

**New York Rising Community Reconstruction Program  
BRIXIUS CREEK STREAM BANK RESTORATION PROJECT**

Environmental Assessment



The New York State Governor's Office of Storm Recovery

July 13, 2016

**BRIXIUS CREEK STREAM BANK RESTORATION PROJECT**  
Environmental Assessment

July 13, 2016

**Project Name:** Brixius Creek Stream Bank Restoration

**Project Location:** Brixius Creek – east of Christopher Street to the western edge of N. McKinley Avenue, Town of Union, Broome County, New York

**Federal Agency:** US Department of Housing and Urban Development  
**Responsible Entity:** New York State Homes and Community Renewal

**Responsible Agency's Certifying Officer:** Thomas J. King, Assistant General Counsel and Certifying Officer

**Project Sponsor:** Town of Union

**Primary Contact:** Rose A. Sotak, Town Supervisor, 3111 East Main Street, Endwell, NY 13760  
supervisor@townofunion.com (607) 786-2995

**Project NEPA Classification:** 24 CFR 58.36 (Environmental Assessment)

<b>Environmental Finding:</b>	<input checked="" type="checkbox"/> Finding of No Significant Impact - The project will not result in a significant impact on the quality of the human environment.
	<input type="checkbox"/> Finding of Significant Impact - The project may significantly affect the quality of the human environment.
<b>Certification</b>	The undersigned hereby certifies that New York State Homes and Community Renewal has conducted an environmental review of the project identified above and prepared the attached environmental review record in compliance with all applicable provisions of the National Environmental Policy Act of 1969, as amended (42 USC Sec. 4321 et seq.) and its implementing regulations at 24 CFR Part 58.
<b>Signature</b>	 Thomas J. King, Assistant General Counsel and Certifying Officer

**Environmental Assessment Prepared By:** The LiRo Group  
3 Aerial Way  
Syosset, NY 11791

**CERTIFICATION OF NEPA CLASSIFICATION**

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2016 NYS CDBG-DR project, Brixius Creek Stream Bank Restoration are:

Check the applicable classification.

- Exempt as defined in 24 CFR 58.34 (a).
- Categorically Excluded as defined in 24 CFR 58.35(b).
- Categorically Excluded as defined in 24 CFR 58.35(a) and no activities are affected by federal environmental statues and executive orders [i.e., exempt under 58.34(a)(12)].
- Categorically Excluded as defined in 24 CFR 58.35(a) and some activities are affected by federal environmental statues and executive orders.
- "Other" neither exempt (24 CFR 58.34(a)) nor categorically excluded (24 CFR 58.35).
- Part or all of the project is located in an area identified as a floodplain or wetland. For projects located in a floodplain or wetland, evidence of compliance with Executive Orders 11988 and/or 11990 is required.

For activities excluding those classified as "Other", attached is the appropriate Classification Checklist (Exhibit 2-4) that identifies each activity and the corresponding citation.

  
\_\_\_\_\_  
Signature of Certifying Officer

July 13, 2016  
\_\_\_\_\_  
Date

Thomas King  
\_\_\_\_\_  
Print Name

Assistant General Counsel  
\_\_\_\_\_  
Title

## CERTIFICATION OF SEQRA CLASSIFICATION

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2016 NYS CDBG-DR project, Brixius Creek Stream Bank Restoration constitute a(n):

Check the applicable classification:

- Type I Action (6NYCRR Section 617.4)
- Type II Action (6NYCRR Section 617.5)
- Unlisted Action (not Type I or Type II Action)

Check if applicable:

- Environmental Impact Statement (EIS) Prepared
  - Draft EIS
  - Final EIS

  
\_\_\_\_\_  
Signature of Certifying Officer

July 13, 2016  
\_\_\_\_\_  
Date

Thomas J. King  
\_\_\_\_\_  
Print Name

Assistant General Counsel  
\_\_\_\_\_  
Title

**Description of the Proposed Project** [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. (see **Figures 1 and 2**) Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 600 cubic foot debris basin with stone weirs. The size of the debris basin has been reduced from an original size of 900 cubic feet, due to revisions made to the original plans in order to reduce the amount of slope disturbance and avoid tree removal. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

**Statement of Purpose and Need for the Proposal** [40 CFR 1508.9(b)]:

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

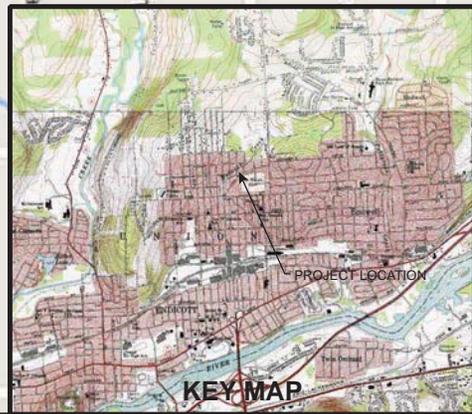
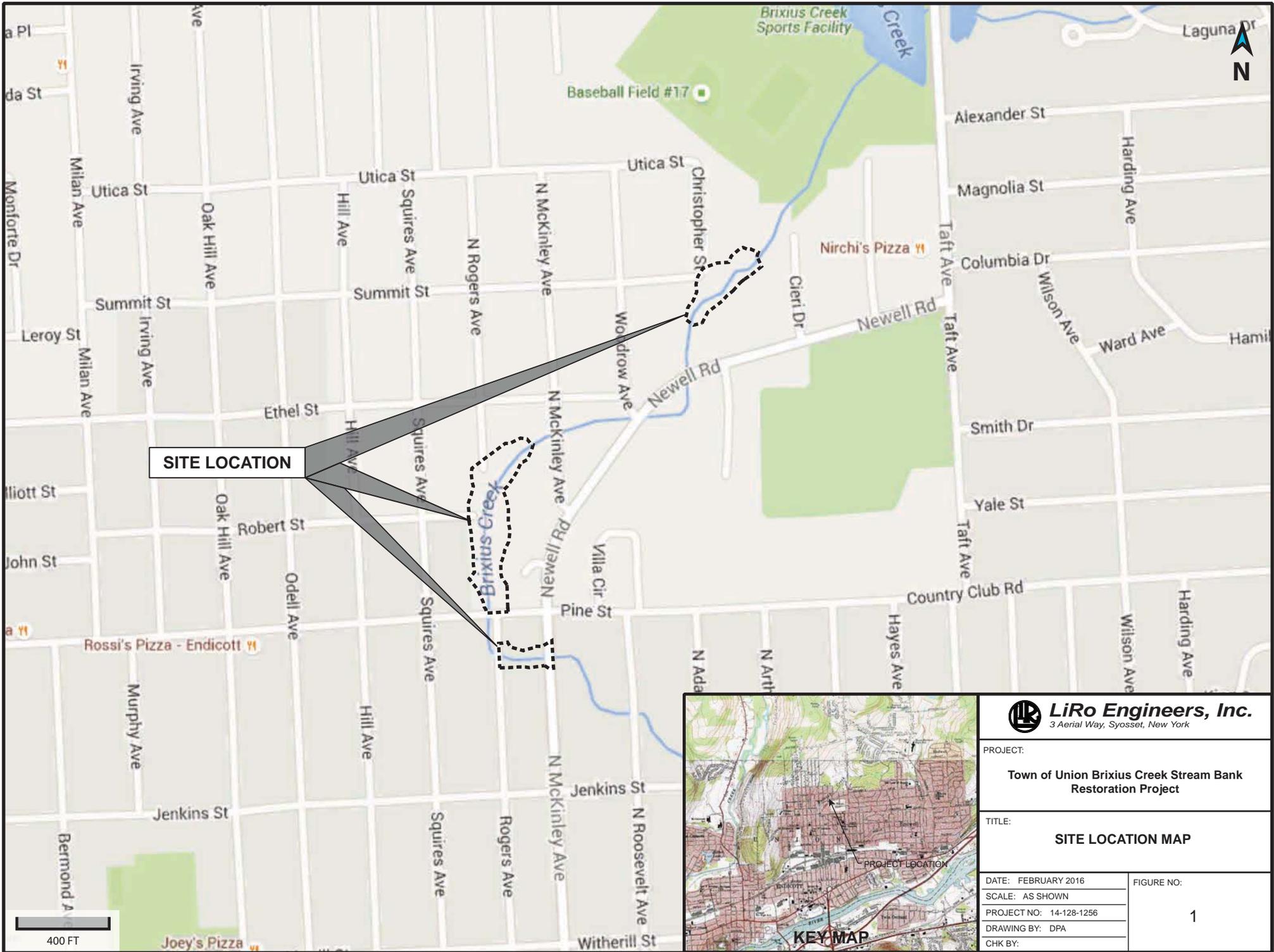
**Existing Conditions and Trends** [24 CFR 58.40(a)]:

The Brixius Creek channel consists of a narrow confined channel that passes underneath several streets via culverts. Eroding stream banks are present in several locations. Sediment and debris has a significant role in compromising the hydraulic capacity of Brixius Creek at certain culvert locations. For additional information, see Hydrologic and Hydraulic Study

**Funding Information**

**Estimated Total HUD Funded Amount:** \$300,000.00

**Estimated Total Project Cost** (HUD and non-HUD funds) [24 CFR 58.32(d)]:  
\$300,000.00



**LiRo Engineers, Inc.**  
 3 Aerial Way, Syosset, New York

PROJECT:  
**Town of Union Brixius Creek Stream Bank Restoration Project**

TITLE:  
**SITE LOCATION MAP**

DATE: FEBRUARY 2016  
 SCALE: AS SHOWN  
 PROJECT NO: 14-128-1256  
 DRAWING BY: DPA  
 CHK BY:

FIGURE NO:  
 1



PROJECT:  
**Town of Union Brixius Creek Stream Bank  
 Restoration Project**

TITLE:  
**SITE LOCATION AERIAL**

DATE: FEBRUARY 2016  
 SCALE: AS SHOWN  
 PROJECT NO: 14-128-1256  
 DRAWING BY: DPA  
 CHK BY:

FIGURE NO:  
**2**

## Compliance with 24 CFR 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

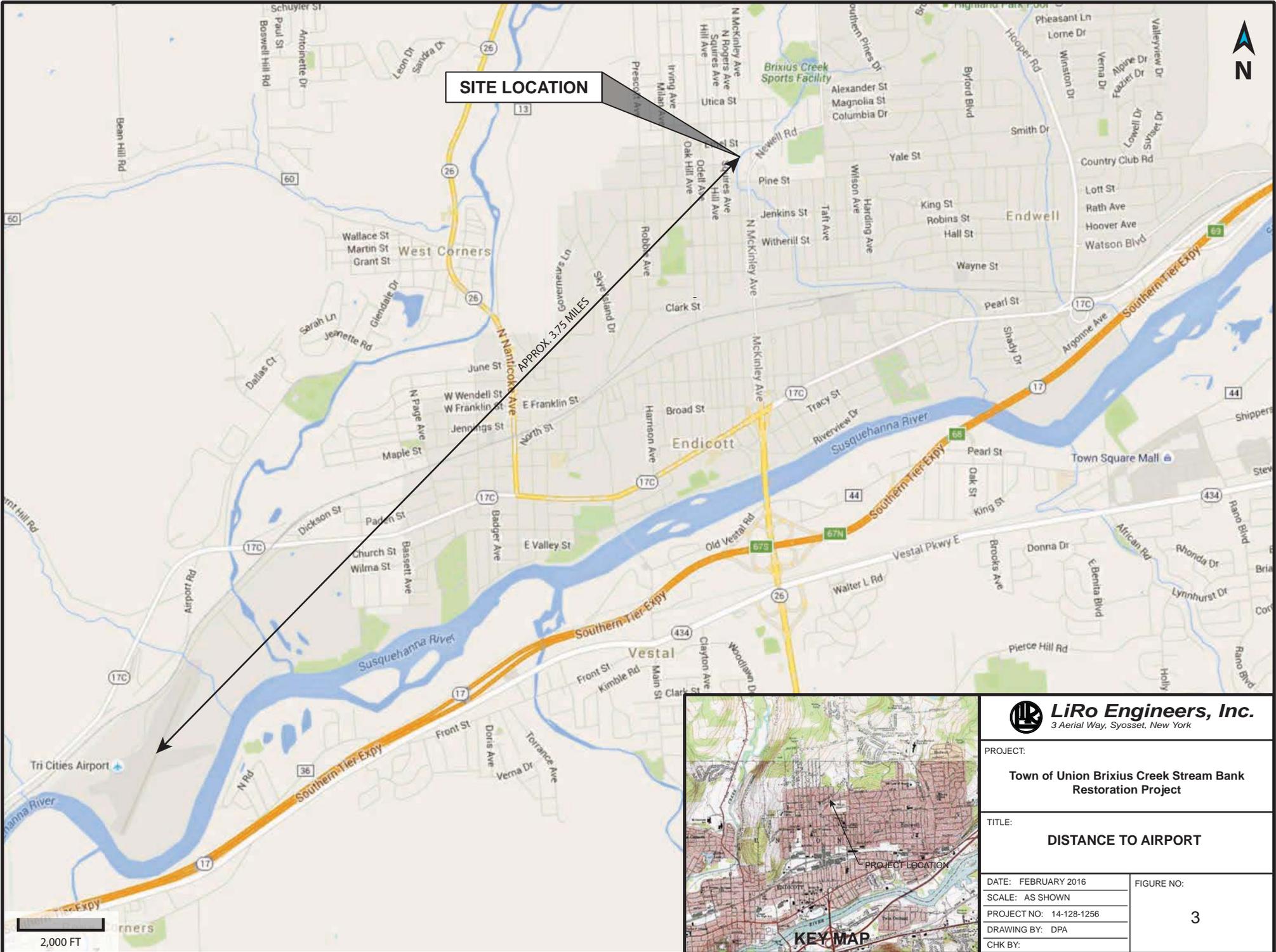
<b>Compliance Factors:</b> Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6</b>		
<b>Airport Hazards</b>  24 CFR Part 51 Subpart D	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	Based on guidance provided by HUD in Fact Sheet #D1, the National Plan of Integrated Airport Systems was reviewed for civilian, commercial service airports within the vicinity of the project site. There are no military or civil airports within 1 mile of the project area. The nearest airport is the Tri-Cities airport, located just under 4 miles from the project site. (see <b>Figure 3</b> ) No impacts would result.
<b>Coastal Barrier Resources</b>  Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	According to the Coastal Barrier Resource System maps, the project site is not located within a coastal barrier resource area; therefore, this standard is not applicable. (see <b>Figure 7</b> )
<b>Flood Insurance</b>  Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	Based on Flood Insurance Maps 3600560020D and 3600450005B, one of the three selected project sites is located within a Special Flood Hazard Area. However, the project does not require proof of National Flood Insurance Program (NFIP) insurance. (see <b>Figures 4a and 4b</b> )
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 &amp; 58.5</b>		
<b>Clean Air</b>  Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	Construction of the project would not generate additional vehicular traffic; therefore, no exceedances of the National Ambient Air Quality Standard (NAAQS) associated with carbon monoxide (CO) or particular matter (PM) would occur. Operation of the proposed project would

		not result in any major new stationary source of air pollutants. The project would not adversely affect the State Implementation Plan (SIP). The proposed project is not located within a nonattainment area where air pollution levels persistently exceed the national ambient air quality standards. (see <b>Figure 8</b> ) No significant impacts on air quality would occur.
<b>Coastal Zone Management</b>  Coastal Zone Management Act, sections 307(c) & (d)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The project area is not located within the boundaries of the New York State Coastal Zone. (see <b>Figure 9</b> )
<b>Contamination and Toxic Substances</b>  24 CFR Part 50.3(i) & 58.5(i)(2)	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	<p>There are no known hazardous materials, contaminants, toxic chemicals, gases, or radioactive substances that could affect health and safety within the project area. The proposed project is not anticipated to result in any significant adverse impacts related to toxic, hazardous, or radioactive materials.</p> <p>Two remediation sites were identified within the NYSDEC Environmental Remediation Database search radius (2,000 feet). Both sites are part of the State Superfund Program (Site Codes 704038 and 704014). Both regulated sites are associated with the former IBM facility in Endicott.</p> <p>The contaminants of concern in groundwater for Site 704014 (Former IBM Endicott Facility) include solvents (trichloroethene, tetrachloroethene, and their degradation byproducts), benzene, toluene, and xylene. It is not likely that the groundwater contamination has extended to the location of the project site. Site 704038 (Endicott Area-Wide Investigation) includes a groundwater and soil vapor study encompassing most of the town of Union and the Village of Endicott. This study was conducted to determine the extent of the contamination resulting from the 1979 spill from the IBM Facility (Site 704014). The investigation work has been completed and no further action is anticipated at this time.</p>
<b>Endangered Species</b>	Yes    No <input checked="" type="checkbox"/> <input type="checkbox"/>	The USFWS Information, Planning and Conservation (IPaC) online tool Trust Resource List generated for the proposed project on

