Village of Southampton

Town of Southampton Community Preservation Fund 2023

Phillips Pond Watershed Bioswales

ATTACHMENTS

Village of Southampton

23 MAIN STREET
SOUTHAMPTON, NEW YORK 11968-4899

Phone: (631) 283-0247
Fax: (631) 283-4990
Website: www.southamptonvillage.org

Updated resolution to be provided under separate cover

Resolution
2022-824
4/12/2022

Information: RESOLVED, that the Village of Southampton hereby authorizes the Mayor or his designee to execute any and all documents pertaining to the 2022 Town of Southampton Community Preservation Fund Water Quality Improvement Program application to support estimated project costs associated with the following projects:

1. **West Main Street Bioswales - $246,729**
2. **Gin Lane Phase 2 Stormwater Mitigation**
3. **Old Town Pond dredging design/implementation 4,161,597**
4. **Lake Agawam Algae Harvesting**
5. **Old Town Pond Watershed Bioswales - $741,197**
6. **Wickapogue Watershed Bioswales - $361,405**
7. **Phillips Pond Watershed Bioswales - $282,040**

Department:	Village Hall	**Sponsors:**
Category:	Resolutions	**Functions:**

Financial Impact

Body

Voting

Motioned: Jesse Warren
Seconded: Joseph McLoughlin
Y: Jesse Warren, Gina Arresta, Joseph McLoughlin, Robin Brown, Roy Stevenson
N: None
A: None
N/A:

Certified By:

Cathy M. Sweeney
Village Clerk
Incorporated Village of Southampton

Village of Southampton

23 MAIN STREET
SOUTHAMPTON, NEW YORK 11968-4899

Phone: (631) 283-0247
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Resolution
2022-827
4/12/2022

WHEREAS, the Village of Southampton is applying for funding to the Town of Southampton 2022 Community Preservation Fund Water Quality Improvement Program for Phillips Pond Watershed Bioswales; and
WHEREAS, the Village Board has reviewed the provisions of the New York State Environmental Quality Review Act (SEQRA), as related to the proposed action; and
WHEREAS, the proposed action is classified as an Unlisted Action; and
WHEREAS, the Village Board has conducted a review of the information contained in the SEQRA documentation consisting of a Short Environmental Assessment Form (SEAF) prepared by Nelson, Pope & Voorhis, LLC; and
WHEREAS, the potential impacts and the magnitude and importance of potential impacts and benefits have been considered and a Negative Determination was recommended.
NOW, THEREFORE, BE IT RESOLVED, the Village Board hereby adopts a Negative Declaration pursuant to the State Environmental Quality Review Act for the Phillips Pond Watershed Bioswales water quality improvement project.

Department:	Village Hall	**Sponsors:**	
Category:	Resolutions	**Functions:**	

Financial Impact

Body

Voting

Motioned: Jesse Warren
Seconded: Joseph McLoughlin
Y: Jesse Warren, Gina Arresta, Joseph McLoughlin, Robin Brown, Roy Stevenson
N: None
A: None
N/A:

Certified By:

Cathy M. Sweeney
Village Clerk
Incorporated Village of Southampton

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

Village of Southampton Village Board

Name of Action or Project:

Phillips Pond Subwatershed Bioswale Infrastructure Project

Project Location (describe, and attach a location map): SEE ATTACHED

The ROW along Wickapogue Road on the east end from Barons Lane to Fowler Street

Brief Description of Proposed Action:

Bioswale infrastructure will be installed along the ROW of Wickapogue Road to treat stormwater that would otherwise flow directly into catch basin that directs the water to inlet at Phillips Pond through existing infrastructure. All technologies will conform to the NYSDEC Stormwater Management Design Manual and, where necessary, will be enhanced to improve pre-treatment and inlet control as well as outlet control. Long Island native plants will be used. The bioswale will be designed to reduce discharges of pollutants from stormwater runoff into Phillips Pond.

Name of Applicant or Sponsor:	Telephone: 631-283-0247
Village of Southampton	E-Mail: ggoleski@southamptonvillage.org

Address:

23 Main Street

City/PO:	State:	Zip Code:
Southampton	NY	11968

	NO	YES
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.	☑	☐
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: No permits. Funding is requested from Town of Southampton CPF	☐	☑

3. a. Total acreage of the site of the proposed action? 1.37 acres
   b. Total acreage to be physically disturbed? 0.24 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.24 acres Village road system

4. Check all land uses that occur on, are adjoining or near the proposed action:

☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☑ Residential (suburban)

☐ Forest ☑ Agriculture ☐ Aquatic ☑ Other(Specify): Institutional

☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☐	☐	N/A
b. Are public transportation services available at or near the site of the proposed action?	☑	☐	
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐	

	NO	YES	
9. Does the proposed action meet or exceed the state energy code requirements?			
If the proposed action will exceed requirements, describe design features and technologies:			
N/A - project is a bioswale (green infrastructure) installation; no energy will be used other than for construction.	☐	☐	N/A

	NO	YES	
10. Will the proposed action connect to an existing public/private water supply?			
If No, describe method for providing potable water: _____			
N/A - project is a bioswale (green infrastructure) installation; no water supply will be used other than temporary irrigation from a water truck (if needed) during establishment of plantings.	☐	☐	N/A

	NO	YES	
11. Will the proposed action connect to existing wastewater utilities?			
If No, describe method for providing wastewater treatment: _____			
N/A - project is a bioswale (green infrastructure) installation; no wastewater will be generated.	☐	☐	N/A

	NO	YES
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? Wickapogue Road Historic District	☐	☑
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?	☑	☐

	NO	YES
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?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☑ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☑	☐
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: Bio-swale infrastructure will be installed to divert stormwater from an existing conveyance system and add temporary detention and treatment. Stormwater will be returned to the conveyance system post-detention/treatment.		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☐	☑
If Yes, explain the purpose and size of the impoundment: Bio-swale infrastructure will be installed to divert stormwater from an existing conveyance system and add temporary detention and treatment. Stormwater will be returned to the conveyance system post-detention/treatment.		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe: A review of NYSDEC's Environmental remediation & spills databases for the past 5-yrs did not identify any remediation or hazard waste conditions at the project site.		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: NPV for the Village of Southampton Date: 4/12/22

Signature: _____ Title: Village Environmental Planner

PRINT FORM

Agency Use Only [If applicable]

Project: Phillips Pond Watershed Bioswale

Date: 4/12/22

Short Environmental Assessment Form
Part 2 - Impact Assessment

Part 2 is to be completed by the Lead Agency.
Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☑	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☑	☐
3. Will the proposed action impair the character or quality of the existing community?	☑	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☑	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☑	☐
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	☑	☐
7. Will the proposed action impact existing: a. public / private water supplies?	☑	☐
b. public / private wastewater treatment utilities?	☑	☐
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☑	☐
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☑	☐
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☑	☐
11. Will the proposed action create a hazard to environmental resources or human health?	☑	☐

PRINT FORM

Agency Use Only [If applicable]

Project: Phillips Pond Watershed

Date: 4/12/22

Short Environmental Assessment Form
Part 3 Determination of Significance

For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

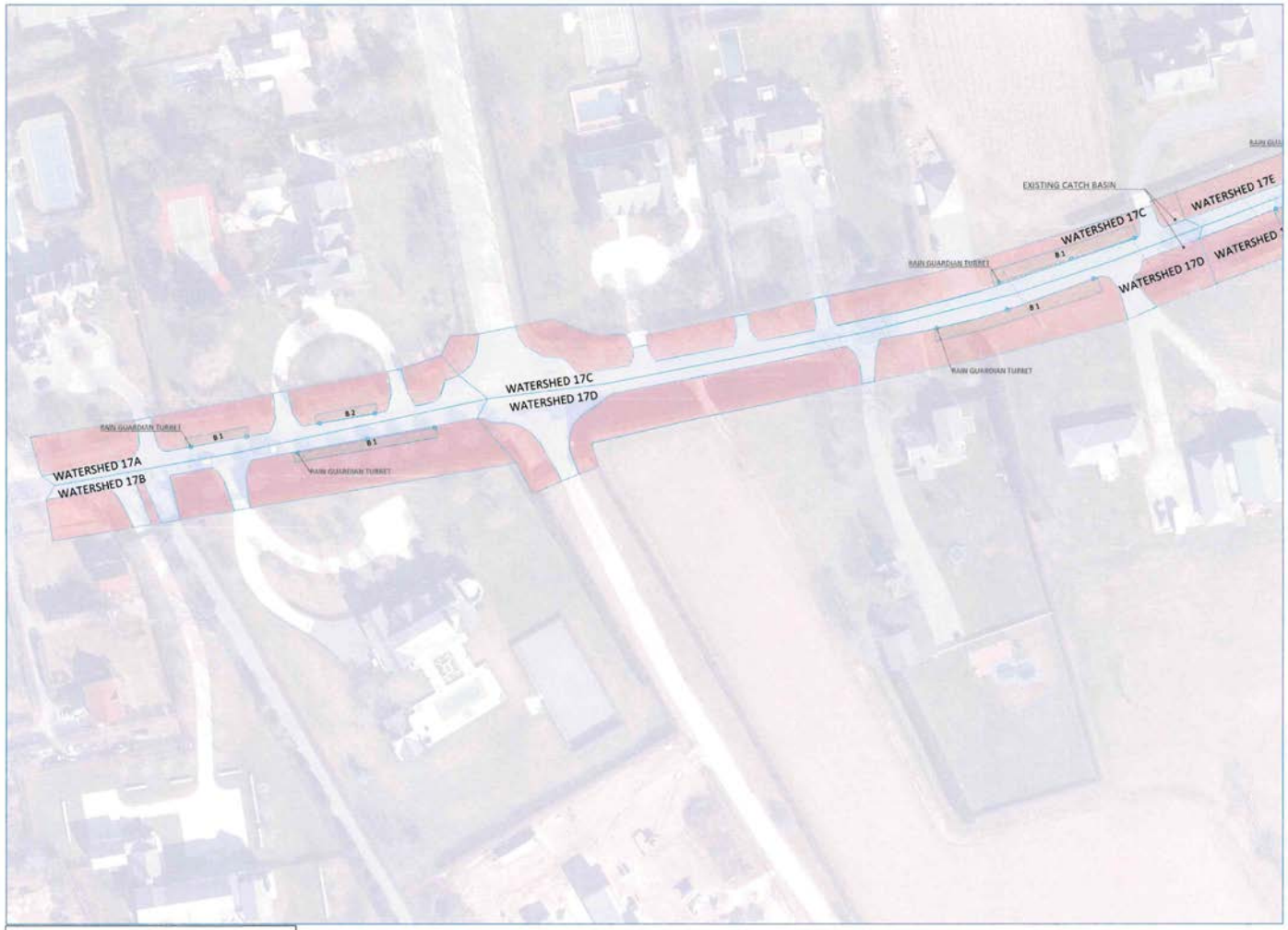
Based on the Part 1 and 2 of the Short Environmental Assessment Form, no moderate or large impacts have been identified. The project will create bio-swale infrastructure along the ROW to add temporary detention of stormwater to be treated to reduce discharges of pollutants from the stormwater into the water body.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.

☑ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.

