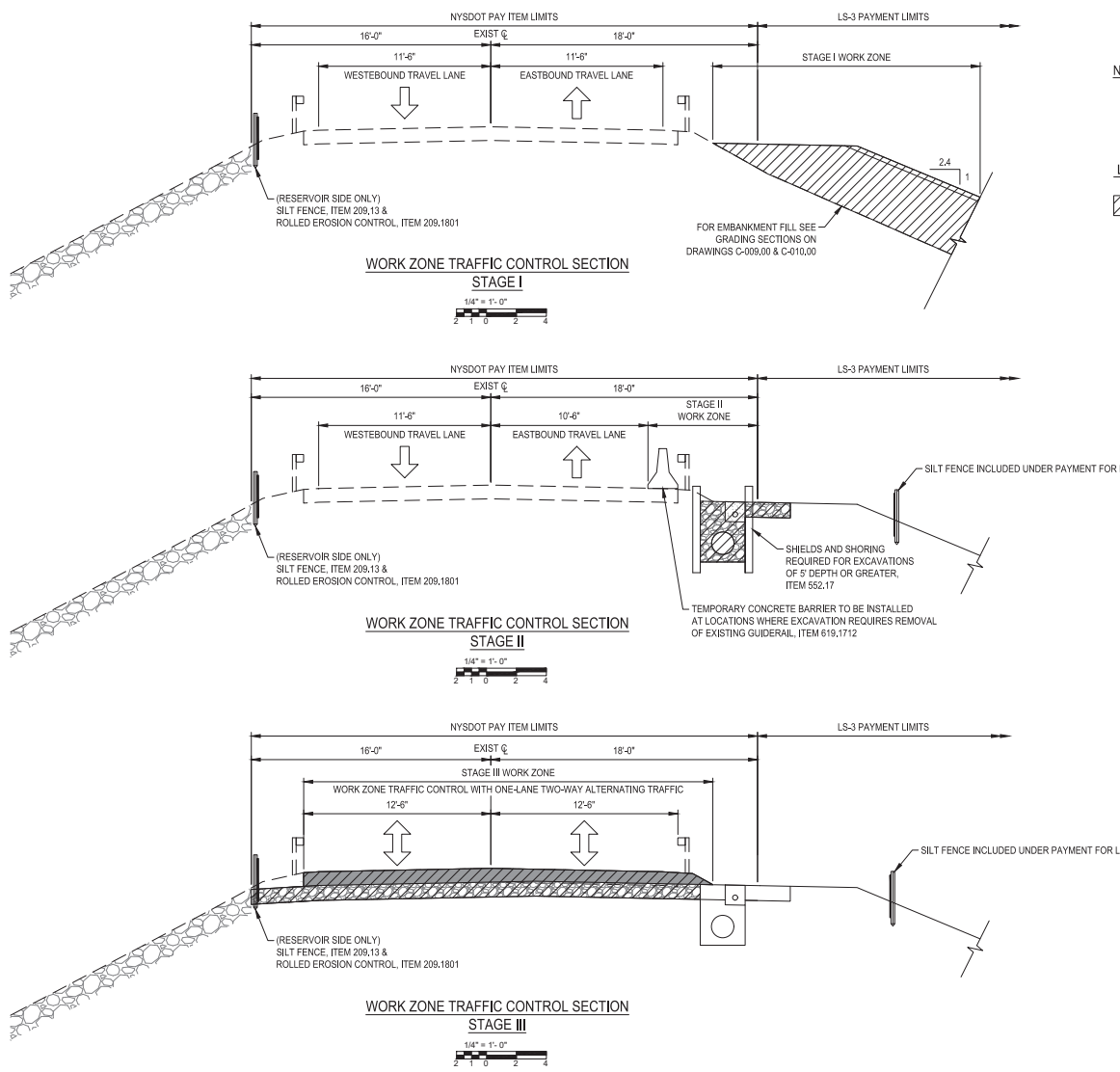
**NEW YORK CITY
ENVIRONMENTAL PROTECTION**
 BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

**WEST BRANCH AUXILIARY DAM
SLOPE SAFETY IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**

WORK ZONE TRAFFIC CONTROL - TEMPORARY TRAFFIC SIGNAL PLAN

DATE: 5/26/2022
 SCALE: 1"=10'
 SHEET NO.: 37 OF 81
 DRAWING NO.: C-027.00

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G-003.00 FOR RECOMMENDED CONSTRUCTION STAGING.
2. STAGE III TO VI BE COMPLETED DURING NIGHTTIME WORK HOURS (8PM TO 6AM).

LEGEND

STAGE WORK AREA

Last Saved By: & Date: PDM/ELM, Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022 10:07:50 PM
 Plot Size: ANSI (D) (24.00 X 36.00 INCHES) Plot Scale: 1/4" = 1'-0"
 Drawing Name: & Location: C:\pwworking\2638130\CAD\202\03.dwg

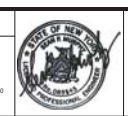
NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
S. MURPHY

CHECKED BY:
E. LECLAIR

DESIGN LEAD:
S. MURPHY

SECTION MANAGER:
E. LECLAIR



APPROVED FOR THE CITY OF NEW YORK

L. SINGH
ACCOUNTABLE MANAGER

P. COSTA
PORTFOLIO MANAGER

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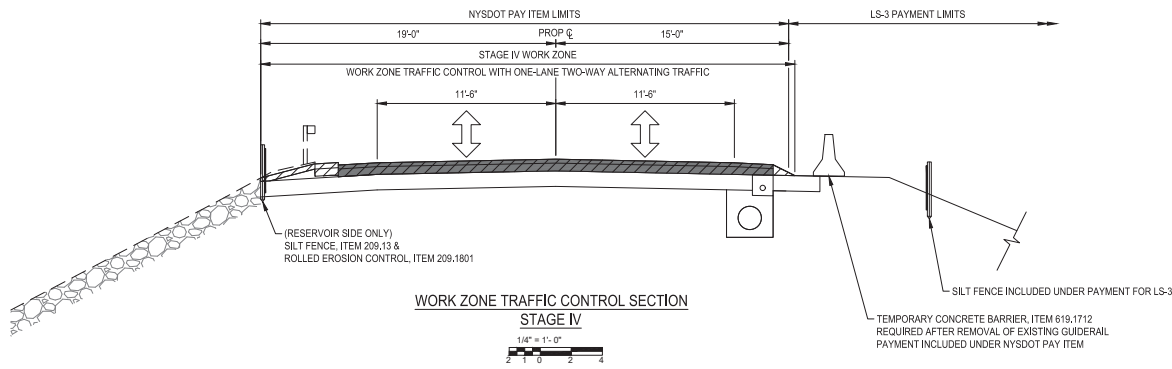
NEW YORK CITY
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 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
 CORONA, NEW YORK 11368
 www.nyc.gov/dcp

WEST BRANCH AUXILIARY DAM SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK

WORK ZONE TRAFFIC CONTROL STAGING SECTIONS
 (1 OF 2)

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

DATE: 5/5/2022
SCALE: 1/4"=1'-0"
SHEET NO: 47 OF 49
DRAWING NO. C-029.00

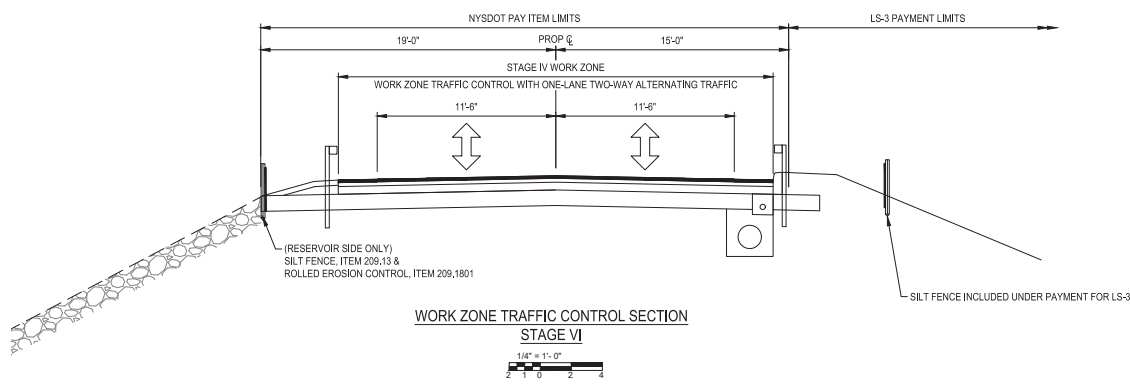
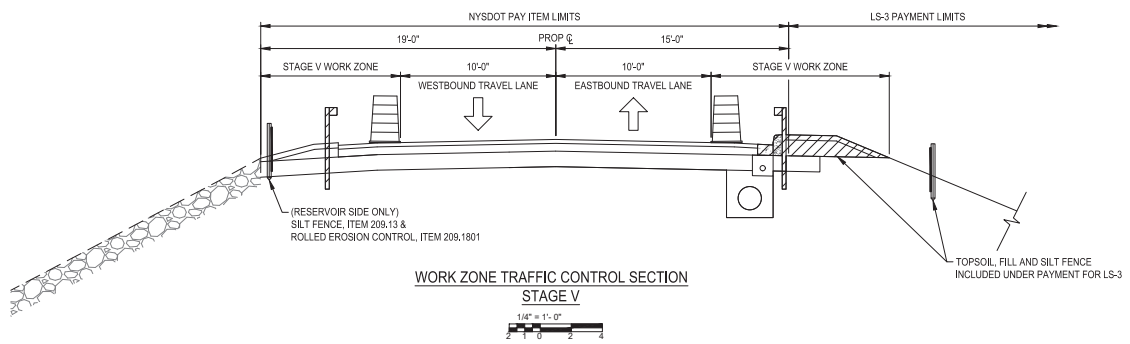


NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G-003.00 FOR RECOMMENDED CONSTRUCTION STAGING.
2. STAGES III THRU VI TO BE COMPLETED DURING NIGHTTIME WORK HOURS (8PM TO 6AM).
3. CONTRACTOR SHALL PHASE ONE-LANE TWO-WAY ALTERNATING TRAFFIC INTO TWO SUBSTAGES (PHASES) AS SHOWN ON DRAWINGS C-022.00 AND C-023.00 WITH THE PHASE "A" REFERRING TO RECONSTRUCTION OF THE EASTBOUND LANE AND PHASE "B" REFERRING TO RECONSTRUCTION OF THE WESTBOUND LANE.
4. CONTRACTOR SHALL PHASE ONE-LANE TWO-WAY ALTERNATING TRAFFIC FOR STAGE VI AT THE INTERSECTION OF ROUTE 6 AND DREWVILLE ROAD INTO TWO PHASES (VI-C & VI-D) AS SHOWN ON DRAWINGS C-025.00 AND C-026.00.
5. CONTRACTOR MAY ELECT TO CONTRUCT STAGE V IN TWO PHASES IN ORDER TO MAXIMIZE THE AVAILABLE WORK ZONE AREA, TWO 10' MIN WIDE TRAVEL LANES MUST BE OPEN TO TRAFFIC AT ALL TIMES DURING THIS STAGE.

LEGEND

STAGE WORK AREA

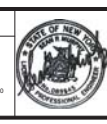


**TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION**

Last Saved By: B. DePaolove L.L.M.D. Wednesday, April 27, 2022 and Date Plotted: Wednesday, May 4, 2022 10:00:40 PM.
 Paper Size: ANSI D (22.00 X 34.00 INCHES) Plot Scale: 1/4" = 1'-0"
 Drawing Name: & Location: C:\w_p\l\lowell\m\22691190\C-020.00.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPRD.