<p>Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>		<p>February 17, 2016 (see <b>Appendix A</b>) lists the following Federally-listed species as having the potential to occur within the vicinity of the proposed project: Northern Long-eared Bat (<i>Myotis septentrionalis</i>) (NLEB) – threatened.</p> <p>However, due to the NLEB habitat preferences, the trees being removed on the project site are not likely suitable habitat, as discussed in the consultation letter submitted to USFWS on April 25, 2016 (see <b>Appendix A</b>).</p> <p>Nonetheless, due to the potential for active season tree removal, GOSR determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule (see <b>Appendix A</b>).</p> <p>A consultation letter was submitted to NYNHP on April 25, 2016. A response indicating that NYNHP had no records of rare or state-listed animals or plants, or significant natural communities directly at the project site was received on May 31, 2016. (see <b>Appendix A</b> for correspondence)</p>
<p><b>Explosive and Flammable Hazards</b></p> <p>24 CFR Part 51 Subpart C</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>There are no known hazardous operations handling conventional fuels or chemicals of an explosive or flammable nature in the vicinity of the project area. This criterion is applicable to HUD-assisted projects that involve new residential construction, conversion of non-residential buildings to residential use, rehabilitation of residential properties that increase the number of units, or restoration of abandoned properties to habitable condition. As this project involves the placement of heavy stacked stone to mitigate soil erosion along the stream banks, which does not change the existing land use or add residential population, the criterion does not apply and there are no anticipated adverse impacts expected to occur.</p>
<p><b>Farmlands Protection</b></p> <p>Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The proposed project is not located within any Agricultural District. (see <b>Figure 10</b>) It would not cause disturbance of Prime, Unique, or Statewide Important Farmland and would not involve the conversion of farmland to non-agriculture use. Therefore, the proposed</p>

		project would not violate the Farmland Protection Policy Act.
<p><b>Floodplain Management</b></p> <p>Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>	<p>Yes No</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p>	<p>Based on Flood Insurance Maps 3600560020D and 3600450005B (see <b>Figures 4a and 4b</b>), one of the three selected project sites is located within a Special Flood Hazard Area. The proposed project would not have any impact to floodplain management. The 8-step process for floodplain management and protection of wetlands was followed. (see <b>Appendix B</b>) The proposed project involves the placement of heavy stacked stone to mitigate soil erosion along the stream banks.</p>
<p><b>Historic Preservation</b></p> <p>National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800; Tribal notification for new ground disturbance.</p>	<p>Yes No</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p>	<p>The New York State Historic Preservation Officer (SHPO) as well as representatives of the Delaware Nation, the Delaware Tribe of Indians, the Oneida Nation of New York, the Onondaga Nation of New York, the Stockbridge-Munsee Community, Band of Mohicans, and the Tuscarora Nation of New York have been consulted in regards to this project, since the project site is located within a buffer area around a recorded archaeological resource, and may be located in an archaeological sensitive area. Furthermore, the project sites are located within the Susquehanna NY State Heritage Area. (see <b>Figure 11</b>)</p> <p>It has been determined that the proposed project will have No Effect on archaeological and/or historic resources. (see <b>Appendix C</b>)</p>
<p><b>Noise Abatement and Control</b></p> <p>Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B</p>	<p>Yes No</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>The proposed project would not generate noise within the project area, nor would it introduce any new or rehabilitate any existing noise sensitive uses. Therefore, no significant noise impacts would occur as a result of the proposed project.</p>
<p><b>Sole Source Aquifers</b></p> <p>Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149</p>	<p>Yes No</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p>	<p>The project site is located over the Clinton Street Ballpark Sole Source Aquifer. (see <b>Figure 12</b>) A copy of the Sole Source Aquifer letter sent to the EPA is provided along with the response. (see <b>Appendix D</b>)</p> <p>The proposed project would not result in any indirect or secondary impacts in terms of new</p>

		development or new demands. The proposed project is not expected to impact the supply or quality of water of any aquifer, or introduce new contaminants into the aquifer.
<p><b>Wetlands Protection</b></p> <p>Executive Order 11990, particularly sections 2 and 5</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>A Protection of Waters permit is required to physically disturb the bed or banks of a stream over 300 linear feet to mitigate the erosion and stabilization mitigation of the creek. Since this project proposes to disturb over 300 linear feet, it would also need an individual Water Quality Certification. (see <b>Figures 5a and 5b</b>)</p> <p>The project will adhere to and be in compliance with the guidelines and regulations of Executive Order 11990, in order to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. (See <b>Appendix B</b>)</p>
<p><b>Wild and Scenic Rivers</b></p> <p>Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The project area is not located within the vicinity of any designated wild, scenic, or recreational rivers. The Delaware River is the only river in New York that is included in the National Wild and Scenic Rivers System. The proposed project is not located near this river and no adverse impacts are anticipated.</p>
<b>ENVIRONMENTAL JUSTICE</b>		
<p><b>Environmental Justice</b></p> <p>Executive Order 12898</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The project site is not located in or adjacent to potential justice areas identified by the New York State Department of Environmental Conservation. The proposed project would have no significant adverse environmental impact on the surrounding community and will provide a benefit to the residents. (see <b>Figure 6</b>)</p>

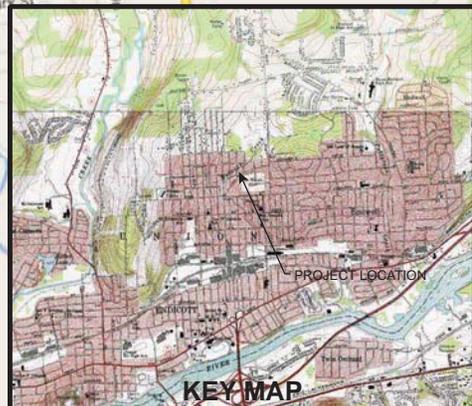


**SITE LOCATION**

APPROX. 3.75 MILES



2,000 FT



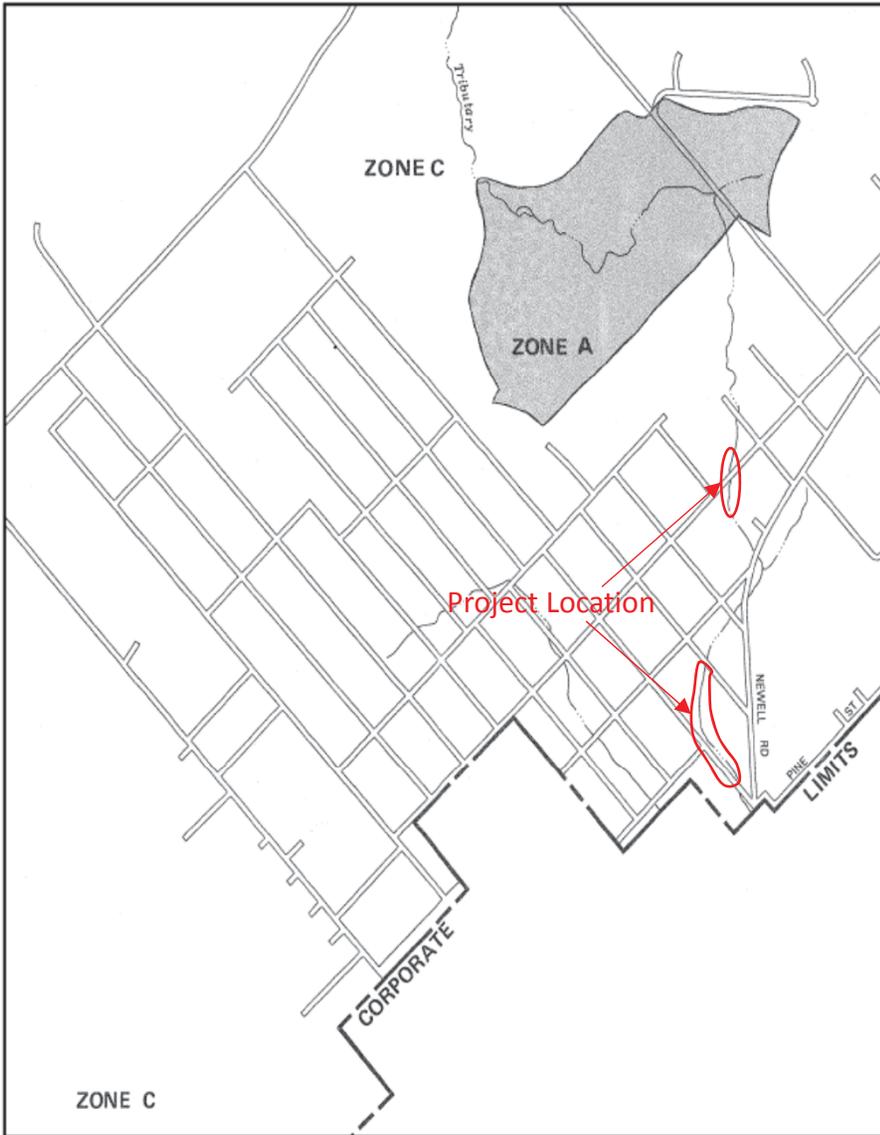
**LiRo Engineers, Inc.**  
3 Aerial Way, Syosset, New York

PROJECT:  
**Town of Union Brixius Creek Stream Bank Restoration Project**

TITLE:  
**DISTANCE TO AIRPORT**

DATE: FEBRUARY 2016  
SCALE: AS SHOWN  
PROJECT NO: 14-128-1256  
DRAWING BY: DPA  
CHK BY:

FIGURE NO:  
**3**



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM  
FLOOD INSURANCE RATE MAP**

**TOWN OF UNION,  
NEW YORK  
BROOME COUNTY**

PANEL 20 OF 35  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
360056 0020 D

MAP REVISED:  
SEPTEMBER 30, 1988



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**KEY TO MAP**

500-Year Flood Boundary	—————	<b>ZONE B</b>
100-Year Flood Boundary	—————	<b>ZONE A1</b>
Zone Designations*		<b>ZONE A5</b>
100-Year Flood Boundary	—————	<b>ZONE B</b>
500-Year Flood Boundary	—————	
Base Flood Elevation Line With Elevation In Feet**	~~~~~513~~~~~	
Base Flood Elevation in Feet Where Uniform Within Zone**		(EL 987)
Elevation Reference Mark		RM7 <sub>X</sub>
Zone D Boundary	—————	
River Mile		*M1.5

\*\*Referenced to the National Geodetic Vertical Datum of 1929

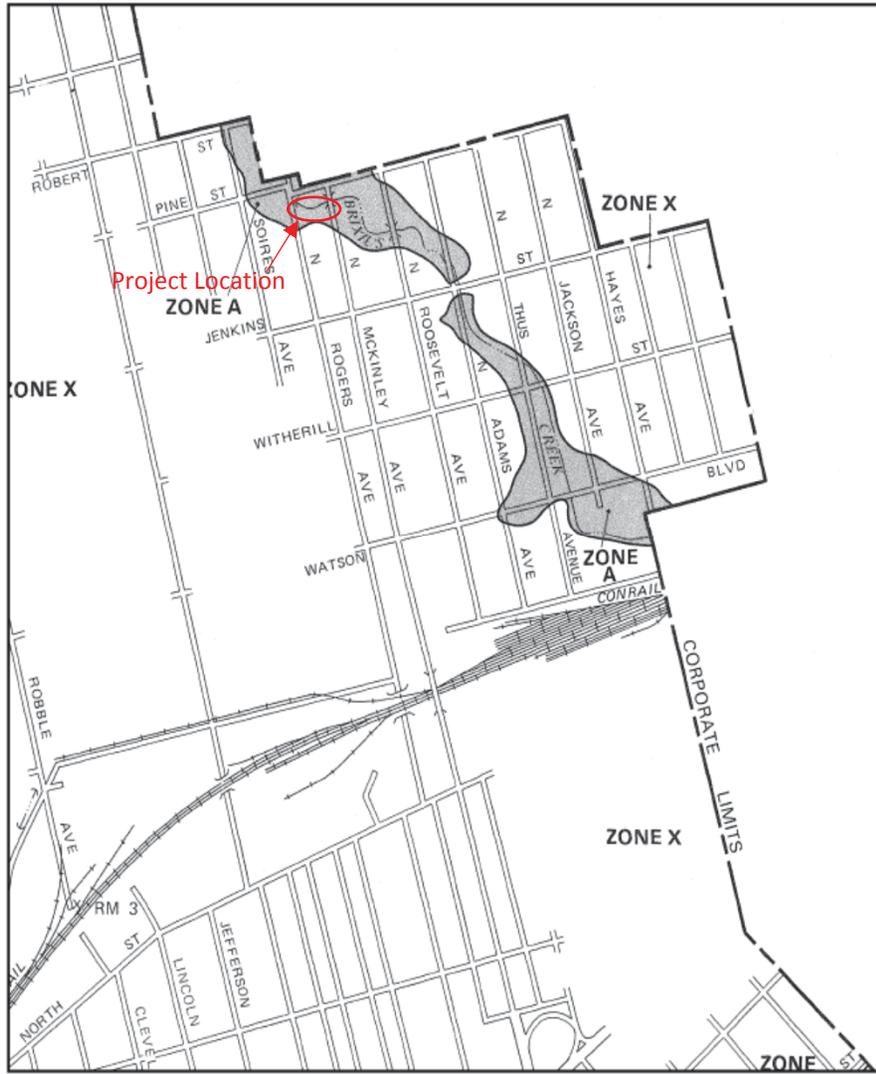
**\*EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
<b>A</b>	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
<b>A0</b>	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
<b>AH</b>	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
<b>A1-A30</b>	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
<b>A99</b>	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
<b>B</b>	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
<b>C</b>	Areas of minimal flooding. (No shading)
<b>D</b>	Areas of undetermined, but possible, flood hazards.
<b>V</b>	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
<b>V1-V30</b>	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

**Brixius Creek Stream Bank  
Restoration Project**  
Union, New York



Flood Insurance  
Rate Map  
FIGURE 4a



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

VILLAGE OF  
ENDICOTT,  
NEW YORK  
BROOME COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER  
360045 0005 B

MAP REVISED:  
SEPTEMBER 7, 1998



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**LEGEND**

-  SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding; velocities also determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.
-  FLOODWAY AREAS IN ZONE AE
-  OTHER FLOOD AREAS
- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
-  OTHER AREAS
- ZONE X** Areas determined to be outside 500-year flood plain.
- ZONE D** Areas in which flood hazards are undetermined.