Village of Southampton	4/12/22
Name of Lead Agency	Date
Mayor Jesse Warren	Mayor
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT FORM



WATERSHED 17A: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 7,534 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(7,534 SF X .1 FT X .98) = 738.33 CF (SAY 738 CF)

PERVIOUS AREA:

AREA = 13,537 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(13,537 SF X .1 FT X .3) = 406.11 CF (SAY 406 CF)

TOTAL REQUIRED STORAGE= SAY 1,144 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 585 SF
PONDING DEPTH 12"
TOTAL VOLUME = 585 CF

BIOSWALE 1:
AREA = 575 SF
PONDING DEPTH 12"
TOTAL VOLUME = 575 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,160± CF

WATERSHED 17A ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.1 LBS/YEAR
TSS: 4135 LBS/YEAR
FC: 119 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

WATERSHED 17B: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 8,156 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(8,156 SF X .1 FT X .98) = 799.28 CF (SAY 799 CF)

PERVIOUS AREA:

AREA = 17,768 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(17,768 SF X .1 FT X .3) = 533.04 CF (SAY 533 CF)

TOTAL REQUIRED STORAGE= SAY 1,332 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 1,363 SF
PONDING DEPTH 12"
TOTAL VOLUME =1,363 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,363± CF

WATERSHED 17B ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.5 LBS/YEAR
TSS: 4155 LBS/YEAR
FC: 133 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

GRAPHIC SCALE
50 0 25 50 100
IN FEET
1 INCH = 50 FEET

1	XX/XX/2019	XXX XXX	XX
No.	DATE: 7/19/2021	REVISION	BY:

WICKAPOGUE RD RIGHT OF WAY (17A, 17B)
WICKAPOGUE RD
SITUATED AT
SOUTHAMPTON
VILLAGE OF SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK

DWN. BY: AC
DATE: 09/9/2022
CHK'D BY: RB
DATE:
JOB No: 0405
FILE No:
CADD/XR_STORMWATER
SCALE: 1" = 50'
SHEET: 20 OF 31

NELSON POPE VOORHIS
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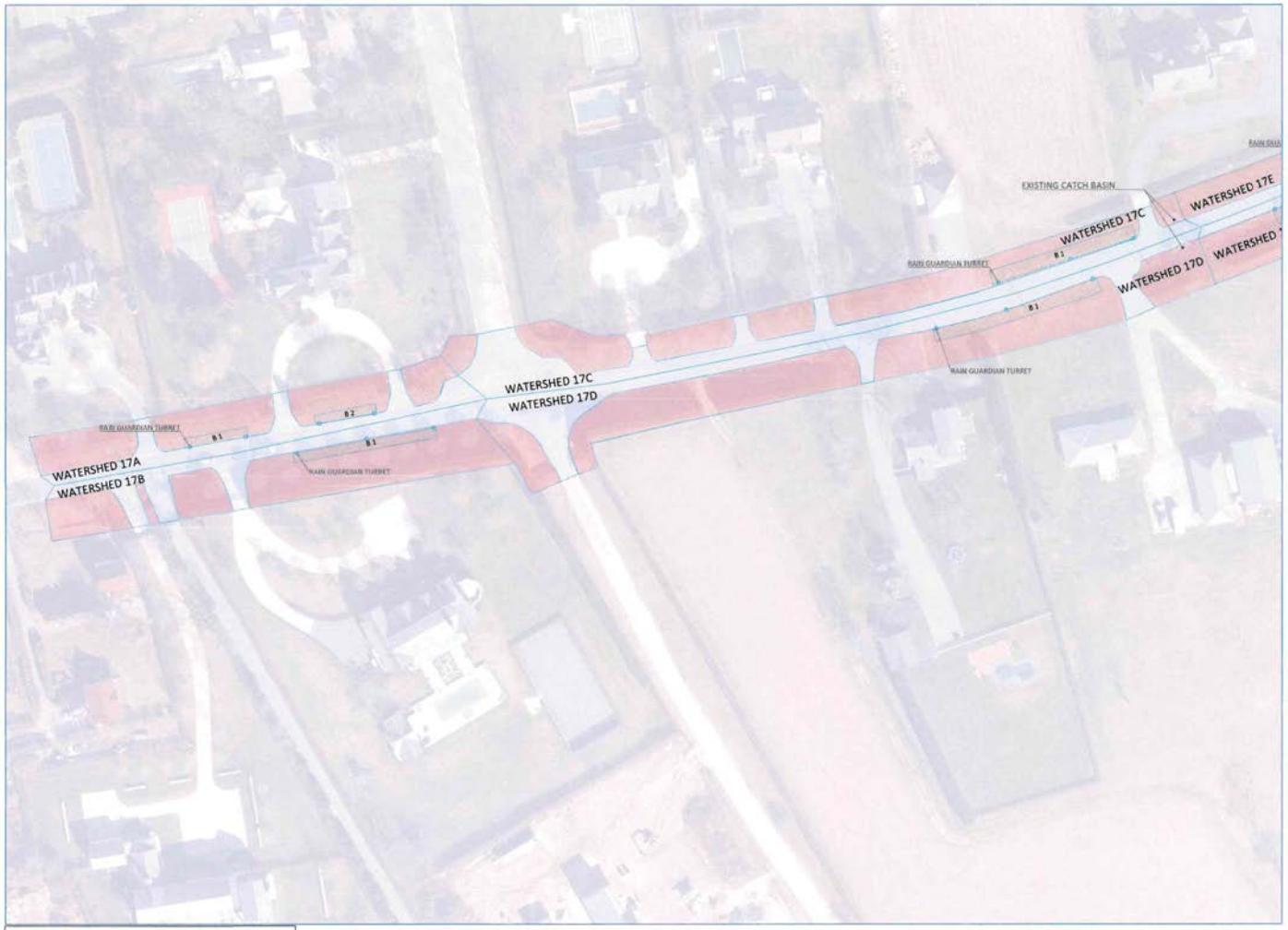


WATERSHED 17C: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 14,478 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(14,478 SF X .1 FT X .98) = 1,418.84 CF (SAY 1,418 CF)

PERVIOUS AREA:

AREA = 18,951 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(18,951 SF X .1 FT X .3) = 568.53 CF (SAY 569 CF)

TOTAL REQUIRED STORAGE= SAY 1,987 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 1,988 SF
PONDING DEPTH 12"
TOTAL VOLUME = 1,988 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,988± CF

WATERSHED 17C ESTIMATED TREATMENT FROM MODELING:
TP: 0.7 LBS/YEAR
TN: 6.1 LBS/YEAR
TSS: 4299 LBS/YEAR
FC: 230 BILLION/YEAR
RUNOFF: 0.9 ACRE-FT/YEAR

WATERSHED 17D: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 13,819 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(13,819 SF X .1 FT X .98) = 1,354.26 CF (SAY 1,354 CF)

PERVIOUS AREA:

AREA = 27,965 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(27,965 SF X .1 FT X .3) = 838.95 CF (SAY 839 CF)

TOTAL REQUIRED STORAGE= SAY 2,193 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 2,200 SF
PONDING DEPTH 12"
TOTAL VOLUME =2,200 CF

TOTAL STORMWATER STORAGE PROVIDED = 2,200± CF

WATERSHED 17D ESTIMATED TREATMENT FROM MODELING:
TP: 0.7 LBS/YEAR
TN: 5.9 LBS/YEAR
TSS: 4289 LBS/YEAR
FC: 223 BILLION/YEAR
RUNOFF: 0.9 ACRE-FT/YEAR

GRAPHIC SCALE
50 0 25 50 100
IN FEET)
1 INCH = 50 FEET

1	XX/XX/XXX	XXX XXX	XX
No.	DATE: 7/06/2021	REVISION	BY:

WICKAPOGUE RD RIGHT OF WAY (17C, 17D)
WICKAPOGUE RD
SITUATED AT
SOUTHAMPTON
VILLAGE OF SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK

DWN. BY: AC
DATE: 09/9/2022
CHK'D BY: RR
DATE:
JOB No: 0400
FILE No:
CADD/X:_STORMWATER
SCALE: 1" = 50'
SHEET: 21 OF 31

NELSON POPE VOORHIS
environmental • land use • planning
70 Maxess Road, Melville, NY 11747 • 631.427.5665 • nelsonpopevoorhis.com

WATERSHED 17E: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 8,045 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(8,045 SF X .1 FT X .98) = 788.41 CF (SAY 788 CF)

PERVIOUS AREA:

AREA = 17,784 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(17,784 SF X .1 FT X .3) = 533.52 CF (SAY 534 CF)

TOTAL REQUIRED STORAGE= SAY 1,322 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 1,325 SF
PONDING DEPTH 12"
TOTAL VOLUME = 1,325 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,325± CF

WATERSHED 17E ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.3 LBS/YEAR
TSS: 4145 LBS/YEAR
FC: 126 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

WATERSHED 17F: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 7,799 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(7,799 SF X .1 FT X .98) = 764.30 CF (SAY 764 CF)

PERVIOUS AREA:

AREA = 26,336 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(27,965 SF X .1 FT X .3) = 790.08 CF (SAY 790 CF)

TOTAL REQUIRED STORAGE= SAY 1,554 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 1,554 SF
PONDING DEPTH 12"
TOTAL VOLUME =1,554 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,554 ± CF

WATERSHED 17F ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.3 LBS/YEAR
TSS: 4145 LBS/YEAR
FC: 126 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 INCH = 50 FEET

NORTH

No.	DATE	REVISION	BY
1	XX/XX/2019	XXX XXX	XX

WICKAPOGUE RD RIGHT OF WAY (17E, 17F)
WICKAPOGUE RD
SITUATED AT
SOUTHAMPTON
VILLAGE OF SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK

NELSON POPE VOORHIS
environmental • land use • planning

DWN. BY: AC
DATE: 09/9/2022
CHK'D BY: RB
DATE:
JOB No: 0609
FILE No:
CADD/R:_STORMWATER
SCALE: 1" = 50'
SHEET: 22 OF 31

Town of Southampton CPF Water Quality Improvement Project Plan

VILLAGE OF SOUTHAMPTON

Project Location
Old Town Pond

High Priority Area
Medium Priority Area
NYS DEC 303d Impaired Waterbodies (2014)
Protected/ Public Parcels

0 1,850 3,700 7,400 Feet

N
W E
S

Prepared By:The Town of Southampton Dept of Geographic Information Systems Date: 7/5/2016 - MAP ID: 2514