DESIGNED BY:
S. MURPHY
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR



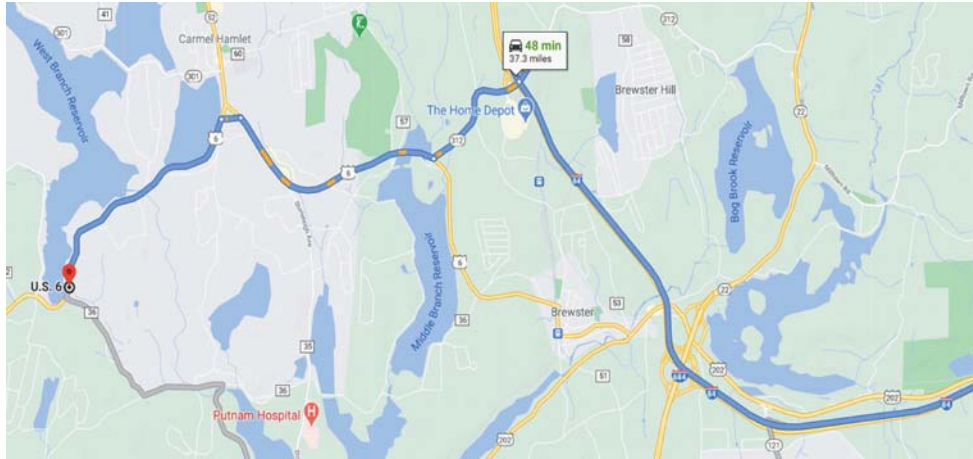
APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
P. COSTA
PORTFOLIO MANAGER

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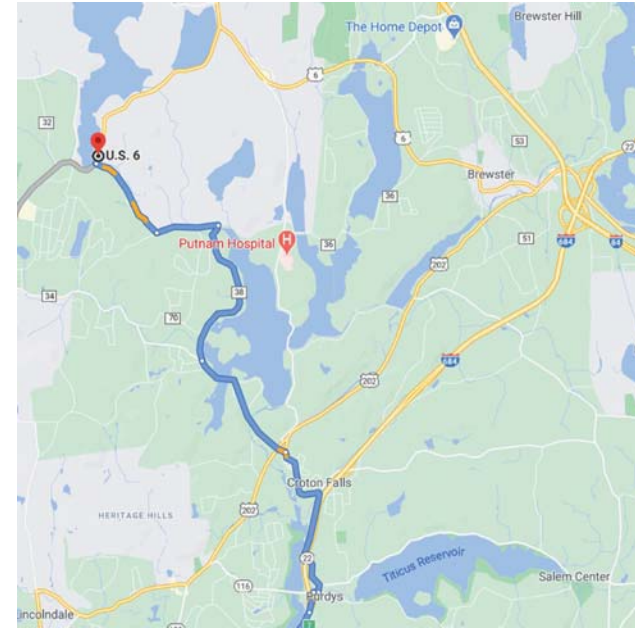
**NEW YORK CITY
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96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
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**WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK**
WORK ZONE TRAFFIC CONTROL STAGING SECTIONS
(2 OF 2)

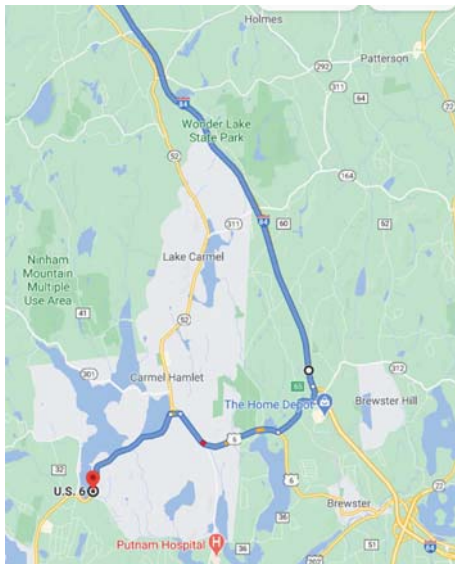
DATE: 5/5/2022
SCALE: 1/4"=1'-0"
SHEET NO.:
48 OF 49
DRAWING NO.:
C-030.00



TRUCK ROUTES FROM THE EAST



TRUCK ROUTES FROM THE SOUTH



TRUCK ROUTES FROM THE NORTH

- NOTES:
- 1) REGIONAL SOIL/FILL QUARRY SOURCES ARE TO BE LOCATED WITHIN 50 MILES OF THE PROJECT SITE.
 - 2) TRUCKS ARE ASSUMED TO USE INTERSTATES I-84 AND I-684 TO REDUCE DELIVERY TIMES.

TOWN OF CARMEL
PRELIMINARY
SITE PLAN APPLICATION

Last Saved By: 6 Data/POWER/LLMD, Friday, April 22, 2022 and Date Plotted: Wednesday, May 4, 2022, 1:14:14 PM
 Please Save (ANSI) D:\22\00 X\34\00\NCHES\Plot Scale: 1"=20'
 Plot Style Table: BEDC_Drawing.ctb
 Drawing Name: & Location: C:\pwr_pl\lowellm\226261\00\Parcel Map.dwg

NO.	DATE	REVISIONS/DESCRIPTION	APPROD.

DESIGNED BY:
M. POWELL
CHECKED BY:
E. LECLAIR
DESIGN LEAD:
S. MURPHY
SECTION MANAGER:
E. LECLAIR

DRAWN BY:
M. POWELL
GPM Smith
11 8100 American Blvd, Suite 200
Latham, NY 12110
Tel: (518) 752-6920



APPROVED FOR THE CITY OF NEW YORK
L. SINGH
ACCOUNTABLE MANAGER
D. COSTA
PORTFOLIO MANAGER

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WEST BRANCH AUXILIARY DAM
SLOPE IMPROVEMENTS
PUTNAM COUNTY, NEW YORK
TRUCK ROUTES

DATE: 5/5/2022
SCALE:
SHEET NO:
49 OF 49
DRAWING NO.

All inquiries regarding this drawing(s) or project should be made to NYC Environmental Protection, Bureau of Engineering Design and Construction.



ATZL, NASHER & ZIGLER P.C.

ENGINEERS - SURVEYORS - PLANNERS

Web: www.anzny.com

June 1, 2022

Planning Board
Town of Carmel
60 McAlpin Avenue
Mahopac, NY 10541
Attn: Craig Paeprer, Chairman

Re: Suez Water Chateau Wells
Tax Lot 75.20-1-16

Dear Chairman Paeprer and Honorable Board Members,

The following is our response to Patrick Cleary, AICP, CEP, PP, LEED AP of Cleary Consulting letter dated May 25, 2022:

1. Comment: At the last meeting, there was confusion regarding an easement. The easement in question does not apply to this project.

Response: No response required.

2. Comment: At their last appearance, the Applicant submitted samples of the "hemlock green", "cool harvest" and "Tribeca tan" colors that would be used on the building, which the Board found to be acceptable. A wall guard sample will be presented at the upcoming meeting.

Response: No response required.

The following is our response to Michael G. Carnazza, Director of Code Enforcement, letter dated May 25, 2022:

1. Comment: The applicants propose to add a PFAS Treatment Building to the water treatment facility off McNair Dr. in Mahopac.

Response: No response required.

2. Comment: Is there a way to add some buffer along the driveway to the neighbor to

the east? It appears that there will be a gravel driveway close to the property line.

Response: Skyrockets have been proposed along the driveway as a buffer. These are tall and narrow trees intended to fit within the minimal space between the property line and the edge of the driveway.

3. Comment: Again, the lot depth is not provided. It appears to comply; however, it must be shown on the plat and on the Zoning Table.

Response: The lot depth is 395 feet. This has now been added to the bulk table.

4. Comment: Remove total side yard required 50 ft. from the zoning table. The Town of Carmel does not have the 50 ft. requirement.

Response: Noted. The total side yard has been removed.

5. Comment: Referral to the ECB, Fire Department and Putnam County Dept. of Health are required by code.

Response: No response required.

6. Comment: Variances are required for the following-
Lot area 120,000 s.f. req'd, 47,745 provided, 72,255 s.f. variance.
Lot width 200 ft required, 117 provided, 83 ft. variance
Lot Depth- ??????????????????
Frontage 50 ft. 46.4 ft, 3 .6 ft variance
Side Yard 25 ft, 18 ft, 7 ft. variance

*Response: Required variances were granted by the ZBA.
The lot depth is 395 feet. This has now been added to the bulk table*

The following is our response to Richard J. Franzetti, P.E., letter dated February 4, 2022:

General Comments

1. Comment: The following referrals are required:
a. New York State Department of Environmental Conservation (NYSDEC)

- b. Putnam County Department of Health (PCDOH)
- c. The Town of Carmel Environmental Conservation Board (ECB).
- d. Mahopac Fire Department

The applicant has noted these referrals

Response: No response required.

2. Comment: The following permits are required:
- a. NYSDEC - for stormwater and wetlands;
 - b. PC DOH for well and treatment system
 - c. ECB for wetlands

The applicant has noted these permit requirements.

Response: No response required.

3. Comment: The area of disturbance for the work as provided is -13,600 sf. The threshold criteria of disturbances for the NYSDEC stormwater regulation are between 5,000 square feet and one (1) acre and over one (1) acre. The project will require coverage under the NYSEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) and the development of Stormwater Pollution Prevention Plan (SWPPP) that has erosion and sediment controls.

The applicant has provided a SWPPP which is currently under review.

Response: No response required.

4. Comment: The applicant will be required to supply a stormwater maintenance agreement and maintenance guarantee per Town Code (§156-85 and §156-87 B respectively).

The applicant has provided an agreement as part of the SWPPP. This should be reviewed by Planning Counsel. The applicant should note that a Schedule A for the agreement, along with a bond, must be provided.

Response: No response required.

5. Comment: Should any public improvements be deemed necessary as part of the

development of the tract, a Performance Bond and associated Engineering Fee must eventually be established for the work. The applicant will need to develop a quantity take off for bonding purposes. The applicant has noted this requirement. The applicant should note that a Performance Bond and associated Engineering fee is minimally required for the stormwater management practices, erosion and sediment control drainage features, landscaping etc. installed on the site. Please see §156-61 J and K of the Town Code for additional information.

Response: No response required.