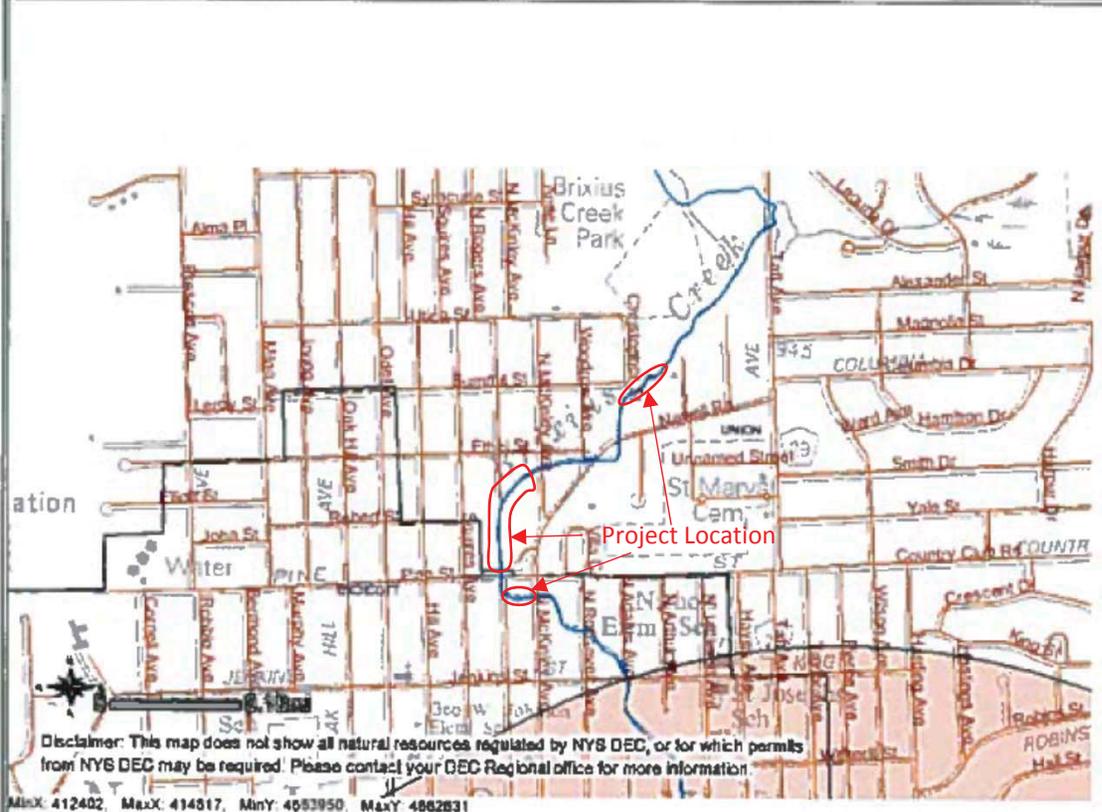
**Brixius Creek Stream Bank  
Restoration Project**  
Union, New York

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Flood Insurance  
Rate Map  
FIGURE 4b

### Brixlus Creek Stream Bank Restoration



#### Visible Layers

- Classified Streams
- Classified Ponds
- State-Regulated Freshwater Wetlands
- Wetland Checkouts
- State-Regulated Freshwater Wetlands
- Rare Plants and Rare Animals
- Significant Natural Communities Buffered
- Natural Communities Nearby
- Significant Natural Communities
- Interstate Highways
- Adirondack Park Boundary
- Counties

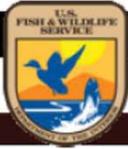
Disclaimer: This map does not show all natural resources regulated by NYS DEC, or for which permits from NYS DEC may be required. Please contact your DEC Regional office for more information.

MinX: 412402, MaxX: 414817, MinY: 4653950, MaxY: 4662631



**Brixlus Creek Stream Bank  
Restoration Project**  
Union, New York

NYSDEC  
Wetlands Map  
FIGURE 5a



# U.S. Fish and Wildlife Service National Wetlands Inventory

## Brixius Creek Stream Bank Restoration

Feb 17, 2016



### Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

### Riparian

- Herbaceous
- Forested/Shrub

### Riparian Status

- Digital Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

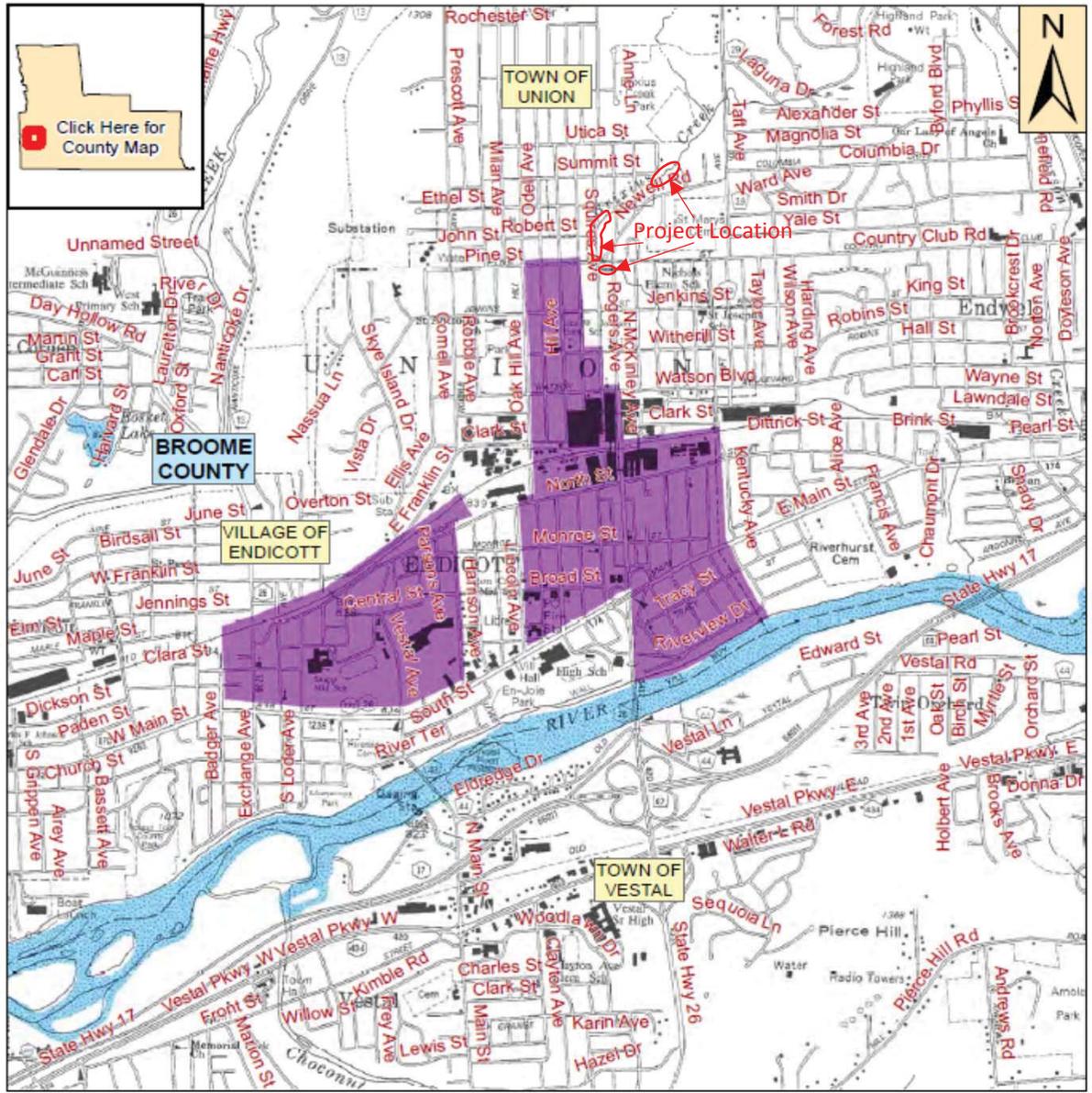


## Brixius Creek Stream Bank Restoration Project Union, New York



USFWS  
Wetlands Map  
FIGURE 5b

# Potential Environmental Justice Areas in the Village of Endicott Broome County, New York



**Legend**

- Potential EJ Area
- County Boundary
- Waterbodies

**Brixius Creek Stream Bank  
Restoration Project**  
Union, New York

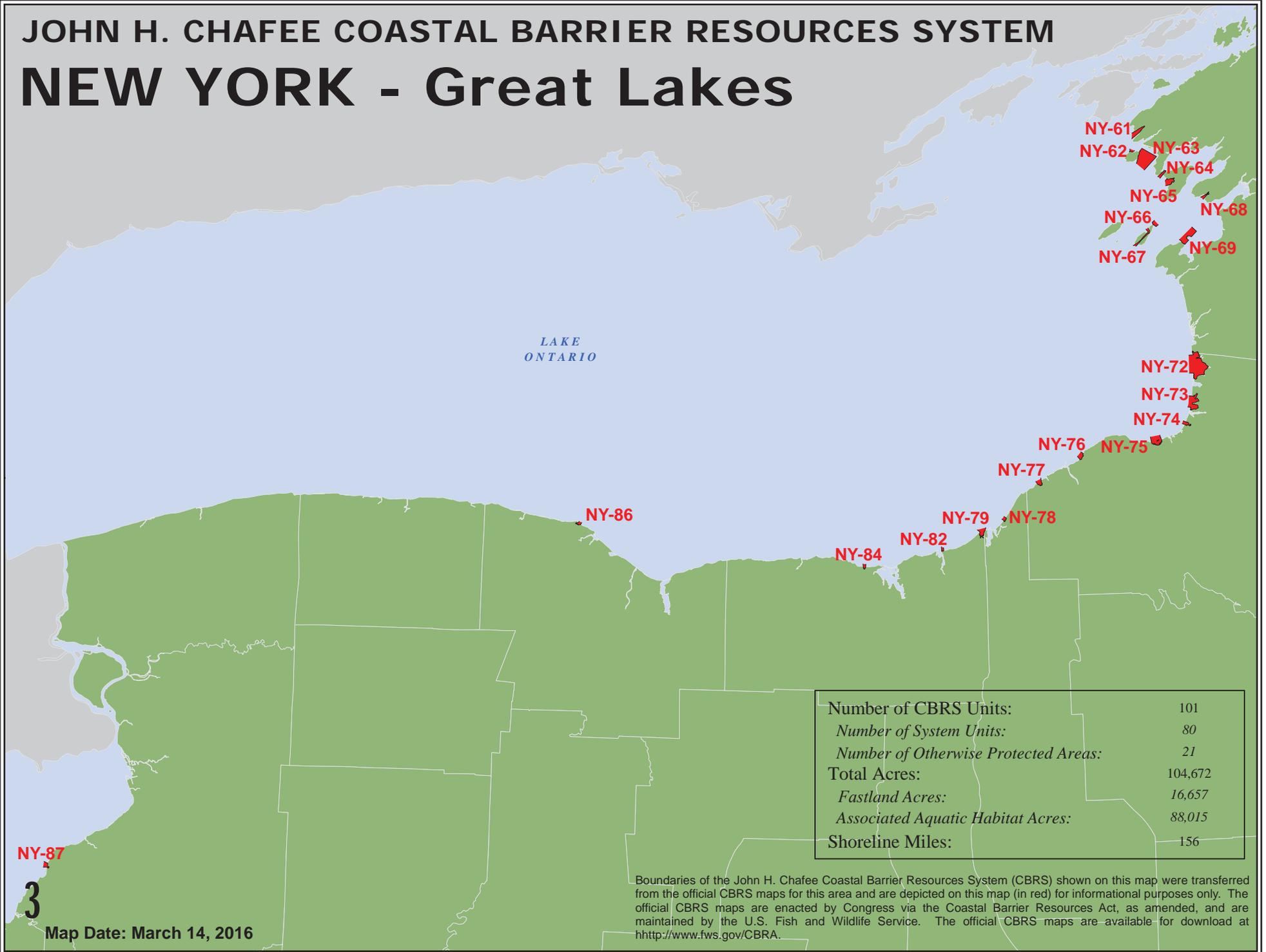


Potential  
Environmental  
Justice Areas  
**FIGURE 6**

Data Source for Potential Environmental Justice Areas:  
U.S. Census Bureau, 2000 U.S. Census

# JOHN H. CHAFEE COASTAL BARRIER RESOURCES SYSTEM

## NEW YORK - Great Lakes



NY-87

3

Map Date: March 14, 2016

Boundaries of the John H. Chafee Coastal Barrier Resources System (CBRS) shown on this map were transferred from the official CBRS maps for this area and are depicted on this map (in red) for informational purposes only. The official CBRS maps are enacted by Congress via the Coastal Barrier Resources Act, as amended, and are maintained by the U.S. Fish and Wildlife Service. The official CBRS maps are available for download at <http://www.fws.gov/CBRA>.