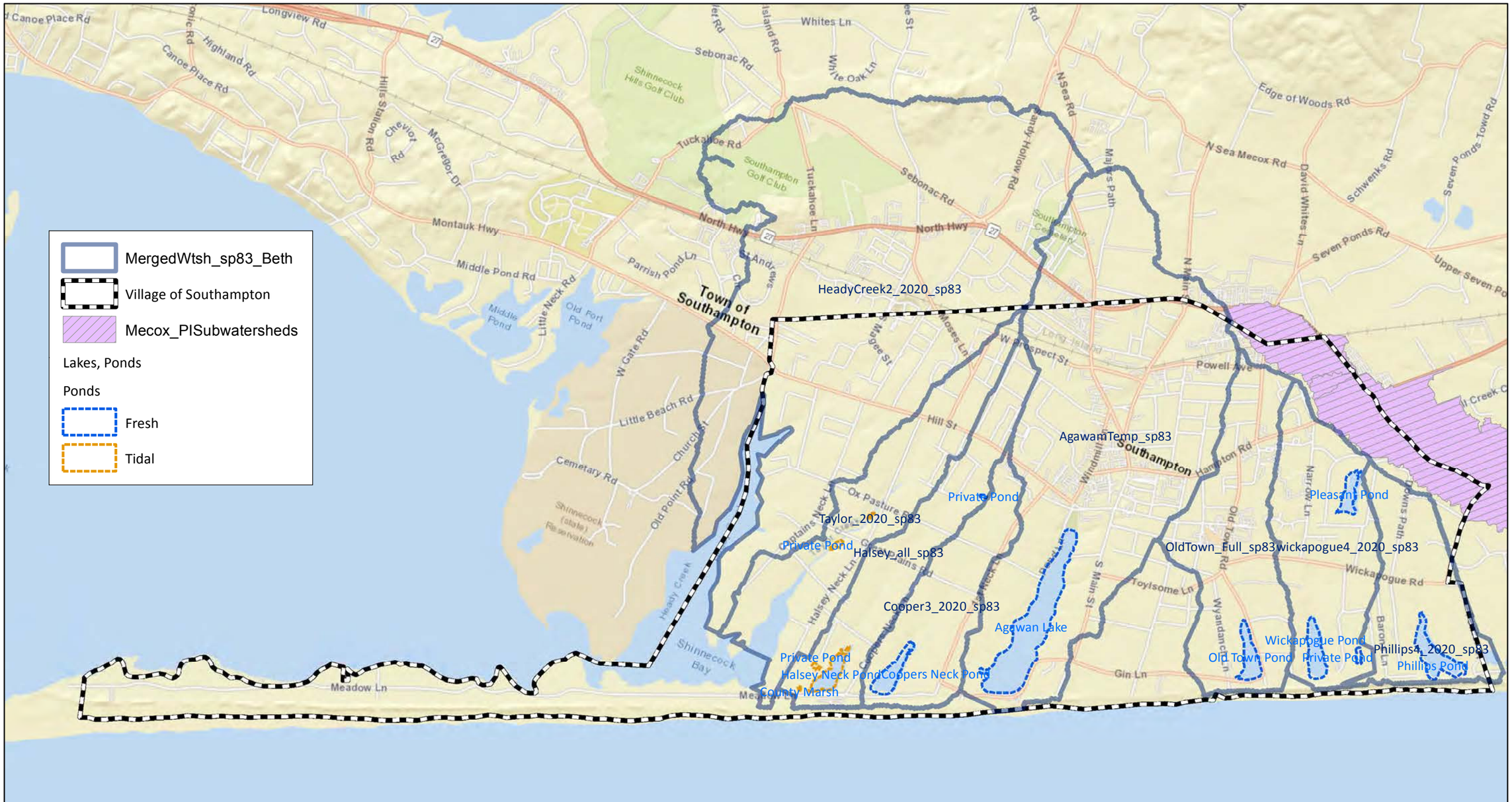


FIGURE 16
SUBWATERSHEDS MAP

Source: ESRI WMS; Village of Southampton data
Scale:1 inch = 2,500 feet

N

NPV

Village of Southampton

WQIPP

Charles J. Voorhis, AICP, CEP

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Title

Managing Partner of Firm, Nelson, Pope & Voorhis, LLC; Melville, New York

Education & Training

- SUNY at Stony Brook; Master of Science in Environmental Engineering, concentration in Water Resource Management, 1984
- Princeton Associates; Groundwater Pollution and Hydrology Short Course, Princeton, New Jersey, 1983
- New York State Health Department, Environmental Health Training Course, Hauppauge, New York, 1982
- Southampton College of Long Island University; Bachelor of Science in Environmental Geology, 1977
- OSHA 10-Hour Construction Industry Training
-

Professional Affiliations, Certifications & Training

- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- American Water Resources Association, Syracuse, New York
- New York Water Pollution Control Association, Riverdale, NY
- Water Pollution Control Federation, Washington, D.C.
- Long Island Seaport & EcoCenter, Inc., Director, Port Jefferson, NY
- Boy Scouts of America, Trained Scoutmaster, Nathanial Woodhull District,
- Historical Society of Port Jefferson, Trustee, Port Jefferson, NY
- Environmental Conservation Board, Village of Port Jefferson, NY
- Port Jefferson Village, Waterfront Advisory Committee, Port Jefferson, NY
- Town of Brookhaven Mount Sinai Harbor Advisory Committee, Medford, NY
- Brookhaven Conservation Advisory Council, Medford, NY

Professional Experience

Charles Voorhis is a professional planner (AICP) and a certified environmental professional (CEP) with both private sector and public sector experience. Mr. Voorhis has managed municipal projects including regional and local planning studies, wetlands and shoreline restoration, environmental impact statements, permit compliance and environmental analysis. Charles Voorhis has over 39 years of professional environmental planning experience, including the position of Director of Environmental Protection of the Town of Brookhaven, supervising the environmental implementation of the Town of Brookhaven Comprehensive Plan Update and secured grants under the Local Waterfront Revitalization Program. As a private consultant for over 23 years, Mr. Voorhis has managed environmental planning and analysis of large scale planning and development projects throughout Nassau and Suffolk Counties. Recent projects include a study to eradicate aquatic invasive/nuisance species in upper and lower Canaan Lakes, Yaphank, stormwater management studies on the north and south shores for the Town of Brookhaven and Town of Islip, completion of the Water Supply Management & Watershed Protection Strategy for the Town of Southold, completion of the Suffolk County North Shore Embayments Watershed Management Plan, and completion of the Lake Agawam Comprehensive Management Plan, as well as numerous environmental impact statements, wetland and shoreline feasibility analyses and management plans.

Project Experience

- Great Cove Watershed Management Plan, 2011
- Town of Southold Comprehensive Plan Update, Economic Chapter, 2010
- Beaver Dam Creek Watershed Management Plan, 2009
- Lake Agawam Comprehensive Management Plan, 2009
- Southold TDR Planning Report and GEIS, 2008
- The Residences at North Hills, DEIS and FEIS, 2005-06
- Town of Southold Comprehensive Implementation Strategy, 2003
- Southampton Agricultural Opportunities Subdivision, DEIS, FEIS and Findings, 2001
- Old Orchard Woods, DEIS and FEIS, 2000
- Town of Smithtown Armory Park, DEIS, 2000
- Town of Southold Water Supply Management & Water Protection Strategy, 2000
- Knightsbridge Gardens, DEIS and FEIS, 1997
- Camelot Village @ Huntington, DEIS, 1997
- Airport International Plaza, DEIS and FEIS, 1996
- Price Club @ New Rochelle, DEIS and FEIS, 1995
- Commack Campus Park @ Commack DEIS and FEIS, 1994
- Water Mill Shops @ Water Mill DEIS, 1993
- Town of Brookhaven Land Use Plan, 1987

Rusty Schmidt

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Title
Landscape Ecologist

Education & Training
- University of MN at Twin Cities, Masters Degree in Landscape Architecture, 2000
- University of MN at Duluth, Bachelor of Science Biology, Art and Chemistry, 1993
- Certified Professional in Erosion and Sediment Control (CPESC)
- Certified Wetland Delineator from University of MN Qualifications.

Professional Affiliations, Certifications & Training
- MN American Society of Landscape Architects.
- MN Stormwater Assessments and Maintenance with the St. Anthony Falls Research Center.
- Invasive Plant Sub-Committee, Town of Huntington.
- Board Member, Long Island Native Plant Initiative
- LI Horticultural Society.

Professional Experience

Prior to becoming a Long Island resident, Mr. Schmidt was a Landscape Ecologist with the Washington Conservation District in Minnesota where he designed and built over 100 projects dedicated to improving water quality annually. Prior to the District, Mr. Schmidt conducted EIS, wetland delineations, wetland restoration and alternative storm water designs and, site planning for new and renovated developments and habitat restorations for URS Corporation.

Mr. Schmidt is a wildlife biologist and landscape ecologist with over 20 years of natural resource experience. Mr. Schmidt has expertise in designing and constructing alternative methods for managing storm water runoff in an environmentally conscious way. He has created designs for habitat restorations, raingardens, bio-infiltration swales, bio-retention basins and stormwater ponds for many different sized sites and locations ranging from small backyard raingardens to a large 500-foot long raingarden for a commercial property.

Mr. Schmidt has assisted in the design of raingardens, such as the “10,000 Rain Garden Initiative” in Kansas City, Missouri and the Metro Blooms and Blue Thumb Programs in Minnesota. Mr. Schmidt is a co-author of three books on plant selections for stormwater management applications entitled, "Plants for Stormwater Design" Volumes 1 and 2, and the “Blue Thumb Guide to Raingardens”.

Project Experience

- Over 1,000 Infiltration and Green Infiltration Systems have been designed and built of various sizes throughout the US.
- Raingarden Projects on public land from design through construction and maintenance for the cities of Burnsville, Maplewood, Bloomington, Plymouth, Arden Hills and Minnetonka MN.
- Commercial infiltration projects for IKEA, Target, USPS, Stillwater Country Club, various religious institutions, colleges and universities.
- Green Initiative Report for the city of Minneapolis, MN, determining where to implement city’s green initiatives, such as green roofs, raingardens, bio-infiltration practices and pervious pavements.
- Cliff Fen Park, Burnsville, MN, designed and implemented a project to improve water quality by restoring a historic wetland using surface water that bypassed the area.
- MAC (Minnesota Airport Commission) Storm Water Pond, Minneapolis, MN. The MSP Airport directed stormwater to a low land area. A restoration plan and a 40 acre stormwater pond facility for treatment was created.
- Sergeant’s Lake Project, Minneapolis, MN created a floodplain forest wetland along the Mississippi River for the MAC.
- Wetland Delineations at multiple locations throughout the Midwest and the State of Virginia.

Ashley Crespo

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Title
Assistant Landscape Ecologist

Education & Training
- Bachelor of Arts Degree in Architecture and Earth Science (double major), Landscape Studies (minor), University of Pennsylvania, 2017

Computer Skills
- Proficient in AutoCAD and SketchUp, GIS
- Proficient in Adobe Creative Suite (Illustrator, Photoshop, InDesign, Lightroom)
- Proficient in Autodesk Revit, Rhino, Grasshopper, Rhino VRay,
- Experience in 3D printing (MakerBot and Powder Prints)
- Experience in Laser Cutting

Language Skills
- Fluent in Spanish

Professional Experience
Ashley Crespo holds a Bachelor of Arts Degree with a double major in Architecture and Earth Science, and a minor in Landscape Studies and has recently joined NP&V. Ms. Crespo contributes professional planning and graphic expertise for NP&V's sustainable landscape design services. Her skills are used to bring redevelopment concepts to life creating 3D views, photo simulations, and shadow studies. Ms. Crespo integrates the existing environment and proposed landscaping with the built environment through site analysis, model making and preparation of graphic illustrations. Ms. Crespo has created rain garden designs and wetland buffer restorations ranging in size and location from small backyard gardens to a large 700-foot long median. She also designs promotional, educational and environmental signage for raingardens, solar arrays, parks and institutional properties.