**PFAS COMPLIANCE AT
CHATEAU WELL**



NEIGHBOR VIEW: 6-8 FT TREES



NEIGHBOR VIEW: 20 FT TREES



**PFAS COMPLIANCE AT
CHATEAU WELL**



STREET VIEW: 6-8 FT TREES



STREET VIEW: 20 FT TREES



LOCATION MAP
SCALE: 1"=300'



VICINITY MAP
SCALE: 1"=300'

OWNERS WITHIN 500 FEET:

- TOWN OF CARMEL TAX MAP
SECTION 75.03, BLOCK 1, LOT 18
- 75.20-1-11 MARIE A RIZZO
54 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 75.20-1-12 STEPHEN A & MARY BETH WRABEL
50 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 75.20-1-13 LINDA N VERDE
44 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 75.20-1-14 ANDREW & DANIELLE M SABO
1875 BALEWYN AVENUE
YORKTOWN HEIGHTS, NY 10568
 - 75.20-1-15 COUNTY OF PUTNAM
45 GLENDA AVENUE
CARMEL, NY 10513
 - 75.20-1-17 LEONARD & LINDA VALVANO
42 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 75.20-1-18 JAMES & ROSE PACALLO
51 DANILA DRIVE
MAHOOPAC, NY 10541
 - 75.20-1-20 ROBERT & MARIE ANNA SIMONE
8 CREGO PLACE
MAHOOPAC, NY 10541
 - 75.20-1-21 COUNTY OF PUTNAM
45 GLENDA AVENUE
CARMEL, NY 10513
 - 75.20-1-22 MELJANO LIMOS
11 CREGO DRIVE
MAHOOPAC, NY 10541
 - 75.20-1-23 JESSIE & DANIA L BERWITS
10 CREGO PLACE
MAHOOPAC, NY 10541
 - 75.20-1-24 ZIMMERER FARMS
PO BOX 333
BALGOWN PLACE, NY 10505
 - 75.20-1-25 NOEL & MARYROSE CORREA
31 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 75.20-2-88 COUNTY OF PUTNAM
45 GLENDA AVENUE
CARMEL, NY 10541
 - 86.8-1-78 SHAWN B & THOMAS O'LEARY
23 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-1-79 GRANT A JR. & MARIE PANARESE
27 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-1-80 JOSEPH G & KAREN BRANDS
33 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-1-81 JOHN S & KAREN M DIORIO
41 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-1 ROBERT & MARY BARRETT
26 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-2 SUPREM J & LILLE SUFAI
22 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-3 STEVEN J & LAUREN M
28 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-4 DANIEL L & JULIANNE SUMMERS
24 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-5 CARBONARA FAMILY TRUST #2
20 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-6 THOMAS M & JOANNE DONOVAN
8 BLOOMER ROAD
MAHOOPAC, NY 10541
 - 86.8-2-7 ERIN HEARING
27 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-8 JOHN T BARBERY
43 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-9 ALISA & NICOLA ALOSICO
49 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-10 HOWARD J & ROCHELLE P HAMMER
53 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-11 PAUL C & NATALIA M MASELLI
57 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-12 JACOB A & FRANKS TESLER
56 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-13 MILLER FAMILY TRUST
52 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-14 CHESTER S & LAURIE DAY
48 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-15 JOHN W MCCOY
44 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-16 EDUARDO & LUCRECIA ORIA
42 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-18 JAMES POLO & FELISA CHARLES
43 MOHAR DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-17 NOREEN FARHANI
47 DANILA DRIVE
MAHOOPAC, NY 10541
 - 86.8-2-18 TONY W LAMAR
60 MCALPIN AVENUE
MAHOOPAC, NY 10541

TAX MAP REFERENCE:

TOWN OF CARMEL TAX MAP
SECTION 75.03, BLOCK 1, LOT 18

OWNER & APPLICANT:

SUEZ WATER NEW YORK, INC.
142 OLD MILL ROAD
WEST NYACK, NY 10994

SITE ADDRESS:

39 MOHAR DRIVE
MAHOOPAC, NY 10541

AREA:

83,117 SQ FT
1.849 ACRES

DATUM:

VERTICAL: NAVD 1988
HORIZONTAL: NAD 1983, NEW YORK STATE
PLANE COORDINATE SYSTEM,
EAST ZONE

SUBDIVISION REFERENCE:

"SUBDIVISION MAP OF COUNTY ESTATES" FILED IN
THE PUTNAM COUNTY CLERK'S OFFICE ON
JANUARY 8, 1967, AS MAP NO. 1082.

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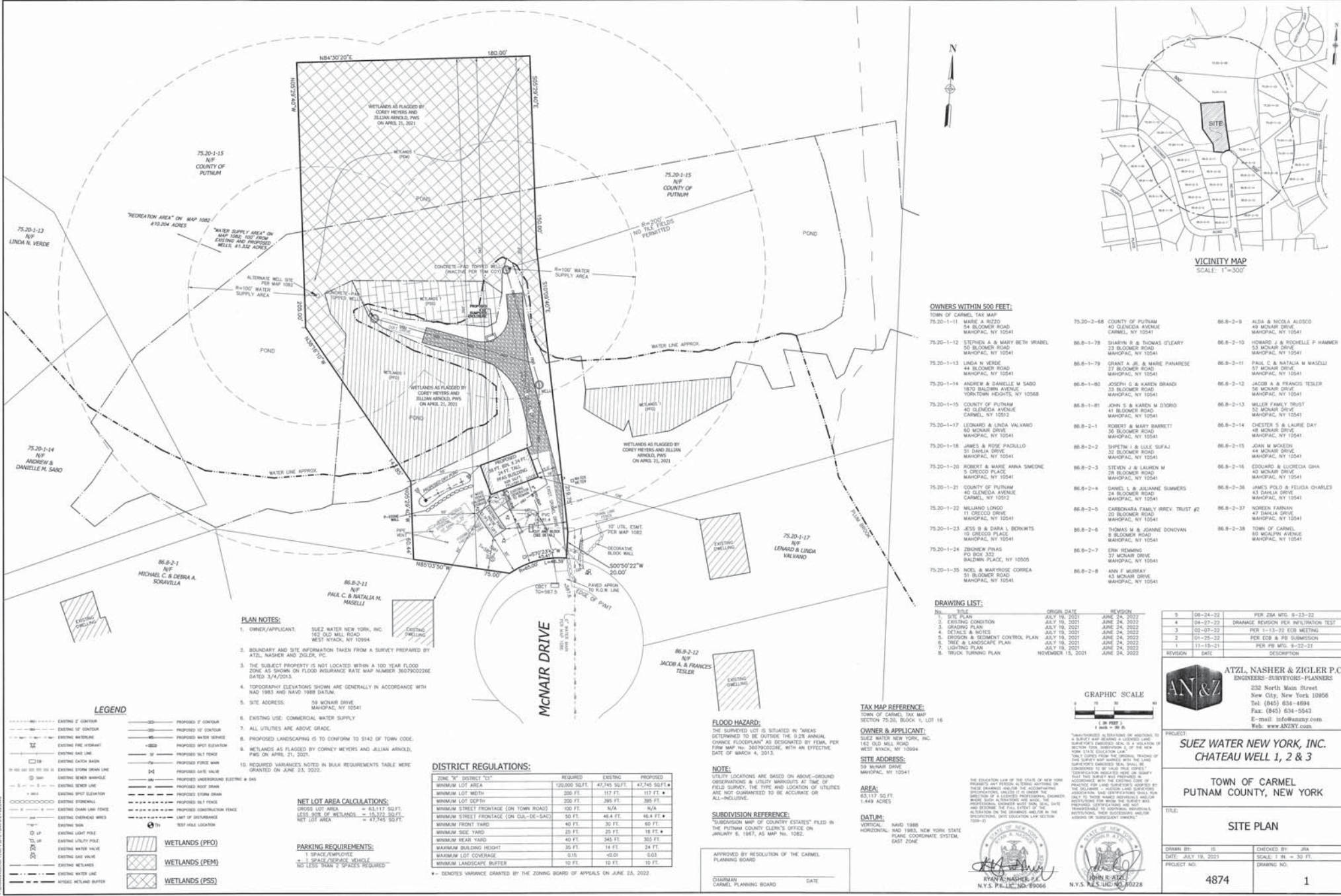
REVISION	DATE	DESCRIPTION
5	06-24-22	PER ZMA MTS 6-23-22
4	04-27-22	DRAINAGE REVISION PER INFILTRATION TEST
3	02-07-22	PER 1-13-22 EDR MEETING
2	01-25-22	PER EDR & PDR SUBMISSION
1	11-15-21	PER PB MTS 9-22-21

PROJECT:
SUEZ WATER NEW YORK, INC.
CHATEAU WELL 1, 2 & 3

TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

TITLE:
LOCATION MAP

DRAWN BY: JS	CHECKED BY: JRA
DATE: JULY 19, 2021	SCALE: AS SHOWN
PROJECT NO: 4874	DRAWING NO: LM



OWNERS WITHIN 500 FEET:

75.20-1-11	BARRE & RIZZO 84 BLOOMER ROAD MANTONVILLE, NY 10541	75.20-2-48	COUNTY OF PUTNAM 40 GLENDA AVENUE CARMEL, NY 10541	86.8-2-8	ALBA & NICOLA ALDOCCI 49 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-12	STEPHEN A. & MARY BETH MRAEL 50 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-1-78	SHAWN B. & TUDMAN O'LEARY 33 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-10	HOBAN J. & NICHELLE P. HAMMER 53 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-13	LINDA W. VERDE 44 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-1-79	GRANT A. JR. & MARIE PANARISE 27 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-11	PAUL C. & NATALIA M. MASSELLI 57 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-14	ANDREW & DANIELLE M. SABO 1870 BALDWIN AVENUE YORKTOWN HEIGHTS, NY 10588	86.8-1-80	JOSEPH G. & KAREN BRANDEI 53 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-12	JACOB A. & FRANCIS TESLER 56 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-15	COUNTY OF PUTNAM 40 GLENDA AVENUE CARMEL, NY 10541	86.8-1-81	JOHN S. & KAREN M. STORNO 41 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-13	MULLER FAMILY TRUST 57 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-17	LEONARD & LINDA VALVARO 80 MONAR DRIVE MANTONVILLE, NY 10541	86.8-2-1	ROBERT & MARY BARRETT 56 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-14	CHESTER S. & LAURIE BAY 48 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-18	JAMES & ROSE PADRULLO 33 DANILIA DRIVE MANTONVILLE, NY 10541	86.8-2-2	SHEPHERD J. & LILE SUFAJ 32 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-15	JOAN M. MOEHN 44 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-20	ROBERT & MARIE ANNA SMONE 5 CRESCO PLACE MANTONVILLE, NY 10541	86.8-2-3	STEVEN J. & LAUREN M. 78 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-16	EDUARDO & EUGENIA OHA 45 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-21	COUNTY OF PUTNAM 40 GLENDA AVENUE CARMEL, NY 10541	86.8-2-4	DANIEL L. & JULIANNE SUMMERS 24 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-18	JAMES PAOL & FELICIA CHARLES 47 DANILIA DRIVE MANTONVILLE, NY 10541
75.20-1-22	MILLIANO LONGO 11 CRESCO DRIVE MANTONVILLE, NY 10541	86.8-2-5	CARDONARA FAMILY BREV. TRUST #2 35 BLOOMER ROAD MANTONVILLE, NY 10541	86.8-2-17	NOREEN FANNON 47 DANILIA DRIVE MANTONVILLE, NY 10541
75.20-1-23	JESY B. & DIANA L. BERKOWITZ 85 BALDWIN PLACE, NY 10565	86.8-2-6	THOMAS M. & JOHANNE DONOVAN 29 MONAR DRIVE MANTONVILLE, NY 10541	86.8-2-19	TOWN OF CARMEL 85 BALDWIN DRIVE MANTONVILLE, NY 10541
75.20-1-24	ZBISHEW PINAS PO BOX 333 BALDWIN PLACE, NY 10565	86.8-2-7	ERIK REMOND 29 MONAR DRIVE MANTONVILLE, NY 10541	86.8-2-8	ANN F. MURRAY 29 MONAR DRIVE MANTONVILLE, NY 10541
75.20-1-35	NOEL & MARISSOL CORREA 23 BLOOMER ROAD MANTONVILLE, NY 10541				

DRAWING LIST:

NO.	TITLE	ORIGIN DATE	REVISION
1.	PLANS	JULY 19, 2021	JUNE 24, 2022
2.	EXISTING CONSTRUCTION	JULY 19, 2021	JUNE 24, 2022
3.	GRADING PLAN	JULY 19, 2021	JUNE 24, 2022
4.	DETAILS & NOTES	JULY 19, 2021	JUNE 24, 2022
5.	EROSION & SEDIMENT CONTROL PLAN	JULY 19, 2021	JUNE 24, 2022
6.	TREE & LANDSCAPE PLAN	JULY 19, 2021	JUNE 24, 2022
7.	LIGHTING PLAN	JULY 19, 2021	JUNE 24, 2022
8.	TRUCK TURNING PLAN	NOVEMBER 15, 2021	JUNE 24, 2022

TAX MAP REFERENCE:

TOWN OF CARMEL TAX MAP SECTION 75.20, BLOCK 1, LOT 16

OWNER & APPLICANT:

SUEZ WATER NEW YORK, INC.
162 OLD HILL ROAD
WEST WINCH, NY 10994

SITE ADDRESS:

29 MONAR DRIVE
MANTONVILLE, NY 10541

AREA:

65,117 SQ. FT.
1.449 ACRES

DATUM:

VERTICAL: NAVD 1988
HORIZONTAL: NAD 1983, NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE

GRAPHIC SCALE



PLAN NOTES:

- OWNER/APPLICANT: SUEZ WATER NEW YORK, INC. 162 OLD HILL ROAD WEST WINCH, NY 10994
- SUBDIVIDER AND SITE INFORMATION TAKEN FROM A SURVEY PREPARED BY ATZL, NASHNER & ZIGLER, P.C.
- THE SUBJECT PROPERTY IS NOT LOCATED WITHIN A 100 YEAR FLOOD ZONE AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 3607902022E DATED 3/4/2015.
- TOPOGRAPHY ELEVATIONS SHOWN ARE GENERALLY IN ACCORDANCE WITH NAD 1983 AND NAVD 1988 DATUM.
- SITE ADDRESS: 29 MONAR DRIVE, MANTONVILLE, NY 10541
- EXISTING USE: COMMERCIAL WATER SUPPLY
- ALL UTILITIES ARE ABOVE GRADE.
- PROPOSED LANDSCAPING IS TO CONFORM TO §142 OF TOWN CODE.
- WETLANDS AS FLAGGED BY CORNEV MEYERS AND JILLIAN ARNOLD, PWS ON APRIL 21, 2021.
- REQUIRED VARIANCES NOTED IN BLANK REQUIREMENTS TABLE WERE GRANTED ON JUNE 23, 2022.

DISTRICT REGULATIONS:

ZONE "C" DISTRICT "C1"	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	100,000 SQ.FT.	47,745 SQ.FT.	47,745 SQ.FT. *
MINIMUM LOT WIDTH	200 FT.	117 FT.	117 FT. *
MINIMUM LOT DEPTH	200 FT.	395 FT.	395 FT.
MINIMUM STREET FRONTAGE (ON TOWN ROAD)	100 FT.	67A	72A
MINIMUM STREET FRONTAGE (ON CUL-DE-SAC)	50 FT.	48.4 FT.	48.4 FT. *
MINIMUM FRONT YARD	40 FT.	35 FT.	40 FT.
MINIMUM SIDE YARD	25 FT.	25 FT.	18 FT. *
MINIMUM REAR YARD	40 FT.	345 FT.	303 FT. *
MAXIMUM BUILDING HEIGHT	35 FT.	14 FT.	24 FT.
MINIMUM LOT COVERAGE	0.15	<0.01	0.03
MINIMUM LANDSCAPE BUFFER	10 FT.	10 FT.	10 FT.

NET LOT AREA CALCULATIONS:

ORIG. LOT AREA = 83,117 SQ.FT.
LESS 50% OF WETLANDS = 15,372 SQ.FT.
NET LOT AREA = 47,745 SQ.FT.

PARKING REQUIREMENTS:

1 SPACE/EMPLOYEE
4-1 SPACE/REGISTERED VEHICLE
NO LESS THAN 5 SPACES REQUIRED

LEGEND

---o---	EXISTING 1/2" CONTOUR	---	PROPOSED 1/2" CONTOUR
---	EXISTING 1" CONTOUR	--- <td>PROPOSED WATER SERVICE</td>	PROPOSED WATER SERVICE
--- <td>EXISTING WATERLINE</td> <td>--- <td>PROPOSED SPT. SERVICE</td> </td>	EXISTING WATERLINE	--- <td>PROPOSED SPT. SERVICE</td>	PROPOSED SPT. SERVICE
--- <td>EXISTING FIRE HYDRANT</td> <td>--- <td>PROPOSED SPT. TRUNK</td> </td>	EXISTING FIRE HYDRANT	--- <td>PROPOSED SPT. TRUNK</td>	PROPOSED SPT. TRUNK
--- <td>EXISTING GAS LINE</td> <td>--- <td>PROPOSED FENCE MARK</td> </td>	EXISTING GAS LINE	--- <td>PROPOSED FENCE MARK</td>	PROPOSED FENCE MARK
--- <td>EXISTING CATCH BASIN</td> <td>--- <td>PROPOSED GAS VALVE</td> </td>	EXISTING CATCH BASIN	--- <td>PROPOSED GAS VALVE</td>	PROPOSED GAS VALVE
--- <td>EXISTING STORM SEWER LINE</td> <td>--- <td>PROPOSED GAS VALVE</td> </td>	EXISTING STORM SEWER LINE	--- <td>PROPOSED GAS VALVE</td>	PROPOSED GAS VALVE
--- <td>EXISTING SEWER MANHOLE</td> <td>--- <td>PROPOSED UNDERGROUND ELECTRIC **</td> </td>	EXISTING SEWER MANHOLE	--- <td>PROPOSED UNDERGROUND ELECTRIC **</td>	PROPOSED UNDERGROUND ELECTRIC **
--- <td>EXISTING SEWER LINE</td> <td>--- <td>PROPOSED ROOF DRAIN</td> </td>	EXISTING SEWER LINE	--- <td>PROPOSED ROOF DRAIN</td>	PROPOSED ROOF DRAIN
--- <td>EXISTING SPT. ELEVATION</td> <td>--- <td>PROPOSED STORM DRAIN</td> </td>	EXISTING SPT. ELEVATION	--- <td>PROPOSED STORM DRAIN</td>	PROPOSED STORM DRAIN
--- <td>EXISTING FIREWALL</td> <td>--- <td>PROPOSED BELT PEG</td> </td>	EXISTING FIREWALL	--- <td>PROPOSED BELT PEG</td>	PROPOSED BELT PEG
--- <td>EXISTING SHAR LINE FORCE</td> <td>--- <td>PROPOSED CONSTRUCTION FENCE</td> </td>	EXISTING SHAR LINE FORCE	--- <td>PROPOSED CONSTRUCTION FENCE</td>	PROPOSED CONSTRUCTION FENCE
--- <td>EXISTING OVERHEAD WIRE</td> <td>--- <td>LIMIT OF JURISDICTION</td> </td>	EXISTING OVERHEAD WIRE	--- <td>LIMIT OF JURISDICTION</td>	LIMIT OF JURISDICTION
--- <td>EXISTING SOIL</td> <td>--- <td>REST AREA LOCATION</td> </td>	EXISTING SOIL	--- <td>REST AREA LOCATION</td>	REST AREA LOCATION
--- <td>EXISTING LIGHT POLE</td> <td>--- <td>WETLANDS (PFO)</td> </td>	EXISTING LIGHT POLE	--- <td>WETLANDS (PFO)</td>	WETLANDS (PFO)
--- <td>EXISTING UTILITY POLE</td> <td>--- <td>WETLANDS (PEM)</td> </td>	EXISTING UTILITY POLE	--- <td>WETLANDS (PEM)</td>	WETLANDS (PEM)
--- <td>EXISTING WATER VALVE</td> <td>--- <td>WETLANDS (PSS)</td> </td>	EXISTING WATER VALVE	--- <td>WETLANDS (PSS)</td>	WETLANDS (PSS)
--- <td>EXISTING GAS VALVE</td> <td></td> <td></td>	EXISTING GAS VALVE		
--- <td>EXISTING WETLANDS</td> <td></td> <td></td>	EXISTING WETLANDS		
--- <td>EXISTING WETLAND BUFFER</td> <td></td> <td></td>	EXISTING WETLAND BUFFER		

FLOOD HAZARD:

THE SURVEYED LOT IS SITUATED IN "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS DESIGNATED BY FEMA, PER FEMA MAP NO. 3607902022E WITH AN EFFECTIVE DATE OF MARCH 4, 2015.

NOTE:

UTILITY LOCATIONS ARE BASED ON ABOVE-GROUND OBSERVATIONS & UTILITY MARKINGS AT TIME OF FIELD SURVEY. THE TYPE AND LOCATION OF UTILITIES ARE NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE.

SUBDIVISION REFERENCE:

"SUBDIVISION MAP OF COUNTRY ESTATES" FILED IN THE PUTNAM COUNTY CLERK'S OFFICE ON JANUARY 8, 1987, AS MAP NO. 1082.

APPROVED BY RESOLUTION OF THE CARMEL PLANNING BOARD

ATZL, NASHNER & ZIGLER P.C.
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, New York 10986
Tel: (845) 634-4884
Fax: (845) 634-5543
E-mail: info@anzy.com
Web: www.anzy.com