FIGURE 7

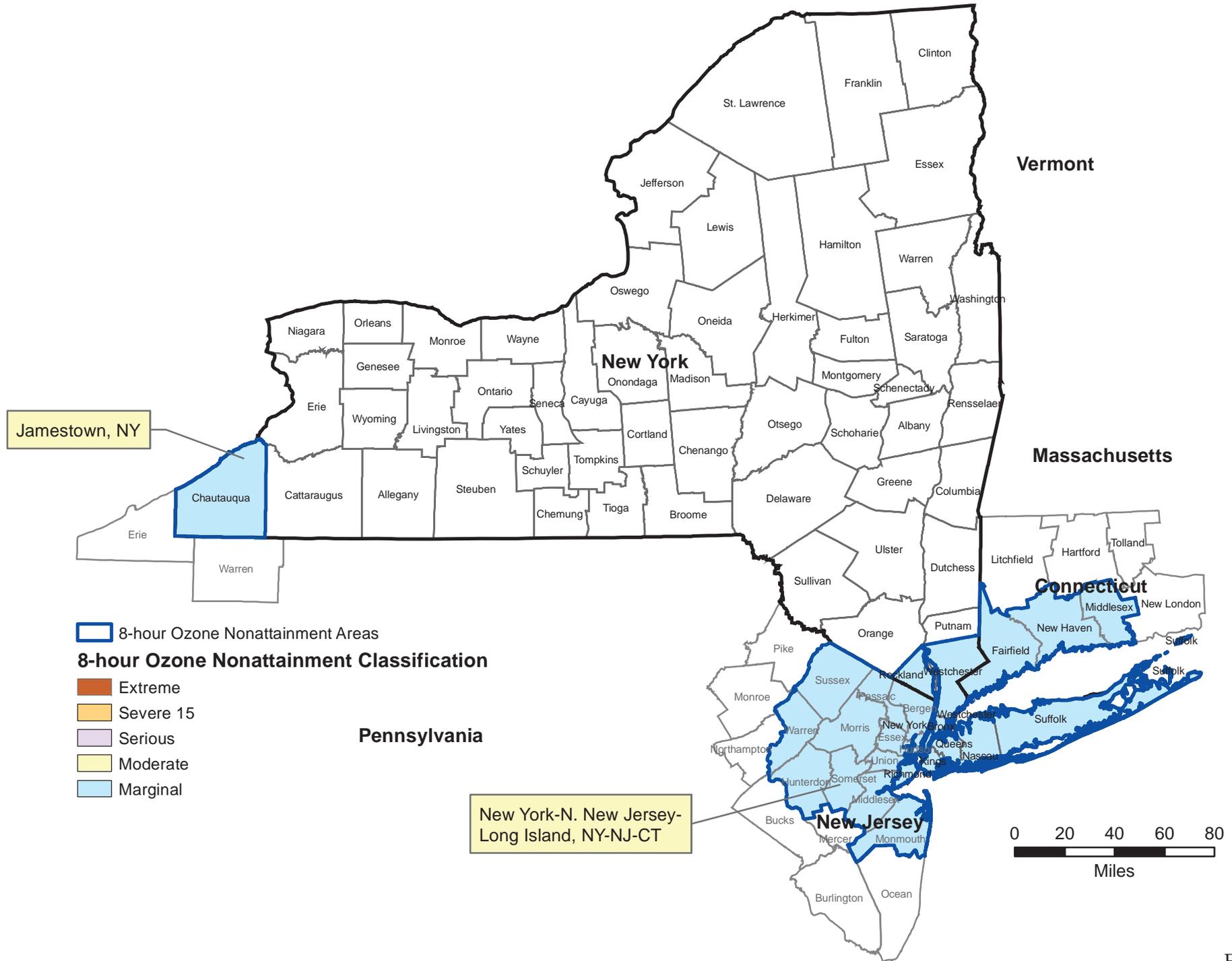


FIGURE 8

## Welcome to the NYS Coastal Boundary Map

🏠 🗺️ 📄 🗣️ Help

🔍 Search

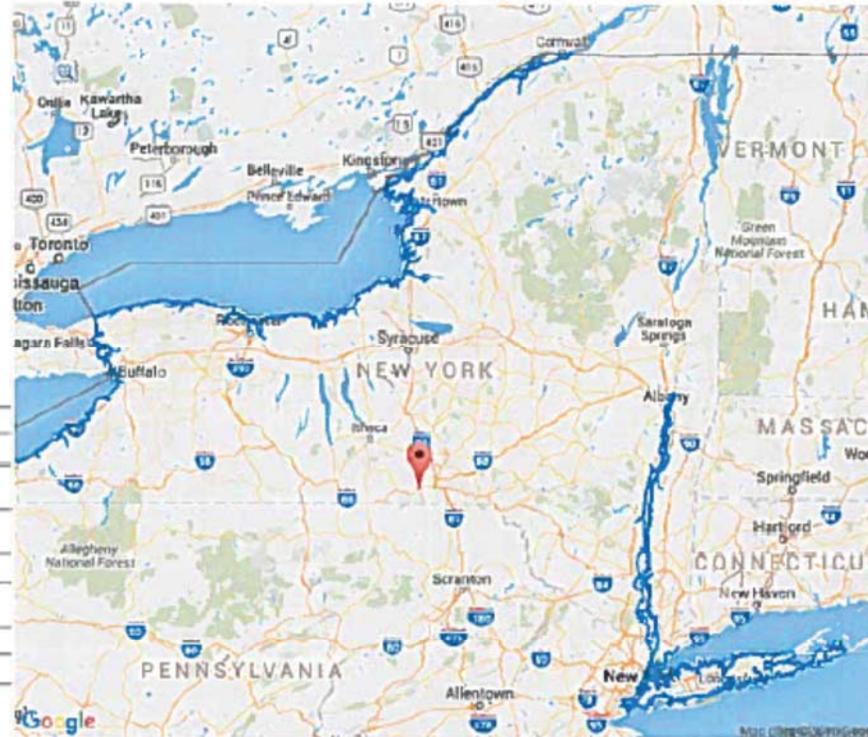
Address:

Find Address

Please note that the address marker is automatically placed along the street while certain activities may take place along the waterward property boundary. Please make sure to click and drag the marker to the exact location of the proposed activity for an accurate assessment of whether or not the activity would be located within any DOS Special Management Areas.

📄 Layers

- Landward Coastal Boundary
- Scenic Areas
- Local Waterfront Revitalization Areas
- Local Waterfront Revitalization Program Communities
- Significant Coastal Fish and Wildlife Habitats
- DOS Identified Canals
- Long Island Sound CMP (excludes LWRP communities)
- Federally Owned Lands
- Native American Lands



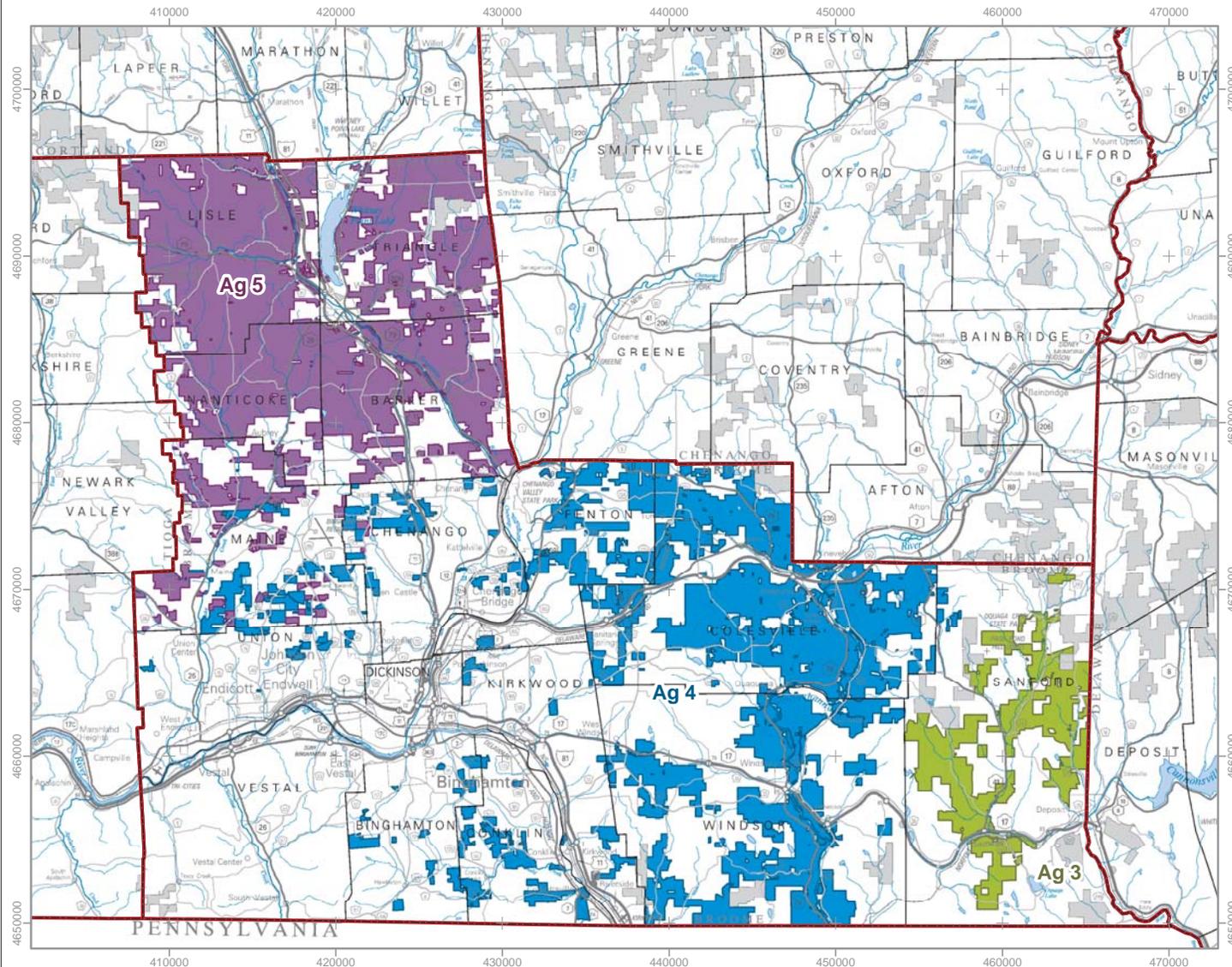
Latitude: 42.803 Longitude: -75.399

The New York State Department of State makes every effort to post accurate and reliable information on this website. The Department of State does not guarantee or warrant that the information on this web site is complete, accurate or current. The information on this website is intended solely for the purpose of electronically providing the public with general coastal consistency related information and convenient access to data resources. The Department of State neither assumes responsibility for the use or application of any material posted on this website nor responsibility for any error, omission or other discrepancy between the electronic and printed versions of documents.

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FIGURE 9

# BROOME COUNTY



**KEY**

- Ag. District 3 ■
- Ag. District 4 ■
- Ag. District 5 ■

**DISTRICT CERTIFICATIONS and TOWNS**

**DISTRICT 3**  
CERTIFIED 5/30/2008  
Sanford

**DISTRICT 4**  
CERTIFIED 10/24/2008  
Binghamton  
Chenango  
Colesville  
Conklin  
Fenton  
Kirkwood  
Maine  
Sanford  
Union  
Windsor

**DISTRICT 5**  
CERTIFIED 12/29/2010  
Barker  
Chenango  
Lisle  
Maine  
Nanticoke  
Triangle

**MAP SOURCE INFORMATION**

Map created at Cornell IRIS (Institute for Resource Information Sciences) <<http://iris.css.cornell.edu>> for the NYS Department of Agriculture and Markets

Agricultural Districts boundary data is available at CUGIR (Cornell University Geospatial Information Repository) website: <<http://cugir.mannlib.cornell.edu>>

Base Map: state250\_bw.tif 1998  
Scale: 1:250,000; County boundaries imported from the file nysshore.e00 from the NYSGIS Clearinghouse website: <<http://www.nysgis.state.ny.us>>

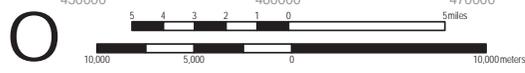
Contains data copyrighted by the NYS Office of Cyber Security

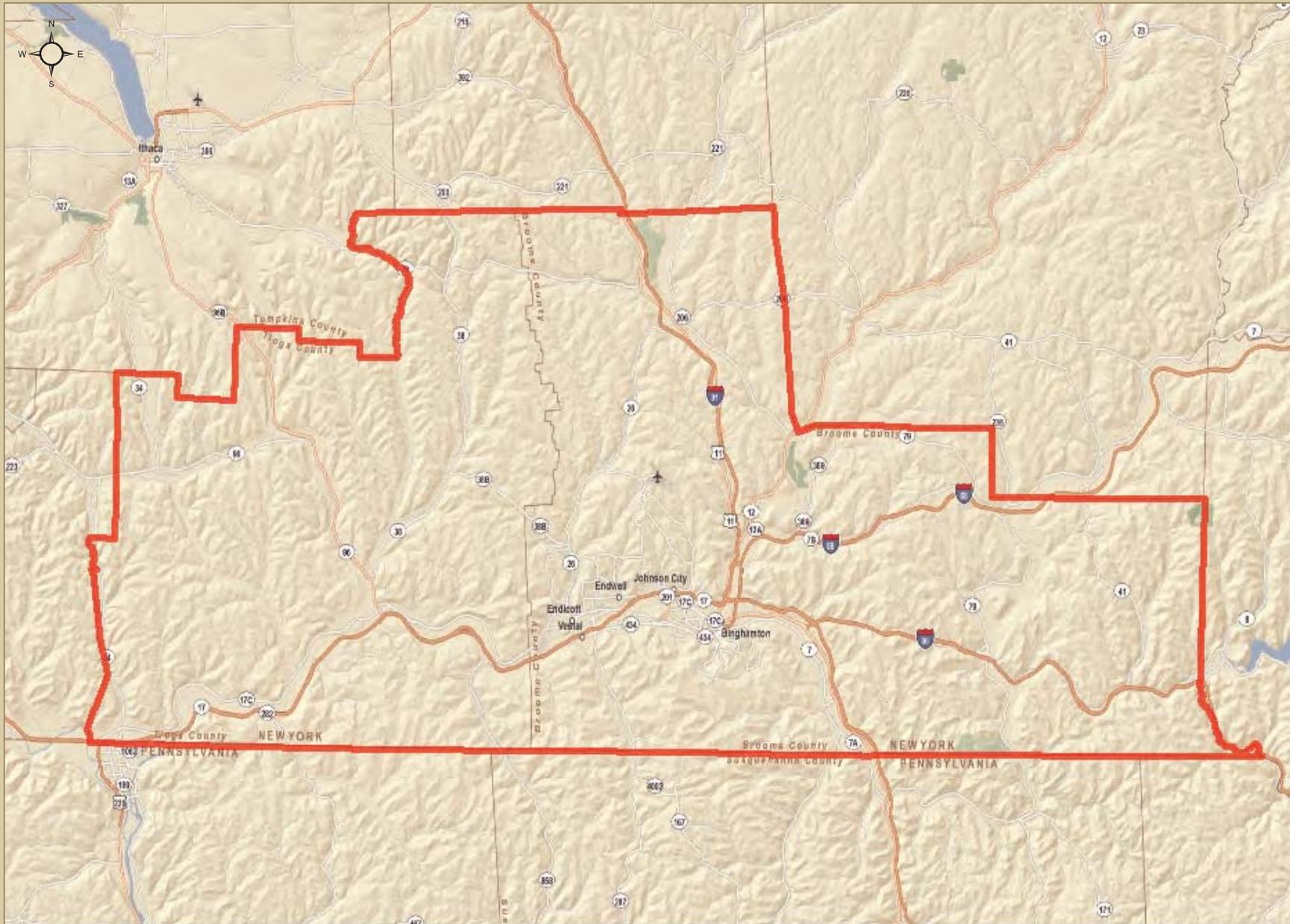
**DISCLAIMER**  
This is a general reference to Agricultural District boundaries; not a legal substitute for actual tax parcel information.

Boundaries as certified prior to January 2011

Open Enrollment Annual Additions are not included in this data. Check with county agencies to confirm the status of individual parcels.