Ms. Crespo regularly assists with environmental monitoring visits focusing on habitat composition, delineation and field assessments for a variety of terrestrial and marine habitats across Long Island.

Relevant Experience
- **Asst. Landscape Ecologist, Nelson, Pope & Voorhis, LLC, Melville NY**:
  Ecological and Environmental Analysis
  - Southern Pine Beetle Surveys
  - Preparation of ecological sections of EIS documents

  Wetland Restoration Plan Design and Review:
  - Lake Agawam Restoration Plan
  - The Meadows Restoration Plan

  Environmental Signage:
  - Ronkonkoma Train Station Rain Garden Signage
  - Manorhaven Park and Preserve

  Shadow Studies and Visual Assessment:
  - New Rochelle Downtown Overlay Zone
  - Village of Woodsburgh Planning and Zoning Analysis
  - 2016 Arthur Ave CEQR EAS
- **Architectural Intern, N2Design and Architecture (Pt Washington, NY)**: Daily tasks included drafting, expediting contract administration responsibilities, and site surveys. Ms. Crespo was also responsible for the set up of all construction drawings for the current projects, as well as the input of all redline changes and revisions.
- **Summer Institute Intern, NYC Parks and Recreation (NYC, NY):** Through the NYC Parks Initiative, she worked with a group of teenagers who were interested in sustainable design. She was responsible for creating and teaching weekly lessons that explored the local landscape and human dynamics through site analysis, model making, graphic presentations and SketchUp tutorials.
- **Soil Biogeochemistry Research Assistant, University of Pennsylvania (Philadelphia, PA):** Assisted with the processing and packaging of soil samples from the Luquillo CZO plot in Puerto Rico to be analyzed by the Carbon-Nitrogen elemental analyzer. In summer, partnered with the US Forest Service to conduct soil pit extractions in the Delaware River Basin.

NELSON & POPE
ENGINEERS & SURVEYORS

Russell Z. Scott, P.E.

Transportation & Municipal Site Department

Education:
BSCE, Rensselaer Polytechnic Institute

Registration/Certifications:
Professional Engineer: New York

Certified Nuclear Moisture/Density Equipment Operator

Years with This Firm: 17

Affiliations:
American Society of Civil Engineers (ASCE)

New York State Association of Transportation Engineers (NYSATE)

Continuing Education Coursework:
Designing and Implementing Roundabouts
University of Wisconsin at Madison (2007)
Work Zone Safety Inspection, National Highway Institute (2001)
Techniques for Pavement Rehabilitation, ASCE/FHWA (2002)
Roadside Design, ASCE (2003)
Certificate in Traffic Engineering, Polytechnic University (2006)

Professional Profile

Mr. Scott has 17 years' experience in traffic engineering and civil engineering fields. His responsibilities have included the project management of various traffic signal and roadway projects for the New York State Department of Transportation, Nassau County Department of Public Works, Suffolk County Department of Public Works, private development clients, local Towns and Villages. Tasks have included conceptual layout, alignment computations, drainage design, traffic signal design, grading design and quantity take-off and estimating.

Experience:

Town of Islip

Streetscape Improvement Projects, Town of Islip

Mr. Scott is project manager for this streetscape improvement contracts that encompasses three projects for the downtown revitalization along NY27A in which N&P is to provide Final Design Plans and obtain a New York State Department of Transportation Highway Work Permit.

Nassau County Department of Public Works

Long Island Motor Parkway Mixed-Use Trail

Project Manager for the Motor Parkway Trail Vision Plan, an initiative to restore and enhance important transportation connections through Nassau County and adapting to new environmentally-friendly and healthy forms of transportation.

Town of Brookhaven

Stony Brook Road Traffic Improvements

Project Manager overseeing the necessary engineering services for the implementation of traffic improvements along Stony Brook Road, from North Country Road (NYS 25A) to Smithtown Bypass (NYS 347), excluding the area between Development Drive and Oxhead Road, approximately 10,000 feet)

North County Road Complete Streets Miller Place, NY

Project Manager for this design and construction inspection services safety improvement project that encompasses a one-mile segment of North Country Road between Honey Lane and Rolling Road, in the hamlet of Miller Place.

Governor's Office of Storm Recovery Projects (GOSR)

Project Manager for Master Drainage Study projects awarded to Nelson and Pope under NY Rising Community Reconstruction Program of the Governor's Office of Storm Recovery. They included the following:

- Survey, inventory, and drainage infrastructure upgrade plan for the Bellmore/Merrick and Seaford/Wantagh South of Merrick road outfalls, storm

drains and bulkhead in the Town of Hempstead.

- Development of a comprehensive drainage infrastructure master plan for the Village of Lindenhurst
- Prepare a Hydrologic and Hydraulic (H&H) drainage improvement study and plan to gain a watershed understanding of the hydrology and hydraulics affecting the Village of East Rockaway and the Hamlet of Bay Park in the Town of Hempstead.

Roundabout Design

Locations: Lower Sheep Pasture Road Intersections, Town of Brookhaven
NYS Route 9A, Village of Ardsley, Town of Greenburgh

N&P was retained by the Town of Brookhaven to analyze and develop modern roundabout designs for two STOP controlled intersections on Lower Sheep Pasture Road in Setauket and a major signalized intersection on NYS Route 9A for the Town of Greenburgh's Ridgehill Study/Roadway Improvement Project. Mr. Scott assisted in this project which included capacity analysis utilizing VISSIM software; conceptual design; topographic survey and mapping; community outreach; preliminary and final design; construction inspection & support services and construction survey stakeout.

Town of Brookhaven

Mastic Beach Municipal Parking Lot
Project Manager for this Town of Brookhaven Department of Housing and Human Services project for the preparation of decorative lighting plans and sidewalk for the parking lot in compliance with Town Code and the Illuminating Engineering Society of North America standards. Plans included the electrical distribution system and connection to LIPA's system for service. N&P also prepared landscaping plans for trees, shrubs, and grass at the perimeter of the parking lot and at interior islands and provided construction phase services.

Town of Brookhaven Aquatic Center Parking Lot, Mastic Beach
Project Manager for this Town of Brookhaven Department of Housing and Human Services project which includes the construction of a new parking lot. Project components include survey and mapping; construction plans, bid specifications; bid review and award assistance and construction inspection.

Multi-Use Court at Town of Brookhaven Aquatic Center, Mastic Beach
Project Manager for this Town of Brookhaven Department of Housing and Human Services project for a multi-purpose court. Project components include topographic surveying and mapping; construction plans; bid review and award assistance and construction inspection.

Municipal Parking Lot on Broadway, Rocky Point

Project Manager for this Town of Brookhaven Department of Housing and Human Services project which includes soil borings; survey and mapping; detailed design and construction plans; bid specifications and assistance with award; grant application and construction inspection.

Traffic Signal/Pedestrian Improvements at Neighborhood Road @ Mastic Road and Bayview Drive @ Cranberry Drive, Mastic Beach
Project Manager for this Town of Brookhaven Department of Housing and Human Services project which includes survey and mapping; traffic signal plans; intersection improvement plans; pavement marking & signing plans; cost estimates; bid specifications; bid review and award assistance.

Shore Road Stormwater Infrastructure Improvements, Mt. Sinai
Project Manager for this NYSDOT grant funded project to progress stormwater infrastructure improvements along Shore Road between Mt. Sinai-Coram Road and Rocky Hill Road in Mt. Sinai. The project area is adversely impacted by stormwater runoff and by erosion of Shore Road where it borders Mt. Sinai Harbor. The goal of the project is to provide working solutions through green infrastructure stormwater management practices and shoreline stabilization using a combination of structural and natural techniques in order to establish a more appropriate and functional interface between the natural resources of Mt. Sinai Harbor and the transportation linkage provided by Shore Road. The overall project is expected to have significant benefits in reducing pollutant load to Mt. Sinai Harbor, and will improve aesthetics and function of the existing road infrastructure.

Energy Efficient Street Lighting Study – Town of Brookhaven
Project Manager for the study of potential energy efficient street lighting alternatives to the existing high pressure sodium (HPS) and low pressure sodium (LPS) street light fixtures being used throughout the Town. The objective of the study was to compare the life-cycle cost over a 20-year period for each type of technology versus the current. The life cycle cost included the initial capital cost, as well as applicable yearly energy and maintenance costs.

Amagansett Drive Storm Drainage
Design Engineer for this project which involved studying and improving the storm drainage facilities in the vicinity of Amagansett Drive in the Sound Beach area. The study consisted of defining tributary areas and different alternatives for water quality treatment of stormwater runoff. This project also included the design of water quality drainage devices, slope stabilization of an existing washed out bluff, and outfall protection, preparation of construction documents, procuring NYSDEC permits, and assisting the Town of Brookhaven during the bid phase.

West Meadow Creek Stormwater Management for Various Roadways
Design Engineer on this project which involved stormwater mitigation improvements for a tributary area of approximately 24 acres in the Old Stony Brook area. This

project entailed the design and preparation of mitigation plans which included water quality drainage design, roadway demolition and restoration, erosion control plans and details, procurement of NYSDEC permits, and assisting the Town of Brookhaven during the bid phase.

Town of Islip

Connetquot Stormwater Project
Project Manager for this Town of Islip project for design of stormwater and road improvements on Middlesex Avenue between Shore Avenue and east to the street end at Grand Canal in Oakdale. The streets in this area experience flooding during significant rainfall events making it difficult for residents to access their properties. N&P identified and developed alternatives to address the storm water quantity/quality issues. Project components included survey and mapping; test holes; drainage investigation; environmental permitting; preparation of conceptual plans; detailed design & construction plans; bid specifications and bid award assistance.

Suffolk County

Improvements at the Intersections of CR 51 @ CR 94 and CR 63 @ CR 104/NYS 24, Riverhead, Suffolk County
Mr. Scott provided engineering assistance for the initial three concepts on this Suffolk County Department of Public Works intersection improvement project which entails the reconfiguration of the existing traffic circle into a modern roundabout along with other related traffic improvements. He is now serving as the Project Manager to develop additional concept, perform additional analysis and will progress the preliminary and final design. The project will entail analyzing traffic counts and data, creating and applying growth factors to the traffic data and, using VISSIM software, determining the lane configurations needed to achieve an acceptable level of service for a modern roundabout in an effort to address traffic congestion and safety concerns in the downtown Riverhead area.

Town of Oyster Bay

Syosset Streetscape & Walkability Improvement Project
Nelson & Pope has been retained by the Town of Oyster Bay for a project to improve pedestrian walkability, accessibility and safety in the heavily congested downtown Syosset commercial area. Mr. Scott served as the Project Manager for this TEP project which included the preparation of the Design Approval Document, design of new pedestrian crosswalks and upgrade of existing pedestrian crossings; installation of decorative pavers at pedestrian crossings; creation of pedestrian safe havens; installation of decorative lighting; creation of green spaces through the planting of street trees and planters; replacement of large areas of concrete sidewalk with

decorative paving stones and the installation of benches, trash receptacles & directional signage.

Massapequa Park Drainage, Massapequa
Mr. Scott was a project engineer involved in the study and design of drainage improvements for Park Avenue located in the Village of Massapequa. A range of alternatives was developed in an effort to reduce the volume of runoff diverted to the Village street network at Park Lane/ Pennsylvania Avenue. The project also consisted of the design and preparation of the roadway improvement plans which included roadway plan and profile sheets, along with the preparation of detailed construction quantity takeoff and construction bid documents.