PROJECT:
SUEZ WATER NEW YORK, INC.
CHATEAU WELL 1, 2 & 3

TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

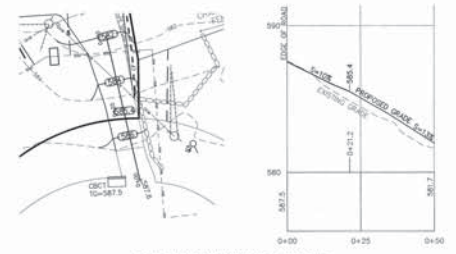
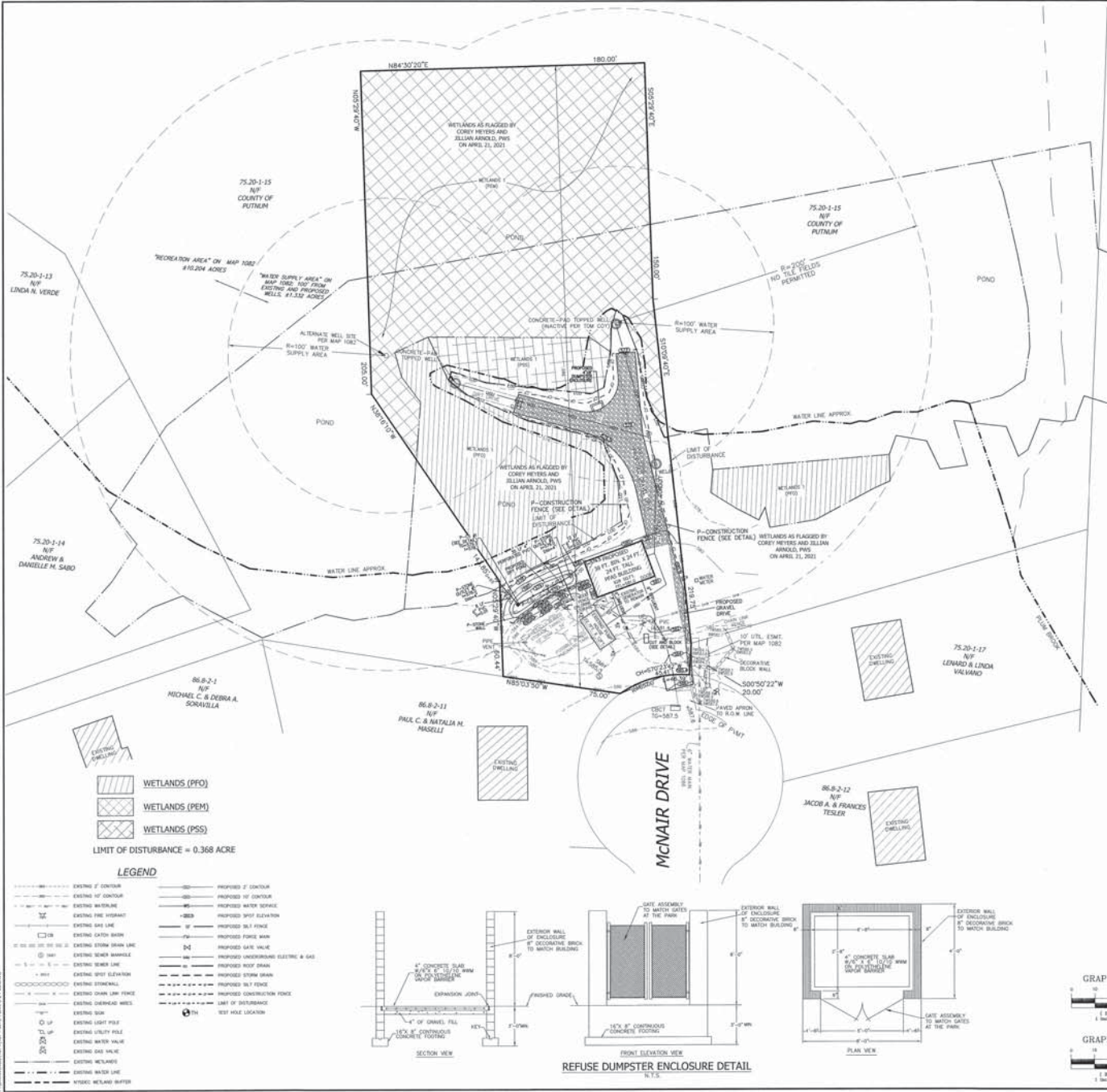
SITE PLAN

DATE: JULY 19, 2023
SCALE: 1" = 30 FT.

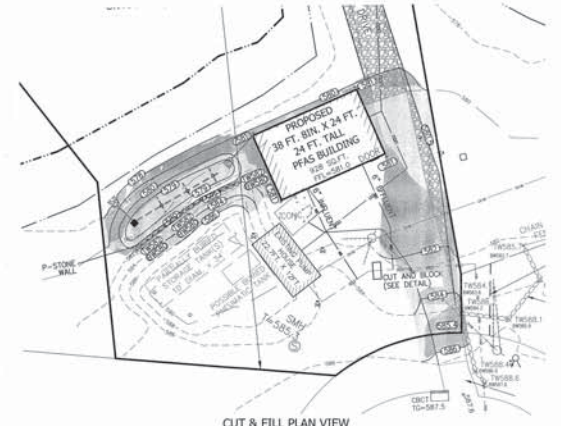
CHECKED BY: JRA
DRAWING NO.: 4874

DATE: JULY 19, 2023
SCALE: 1" = 30 FT.

PROJECT NO.:
DRAWING NO.: 1



DRIVEWAY PLAN VIEW & PROFILE
SCALE: 1"=20'



CUT & FILL PLAN VIEW
SCALE: 1"=20'

CUT/FILL LEGEND:

[Hatched Pattern]	CUT = 27.66 CU.YD.
[Solid Grey]	FILL = 39.97 CU.YD.

- NOTES:**
1. ANY FILL MATERIALS BEING BROUGHT TO THE SITE SHALL BE CERTIFIED PER NYSDEC CODE.

REVISION	DATE	DESCRIPTION
5	06-24-22	PER CMA MTD: 6-23-22
4	04-27-22	DRAINAGE REVISION PER INFILTRATION TEST
3	02-07-22	PER 1-13-22 ECR MEETING
2	01-19-22	PER ECR & PHS SUBMISSION
1	11-19-21	PER PB MTD: 9-22-21

ATZL NASHER & ZIGLER P.C.
ENGINEERS-SURVEYORS-PLANNERS

232 North Main Street
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Tel: (845) 634-4694
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Web: www.ANZNY.com

PROJECT: **SUEZ WATER NEW YORK, INC. CHATEAU WELL 1, 2 & 3**

TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

TITLE: **GRADING PLAN**

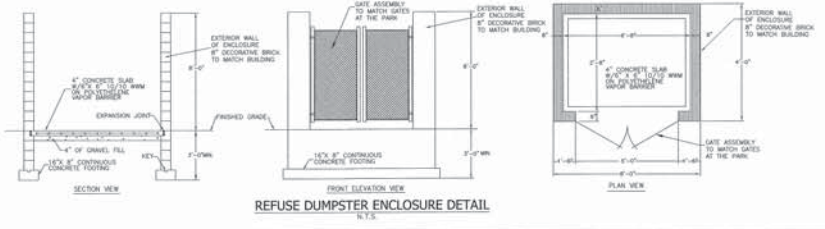
DRAWN BY: IS	CHECKED BY: JRA
DATE: JULY 19, 2021	SCALE: 1 IN. = 30 FT.
PROJECT NO:	DRAWING NO:
4874	3

LEGEND

[Hatched Pattern]	EXISTING DWELLING
[Hatched Pattern]	WETLANDS (PFO)
[Hatched Pattern]	WETLANDS (PEM)
[Hatched Pattern]	WETLANDS (PSS)
[Dashed Line]	LIMIT OF DISTURBANCE = 0.368 ACRE

LEGEND

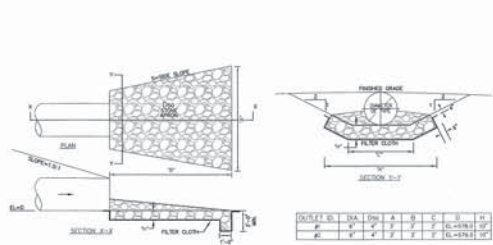
[Dashed Line]	EXISTING 2" CONDUIT	[Dashed Line]	PROPOSED 2" CONDUIT
[Dashed Line]	EXISTING 4" CONDUIT	[Dashed Line]	PROPOSED 4" CONDUIT
[Dashed Line]	EXISTING WATER LINE	[Dashed Line]	PROPOSED WATER SERVICE
[Dashed Line]	EXISTING FIRE HYDRANT	[Dashed Line]	PROPOSED SPOT ELEVATION
[Dashed Line]	EXISTING GAS LINE	[Dashed Line]	PROPOSED 6" WATER MAIN
[Dashed Line]	EXISTING CATCH BASIN	[Dashed Line]	PROPOSED GATE VALVE
[Dashed Line]	EXISTING SEWER MAIN LINE	[Dashed Line]	PROPOSED UNDERGROUND ELECTRIC & GAS
[Dashed Line]	EXISTING SEWER MANHOLE	[Dashed Line]	PROPOSED ROOF DRAIN
[Dashed Line]	EXISTING SEWER LINE	[Dashed Line]	PROPOSED STORM DRAIN
[Dashed Line]	EXISTING SPOT ELEVATION	[Dashed Line]	PROPOSED CONSTRUCTION FENCE
[Dashed Line]	EXISTING OVERHEAD	[Dashed Line]	LIMIT OF DISTURBANCE
[Dashed Line]	EXISTING DRAIN LAMP FENCE	[Dashed Line]	EXISTING WETLAND WATER
[Dashed Line]	EXISTING OVERHEAD WIRES	[Dashed Line]	
[Dashed Line]	EXISTING SIGN	[Dashed Line]	
[Dashed Line]	EXISTING LIGHT POLE	[Dashed Line]	
[Dashed Line]	EXISTING UTILITY POLE	[Dashed Line]	
[Dashed Line]	EXISTING WATER VALVE	[Dashed Line]	
[Dashed Line]	EXISTING GAS VALVE	[Dashed Line]	
[Dashed Line]	EXISTING WETLAND	[Dashed Line]	
[Dashed Line]	EXISTING WATER LINE	[Dashed Line]	
[Dashed Line]	EXISTING WETLAND WATER	[Dashed Line]	



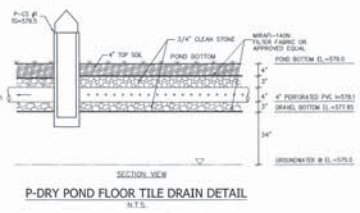
THE ENGINEER HAS EXAMINED THE GRADING PLAN AND FINDS IT TO BE IN ACCORDANCE WITH THE ENGINEERING LAW OF THE STATE OF NEW YORK AND THE ENGINEERING BOARD OF THE STATE OF NEW YORK. THE ENGINEER HAS NOT CONDUCTED A VISUAL SURVEY OF THE SITE AND HAS RELIED ON THE INFORMATION PROVIDED BY THE CLIENT AND THE SURVEYOR. THE ENGINEER HAS NOT CONDUCTED A VISUAL SURVEY OF THE SITE AND HAS RELIED ON THE INFORMATION PROVIDED BY THE CLIENT AND THE SURVEYOR.

STATE OF NEW YORK
ATTEST: JULY 19, 2021
RYAN A. NASHER, P.E.
N.Y.S. P.E. LIC. NO. 85066

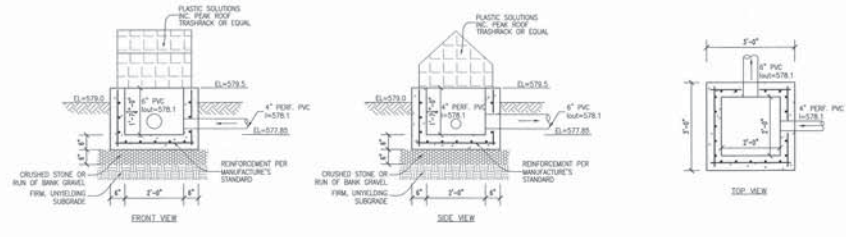
STATE OF NEW YORK
ATTEST: JULY 19, 2021
JOHN R. ATZL, P.E.
N.Y.S. P.E. LIC. NO. 80228



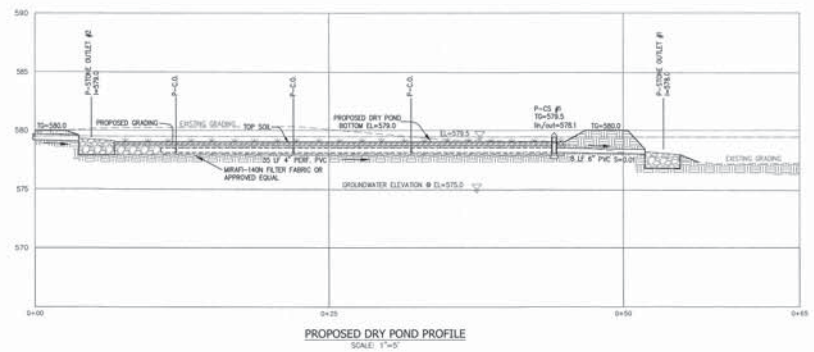
STONE OUTLET DETAIL
N.T.S.