MAP PROJECTION  
UTM Zone 18, NAD83 meters





# NYS Heritage Area Susquehanna



FIGURE 11

Map produced by NYS Office of Parks, Recreation and Historic Preservation, August 2011

# Sole Source Aquifers in New York State

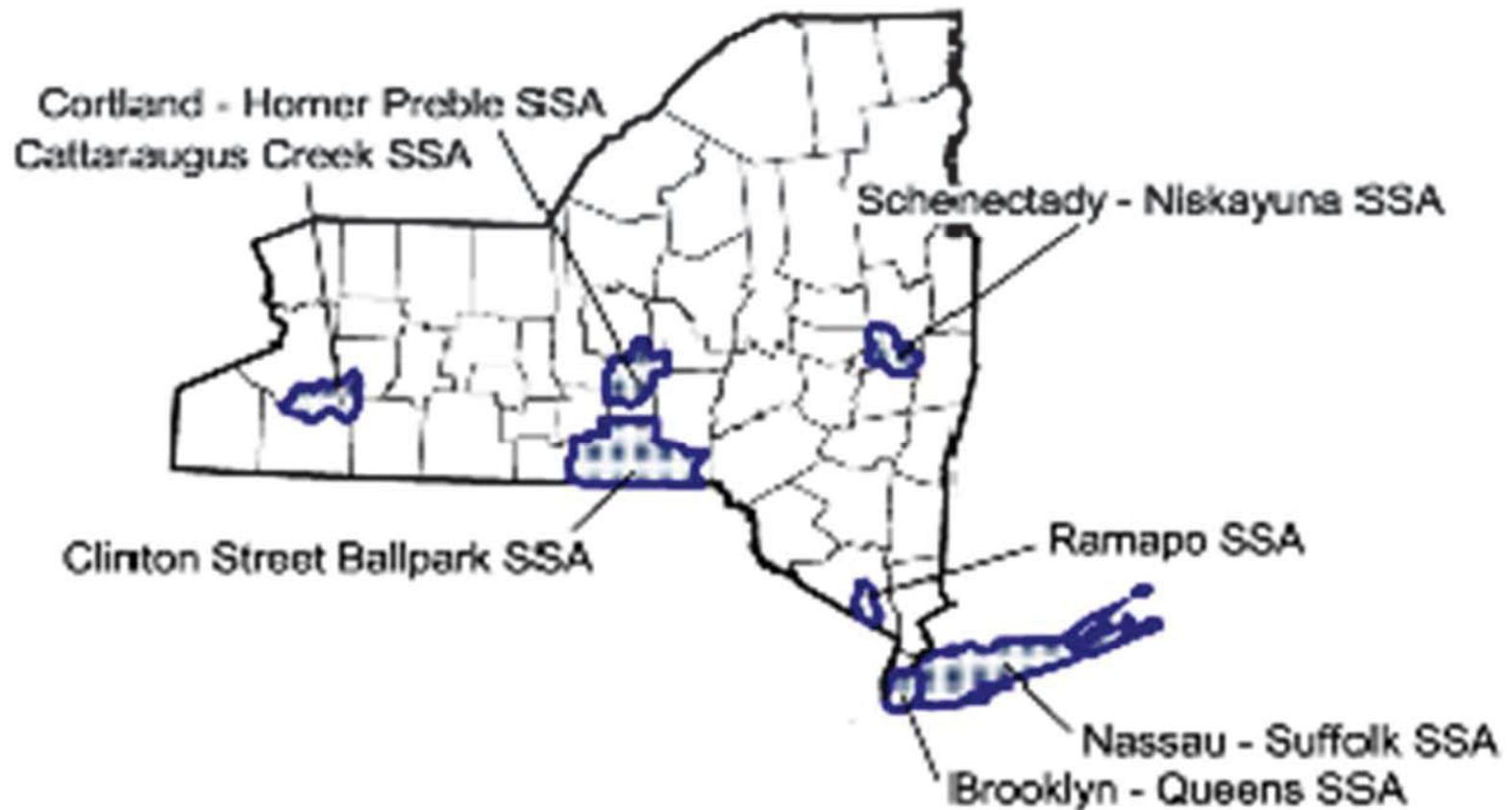


FIGURE 12

**Environmental Assessment Factors** [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>LAND DEVELOPMENT</b>		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	The proposed project involves the placement of heavy stacked stone to mitigate soil erosion along the stream banks. The proposed project would be compatible with existing land uses in the surrounding area and would not result in changes to land use. Therefore, no impacts would result.
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	2	During construction, erosion and sediment controls would be utilized. In addition the project would have a positive effect on arresting continued erosion of the stream bank
Hazards and Nuisances including Site Safety and Noise	2	The proposed project would not result in hazards and nuisances. All state and local construction safety procedures would be followed. Therefore, no impacts would result.
Energy Consumption	2	The proposed project would not affect energy generation or distribution. Therefore, no impact would result.

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>SOCIOECONOMIC</b>		
Employment and Income Patterns	2	The actions comprising the proposed project are limited to stream bank improvements and would have no potential to affect employment opportunities or income patterns.
Demographic Character Changes, Displacement	2	The proposed project is being undertaken to provide stream bank improvements, including the placement of stone fill. The project is not expected to induce any change in demographic character of the surrounding area, displace individuals or families, eliminate jobs, local businesses, or community facilities, or disproportionately affect particular populations.

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>COMMUNITY FACILITIES AND SERVICES</b>		
Educational and Cultural Facilities	2	The proposed project would not introduce any new population that would increase the student population of the area. As a result, the proposed project has no potential to affect educational facilities. In addition, the proposed project would not adversely impact historic/cultural facilities.
Commercial Facilities	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would require retail services or other commercial facilities.
Health Care and Social Services	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not significantly impact social services.
Solid Waste Disposal / Recycling	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would generate solid waste.
Waste Water / Sanitary Sewers	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would generate waste water.
Water Supply	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would generate demand for water.
Public Safety - Police, Fire and Emergency Medical	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would generate demand for police, fire, or emergency medical services.
Parks, Open Space and Recreation	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not introduce any new development that would generate demand for open space resources.

Transportation and Accessibility	2	The proposed project would not introduce any new development that would require new or improved transportation connections and would not add any new demand on transportation services.
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Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>NATURAL FEATURES</b>		
Unique Natural Features, Water Resources	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not result in any impacts to natural features or water resources. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams.
Vegetation, Wildlife	2	The proposed project is limited to the placement of heavy stacked stone to mitigate soil erosion and would not result in any adverse impacts to vegetation or wildlife.
Other Factors	2	N/A

**Additional Studies Performed:**

- A report entitled “Hydrologic and Hydraulic Study for Lower Brixius Creek, Prepared for: Town of Union Planning Department,” dated June 11, 2014, prepared by Woidt Engineering and Consulting, P.C.

**Field Inspection (Date and completed by):**

Several site visits and inspections were performed by Woidt Engineering and Consulting, P.C. and Keystone Associates.

**List of Sources, Agencies and Persons Consulted** [40 CFR 1508.9(b)]:

- Environmental Protection Agency – Greenbook  
<http://epa.gov/airquality/greenbook>
- Environmental Protection Agency – Region 2 Sole Source Aquifers  
<http://www.epa.gov/region2/water/aquifer/index.html>
- Federal Emergency Management Agency – Flood Map Center  
<https://msc.fema.gov/portal>

- Federal Emergency Management Agency Community Status Book Report – New York  
<http://www.fema.gov/cis.NY.pdf>
- “Hydrologic and Hydraulic Study for Lower Brixius Creek, Prepared for: Town of Union Planning Department,” dated June 11, 2014, prepared by Woidt Engineering and Consulting, P.C.
- National Wild and Scenic Rivers Systems  
<http://www.rivers.gov/maps/new-york.php>
- New York State Department of Agriculture and Markets  
<http://www.agriculture.ny.gov/ap/agsservices/maps>
- New York State Department of Environmental Conservation  
Letter to Thomas J. King, dated March 4, 2016
- New York State Department of Environmental Conservation – County Maps Showing Potential Environmental Justice Areas (Broome County)  
[http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/broomeej.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/broomeej.pdf)
- New York State Department of Environmental Conservation – EAF Mapper  
<http://www.dec.ny.gov/eafmapper/>
- New York State Department of Environmental Conservation – Environmental Site Remediation Database  
<https://www.dec.ny.gov/cfm/externalapps/derexternal/index.cfm?pageid=3>
- New York State Department of Environmental Conservation – Environmental Resource Mapper  
<http://www.dec.ny.gov/imsmaps/ERM>
- New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, New York Natural Heritage Program – Information Services  
Letter dated April 25, 2016 to Nicholas Conrad
- New York State Department of State Office of Planning and Development – NYS Coastal Boundary Map  
[http://appext20.dos.ny.gov/coastal\\_map\\_public/map.aspx](http://appext20.dos.ny.gov/coastal_map_public/map.aspx)
- New York State Office of Parks, Recreation and Historic Preservation - Cultural Resource Information System  
<https://cris.parks.ny.gov>

- New York State Office of Parks, Recreation and Historic Preservation – Heritage Areas  
<http://www.nysparks.com/historic-preservation>
- New York State Office of Parks, Recreation and Historic Preservation  
Letter dated March 21, 2016 to Larry Moss, Historic Preservation Technical Specialist
- Delaware Nation  
Letters dated March 21, 2016 to Kerry Holton, President and Chet Brooks, Chief
- Oneida Nation of New York  
Letter dated March 21, 2016 to Ray Halbritter, Nation Representative
- Onondaga Nation of New York  
Letters dated March 21, 2016 to Irving Powless, Chief, Jane Joyal, Attorney at Law, Counsel to Onondaga Nation and Anthony Gonyea, Faithkeeper – Beaver Clan
- Stockbridge – Munsee Community, Board of Mohicans  
Letter dated March 21, 2016 to Shannon Holsey, President
- Tuscarora Nation of New York  
Letter dated March 21, 2016 to Leo Henry, Chief
- United States Department of Housing and Urban Development – Tribal Directory Assessment Tool  
<http://egis.hud.gov/tadat/tribal.aspx>
- United States Environmental Protection Agency  
Letter dated March 28, 2016 to Grace Musemeci, Chief, Environmental Impacts Branch
- United States Fish and Wildlife Service  
Letter dated April 29, 2016 to Robyn A. Niver, Endangered Species Biologist
- United States Fish and Wildlife Service – Coastal Barrier Resources System Mapper  
<http://www.fws.gov/cbra/maps/mapper.html>
- United States Fish and Wildlife Service – IPaC – Information, Planning, and Conservation System  
<http://ecos.fws.gov/ipac>
- United States Fish and Wildlife Service – National Wetlands Inventory – Wetland Mapper  
<http://www.fws.gov/wetlands/Data/Mapper.html>

**List of Permits Obtained or Required:**

- Clean Water Act Section 404 permit for the placement of dredge or fill material into the waters of the United States from the U.S. Army Corps of Engineers
- Individual Water Quality Certification and Protection of Waters permit from the New York State Department of Environmental Conservation
- Local Floodplain Development Permit

**Public Outreach [24 CFR 50.23 & 58.43]:**

The Broome New York Rising Community Reconstruction (NYRCR) Plan identified projects that could advance a regionally-coordinated plan for resiliency in future flood events and that addresses the specific needs of the six included municipalities, including the Town of Union, to respond and recover from future disasters. Initial project recommendations were generated by the Broome NYRCR Planning Committee, which reflected Broome's diverse population and represented residents, businesses, local and county governments, educational institutions, and community organizations. The Committee conducted seven public meetings during the development of the NYRCR Broome Plan, as well as having three widely advertised public engagement events. In addition to advertised public meetings, stakeholders were encouraged to provide feedback to the Committee throughout the planning process using the NYRCR website and Facebook page.

**Cumulative Impact Analysis [24 CFR 58.32]:**

In the Broome Community Reconstruction Program Plan, the Town of Union identified 10 projects that it would like to implement to help recover and become more resilient. Aside from the proposed stream bank restoration project, the Town is proposing a cloverleaf interchange bio-retention/flood mitigation project, a refuse garage relocation, stormwater outflow pipe backflow prevention, Taft Avenue sanitary sewer basin flow metering, Valleyview Drive drainage improvements, Argone Neighborhood and South Endwell Riverfront trail project, BAE Systems floodwall improvement, Fairmont Park protective measures, and rental housing replacement. Although these projects were proposed by the Town, only the stream bank restoration project is moving forward as of the date of this review. Other projects are expected to move forward in the future.

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The cumulative environmental impacts of the project and others proposed by the Community Reconstruction Program Planning Committee are not expected.

**Alternatives** [24 CFR 58.40(e); 40 CFR 1508.9]

There was a study performed that consisted of a hydraulic investigation of the Lower Brixius Watershed and stream. The study analyzed the hydraulic capacity and identified deficiencies of the existing drainage system and the existing stream channel and culvert bridge crossings along Lower Brixius Creek. The study also investigated conceptual improvement options and recommendations regarding possible future projects.

The hydraulic analysis of existing conditions identified that the hydraulic capacity of Brixius Creek is constrained at several cross culvert crossing locations. It was also noted that the hydraulic capacity of several of the culvert crossings were significantly reduced as a result of bedload deposits and debris accumulating at the culvert. When examining project alternatives, it was known that major upgrades to culvert crossings and channel improvements would be very expensive and would significantly impact private property. Due to the relatively low cost, the preferred alternative was sediment management controls including Brixius Creek grade adjustments, construction of cross vane structures, sediment traps and stabilization of stream banks. The sites selected are ones that experience high levels of flooding and drainage problems.

**No Action Alternative** [24 CFR 58.40(e)]:

Flash flooding and stream bank erosion will continue after several excessive storms, if improvements are not undertaken. Currently, there is chronic and problematic flooding along Brixius Creek. Sediment and debris will also continue to compromise the hydraulic capacity of the creek if no actions are taken. Upgrades are needed to prevent localized flooding and drainage problems. Maintaining the status quo would only contribute to continuing erosion and increased sediment deposit downstream.

**Summary of Findings and Conclusions:**

Proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream. The project will help to strengthen the existing drainage system and resolve existing problems. As shown above in the Environmental Assessment Checklist, no significant land development, neighborhood, socioeconomic, natural resources, community facilities or other direct, indirect, or cumulative impacts would result from the proposed project. As shown in the accompanying Statutory Checklists, the proposed project would comply with all relevant regulations listed in 24 CFR subparts 58.5 and 58.6.

## **Mitigation Measures and Conditions [40 CFR 1505.2(c)]**

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

While the proposed project is not expected to result in any environmental impacts, the U.S. Fish and Wildlife Service (USFWS) has listed the Northern Long-eared bat (*Myotis septentrionalis*) as a threatened species that can be found within the vicinity of the project area.

Law, Authority, or Factor	Mitigation Measure
<p><b>Endangered Species</b></p> <p>Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>	<p>The USFWS Information, Planning and Conservation (IPaC) online planning tool Trust Resource List generated for the proposed project on February 17, 2016 (see <b>Appendix A</b>) lists the following Federally-listed species as having the potential to occur within the vicinity of the proposed project: Northern Long-eared Bat (<i>Myotis septentrionalis</i>) (NLEB) - threatened.</p> <p>As discussed in the consultation letter submitted to USFWS on May 25, 2016 (see <b>Appendix A</b>), due to the potential for active season tree removal, GOSR determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.</p>
<p><b>Sole Source Aquifers</b></p> <p>Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149</p>	<p>The proposed project is located on the Clinton Street Ballpark Aquifer system. An Initial Screen/Preliminary Review was submitted to the EPA on March 28, 2016 as per the Memorandum of Understanding (MOU) between EPA and HUD dated August 24, 1990. EPA issued its approval under 40 CFR part 149 on April 15, 2016.</p> <p>(See correspondence in <b>Appendix D</b>)</p> <p>The project must comply with all local groundwater protection and withdrawal provisions. No negative impacts to the Sole Source Aquifer are anticipated.</p>
<p><b>Permit Requirements</b></p>	<p>All permit conditions listed above or otherwise required for activities under the proposed project must be adhered to.</p>

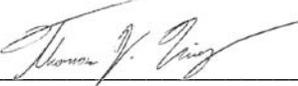
**Determination:**

**Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]

The project will not result in a significant impact on the quality of the human environment.

**Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]

The project may significantly affect the quality of the human environment.