Colony Lane Area Roadway Improvements, Syosset
This project entailed the study of existing storm drainage systems, topographic survey of existing conditions and a comprehensive design report for approximately eight miles of Town owned roadways in Syosset along with three Nassau County owned recharge basins. Mr. Scott's tasks include organizing and coordinating the field personnel in collection of storm drainage system as-built information, creating a drainage study plan, developing a preliminary design for drainage improvements, analysis of existing recharge basins, preparation of a comprehensive design report including description of typical existing roadway features and conditions and identification of non-standard or deficient design elements. Also included in the report are alternative solutions and recommendations to address deficiencies in the existing drainage system and roadway construction.

Town of Hempstead

Coes Neck Park, Baldwin
Mr. Scott was Project Manager for this project which entailed the preparation of contract drawings, bid documents and engineering cost estimate for Coes Neck Park. Project components included sports field layouts (handball, tennis, basketball), electrical service analysis and upgrades, surveying and mapping, lighting and other miscellaneous site improvements.

Bedford Avenue Area Drainage and Roadway Improvements, Hempstead
The project entailed the study and analysis of the existing drainage system within a mile of a residential neighborhood in conjunction with the development of a project design report and preparation of contract documents and specifications. Mr. Scott's responsibilities included analyzing the existing drainage system to determine the need for modifications, generating new roadway profiles to improve storm drainage flow and determining the amount of restoration necessary outside the roadway section.

Bay Drive Area Drainage and Roadway Improvements, Hempstead

This project entailed the study and analysis of the existing drainage system within a residential neighborhood in conjunction with the development of a project design report that described existing conditions such as geometry, pavement condition, traffic control devices, etc. Mr. Scott's tasks included analyzing the existing drainage system to ascertain any necessary modifications, generating new roadway profiles to improve storm drainage flow, developing an improved centerline profile, preparing construction plans, contract documents and specifications.

Town of Islip

Connetquot Stormwater Project
Mr. Scott was Project Manager for this Town of Islip project to implement storm water and road improvements on Middlesex Avenue between Shore Avenue and east to the street end at Grand Canal in Oakdale. The streets in this area experience flooding during significant rainfall events making it difficult for residents to access their properties. N&P identified and developed alternatives to address the storm water quantity/quality issues. Project components included survey and mapping; test holes; drainage investigation; environmental permitting; preparation of conceptual plans; detailed design & construction plans; bid specifications and bid award assistance.

Nassau County

Meadow Lane/Marbridge Road Flooding Mitigation
Mr. Scott was Project Manager for this Nassau County Department of Public Works project which entailed performing a detailed investigation and report for recommendations to mitigate significant flooding conditions on Meadow Lane in the vicinity of Marbridge Road in Lawrence which occurred during storm events. The Meadow Lane/Marbridge Road/Causeway Road drainage area is located in the Incorporated Village of Lawrence in the vicinity of the Larwence Golf Club and Bannister Creek, which discharges into Reynolds Channel near the Atlantic Beach Bridge. N&P inventoried the existing drainage system within the project limits and identified potential drainage issues, and subsequently developed and evaluated feasible corrective alternatives including related costs and implementation requirements and constraints.

New York State Department of Transportation

Various Roadway Improvement Plans for NYSDOT, Nassau and Suffolk Counties
Mr. Scott's responsibilities included various design tasks including typical sections, MPT details, pavement widening, traffic signal plans, grading, pavement markings and drainage. He was also responsible for the preparation of plans in AutoCAD.

Various SCDPW, NCDPW and Town Roadway Improvement Permit Plans, Nassau and Suffolk Counties

Mr. Scott was involved with the preparation and design of traffic signal and traffic signal modification plans for private developers and municipalities in Suffolk County.

Traffic Signal Projects, Various Locations
(NYSDOT, Nassau County, Suffolk County, Town of Brookhaven)

These projects include the design of traffic signals from modifications to existing traffic signals to completely new traffic signals throughout Long Island. Mr. Scott's tasks include developing construction plans illustrating the proposed improvements with appropriate State, County or Town item numbers and details, including the location of traffic signal poles, pedestrian signal poles, pullboxes, detector loops, proper signal head placement, sizing of steel conduit, wiring diagrams, spacing diagrams, sequence diagrams. Traffic signal as-builts were prepared once the construction of the traffic signal was complete.

Village of Southampton - Watershed Projects

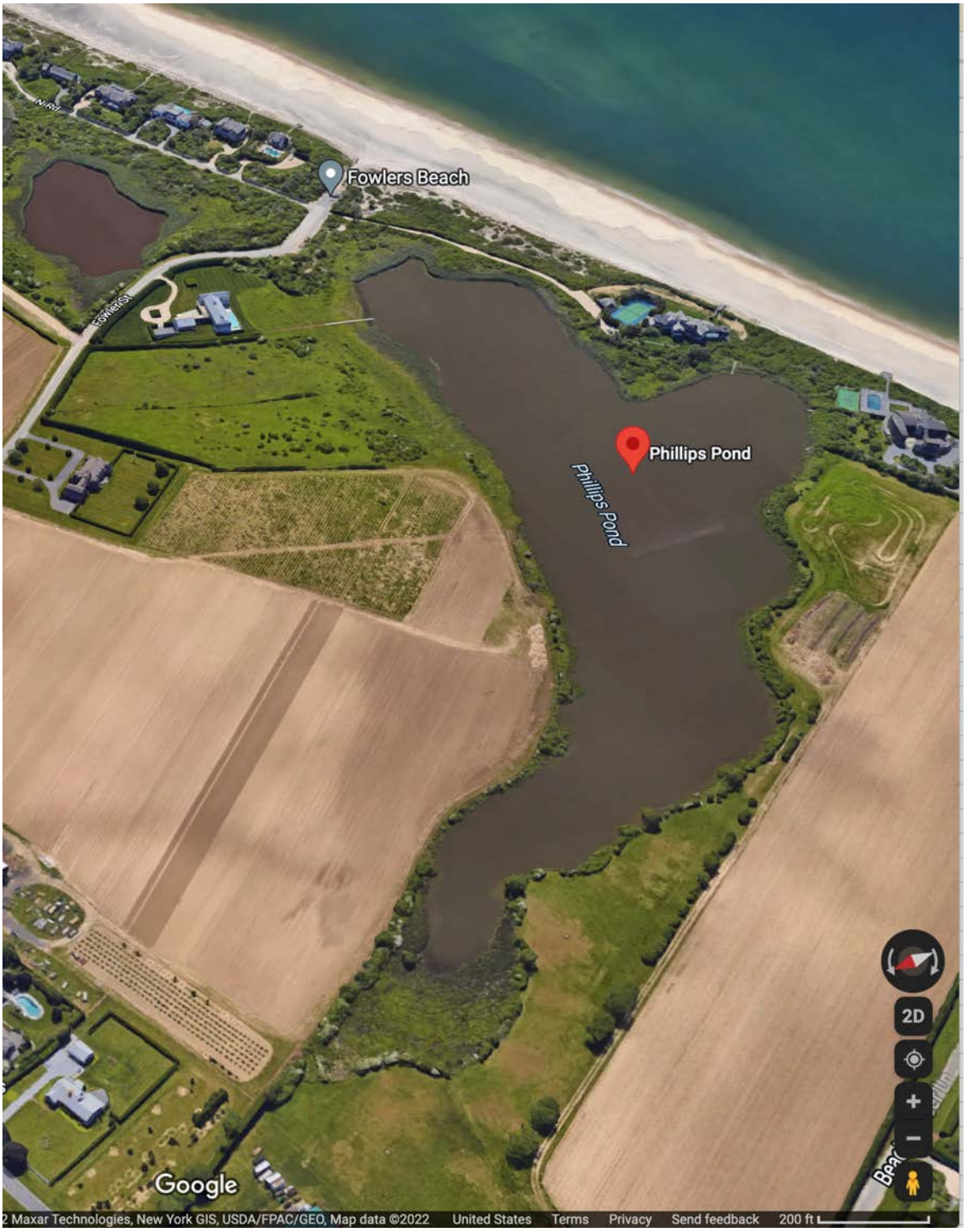
Project #	Location	Ownership	BMP Type	Impervious Treatment Area (SF)	Size Required 1.2" Rain (CF)	Size Required 1.5" Rain (CF)	Size of Practice (SF)	Volume Captured (CF)	TP (lbs/yr.)	TN (lbs/yr.)	TSS (lbs/yr.)	Bacteria (billion/ yr.)	Runoff (acre-feet/yr.)	Unit Price	Estimated Cost *	Cost/lb. of Nitrogen	Draft Rank - Cost/lb N	Draft Rank - Nitrogen Reduction
SV-01A	Parking Lot - West Main Street	Village	Bioswale, Tree Trench & Drywells	183,857	18,020	22,522	10,760	10,760	7.0	67.0	4,034	2,845	12.0		$1,233,645	$18,412.61	51	1
SV-02A	Open space along Nugent St.	Village	Stormwater to surface in Bioswale	38,580	4,355	4,726	4,500	4,500	2.0	16.3	4,864	615	2.5	$50.00	$225,000	$13,803.68	47	6
SV-02B	Open space along Windmill Lane	Village	Stormwater to surface in Bioswale	52,193	5,845	6,394	5,930	5,930	2.7	22.2	5,792	838	3.4	$50.00	$296,500	$13,355.86	46	4
SV-03A	Corner of North Main Street and N. Sea Road	ROW of Village	ROW Raingarden	20,572	2,370	2,520	2,510	2,510	1.0	8.7	4,443	328	1.7	$35.00	$87,850	$10,097.70	37	11
SV-04A	Vacant lot along North Sea Road	Private - for sale	Tree Trench and Bioswale	11,272	1,015	1,380	1,455	1,455	0.6	4.6	4,217	175	0.7	$50.00	$72,750	$15,815.22	50	22
SV-04B	Vacant lot along Windmill Lane	Private - for sale	Raingarden	10,354	1,105	1,268	1,055	1,055	0.5	4.4	4,206	168	0.7	$25.00	$26,375	$5,994.32	7	23
SV-05A	ROW along Old Town Rd	ROW of Village	ROW Raingarden	5,363	1,200	1,505	1,235	1,235	0.3	2.5	102	109	0.4	$25.00	$30,875	$12,350.00	44	32
SV-05B	ROW along Old Town Rd	ROW of Village	ROW Raingarden	7,996	890	979	890	890	0.4	3.3	4,145	126	0.5	$25.00	$22,250	$6,742.42	12	27
SV-05C	ROW along Old Town Crossing	ROW of Village	ROW BioSwale	12,299	1,945	2,432	2,589	2,589	0.7	5.8	4,032	254	0.9	$35.00	$90,615	$15,623.28	48	18
SV-06A	ROW at corner of Old Town Rd and Wickapogue Rd	ROW of Village	ROW Raingarden	10,468	1,090	1,282	1,100	1,100	0.5	4.4	4,206	168	0.7	$25.00	$27,500	$6,250.00	10	23
SV-06B	ROW at corner of Old Town Rd and Wickapogue Rd	ROW of Village	ROW Raingardens	16,780	1,915	2,055	1,975	1,975	0.9	7.2	4,360	272	1.1	$25.00	$49,375	$6,857.64	13	15
SV-06C	ROW at corner of Old Town Rd and Herrick Road	ROW of Village	ROW Raingarden	11,239	1,735	2,169	1,750	1,750	0.7	5.2	4,268	227	0.8	$35.00	$61,250	$11,778.85	41	19
SV-06D	ROW at corner of Old Town Rd and Herrick Road	ROW of Village	ROW Raingarden	28,651	3,650	4,557	2,515	2,515	2.2	22.2	4,820	863	3.3	$35.00	$88,025	$3,965.09	1	4
SV-06E	ROW at corner of Old Town Rd and Meeting House Ln	ROW of Village	ROW Raingarden	53,540	3,650	8,950	5,380	5,380	4.7	44.0	5,645	1,797	7.3	$35.00	$188,300	$4,279.55	2	2
SV-07A	ROW along Wickapogue Rd	ROW of Village	ROW Raingarden	3,059	440	551	470	470	0.3	1.9	4,043	69	0.3	$25.00	$11,750	$6,184.21	9	35
SV-07B	ROW along Wickapogue Rd	ROW of Village	ROW Raingarden	3,238	1,100	1,370	1,105	1,105	1.2	5.1	4,096	168	0.7	$25.00	$27,625	$5,416.67	4	20
SV-07C	ROW along Wickapogue Rd	ROW of Village	ROW Raingarden	7,777	1,120	1,401	1,105	1,105	0.9	5.0	4,174	179	0.7	$25.00	$27,625	$5,525.00	5	21