P-DRY POND FLOOR TILE DRAIN DETAIL
N.T.S.



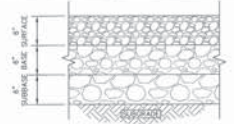
P-CS #1 DETAIL
SCALE: 1/2"=1'



PROPOSED DRY POND PROFILE
SCALE: 1"=5'

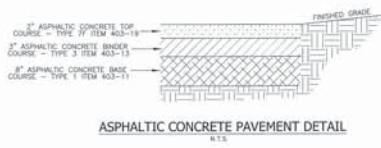
TABLE-1 PERCENT PASSING BY WEIGHT OF GRAVEL MATERIALS

SEIVE (U.S. SEIVE)	OPTION TYPE		
	SURFACE	BASE	SUBGRADE
3"		100	100
2"		100	100
1.5"		85-100	70-100
1"	100	-	-
3/4"	85-100	-	-
1/2"	50-75	30-50	30-50
#60	15-35	5-25	5-25
#200	8-15	0-85	0-8

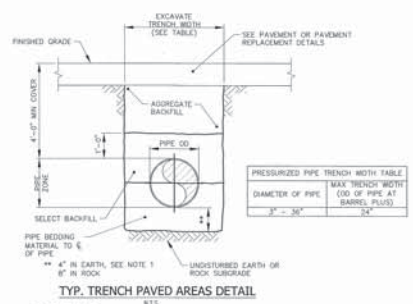


NOTES:
1. SURFACE, BASE AND SURFACE MATERIAL SHALL CONFORM TO GRADING LIMITS IN TABLE-1.
2. USE UNIFORM GRAVEL TYPES AND MATERIALS BETWEEN THE INDICATED LIMITS.

TYPICAL GRAVEL PAVING SECTION
SCALE: 1"=1'



ASPHALTIC CONCRETE PAVEMENT DETAIL
N.T.S.



TYP. TRENCH PAVED AREAS DETAIL
N.T.S.

- TRENCH NOTES:**
- IF UNDESIRABLE SUBSOIL IS ENCOUNTERED AT THE NORMAL TRENCH SUBGRADE, THE CONTRACTOR SHALL REMOVE IT TO THE DEPTH DIRECTED BY THE ENGINEER IN THE FIELD AND BACKFILL WITH PIPE BEDDING MATERIAL IN 4" LAYERS.
 - BOTTOM OF TRENCH SHALL BE FREE OF WATER PRIOR TO PLACING BEDDING.
 - PROVIDE 4" OF TOPSOIL WHERE SEEDING IS REQUIRED.
 - CONTRACTOR SHALL SHORE THE TRENCH IN ACCORDANCE WITH SECTION 62005 OF THE SPECIFICATIONS.
 - GRAVEL AND PAVED DRIVEWAYS TO BE RESTORED IN KIND WITH MINIMUM REQUIREMENTS AS INDICATED ON THIS SHEET.



REVISION	DATE	DESCRIPTION
5	06-24-22	PER ERM MTD. 9-23-22
4	04-27-22	DRAINAGE REVISION PER INFILTRATION TEST
3	02-07-22	PER 1-15-22 EOB MEETING
2	01-25-22	PER ERM & P&E SUBMISSION
1	11-15-21	PER P&E MTD. 9-22-21

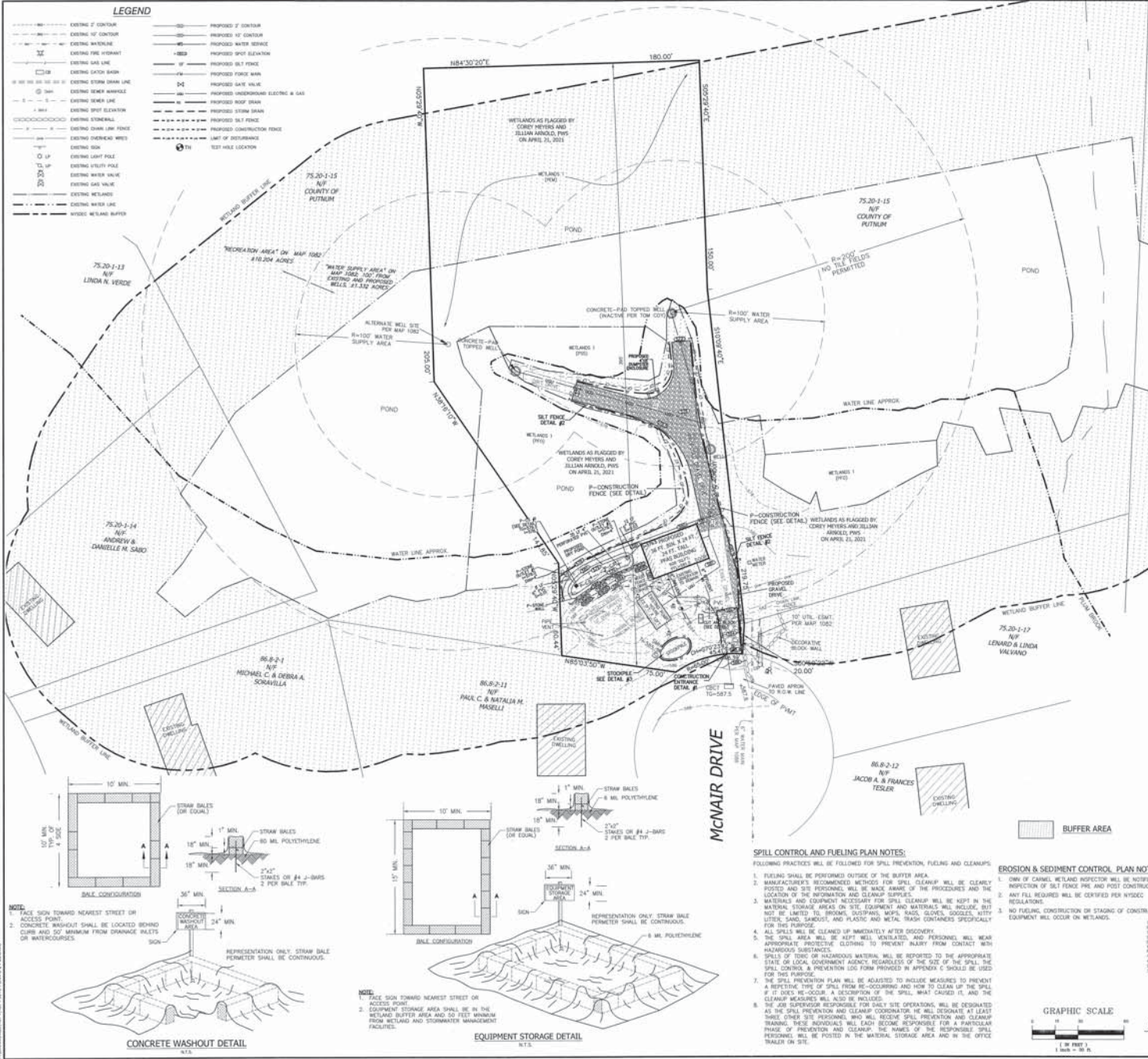
ATZL, NASHER & ZIGLER P.C.
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, New York 10956
Tel: (845) 624-4694
Fax: (845) 624-6443
E-mail: info@anzy.com
Web: www.ANZTY.com

SUEZ WATER NEW YORK, INC.
CHATEAU WELL 1, 2 & 3

TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

DETAILS & NOTES

DRAWN BY:	CHECKED BY:
CS	JRM
DATE: JULY 19, 2021	SCALE: AS SHOWN
PROJECT NO:	DRAWING NO:
4874	4

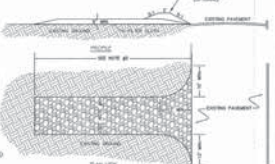


LEGEND

- EXISTING 2" CONTOUR
- EXISTING 10' CONTOUR
- EXISTING WATERWAY
- EXISTING GAS LINE
- EXISTING WATER MAIN LINE
- EXISTING SEWER MAINLINE
- EXISTING SEWER LINE
- EXISTING SPOUT SEWER LINE
- EXISTING STORM MAIN
- EXISTING STORM MAIN LINE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING WATER VALVE
- EXISTING GAS VALVE
- EXISTING WATER LINE
- EXISTING WETLAND BUFFER
- PROPOSED 2" CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED WATER SERVICE
- PROPOSED SPOUT SEWER
- PROPOSED SILT FENCE
- PROPOSED FORCE MAIN
- PROPOSED GATE VALVE
- PROPOSED UNDERGROUND ELECTRIC & GAS
- PROPOSED ROOF DRAIN
- PROPOSED SILT FENCE
- PROPOSED CONSTRUCTION FENCE
- LIMIT OF DISTURBANCE
- TEST HOLE LOCATION

SPECIFICATIONS FOR CONSTRUCTION ENTRANCE

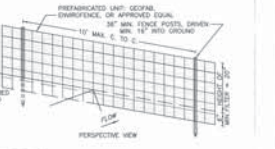
1. STONE SIZE - USE 2" STONE OR REBARBED OR RECYCLED CONCRETE EQUIVALENT
2. LENGTH - NOT LESS THAN 50 FT. (EXCEPT ON A SINGLE RESERVE LOT WHERE A 30 FT. MINIMUM LENGTH WOULD APPLY)
3. THICKNESS - NOT LESS THAN 8 IN.
4. WIDTH - 12 FT. MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INCREASES AND DECREASES OCCUR. 24 FT. IF SINGLE ENTRANCE TO SITE
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACEMENT OF STONE
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR OVERHELD TOWARD CONSTRUCTION ENTRANCES SHALL BE FILTERED ACROSS THE ENTRANCE IF PERIOD OF MAINTENANCE, A MONITORABLE BERM WITH 8 1/2 SLATS WILL BE INSTALLED
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF FLOWING OR OVERHELD PUBLIC RIGHT-OF-WAYS, ALL SEDIMENT SPILLED, DEPOSITED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY
8. WHEN REPAIRS IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS TO AN APPROVED SEDIMENT TRAPPING DEVICE
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN



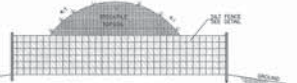
STABILIZED CONSTRUCTION ENTRANCE DETAIL #1
N.T.S.

CONSTRUCTION NOTES FOR PRE FABRICATED SILT FENCE

1. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER TWO SPILLS BE OVERLAPPED BY SIX INCHES AND TIED
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND AS FOLLOWS: UNDEGRADED WHEN SLATS DEVELOP
3. 24" MIN. FENCE POST



SILT FENCE DETAIL #2
N.T.S.



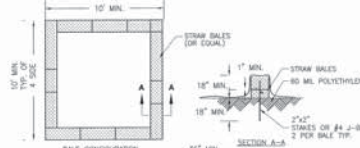
STOCKPILE DETAIL #3
N.T.S.

NOTE

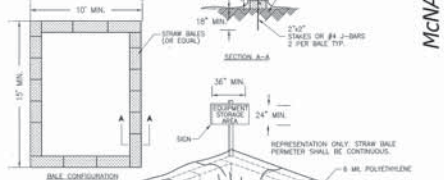
TO BE PLACED ALONG LIMIT OF DISTURBANCE



CONSTRUCTION FENCE DETAIL
N.T.S.



CONCRETE WASHOUT DETAIL
N.T.S.