Certifying Officer Signature:  Date: July 13, 2016

Name/Title: Thomas King / Assistant General Counsel and Certifying Officer

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

**APPENDIX A**

U.S. FISH AND WILDLIFE SERVICE TRUST RESOURCES LIST  
ENDANGERED SPECIES ACT DETERMINATIONS  
NEW YORK NATURAL HERITAGE PROGRAM CORRESPONDENCE

# Brixius Creek Stream Bank Restoration

## *IPaC Trust Resource Report*

Generated February 17, 2016 10:22 AM MST, IPaC v2.3.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



US Fish & Wildlife Service

# IPaC Trust Resource Report



NAME

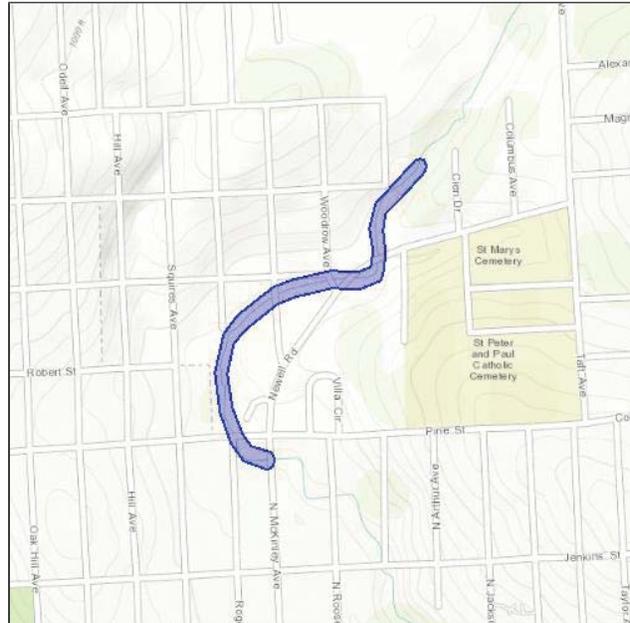
Brixius Creek Stream Bank Restoration

LOCATION

Broome County, New York

IPAC LINK

<http://ecos.fws.gov/ipac/project/JFYBL-XU245-DJVAQ-KKFFW-3XZ234>



## U.S. Fish & Wildlife Contact Information

Trust resources in this location are managed by:

**New York Ecological Services Field Office**

3817 Luker Road

Cortland, NY 13045-9349

(607) 753-9334

## Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

**This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.**

For project evaluations that require FWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[Section 7](#) of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

**A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from the Regulatory Documents section in IPaC.**

The list of species below are those that may occur or could potentially be affected by activities in this location:

### Mammals

**Northern Long-eared Bat** *Myotis septentrionalis* Threatened

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?sPCODE=A0JE](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=A0JE)

### Critical Habitats

**There are no critical habitats in this location**

# Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Additional information can be found using the following links:

- Birds of Conservation Concern  
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds  
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data  
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php>

The following species of migratory birds could potentially be affected by activities in this location:

<b>American Bittern</b> <i>Botaurus lentiginosus</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3</a>	
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i>	Bird of conservation concern
Year-round <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008</a>	
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI</a>	
<b>Blue-winged Warbler</b> <i>Vermivora pinus</i>	Bird of conservation concern
Season: Breeding	
<b>Canada Warbler</b> <i>Wilsonia canadensis</i>	Bird of conservation concern
Season: Breeding	
<b>Golden-winged Warbler</b> <i>Vermivora chrysoptera</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4</a>	
<b>Kentucky Warbler</b> <i>Oporornis formosus</i>	Bird of conservation concern
Season: Breeding	

<b>Least Bittern</b> <i>Ixobrychus exilis</i> Season: Breeding	Bird of conservation concern
<b>Louisiana Waterthrush</b> <i>Parkesia motacilla</i> Season: Breeding	Bird of conservation concern
<b>Olive-sided Flycatcher</b> <i>Contopus cooperi</i> Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN</a>	Bird of conservation concern
<b>Peregrine Falcon</b> <i>Falco peregrinus</i> Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU</a>	Bird of conservation concern
<b>Pied-billed Grebe</b> <i>Podilymbus podiceps</i> Season: Breeding	Bird of conservation concern
<b>Prairie Warbler</b> <i>Dendroica discolor</i> Season: Breeding	Bird of conservation concern
<b>Red-headed Woodpecker</b> <i>Melanerpes erythrocephalus</i> Season: Breeding	Bird of conservation concern
<b>Short-eared Owl</b> <i>Asio flammeus</i> Season: Wintering <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD</a>	Bird of conservation concern
<b>Willow Flycatcher</b> <i>Empidonax traillii</i> Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6</a>	Bird of conservation concern
<b>Wood Thrush</b> <i>Hylocichla mustelina</i> Season: Breeding	Bird of conservation concern
<b>Worm Eating Warbler</b> <i>Helmitheros vermivorum</i> Season: Breeding	Bird of conservation concern

## Refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

**There are no refuges in this location**

# Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

## DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

## DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

## DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

**There are no wetlands in this location**



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

April 29, 2016

Robyn A. Niver  
Endangered Species Biologist  
United States Fish and Wildlife Service  
New York Field Office (Region 5)  
3817 Luker Road  
Cortland, NY 13045

Re: ESA/MBTA/BGEPA Consultation for Town of Union Brixius Creek Stream Bank Restoration Project

Dear Ms. Niver:

The Governor's Office of Storm Recovery (GOSR), acting under the auspices of New York State Homes and Community Renewal's (HCR) Housing Trust Fund Corporation (HTFC), on behalf of the Department of Housing and Urban Development (HUD) is preparing an Environmental Assessment (EA) for the Town of Union Brixius Creek Stream Bank Restoration Project (the "Proposed Action") (**Attachment 1 and Attachment 2**). Funding is being provided by the HUD Community Development Block Grant Disaster Recovery (CDBG-DR) program.

GOSR is initiating informal consultation with your office concerning the proposed action in accordance with the following laws: Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act of 1940 (BGEPA) (54 Stat. 240, as amended; 16 U.S.C. 668-668c).

## **Program Overview**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The Proposed Action involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas

where restoration efforts will be made (**Attachment 1 and Attachment 2**). Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

## **Compliance**

### **Endangered Species Act**

According to the USFWS Information, Planning and Conservation (IPaC) online planning tool and Trust Resource List generated for the proposed project (**Attachment 3**) the Northern Long-eared bat (NLEB) (*Myotis septentrionalis*) is listed as a threatened species that can be found within the vicinity of the project area. The official species list for the proposed project indicated that there is no critical habitat in the project area. There are currently no known maternity roost trees or hibernacula known to be occupied by NLEB within the vicinity of the project location. The project will include the clearing of some trees that may take place during the active season (April-October); it will most likely occur during late August. However, due to the NLEB habitat preferences, the trees being removed on the project site are not likely suitable habitat.

The Northern Long-eared bat is a temperate, insectivorous bat whose life cycle can be coarsely divided into two primary phases - reproduction and hibernation. NLEB hibernate in caves or mines during winter and then emerge in early spring, with males dispersing and remaining solitary until mating season at the end of the summer, and pregnant females forming maternity colonies in which to rear young. No caves or mines occur near the project site. Summer habitat of the NLEB generally includes upland and riparian forest within heavily forested landscapes (Ford et al. 2005, Henderson et al. 2008). Roost trees are usually intact forest, close to the core and away from large clearings, roads, or other sharp edges (Menzel et al. 2002, Owen et al. 2003, Carter and Feldhammer 2005). The project site consists of a cleared stream bank lined with residential yards on either side, and the project site is surrounded by residential development.

As indicated on **Attachment 4**, GOSR determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

### **Migratory Bird Treaty Act**

According to the USFWS IPaC Trust Resource Report, there are several migratory birds of concern that could potentially be affected by the proposed project. The project takes place within the Atlantic Flyway. GOSR determined that the project would have no significant adverse impact on migratory birds or their habitat. It is anticipated that passerine birds would temporarily leave the area during construction due to noise and disturbance.

## **Bald and Golden Eagle Protection Act**

Bald Eagle (*Haliaeetus leucocephalus*) habitat and breeding sites can be found throughout Broome County; however, the stream and residential yard habitats of the project area do not provide suitable habitat for the eagle. GOSR has determined that the proposed action would have no impact on the Bald Eagle.

If you have questions or require additional information regarding this request, please contact me at (518) 474-0647 or [Alicia.Shultz@nyshcr.org](mailto:Alicia.Shultz@nyshcr.org). Thank you for your time and consideration.

Sincerely,



Alicia Shultz  
Community Developer – Environmental Services  
New York State Homes and Community Renewal  
38-40 State Street, Hampton Plaza  
Albany NY 12207

### **Enclosures:**

- Attachment 1 – Project Location Map
- Attachment 2 – Project Site Map
- Attachment 3 – IpaC Trust Resource Report
- Attachment 4 – NLEB Streamlined Consultation Form

### Literature Cited

- Broders, H.G., G.J. Forbes, S. Woodley, and I.D. Thompson. 2006. Range extent and stand selection for forest-dwelling northern long-eared and little brown bats in New Brunswick. *Journal of Wildlife Management* 70: 1174-1184.
- Carter, T.C., and G.A. Feldhamer. 2005. Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois. *Forest Ecology and Management* 219:259-268.
- Ford, W.M., M.A. Menzel, J.L. Rodriguez, J.M. Menzel, and J.B. Johnson. 2005. Relating bat species presence to simple habitat measures in a central Appalachian forest. *Biological Conservation* 126: 528-539.
- Foster, R.W. and A. Kurta, A. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). *Journal of Mammalogy* 80: 659-672.

- Henderson, L.E., L.J. Farrow, and H.G. Broders. 2008. Intra-specific effects of forest loss on the distribution of the forest-dependent northern long-eared bat (*Myotis septentrionalis*). *Biological Conservation* 141:1819-1828.
- Menzel, M.A., S.F. Owen, W.M. Ford, J.W. Edwards, P.B. Wood, B.R. Chapman, and K.V. Miller. 2002. Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest of the central Appalachian mountains. *Forest Ecology and Management* 155:107-114.
- Owen, S.F., M.A. Menzel, W.M. Ford, B.R. Chapman, K.V. Miller, J.W. Edwards, and P.B. Wood. 2003. Home-range size and habitat used by the northern myotis (*Myotis septentrionalis*). *American Midland Naturalist* 150:352-359.



# Governor's Office of Storm Recovery



**Andrew M. Cuomo**  
Governor

**Lisa Bova-Hiatt**  
Interim Executive Director

April 25, 2016

Nicholas Conrad  
New York State Department of Environmental Conservation  
Division of Fish, Wildlife & Marine Resources  
New York Natural Heritage Program – Information Services  
625 Broadway, 5th Floor  
Albany, New York 12233-4757

Re: Natural Heritage Compliance Process Request for the Town of Union Brixius  
Creek Stream Bank Restoration Project

Dear Mr. Conrad:

We are writing to request a search of your Natural Heritage Program files for any records of state-listed plant or animal species, or significant habitats in the vicinity of the project site located in the Town of Union, NY.

The Governor's Office of Storm Recovery (GOSR), acting under the auspices of New York State Homes and Community Renewal's (HCR) Housing Trust Fund Corporation (HTFC), on behalf of the Department of Housing & Urban Development (HUD), are currently preparing an Environmental Assessment (EA) for the Town of Union Brixius Creek Stream Bank Restoration Project (see Figure 1). GOSR is acting as HUD's non-federal representative for the purposes of conducting consultation pursuant to Section 7 of the Endangered Species Act.

The proposed project includes the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

In support of the Environmental Assessment Form being prepared for the project, we are requesting records of NYS threatened, endangered, and special concern species, and significant habitats within 0.5 miles of the area indicated on the attached Figure 1. Specific information on the location of sensitive species or habitats provided by NHP will not be published in any document unless permission is granted by the State.

According to the USFWS, there is one threatened species that is potentially associated with the project site – the Northern Long eared bat (see attached list). In addition, there are several migratory birds of concern that could potentially be affected by the proposed project (see attached list).

If you have questions or require additional information regarding this request, please contact me at (518) 474-0647 or [alicia.shultz@nyshcr.org](mailto:alicia.shultz@nyshcr.org). Thank you for your time and consideration.

Sincerely,



Alicia Shultz  
Community Developer – Environmental Services  
New York State Homes and Community Renewal  
38-40 State Street, Hampton Plaza  
Albany NY 12207

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Division of Fish, Wildlife & Marine Resources**  
**New York Natural Heritage Program**  
625 Broadway, 5<sup>th</sup> Floor, Albany, New York 12233-4757  
**Phone:** (518) 402-8935 • **Fax:** (518) 402-8925  
**Website:** [www.dec.ny.gov](http://www.dec.ny.gov)



May 31, 2016

Alicia Shultz  
New York State Homes & Community Renewal  
38-40 State Street, Hampton Plaza  
Albany, NY 12207

Re: Brixius Creek Stream Bank Restoration  
Town/City: Union County: Broome

Dear Alicia Shultz:

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 at your site or in its immediate vicinity.

The absence of data does not necessarily mean that rare or state-listed species, significant natural communities, or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information that indicates their presence. 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.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities, and other significant habitats maintained in the Natural Heritage Database. Your project may require additional review or permits; 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 7 Office, Division of Environmental Permits, as listed at [www.dec.ny.gov/about/39381.html](http://www.dec.ny.gov/about/39381.html).

Sincerely,

Nicholas Conrad  
Information Resources Coordinator  
New York Natural Heritage Program

## **APPENDIX B**

### **8-STEP PROCESS FOR FLOODPLAIN MANAGEMENT**

# **Floodplain Management & Wetland Protection Plan**

**Governor's Office of Storm Recovery  
U.S. Department of Housing and Urban Development  
Community Development Block Grant – Disaster Recovery**

**Town of Union Brixius Creek Stream Bank Restoration Project  
Town of Union, New York**

Broome County, New York

Date: July 5, 2016

**Executive Order 11988 – Floodplain Management  
Executive Order 11990 – Protection of Wetlands**

**Governor’s Office of Storm Recovery**

**Community Development Block Grant – Disaster Recovery**

**Town of Union Brixius Creek Stream Bank Restoration Project  
Town of Union, New York**

**Broome County, New York Effective Date: May 20, 2016**

This Floodplain Management and Wetlands Protection Plan meets the requirements of 24 CFR Part 55.20 and Executive Orders 11988—Floodplain Management and 11990—Protection of Wetlands - for the Town of Union Brixius Creek Stream Bank Restoration Project (Project) in the Town of Union, Broome County, New York. This Plan documents the eight-step decision making for the Project and pertains to activities within the Special Flood Hazard Area (SFHA) as defined by the Federal Emergency Management Agency (FEMA), or its successors, pursuant to the National Flood Insurance Program (NFIP), or a successor program, whether advisory, preliminary, or final and wetlands as defined by 24 CFR 55.2(b)(11).

**Description of Proposed Program Activities**

The New York State (NYS) Governor’s Office of Storm Recovery (GOSR), an office of the New York State Housing Trust Fund Corporation, is the “responsible entity” in charge of administering New York State’s share of the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program pursuant to the Disaster Relief Appropriations Act of 2013. The CDBG-DR program is designed to address the needs of New York State (NYS) communities devastated by Superstorm Sandy. To date, this funding has been disbursed in three allocations. On March 5, 2013, HUD published Federal Register Notice 78 Fed. Reg. 14329, which established the requirements and processes for the first \$1.71 billion in federal CDBG-DR aid appropriated by the United States Congress and allocated to NYS for disaster relief. On November 18, 2013, HUD issued a second allocation of \$2.097 billion to NYS under Federal Register Notice 78 Fed. Reg. 69104. On October 16, 2014, HUD issued the third and final allocation of \$600 million to NYS under Federal Register Notice 79 Fed. Reg. 62194.