SV-07D	ROW along Wickapogue Rd	ROW of Village	ROW Raingarden	6,900	1,920	2,402	1,945	1,945	2.0	9.0	4,226	300	1.2	$25.00	$48,625	$5,402.78	3	10
SV-08A	ROW along Coopers Farm Road	ROW of Village	ROW Raingardens	5,313	1,815	2,267	1,911	1,911	2.0	8.5	4,189	280	1.1	$25.00	$47,775	$5,620.59	6	12
SV-08B	ROW along Coopers Farm Road	ROW of Village	ROW Raingarden	4,958	485	607	525	525	0.2	2.0	4,073	77	0.3	$25.00	$13,125	$6,562.50	11	34
SV-08C	ROW along Coopers Farm Road	ROW of Village	ROW Raingardens	6,158	605	754	630	630	0.3	2.6	4,104	98	0.4	$25.00	$15,750	$6,057.69	8	31
SV-09A	Boatsman Lane	Roadend of Village	ROW Raingarden and Roadend	27,026	5,470	6,835	5,925	5,925	5.1	24.9	4,826	860	3.5	$40.00	$237,000	$9,518.07	29	3
SV-10A	Town Hall	Village?	Landscape Raingardens	16,997	1,775	2,082	2,180	2,180	0.9	7.2	4,360	272	1.1	$40.00	$87,200	$12,111.11	43	15
SV-11A	Bo Roobinson Property	Village?	Landscape Raingardens	14,261	1,870	2,338	1,870	1,870	1.4	8.3	4,328	297	7.2	$35.00	$65,450	$7,885.54	15	13
SV-12A	Sanford Place	Village?	Landscape Raingardens	12,215	1,250	1,562	1,570	1,570	0.6	5.2	4,247	196	0.8	$35.00	$54,950	$10,567.31	39	19
SV-12B	Sanford Place	ROW of Village	ROW Raingarden	5,040	770	961	780	780	0.2	2.0	4,073	77	0.3	$25.00	$19,500	$9,750.00	34	34
SV-12C	Sanford Place	ROW of Village	ROW Raingarden	4,907	480	601	570	570	0.2	2.0	4,073	77	0.3	$25.00	$14,250	$7,125.00	14	34
SV-13A	Downs Family Rec. Area	Village	Landscape Raingardens	17,810	1,745	2,181	1,940	1,940	0.9	7.4	4,371	419	1.7	$35.00	$67,900	$9,175.68	25	14
SV-13B	Downs Family Rec. Area	Village	Landscape Raingardens	26,142	2,560	3,202	2,605	2,605	1.3	11.1	4,576	419	1.7	$40.00	$104,200	$9,387.39	27	7
SV-14A	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	7,690	1,490	1,862	1,500	1,500	0.4	3.3	4,145	126	0.5	$25.00	$37,500	$11,363.64	40	27
SV-14B	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	5,123	861	1,076	866	866	0.3	2.2	4,083	84	0.3	$25.00	$21,650	$9,840.91	35	33
SV-14C	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	6,647	1,328	1,657	1,343	1,343	0.3	2.8	4,114	105	0.4	$25.00	$33,575	$11,991.07	42	30
SV-15	ROW along Narrow Lane	ROW of Village	ROW Raingarden	22,285	3,802	4,752	3,864	3,864	1.1	9.4	4,484	356	1.4	$25.00	$96,600	$10,276.60	38	9
SV-16	Wickapogue Park	ROW of Village	ROW Raingarden and Bioswale	38,841	5,547	6,933	5,569	5,569	2.0	16.6	4,884	629	2.5	$25.00	$139,225	$8,387.05	21	5
SV-17A	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	7,534	1,114	1,430	1,160	1,160	0.4	3.1	4,135	119	0.5	$25.00	$29,000	$9,354.84	26	28
SV-17B	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	8,156	1,332	1,665	1,363	1,363	0.4	3.5	4,155	133	0.5	$25.00	$34,075	$9,735.71	31	26
SV-17C	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	14,478	1,987	2,484	1,988	1,988	0.7	6.1	4,299	230	0.9	$25.00	$49,700	$8,147.54	17	16
SV-17D	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	13,819	2,193	2,742	2,220	2,220	0.7	5.9	4,289	223	0.9	$25.00	$55,500	$9,406.78	28	17
SV-17E	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	8,045	1,322	1,652	1,325	1,325	0.4	3.3	4,145	126	0.5	$25.00	$33,125	$10,037.88	36	27
SV-17F	ROW along Wickapogue Road	ROW of Village	ROW Raingarden	7,799	1,554	1,942	2,200	2,200	0.4	3.5	4,155	133	0.5	$25.00	$55,000	$15,714.29	49	26
SV-18	ROW along Halsey Street	ROW of Village	ROW Raingarden	8,381	1,266	1,582	1,276	1,276	0.4	3.5	4,155	133	0.5	$25.00	$31,900	$9,114.29	24	26

SV-19A	ROW along Breese Lane	ROW of Village	ROW Raingarden	4,673	647	808	650	650	0.2	2.0	4,073	77	0.3	$25.00	$16,250	$8,125.00	16	34
SV-19B	ROW along Breese Lane	ROW of Village	ROW Raingarden	9,767	1,352	1,692	1,354	1,354	0.5	4.1	4,186	154	0.6	$25.00	$33,850	$8,256.10	18	24
SV-19C	ROW along Edwards Lane	ROW of Village	ROW Raingarden	23,630	3,883	4,853	3,895	3,895	1.2	10.0	4,514	377	1.5	$25.00	$97,375	$9,737.50	32	8
SV-20	ROW along Breese Lane	ROW of Village	ROW Raingarden	6,992	1,139	1,424	1,143	1,143	0.4	3.0	4,124	112	0.5	$25.00	$28,575	$9,525.00	30	29
SV-21	ROW along Armande Street	ROW of Village	ROW Raingarden	9,288	1,518	1,897	1,520	1,520	0.5	3.9	4,176	147	0.6	$25.00	$38,000	$9,743.59	33	25
SV-22	ROW along Cooper Street	ROW of Village	ROW Raingarden	8,252	1,140	1,425	1,158	1,158	0.4	3.5	4,155	133	0.5	$25.00	$28,950	$8,271.43	20	26
SV-23	ROW along Cooper Street	ROW of Village	ROW Raingarden	4,785	696	869	700	700	0.2	2.0	4,073	77	0.3	$25.00	$17,500	$8,750.00	23	34
SV-24A	ROW along Howell Street	ROW of Village	ROW Raingarden	1,716	348	435	350	350	0.1	0.7	4,000	28	0.1	$25.00	$8,750	$12,500.00	45	37
SV-24B	ROW along Howell Street	ROW of Village	ROW Raingarden	3,034	425	531	430	430	0.2	1.3	4,032	49	0.2	$25.00	$10,750	$8,269.23	19	36
SV-24C	ROW along Howell Street	ROW of Village	ROW Raingarden	1,368	206	257	207	207	0.1	0.6	3,991	21	0.1	$25.00	$5,175	$8,625.00	22	38

Note: * The cost figures are for preliminary budgetary purposes only. Costs may be more or less depending on the bidding process and local factors. Costs may be reduced through use of in-kind services, if available.

Village of Southampton
Phillips Pond
Existing Conditions



PRELIMINARY ENGINEERS ESTIMATE - APRIL 2022

GREEN INFRASTRUCTURE PROJECTS

PHILLIPS POND WATERSHED BIOSWALES

SOUTHAMPTON, NEW YORK

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	ROUND	QTY	UNIT PRICE	AMOUNT
1	Unclassified Excavation	CY	475.00	1.10	520	$60.00	$31,200.00
2	Asphalt Concrete Sawcut	LF	710	1.10	780	$3.00	$2,340.00
2A	Asphalt Patch	SF	100	1.10	110	$20.00	$2,200.00
3	Silt Protection for Surface Inlet	EA	2.00	1.00	2	$250.00	$500.00
4	Topsoil (Roadside)	CY	6.50	1.10	10	$65.00	$650.00
5	Turf Establishment (Roadside)	SY	236.00	1.10	260	$5.00	$1,300.00
6	Turf Establishment (Bioswale)	SY	1139.00	1.10	1,250	$5.00	$6,250.00
7	Planting	EA	500.00	1.00	500	$35.00	$17,500.00
8	Shrub	EA	190.00	1.00	190	$70.00	$13,300.00
9	Sand Compost Mix	CY	94.00	1.10	100	$35.00	$3,500.00
10	Mulch	CY	94.00	1.00	90	$35.00	$3,150.00
11	Rain Guardian	EA	7.00	1.00	10	$5,000.00	$50,000.00
11A	Concrete Swale for Rain Guardian	SF	140.00	1.10	150	$25.00	$3,750.00
12	Tree Planting	EA	10.00	1.00	10	$600.00	$6,000.00
13	Furnish and Install Sign	EA	1.00	1.00	1	$1,200.00	$1,200.00
14	Survey Operations	LS	1.00	1.00	1	$3,000.00	$3,000.00
15	Work Zone Traffic Control	LS	1.00	1.00	1	$5,000.00	$5,000.00
16	Mobilization	LS	1.00	1.00	1	$3,000.00	$3,000.00
						Subtotal	**$153,840.00**
						Contingency 15%	**$23,076.00**
						SUBTOTAL ALTERNATIVE 1	**$176,916.00**

Engeneer and Design Fee 10% **$17,691.60** **$20,000**

Southampton Village
Bioswales/Rain Gardens
List of Native Plants

Long Island Native Plants will be used. The following list provides examples of species that will be selected for each bio-infiltration area.