EQUIPMENT STORAGE DETAIL
N.T.S.

SPILL CONTROL AND FUELING PLAN NOTES:

1. FUELING SHALL BE PERFORMED OUTSIDE OF THE BUFFER AREA
2. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND 30% PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES
3. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE (EQUIPMENT AND MATERIAL WILL INCLUDE, BUT NOT BE LIMITED TO, BROOMS, VACUUMS, WIPES, RAGS, GLOVES, SHOES, KITTY FOR THIS PURPOSE, AND PLASTIC AND METAL TROUGH CONTAINERS SPECIFICALLY FOR THIS PURPOSE)
4. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY
5. THE SPILL AREA WILL BE KEPT WELL VENTILATED, AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT HEAVY FROM CONTACT WITH HAZARDOUS SUBSTANCES
6. THE JOB SUPERVISOR RESPONSIBLE FOR THIS SITE OPERATIONS WILL BE DESIGNATED AS THE SPILL PREVENTION AND CLEANUP COORDINATOR. HE WILL DESIGNATE AT LEAST THREE OTHER SITE PERSONNEL WHO WILL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF THE RESPONDENT SHALL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ON SITE.

EROSION & SEDIMENT CONTROL PLAN NOTES:

1. TOWN OF CARMEL WETLAND INSPECTOR WILL BE NOTIFIED FOR INSPECTION OF SILT FENCE PILES AND POST CONSTRUCTION
2. ANY FILL REQUIRED WILL BE CERTIFIED PER NYSDCC REGULATIONS
3. NO FUELING, CONSTRUCTION OR STAGING OF CONSTRUCTION EQUIPMENT WILL OCCUR ON WETLANDS

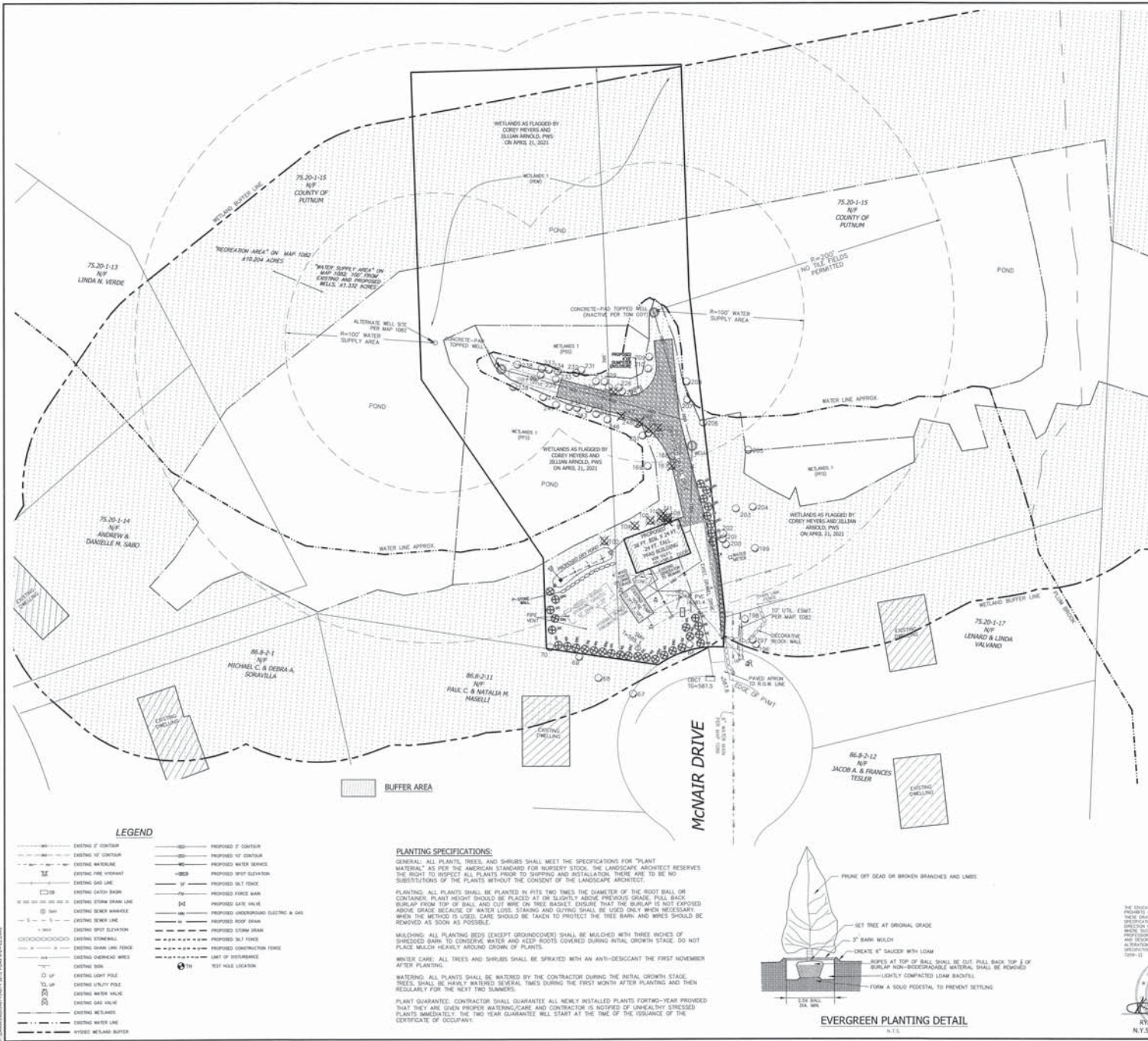


5	08-24-22	PER ZBA MTS. 6-23-22
4	04-27-22	DRAINAGE REVISION PER INFILTRATION TEST
3	02-07-22	PER 1-13-22 ESD MEETING
2	01-25-22	FOR ESD & PB SUBMISSION
1	11-15-21	FOR PB MTS. 9-22-21
REVISION	DATE	DESCRIPTION

ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
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SUEZ WATER NEW YORK, INC.
CHATEAU WELL 1, 2 & 3
TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

EROSION & SEDIMENT CONTROL PLAN
DRAWN BY: IS
DATE: JULY 19, 2023
PROJECT NO: 4874
CHECKED BY: JRM
SCALE: 1" = 50' FT.
DRAWING NO: 5

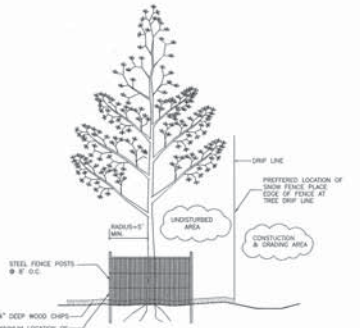


TREE LIST

NO.	SIZE	DESCRIPTION	CONDITION	NO.	SIZE	DESCRIPTION	CONDITION
66	30"	MAPLE	GOOD	210	10"	MAPLE	POOR
67	10"	PINE	GOOD	225	8"	MAPLE	POOR
68	8"	PINE	GOOD	226	8"	MAPLE	GOOD
69	8"	LOCUST	GOOD	227	10"	MAPLE	POOR
70	8"	LOCUST	GOOD	228	10"	MAPLE	POOR
100	8"	MAPLE	POOR	229	6"	MAPLE	POOR
104	18"	MAPLE	POOR	230	7"	MAPLE	POOR
105	18"	MAPLE	POOR	231	8"	MAPLE	POOR
106	18"	MAPLE	POOR	232	12"	MAPLE	POOR
107	18"	MAPLE	POOR	233	8"	MAPLE	GOOD
108	18"	MAPLE	POOR	234	8"	MAPLE	GOOD
109	18"	MAPLE	POOR	235	6"	MAPLE	POOR
110	18"	MAPLE	POOR	236	8"	MAPLE	GOOD
111	18"	MAPLE	POOR	237	8"	MAPLE	GOOD
112	18"	MAPLE	POOR	238	6"	MAPLE	POOR
113	18"	MAPLE	POOR	239	7"	THIN MAPLE	GOOD
114	18"	MAPLE	POOR	240	6"	MAPLE	GOOD
115	12"	MAPLE	GOOD	241	6"	MAPLE	GOOD
116	18"	MAPLE	GOOD	242	12"	MAPLE	POOR
117	18"	MAPLE	GOOD	243	8"	MAPLE	POOR
118	14"	QUAD MAPLE	GOOD	244	8"	MAPLE	POOR
119	10"	ASH	GOOD	245	12"	MAPLE	POOR
201	16"	MAPLE	GOOD	246	8"	MAPLE	POOR
202	8"	TRIP MAPLE	POOR	247	10"	MAPLE	POOR
203	12"	QUAD MAPLE	POOR	248	8"	MAPLE	POOR
204	10"	THIN MAPLE	GOOD	249	12"	MAPLE	POOR
205	10"	TRIP MAPLE	GOOD	250	12"	MAPLE	POOR
206	16"	MAPLE	GOOD	251	18"	MAPLE	GOOD
207	8"	MAPLE	GOOD	252	12"	MAPLE	POOR
208	8"	QUAD MAPLE	GOOD	253	14"	MAPLE	POOR

TREE LEGEND

- EXISTING TREE
- TREE TO BE PRESERVED
- ✗ TREE TO BE REMOVED



NOTES:

- 1) INSTALL SNOW FENCE TREE PROTECTION PRIOR TO ANY CLEARING OR EXCAVATION.
- 2) MAINTAIN SNOW FENCE FOR THE DURATION OF THE CONSTRUCTION PERIOD.

TREE PROTECTION DETAIL
N.Y.S.

PLANT LIST

SYMBOL	No.	PLANT NAME	HEIGHT	QUANTITY	SIZE & REMARKS
⊙	1	TAJUA PLUCATA Green Star Magnolia	8 FT. TO 10 FT.	11	8 FT. x 8 FT. H. Plant 5' to 6' H.
⊙	2	JAMPERUS VIRGINIANA Eastern Red Cedar	8 FT. TO 10 FT.	11	8 FT. x 8 FT. H. Plant 5' to 6' H.
⊙	3	NOVAYA SPRUCE Polar Spruce	8 FT. TO 10 FT.	11	8 FT. x 8 FT. H. Plant 5' to 6' H.
⊙	4	JAMPERUS SOCRATARIUM Sky Ranch	20 FT.	15	8 FT. x 8 FT. H. Plant 5' to 6' H.

REVISION	DATE	DESCRIPTION
5	08-24-22	PER ZBA MTS. 8-23-22
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2	01-25-22	PER EOB & P&S SUBMISSION
1	11-15-21	PER P&S MTS. 9-22-21

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ENGINEERS-SURVEYORS-PLANNERS
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PROJECT:
SUEZ WATER NEW YORK, INC.
CHATEAU WELL 1, 2 & 3

TOWN OF CARMEL
PUTNAM COUNTY, NEW YORK

TREE & LANDSCAPE PLAN

DRAWN BY: GS	CHECKED BY: JMA
DATE: JULY 18, 2021	SCALE: 1" = 30 FT.
PROJECT NO: 4874	DRAWING NO: 6

LEGEND

- EXISTING FOOTING
- EXISTING FOUNDATION
- EXISTING WALL
- EXISTING FINE FINISH
- EXISTING GAS LINE
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING SEWER LINE
- EXISTING SEWER MANHOLE
- EXISTING SEWER LINE
- EXISTING SPOT ELEVATION
- EXISTING SEWER SHANK LINE
- EXISTING SEWER MANHOLE
- EXISTING CHAIN LINK FENCE
- EXISTING OVERHEAD WIRE
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING WATER VALVE
- EXISTING GAS VALVE
- EXISTING WETLAND
- EXISTING WATER LINE
- WETLAND BUFFER

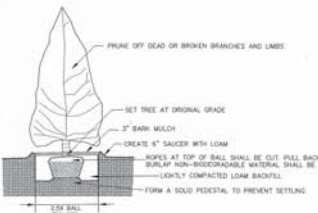
PLANTING SPECIFICATIONS:

GENERAL: ALL PLANTS, TREES, AND SHRUBS SHALL MEET THE SPECIFICATIONS FOR "PLANT MATERIAL" AS PER THE AMERICAN STANDARDS FOR NURSERY STOCK. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO INSPECT ALL PLANTS PRIOR TO SHIPPING AND INSTALLATION. THERE IS TO BE NO SUBSTITUTIONS OF THE PLANTS WITHOUT THE CONSENT OF THE LANDSCAPE ARCHITECT.