The Governor’s Office of Storm Recovery (GOSR) is conducting an evaluation as required by Executive Order 11988 and Executive Order 11990 in accordance with HUD regulations under 24 CFR Part 55 - Procedures for Making Determinations on Floodplain Management and Protection of Wetlands, to determine the potential effects that Project activity in the floodplain and wetlands would have on the human environment.

The Town of Union is requesting funding from GOSR for the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific

sections have been selected as areas where restoration efforts will be made.

The project to be funded with up to approximately \$300,000 from the CDBG-DR program involves improvements to the stream banks, including the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 600 cubic foot debris basin with stone weirs. The size of the debris basin has been reduced from an original size of 900 cubic feet, due to revisions made to the original plans in order to reduce the amount of slope disturbance and avoid tree removal. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

### **Executive Orders 11988 and 11990 & 24 CFR Part 55**

Pursuant to 24 CFR §55.20, an 8-step process for floodplain management must be completed for proposed actions taking place in a floodplain or wetland. 24 CFR §55.20 implements Executive Order (EO) 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). EO 11988 requires federal agencies (or a state agency implementing a federal funding program) to reduce the loss of life and property caused by floods, minimize impacts of floods on human safety, health, and welfare, and preserve the natural and beneficial functions of floodplains. EO 11990 requires federal agencies (or a state agency implementing a federal funding program) to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

In addition, federal agencies are required to demonstrate that consideration of all practicable alternatives has resulted in the reduction or elimination of long- and short-term adverse impacts associated with occupancy and modifications of the floodplain or wetlands. This 8-step process includes assessing all practicable alternatives and incorporating public review.

Projects located within a Special Flood Hazard Area (SFHA) are subject to Executive Order 11988. Information on where SFHAs are located is available on Flood Insurance Rate Maps (FIRMs) published by FEMA. FEMA uses engineering studies to determine the delineation of these areas or zones subject to flooding. The relevant data source for the SFHA is the latest issued FEMA data or guidance, which includes advisory data, such as Advisory Base Flood Elevations (ABFEs) or preliminary and final FIRMs.

### **24 CFR Part 55.20 Eight-Step Process**

#### **Step One: Determine if a Proposed Action is potentially in a wetland or a floodplain**

GOSR is proposing to fund the proposed action within the 100-year Floodplain, as indicated by Flood Insurance Rate Maps 3600560020D and 3600450005B (see **Exhibit 1**). Projects located within a Special Flood Hazard Area (SFHA) as defined by FEMA are subject to EO 11988. The proposed project is not located in a state or federal designated wetland. Although the project is not located in a designated mapped wetland, it will still adhere to and be in compliance with the guidelines and regulations of Executive Order 11990, in order to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

## **Step Two: Notify public at the earliest possible time of intent to carry out Proposed Action in a floodplain or wetland, and involve the affected and interested public in the decision-making process**

Since the Proposed Action would be located in the floodplain, GOSR must publish an early notice that allows the public an opportunity to provide input into the decision to provide funding for the project. Once the early public notice and comment period is complete, GOSR will assess, consider, and respond to the comments received individually and collectively for the project file.

A 15-day “Early Notice and Public Explanation of a Proposed Activity in a 100-Year Floodplain and Wetland” was published in the Binghamton Press & Sun-Bulletin on April 27, 2016. The 15-day period expired on May 13, 2016. (see **EXHIBIT 2**)

## **Step Three: Identify and evaluate practicable alternatives to locating Proposed Action in a floodplain or wetland**

There was a study performed that consisted of a hydraulic investigation of the Lower Brixius Watershed and stream. The study analyzed the hydraulic capacity and identified deficiencies of the existing drainage system and the existing stream channel and culvert bridge crossings along Lower Brixius Creek. The study also investigated conceptual improvement options and recommendations regarding possible future projects. If the proposed action is not followed and an alternative for doing nothing is selected, then erosion will continue to destroy the stream banks. When selecting the proposed action, possible activities and locations were limited due to constraints from the locations of private property lines as well as the slopes present along the edges of the stream. The proposed action was selected as the best means of preventing continued erosion.

The hydraulic analysis of existing conditions identified that the hydraulic capacity of Brixius Creek is constrained at several cross culvert crossing locations. It was also noted that the hydraulic capacity of several of the culvert crossings were significantly reduced as a result of bedload deposits and debris accumulating at the culvert. When examining project alternatives, it was known that major upgrades to culvert crossings and channel improvements would be very expensive and would significantly impact private property. Due to the relatively low cost, the preferred alternative was sediment management controls including Brixius Creek grade adjustments, construction of cross vane structures, sediment traps and stabilization of stream banks. The sites selected are ones that experience high levels of flooding and drainage problems. Two of the three selected sites chosen for this project are not located in the floodplain.

Addressing the streambed sedimentation requires work within the floodplain and in the adjacent wetlands along the stream corridor. There are no federal or state mapped wetlands in the project area, however, unmapped riparian buffer is presumed to exist along the Brixius Creek corridor. There are no alternatives that do not involve work in this area.

## **Step Four: Identify and evaluate the direct and indirect impacts of the Proposed Action**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency

in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream. The temporary disturbance to the stream is not expected to have any significant negative affect on this riparian buffer area.

**Step Five: Where practicable, design or modify the Proposed Action to minimize the potential adverse impacts to and from the 100-year and to restore and preserve its natural and beneficial functions and values**

Proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream. The project will help to strengthen the existing drainage system and resolve existing problems. As revealed by the hydrologic and hydraulic study, the construction of the proposed project would not impact the 100-year floodplain adversely, but rather, would reduce problems associated with sedimentation. The natural and beneficial functions and values will be undisturbed and preserved. Benefits will be achieved without the creation of impacts or disturbance.

**Step Six: Re-evaluate the Proposed Action**

The proposed action has been examined and analyzed, and it has been determined that it is the most beneficial action with the least amount of impact to the environment.

**Step Seven: Prepare and provide the public with a finding and explanation of final decision that the floodplain or wetland is the only practicable alternative**

Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet). The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

A 7-day “Final Notice and Public Explanation of a Proposed Activity in a 100-Year Floodplain and Wetland” was published in the Binghamton Press & Sun-Bulletin on May 18, 2016. The 7-day period expired on May 25, 2016. (see **EXHIBIT 3**)

**Step Eight: Implement the Action**

GOSR has determined that the proposed project will have no direct or indirect adverse impacts to the Floodplain and has evaluated and eliminated project alternatives in favor of proceeding with the proposed project.

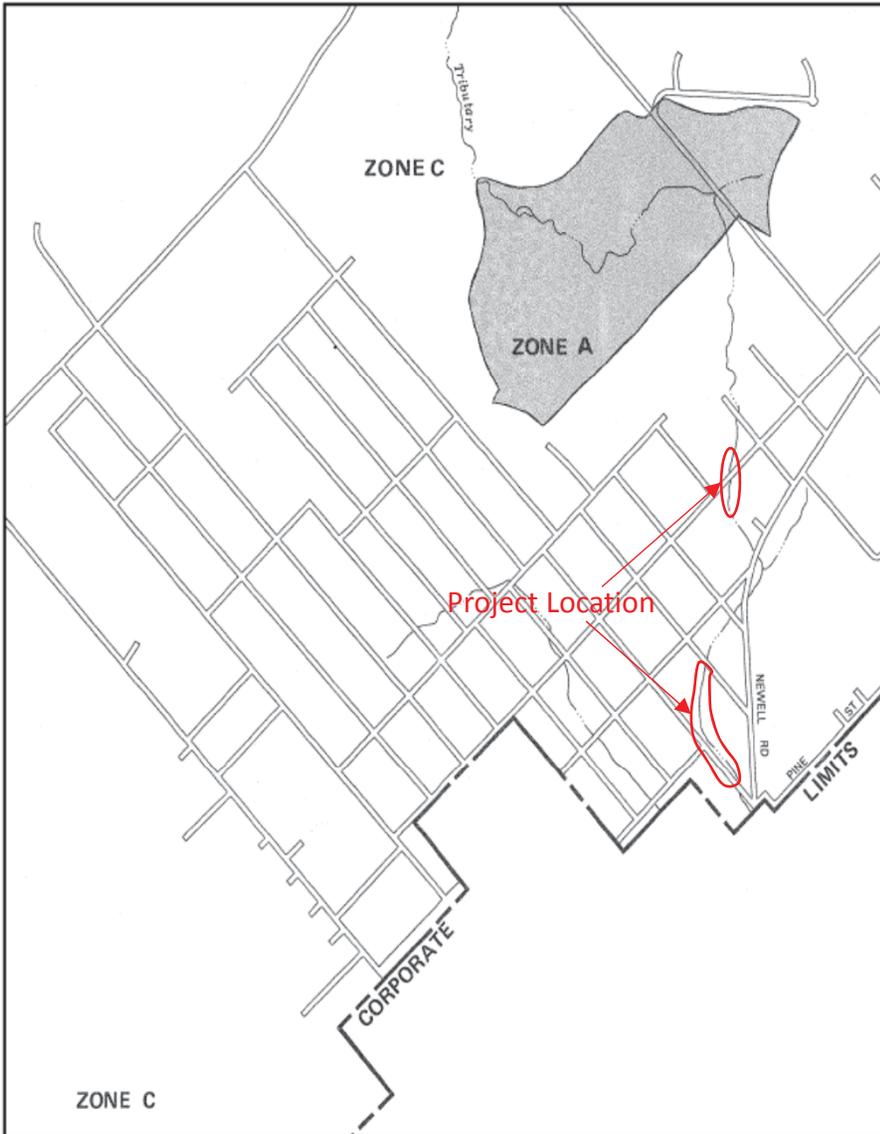
**EXHIBITS**

EXHIBIT 1 Floodplain Maps

EXHIBIT 2 Copy of Early Notice

EXHIBIT 3 Copy of Final Notice

**EXHIBIT 1**  
**FLOODPLAIN MAPS**



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM  
FLOOD INSURANCE RATE MAP**

**TOWN OF UNION,  
NEW YORK  
BROOME COUNTY**

PANEL 20 OF 35  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
360056 0020 D

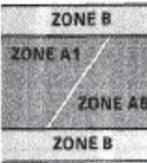
MAP REVISED:  
SEPTEMBER 30, 1988



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**KEY TO MAP**

- 500-Year Flood Boundary ————
- 100-Year Flood Boundary ————
- Zone Designations\* 
- 100-Year Flood Boundary ————
- 500-Year Flood Boundary ————
- Base Flood Elevation Line With Elevation In Feet\*\* ———— 513
- Base Flood Elevation in Feet Where Uniform Within Zone\*\* (EL 987)
- Elevation Reference Mark RM7<sub>X</sub>
- Zone D Boundary ————
- River Mile \*M1.5

\*\*Referenced to the National Geodetic Vertical Datum of 1929

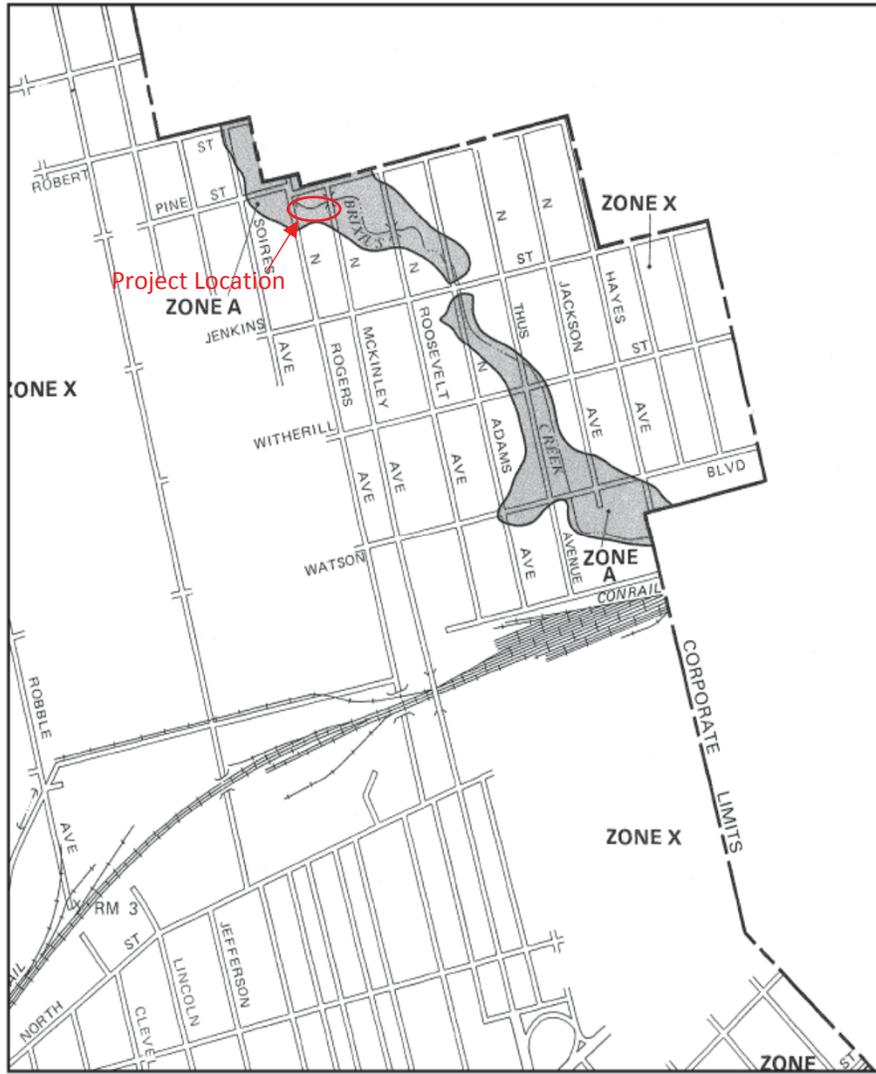
**\*EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

**Brixius Creek Stream Bank  
Restoration Project**  
Union, New York



Flood Insurance  
Rate Map



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
FLOOD INSURANCE RATE MAP

VILLAGE OF  
ENDICOTT,  
NEW YORK  
BROOME COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER  
360045 0005 B

MAP REVISED:  
SEPTEMBER 7, 1998



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**LEGEND**

-  SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding; velocities also determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.
-  FLOODWAY AREAS IN ZONE AE
-  OTHER FLOOD AREAS
- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
-  OTHER AREAS
- ZONE X** Areas determined to be outside 500-year flood plain.
- ZONE D** Areas in which flood hazards are undetermined.