Trees

Serviceberry	Amelanchier laevis
River Birch	Betula negra
Hawthorn	Crategus sp.
Sweetbay Magnolia	Magnolia virginiana

Shrubs

Red Chokeberry	Aronia arbutifolia
Black Chokeberry	Aronia melanocarpa
Buttonbush	Cephalanthus occidentalis
Sweet Pepperbush	Clethra alnifolia
Sweet Fern	Comptonia peregina
Red Osier Dogwood	Cornus sericea
Marsh Mallow	Hibiscus moscheutos
Inkberry	Ilex glabra
Winterberry	Ilex verticillata
Northern Bayberry	Myrica pennsylvanica
Swamp Rose	Rosa palustris
Highbush Blueberry	Vaccinium corymbosum

Perennials

Native Columbine	Aquilegia canadensis
Swamp Milkweed	Asclepias incarnate
Butterfly Weed	Asclepias tuberosa
New England Aster	Aster novae-angliae
New York Aster	Aster novi-belgii
Yellow Wild Indigo	Baptisia tinctoria
False Blue Indigo	Baptisia australis
Turtlehead	Chelone glabra
Joe Pye Weed	Eupatorium purpureum
Boneset	Eupatorium perfoliatum
Flat-topped goldenrod	Euthamia graminifolia
Sneezeweed	Helenium autumnale
Blue Flag Iris	Iris versicolor
Great Blue Lobelia	Lobelia siphilitica
Blazing Star	Liatris spicata
Bee-balm	Monarda didyma
Wild Bergamot	Monarda fistulosa
Beardstongue	Penstemon digitalis
Mountain Mint	Pycnanthemum muticum
Black-eyed Susan	Rudbeckia fulgida
Seaside Goldenrod	Solidago sempervirens
Blue Vervain	Verbena hastata

Ironweed	Vernonia noveboracensis
Golden alexander	Zizea aurea

Grasses*

Gray's Sedge	Carex grayi
Fox Sedge	Carex vulpinoidea
Soft Rush	Juncus effusus
Switchgrass	Panicum virgatum
Little Bluestem	Schizachyrium scoparium

Ferns

Maidenhair Fern	Adiantum pedatum
Lady Fern	Athyrium filix-femina
Hay-scented Fern	Dennstaedtia punctilobula
Sensitive Fern	Onoclea sensibilis
Cinnamon Fern	Osmunda cinnamomeum
New York Fern	Thelypteris noveboracensis

*In areas where lawn is needed due to accommodate community feedback, the Village will use a Long Island lawn mix of native and/or naturalized grasses that do not require pesticides or fertilizers.

Village of Southampton - Watershed Projects - Phillips Pond Bioswales/Raingardens

Project #	Location	BMP Type	Impervious Treatment Area (SF)	Size Required 1.2" Rain (CF)	Size Required 1.5" Rain (CF)	Size of Practice (SF)	Volume Captured (CF)	TP (lbs/yr.)	TN (lbs/yr.)	TSS (lbs/yr.)	Bacteria (billion/ yr.)	Runoff (acre-feet/yr.)
SV-17A	ROW along Wickapogue Road	ROW Raingarden	7,534	1,114	1,430	1,160	1,160	0.4	3.1	4,135	119	0.5
SV-17B	ROW along Wickapogue Road	ROW Raingarden	8,156	1,332	1,665	1,363	1,363	0.4	3.5	4,155	133	0.5
SV-17C	ROW along Wickapogue Road	ROW Raingarden	14,478	1,987	2,484	1,988	1,988	0.7	6.1	4,299	230	0.9
SV-17D	ROW along Wickapogue Road	ROW Raingarden	13,819	2,193	2,742	2,220	2,220	0.7	5.9	4,289	223	0.9
SV-17E	ROW along Wickapogue Road	ROW Raingarden	8,045	1,322	1,652	1,325	1,325	0.4	3.3	4,145	126	0.5
SV-17F	ROW along Wickapogue Road	ROW Raingarden	7,799	1,554	1,942	2,200	2,200	0.4	3.5	4,155	133	0.5
			59,831	22,122	11,915	10,256	10,256	3	25	25,178	964	4

Southampton Village

Water Quality Improvement Project Plan (WQIPP) Project Identification

NPV

VILLAGE OF SOUTHAMPTON, N.Y. Incorporated 1640 · 1894 Settled

Legend

- Town owned parcels
- SHV_Parcels
- Village Owned
- Storm Water Imporovments
- Village Boundry

WATERSHED 24
WATERSHED 11
WATERSHED 12
WATERSHED 22
WATERSHED 23
WATERSHED 21
WATERSHED 4
WATERSHED 3
WATERSHED 20
WATERSHED 18
WATERSHED 19
WATERSHED 8
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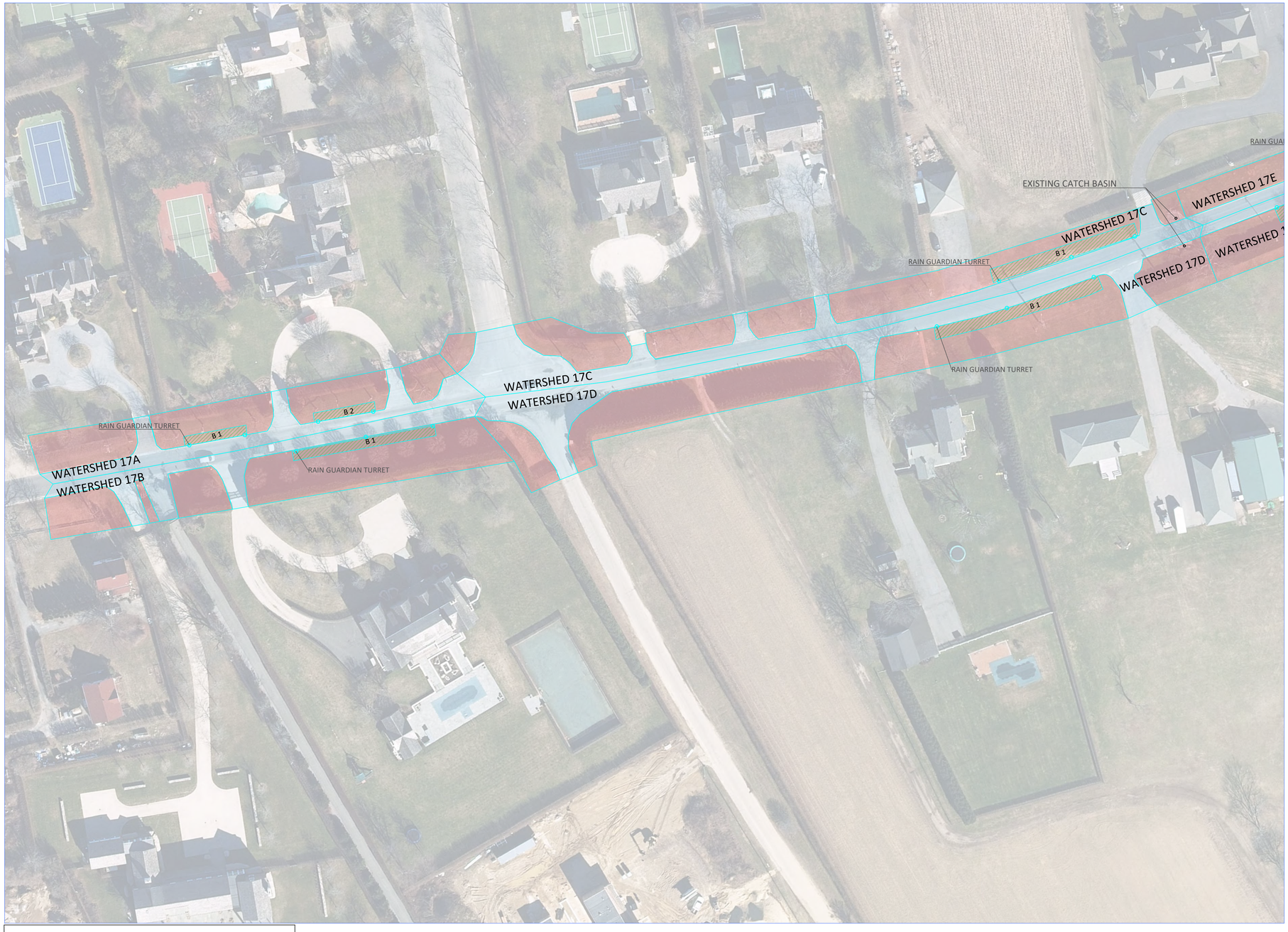
WATERSHED 5
WATERSHED 10

Phillips Pond Watershed 17



GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 INCH = 50 FEET

NORTH

WATERSHED 17A: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 7,534 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(7,534 SF X .1 FT X .98) = 738.33 CF (SAY 738 CF)

PERVIOUS AREA:

AREA = 13,537 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(13,537 SF X .1 FT X .3) = 406.11 CF (SAY 406 CF)

TOTAL REQUIRED STORAGE= SAY 1,144 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 585 SF
PONDING DEPTH 12"
TOTAL VOLUME = 585 CF

BIOSWALE 1:
AREA = 575 SF
PONDING DEPTH 12"
TOTAL VOLUME = 575 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,160± CF

WATERSHED 17A ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.1 LBS/YEAR
TSS: 4135 LBS/YEAR
FC: 119 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

WATERSHED 17B: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 8,156 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(8,156 SF X .1 FT X .98) = 799.28 CF (SAY 799 CF)

PERVIOUS AREA:

AREA = 17,768 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(17,768 SF X .1 FT X .3) = 533.04 CF (SAY 533 CF)

TOTAL REQUIRED STORAGE= SAY 1,332 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 1,363 SF
PONDING DEPTH 12"
TOTAL VOLUME =1,363 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,363± CF

WATERSHED 17B ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.5 LBS/YEAR
TSS: 4155 LBS/YEAR
FC: 133 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

1	XX/XX/2019	XXX XXX	XX
No.	DATE: 7/16/2021	REVISION:	BY:

WICKAPOGUE RD RIGHT OF WAY (17A, 17B)

WICKAPOGUE RD
SITUATED AT
SOUTHAMPTON
VILLAGE OF SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK

DWN. BY:	AC
DATE:	01/11/2022
CHK'D BY:	RS
DATE:	
JOB No.:	06013
FILE No.:	
CADD-SV_STORMWATER	
SCALE:	1" = 50'
SHEET:	20 OF 31