PLANTING: ALL PLANTS SHALL BE PLANTED IN FIVE TWO TIMES THE DIAMETER OF THE ROOT BALL OR CONTAINER. PLANT HEIGHT SHOULD BE PLACED AT OR SLIGHTLY ABOVE PREVIOUS GRADE. FALL BACK BURDOP FROM TOP OF BALL AND CUT WIRE ON TREE BARK. ENSURE THAT THE BURDOP IS NOT EXPOSED ABOVE GRADE BECAUSE OF WATER LOGS, STAKING AND GUYING SHALL BE USED ONLY WHEN NECESSARY. WHEN THE METHOD IS USED, CARE SHOULD BE TAKEN TO PROTECT THE TREE BARK AND WIRES SHOULD BE REMOVED AS SOON AS POSSIBLE.

WATERING: ALL PLANTS SHALL BE WATERED BY THE CONTRACTOR DURING THE INITIAL GROWTH STAGE. TREES SHALL BE PLANTED IN FULL SUN OR PARTIAL SUN. WATERING SHALL BE PERFORMED ON A REGULAR BASIS. WATERING SHALL BE PERFORMED ON A REGULAR BASIS. WATERING SHALL BE PERFORMED ON A REGULAR BASIS.

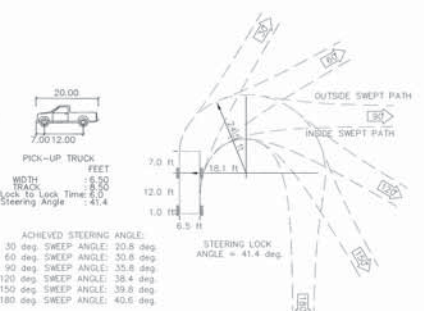
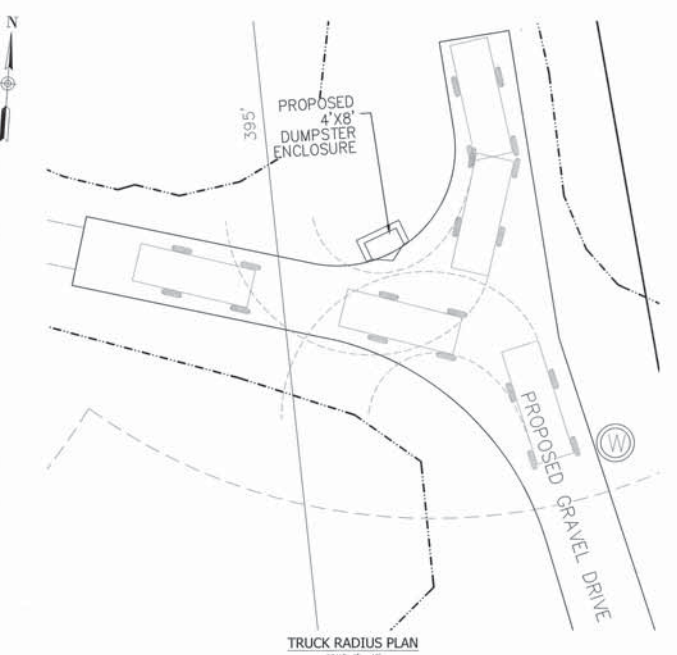
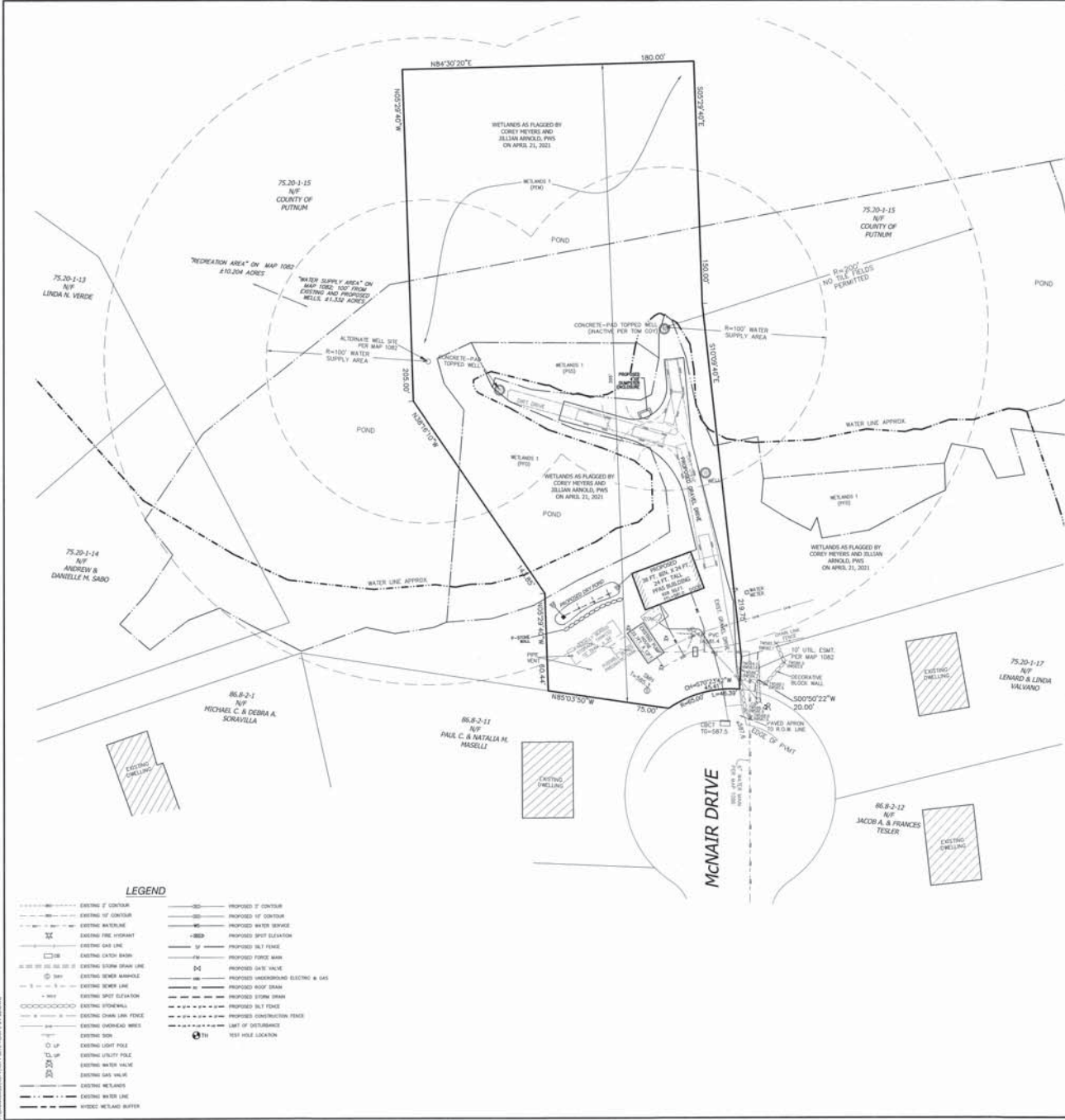
MAINTENANCE: ALL PLANTS SHALL BE MAINTAINED BY THE CONTRACTOR DURING THE INITIAL GROWTH STAGE. TREES SHALL BE PLANTED IN FULL SUN OR PARTIAL SUN. WATERING SHALL BE PERFORMED ON A REGULAR BASIS. WATERING SHALL BE PERFORMED ON A REGULAR BASIS. WATERING SHALL BE PERFORMED ON A REGULAR BASIS.



EVERGREEN PLANTING DETAIL
N.Y.S.

STATE OF NEW YORK
ATTEST: **RYAN A. NASHER, P.E.**
N.Y.S. P.E. LIC. NO. 69066

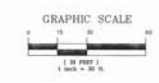
STATE OF NEW YORK
ATTEST: **ANN R. ATZL, P.E.**
N.Y.S. P.E. LIC. NO. A0228



LARGE PICK-UP TRUCK RADIUS DETAIL

LEGEND

---o---o---	EXISTING 6" CONDUIT	---o---	PROPOSED 6" CONDUIT
---	EXISTING 8" CONDUIT	---	PROPOSED 8" CONDUIT
---	EXISTING WATERLINE	---	PROPOSED WATER SERVICE
---	EXISTING FIRE HYDRANT	---	PROPOSED SPOT ELEVATION
---	EXISTING GAS LINE	---	PROPOSED 1/2" FENCE
---	EXISTING CATCH BASIN	---	PROPOSED 3/4" FENCE
---	EXISTING 8" DRAIN LINE	---	PROPOSED GAS VALVE
---	EXISTING 6" MANHOLE	---	PROPOSED UNDERGROUND ELECTRIC & GAS
---	EXISTING 8" DRAIN LINE	---	PROPOSED ROOF DRAIN
---	EXISTING SPOT ELEVATION	---	PROPOSED 6" DRAIN
---	EXISTING 6" DRAIN LINE	---	PROPOSED 8" FENCE
---	EXISTING 8" MANHOLE	---	PROPOSED CONSTRUCTION FENCE
---	EXISTING CHAIN LINK FENCE	---	LIMIT OF DISTURBANCE
---	EXISTING OVERHEAD WIRE	---	VEHICLE LOCATION
---	EXISTING SIGN		
---	EXISTING LIGHT POLE		
---	EXISTING UTILITY POLE		
---	EXISTING WATER VALVE		
---	EXISTING GAS VALVE		
---	EXISTING WETLAND		
---	EXISTING WATER LINE		
---	HYBRID WETLAND BUFFER		



5	08-24-22	PER ZBA MTD. 8-23-22
4	04-27-22	DRAINAGE REVISION PER INFILTRATION TEST
3	02-07-22	PER 1-13-22 EDR MEETING
2	01-20-22	PER EDR & PWS SUBMISSION
1	11-15-21	PER PWS MTD. 9-22-21
		DESCRIPTION

AN&Z
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 Web: www.anzy.com

PROJECT: **SUEZ WATER NEW YORK, INC. CHATEAU WELL 1, 2 & 3**

TOWN OF CARMEL
 PUTNAM COUNTY, NEW YORK

TRUCK TURNING PLAN

DATE: NOVEMBER 15, 2021	CHECKED BY: JRM
PROJECT NO:	SCALE: 1" = 30' PL.
4874	DRAWING NO: 8

C:\DRAWINGS\NEW YORK\PUTNAM\NEW YORK\22-0000