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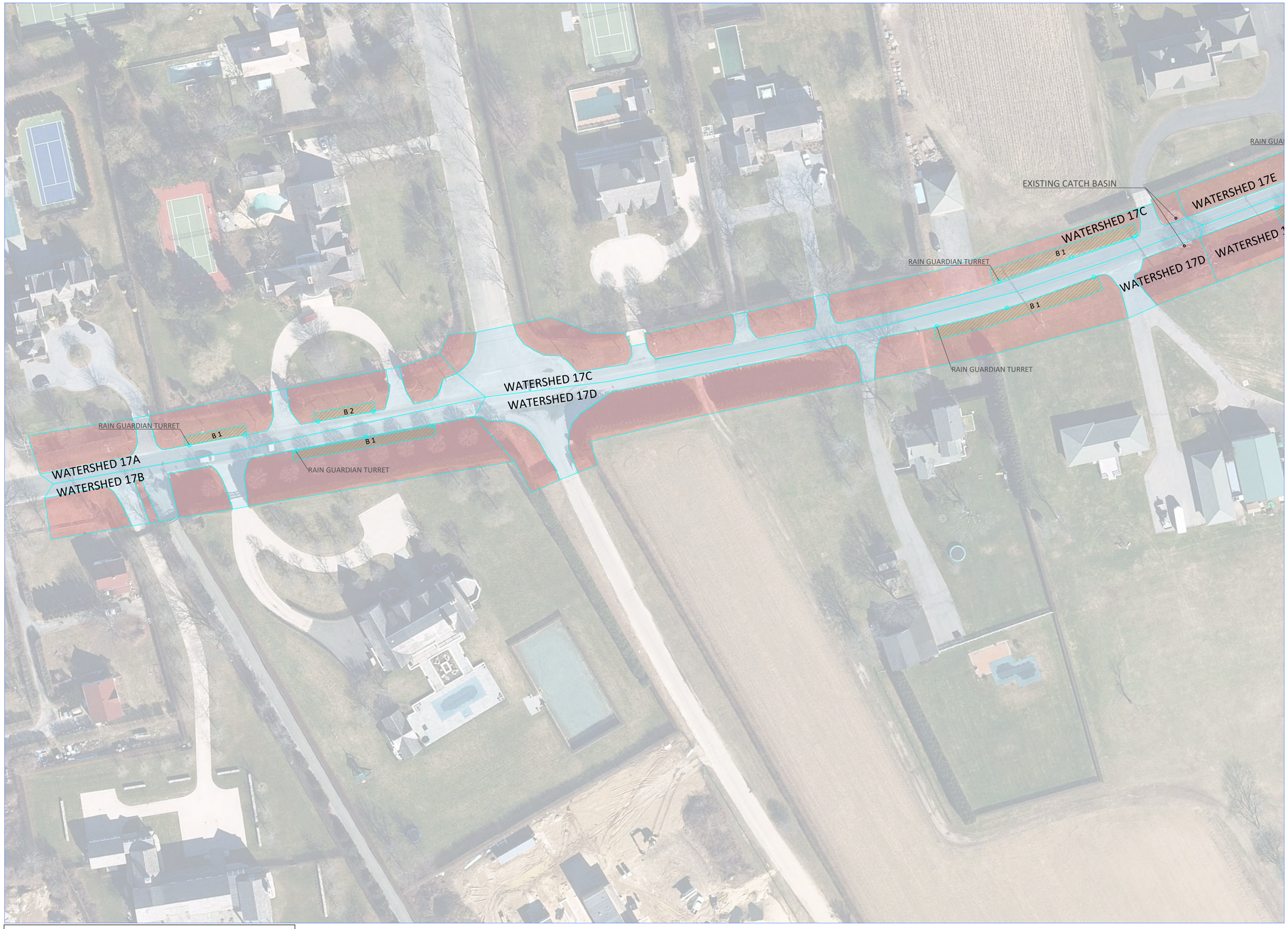

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 INCH = 50 FEET

NORTH

WATERSHED 17C: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 14,478 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(14,478 SF X .1 FT X .98) = 1,418.84 CF (SAY 1,418 CF)

PERVIOUS AREA:

AREA = 18,951 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(18,951 SF X .1 FT X .3) = 568.53 CF (SAY 569 CF)

TOTAL REQUIRED STORAGE= SAY 1,987 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 1,988 SF
PONDING DEPTH 12"
TOTAL VOLUME = 1,988 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,988± CF

WATERSHED 17C ESTIMATED TREATMENT FROM MODELING:
TP: 0.7 LBS/YEAR
TN: 6.1 LBS/YEAR
TSS: 4299 LBS/YEAR
FC: 230 BILLION/YEAR
RUNOFF: 0.9 ACRE-FT/YEAR

WATERSHED 17D: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 13,819 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(13,819 SF X .1 FT X .98) = 1,354.26 CF (SAY 1,354 CF)

PERVIOUS AREA:

AREA = 27,965 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(27,965 SF X .1 FT X .3) = 838.95 CF (SAY 839 CF)

TOTAL REQUIRED STORAGE= SAY 2,193 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 2,200 SF
PONDING DEPTH 12"
TOTAL VOLUME =2,200 CF

TOTAL STORMWATER STORAGE PROVIDED = 2,200± CF

WATERSHED 17D ESTIMATED TREATMENT FROM MODELING:
TP: 0.7 LBS/YEAR
TN: 5.9 LBS/YEAR
TSS: 4289 LBS/YEAR
FC: 223 BILLION/YEAR
RUNOFF: 0.9 ACRE-FT/YEAR

1	XX/XX/2019	XXX XXX	XX
No.	DATE: 7/16/2021	REVISION:	BY:

WICKAPOGUE RD RIGHT OF WAY (17C, 17D)
WICKAPOGUE RD
SITUATED AT
SOUTHAMPTON
VILLAGE OF SOUTHAMPTON, SUFFOLK COUNTY, NEW YORK

DWN. BY:	AC
DATE:	01/11/2022
CHK'D BY:	RB
DATE:	
JOB No.:	06013
FILE No.:	
CADD-SV_STORMWATER	
SCALE:	1" = 50'
SHEET:	21 OF 31

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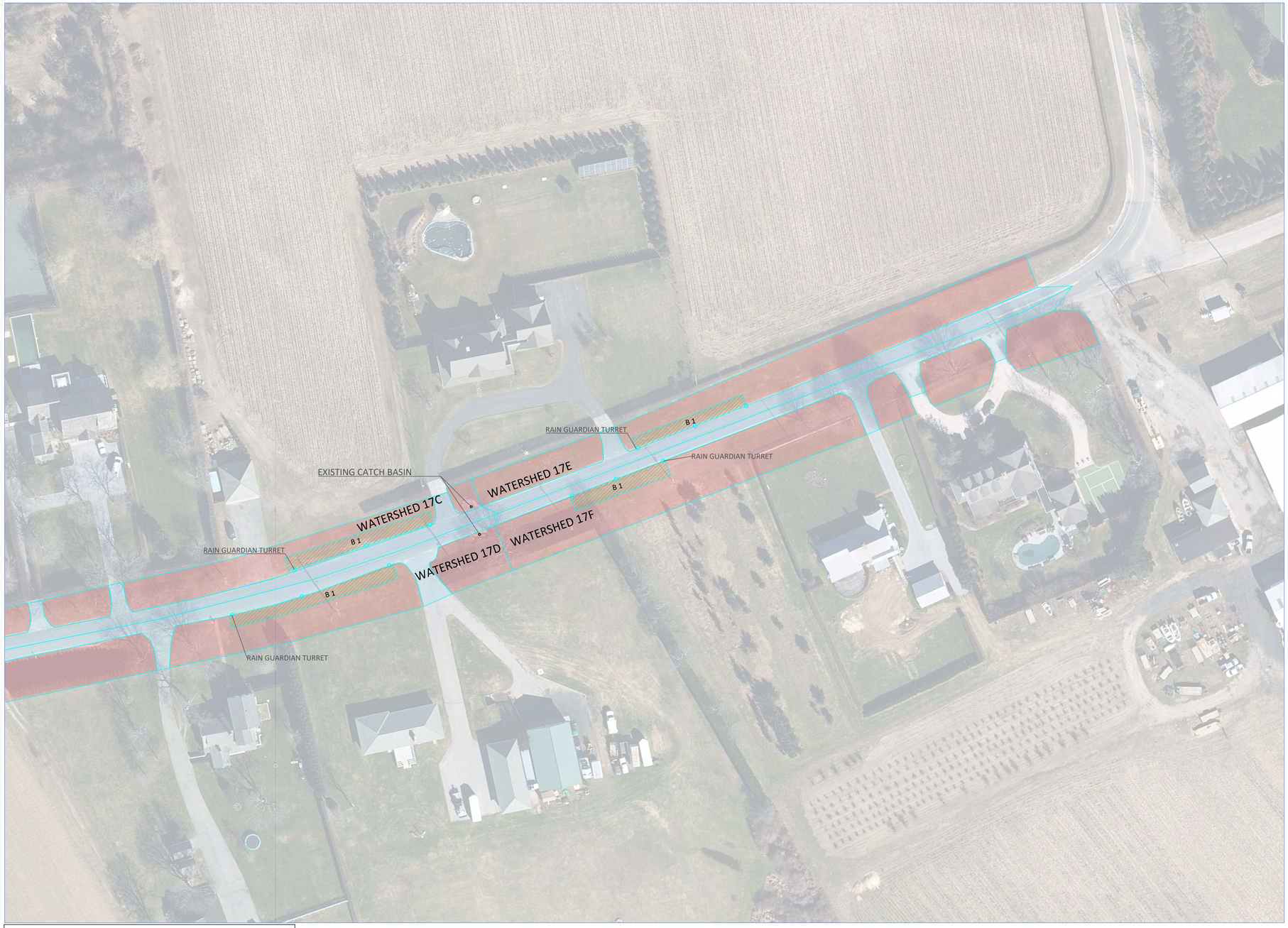

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 INCH = 50 FEET

NORTH

WATERSHED 17E: WICKAPOGUE ROAD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 8,045 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(8,045 SF X .1 FT X .98) = 788.41 CF (SAY 788 CF)

PERVIOUS AREA:

AREA = 17,784 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(17,784 SF X .1 FT X .3) = 533.52 CF (SAY 534 CF)

TOTAL REQUIRED STORAGE= SAY 1,322 CF

PROPOSED BIOSWALE AREA

BIOSWALE 1:
AREA = 1,325 SF
PONDING DEPTH 12"
TOTAL VOLUME = 1,325 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,325± CF

WATERSHED 17E ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.3 LBS/YEAR
TSS: 4145 LBS/YEAR
FC: 126 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

WATERSHED 17F: WICKAPOGUE RD
1.5" WQv (90TH PERCENTILE STORM)

IMPERVIOUS AREA:

AREA = 7,799 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(7,799 SF X .1 FT X .98) = 764.30 CF (SAY 764 CF)

PERVIOUS AREA:

AREA = 26,336 SF

REQUIRED STORAGE VOL. (AREA X INCH/FEET X RUNOFF COEF.)
(27,965 SF X .1 FT X .3) = 790.08 CF (SAY 790 CF)

TOTAL REQUIRED STORAGE= SAY 1,554 CF

PROPOSED BIOSWLAE AREA

BIOSWALE 1:
AREA = 1,554 SF
PONDING DEPTH 12"
TOTAL VOLUME =1,554 CF

TOTAL STORMWATER STORAGE PROVIDED = 1,554 ± CF

WATERSHED 17F ESTIMATED TREATMENT FROM MODELING:
TP: 0.4 LBS/YEAR
TN: 3.3 LBS/YEAR
TSS: 4145 LBS/YEAR
FC: 126 BILLION/YEAR
RUNOFF: 0.5 ACRE-FT/YEAR

No.	DATE:	REVISION:	BY:
1	XX/XX/2019	XXX XXX	XX
No.	DATE: 7/16/2021	REVISION:	BY:

WICKAPOGUE RD RIGHT OF WAY (17E, 17F)
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SITUATED AT
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DWN. BY:	AC
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