**Brixius Creek Stream Bank  
Restoration Project**  
Union, New York

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Flood Insurance  
Rate Map

## **EXHIBIT 2 – COPY OF EARLY NOTICE**

### **EARLY NOTICE AND PUBLIC EXPLANATION OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND**

#### **TOWN OF UNION BRIXIUS CREEK STREAM BANK RESTORATION PROJECT BROOME COUNTY, NY**

#### **TOWN OF UNION PATTERSON CREEK STREAM BANK RESTORATION PROJECT BROOME COUNTY, NY**

Thomas King, Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue, Suite 1224  
Albany, NY 12260

#### **NOTIFICATION OF ACTIVITY IN A FLOODPLAIN**

To: All interested Agencies, Groups, and Individuals

This is to give notice that the Governor's Office of Storm Recovery (GOSR) is conducting an evaluation as required by Executive Order 11988 and Executive Order 11990 in accordance with U.S. Department of Housing and Urban Renewal (HUD) regulations under 24 CFR 55.20 Subpart C - Procedures for Making Determinations on Floodplain Management and Protection of Wetlands, to determine the potential effects that its activities in the floodplain and wetland would have on the human environment.

#### **Brixius Creek Stream Bank Restoration**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet). The project involves 0.06 acres located in the floodplain, within the Village of Endicott.

## **Patterson Creek Stream Bank Restoration**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Patterson Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The project involves the construction of a doveled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that, within an approximate 205 foot long section of Patterson Creek, beginning 85 feet north of Watson Boulevard. Work in this section also includes the removal of three trees, removal of a low hanging branch which extends into the stream channel and acts as a debris catch, and the removal of un-vegetated gravel bars along the length of the new wall to 6 inches above the water's elevation at time of construction. The second section of Patterson Creek selected for improvements is approximately 650 feet in length, beginning 200 feet north of Smith Drive. Work in this section involves the construction of a doveled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that. Work in this section also includes the removal of a failing retaining wall, as well as four trees and a piece of existing concrete sitting in the stream. The project involves 0.9 acres located in the floodplain.

Funding for the projects will be provided by the HUD Community Development Block Grant – Disaster Recovery (CDBG-DR) program for storm recovery activities in New York State.

A floodplains map based on the FEMA Base Flood Elevation Maps and wetlands maps based on the National Wetland Inventory and New York State Department of Environmental Conservation (NYSDEC) data have been prepared for these projects and are available for review at <http://www.stormrecovery.ny.gov/environmental-docs>.

There are three primary purposes for this notice. First, people who may be affected by activities in floodplains or wetlands and those who have an interest in the protection of the natural environment should be given an opportunity to express their concerns and provide information about these areas. Second, adequate public notice is an important public education tool. The dissemination of information about floodplains and wetlands facilitates and enhances Federal efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the Federal government determines it will participate in actions taking place in floodplains or wetlands, it must inform those who may be put at greater or continued risk.

## **PUBLIC COMMENTS**

Any individual, group, or agency may submit written comments on the proposed action or a request for further information to Thomas King, Assistant General Counsel and Certifying Officer, Governor's Office of Storm Recovery, 99 Washington Avenue, Suite 1224, Albany, NY

12260; email: NYSCDBG\_DR\_ER@nyshcr.org. All comments received by **May 13, 2016** will be considered.

Thomas King, Assistant General Counsel and Certifying Officer

April 27, 2016

AFFIDAVIT OF PUBLICATION

State of New York  
City of Binghamton  
County of Broome, ss.:

Stacie Heath being duly sworn, deposes and says that she is the Principal Clerk of the Binghamton Press Company Inc., publisher of the following newspaper printed in Johnson City published in the City of Binghamton New York and of general circulation in the Counties of Broome, Chenango, Delaware, Tioga State of New York and Susquehanna County State of Pennsylvania PRESS & SUN BULLETIN.

A notice of which the annexed is a printed copy, was published on the following dates:  
4/27/2016

Stacie Heath  
Stacie Heath

Sworn to before me this 27<sup>th</sup> day of April, 2016

JoAnn Gilmore  
Notary Public

JoAnn Gilmore  
Notary Public, State of New York  
Tioga County No. 01GI6338551  
Commission expires March 14, 2020



EARLY NOTICE AND PUBLIC EXPLANATION  
OF A PROPOSED ACTIVITY IN A 100-YEAR  
FLOODPLAIN AND WETLAND

TOWN OF UNION BRIDUS CREEK STREAM  
BANK RESTORATION PROJECT  
BROOME COUNTY, NY

TOWN OF UNION PATTERSON CREEK STREAM  
BANK RESTORATION PROJECT  
BROOME COUNTY, NY

Thomas King, Assistant General Counsel and  
Certifying Officer Governor's Office of Storm Re-  
covery  
99 Washington Avenue, Suite 1224  
Albany, NY 12260

NOTIFICATION OF ACTIVITY IN A FLOODPLAIN

To: All interested Agencies, Groups, and Individuals

This is to give notice that the Governor's Office of Storm Recovery (GOSR) is conducting an evaluation as required by Executive Order 11988 and Executive Order 11990 in accordance with U.S. Department of Housing and Urban Renewal (HUD) regulations under 24 CFR 55.20 Subpart C - Procedures for Making Determinations on Floodplain Management and Protection of Wetlands, to determine the potential effects that its activities in the floodplain and wetland would have on the human environment.

**Bridus Creek Stream Bank Restoration**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Bridus Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Bridus Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 linear feet). The project involves 0.06 acres located in the floodplain, within the Village of Endicott.

**Patterson Creek Stream Bank Restoration**

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Patterson Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

The project involves the construction of a doweled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that, within

## **EXHIBIT 3 – COPY OF FINAL NOTICE**

### **FINAL NOTICE AND PUBLIC EXPLANATION OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN AND WETLAND**

#### **TOWN OF UNION BRIXIUS CREEK STREAM BANK RESTORATION PROJECT BROOME COUNTY, NY**

#### **TOWN OF UNION PATTERSON CREEK STREAM BANK RESTORATION PROJECT BROOME COUNTY, NY**

The New York Governor's Office of Storm Recovery (GOSR), proposes to provide federal funding to the Town of Union, as Subrecipient, for stream bank restoration work to sections of Brixius Creek and Patterson Creek. GOSR, an office of New York State Homes and Community Renewal's (HCR) Housing Trust Fund Corporation (HTFC), is responsible for the direct administration of the United States Department of Housing and Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) program in New York State. GOSR proposes to provide CDBG-DR funding to the Town of Union, New York.

#### **Brixius Creek Stream Bank Restoration**

The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet). The project involves 0.06 acres located in the floodplain, within the Village of Endicott.

#### **Patterson Creek Stream Bank Restoration**

The project involves the construction of a doveled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that, within an approximate 205 foot long section of Patterson Creek, beginning 85 feet north of Watson Boulevard. Work in this section also includes the removal of three trees, removal of a low hanging branch which extends into the stream channel and acts as a debris catch, and the removal of un-vegetated gravel bars along the length of the new wall to 6 inches above the water's elevation at time of construction. The second section of Patterson Creek selected for improvements is approximately 650 feet in length, beginning 200 feet north of Smith Drive. Work in this section involves the construction of a doveled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that. Work in this section also includes the removal of a failing retaining wall, as well as four trees and a piece of existing concrete sitting in the stream. The project involves 0.9 acres located in the floodplain.

**Final Notification of Activities in a Floodplain:** This is to give notice that the GOSR has conducted an evaluation as required by Executive Order 11988 and executive Order 11990 in accordance with U.S. Department of Housing and Urban Renewal (HUD) regulations under 24 CFR 55.20 Subpart C - Procedures for Making Determinations on Floodplain Management, to determine the potential effects that its activity in the floodplain and wetland would have on the human environment.

A floodplains map based on the FEMA Base Flood Elevation Maps and wetlands maps based on the National Wetland Inventory and New York State Department of Environmental Conservation (NYSDEC) data have been prepared for this project and are available for review at <http://www.stormrecovery.ny.gov/environmental-docs>

There are three primary purposes for this notice. First, people who may be affected by activities in floodplains or wetlands and those who have an interest in the protection of the natural environment should be given an opportunity to express their concerns and provide information about these areas. Second, adequate public notice is an important public education tool. The dissemination of information about floodplains and wetlands facilitates and enhances Federal efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the Federal government determines it will participate in actions taking place in floodplains or wetlands, it must inform those who may be put at greater or continued risk.

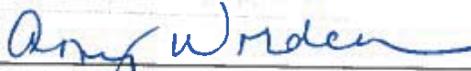
**Floodplain Management Plan:** GOSR has reevaluated the alternatives to Project activities in the floodplain and wetlands and has determined that there is no practicable alternative. A full copy of the Floodplain/Wetlands Management Plan (8-step process) documenting compliance with Executive Order 11988 can be viewed online at <http://www.stormrecovery.ny.gov/environmental-docs>. Any individual, group, or agency may submit written comments on the Floodplain Management Plan to Thomas King, Assistant General Counsel and Certifying Officer, Governor's Office of Storm Recovery, 99 Washington Avenue, Suite 1224, Albany, NY 12260; email: [NYSCDBG\\_DR\\_ER@nyshcr.org](mailto:NYSCDBG_DR_ER@nyshcr.org); or by telephone at (518) 473-0015, Monday through Friday, 9:00 a.m. to 5:00 p.m. All comments received by **May 31, 2016** will be considered.

AFFIDAVIT OF PUBLICATION

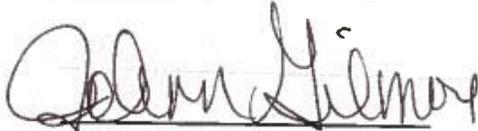
State of New York  
City of Binghamton  
County of Broome, .ss.:

Amy Worden being duly sworn, deposes and says that she is the Principal Clerk of the Binghamton Press Company Inc., publisher of the following newspaper printed in Johnson City published in the City of Binghamton New York and of general circulation in the Counties of Broome, Chenango, Delaware, Tioga State of New York and Susquehanna County State of Pennsylvania PRESS & SUN BULLETIN.

A notice of which the annexed is a printed copy, was published on the following dates:  
**May 24, 2016**

  
Amy Worden

Sworn to before me this 2<sup>nd</sup> day of June, 2016

  
Notary Public

JoAnn Gilmore  
Notary Public, State of New York  
Tioga County No. 01GI6338551  
Commission expires March 14, 2020

FINAL NOTICE AND PUBLIC EXPLANATION OF  
A PROPOSED ACTIVITY IN A 100-YEAR FLOOD  
PLAIN AND WETLAND

TOWN OF UNION BRISIUS CREEK STREAM  
BANK RESTORATION PROJECT  
BROOME COUNTY, NY

TOWN OF UNION PATTERSON CREEK STREAM  
BANK RESTORATION PROJECT  
BROOME COUNTY, NY

The New York Governor's Office of Storm Recovery (GOSR), proposes to provide federal funding to the Town of Union, as Subrecipient, for stream bank restoration work to sections of Brisius Creek and Patterson Creek. GOSR, an office of New York State Homes and Community Renewal's (HCR) Housing Trust Fund Corporation (HTFC), is responsible for the direct administration of the United States Department of Housing and Urban Development (HUD) Community Development Block Grant - Disaster Recovery (CDBG-DR) program in New York State. GOSR proposes to provide CDBG-DR funding to the Town of Union, New York.

**Brisius Creek Stream Bank Restoration**  
The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brisius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet). The project involves 0.06 acres located in the floodplain, within the Village of Endicott.

**Patterson Creek Stream Bank Restoration**  
The project involves the construction of a doweled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that, within an approximate 205 foot long section of Patterson Creek, beginning 85 feet north of Watson Boulevard. Work in this section also includes the removal of three trees, removal of a low hanging branch which extends into the stream channel and acts as a debris catch, and the removal of un-vegetated gravel bars along the length of the new wall to 6 inches above the water's elevation at time of construction. The second section of Patterson Creek selected for improvements is approximately 650 feet in length, beginning 200 feet north of Smith Drive. Work in this section involves the construction of a doweled stacked stone wall to a height above the 100 year event or equal to the adjoining backyard and grassed slope above that. Work in this section also includes the removal of a failing retaining wall, as well as four trees and a piece of existing concrete sitting in the stream. The project involves 0.9 acres located in the floodplain.

Final Notification of Activities in a Floodplain: This is to give notice that the GOSR has conducted an evaluation

<http://www.stormreco>  
Individual, group, or agency  
on the Floodplain Management Plan 1071 from  
tant General Counsel and Certifying Officer, Governor's Office of Storm Recovery, 99 Washington Avenue, Suite 1224, Albany, NY 12260, email: NYSCDBG\_DR\_LEADER@nysher.org, or by telephone at (518) 473-0015, Monday through Friday, 9:00 a.m. to 5:00 p.m. All comments received by May 31, 2016 will be considered.  
5/24/2016

RECEIVED

JUN 07 2016

LIRO ENGINEERS, INC.

**APPENDIX C**

HISTORIC AND ARCHAEOLOGICAL PRESERVATION DETERMINATION



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Mr. Larry Moss  
Historic Preservation Technical Specialist  
New York State Office of Parks, Recreation and Historic Preservation Division of Historic Preservation  
Peebles Island, P.O. Box 189  
Waterford, New York 12188-0189

Re: Section 106 Compliance for Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Mr. Moss:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. §5301 et seq.), the Governor's Office of Storm Recovery (GOSR), an office of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"), is serving as the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and request for consultation.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. A consultation request for the project described herein will also be sent to the Delaware Nation, the Delaware Tribe of Indians, the Oneida Indian Nation, the Onondaga Nation, the Stockbridge-Munsee Community Band of Mohicans, and the Tuscarora Nation of New York. In accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. §306108), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action.

Area of Potential Effect: GOSR proposes to fund an application for stream bank restoration work to sections of Brixius Creek, east of Christopher Street to the eastern edge of N. McKinley Avenue, in the Town of Union, New York. A map depicting the area of potential effect is enclosed with this letter.

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

Proposed Project Description: The project includes the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

Request for Comment: The purpose of this letter is to initiate consultation pursuant to Section 106 of the NHPA per the implementing regulations at 36 Code of Federal Regulations (CFR) Part 800. GOSR respectfully requests your review of the proposed project described herein. If you have any questions or require additional information regarding this request, please feel free to contact me at (646) 417-4660 or via email at [Thomas.King@stormrecovery.ny.gov](mailto:Thomas.King@stormrecovery.ny.gov). Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. King". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Location Maps



## Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO  
Governor

ROSE HARVEY  
Commissioner

March 31, 2016

Thomas King  
Governor's Office of Storm Recovery  
99 Washington Ave, Suite 1224  
Albany, NY 12231

Re: HTF/ GOSR  
Brixius Creek Stream Bank Restoration  
Town of Union, Broome County

16PR01788

Dear Mr. King:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the submitted materials in accordance with Title 54, Section 306108 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/ Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based on this review, the opinion of the SHPO is that there will be No Historic Properties Affected by the proposed undertaking.

If I can be of further assistance, please contact me at (518) 268-2187 or [Larry.moss@parks.ny.gov](mailto:Larry.moss@parks.ny.gov)

Sincerely,

Larry K Moss, Historic Preservation Technical Specialist  
CC: Mary Barthelme

---

**Division for Historic Preservation**

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • [www.nysparks.com](http://www.nysparks.com)



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Kerry Holton, President  
Delaware Nation  
P.O. Box 825  
Anadarko, OK 73005

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear President Kerry Holton:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. GOSR proposes to provide funding for stream bank restoration work to sections of Brixius Creek in the Town of Union, Broome County, New York. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 302706(b)), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, the Delaware Tribe of Indians, the Oneida Indian Nation, the Onondaga Nation, the Stockbridge-Munsee Community Band of Mohicans, and the Tuscarora Nation of New York.

Area of Potential Effect: GOSR proposes to fund an application for stream bank restoration work to sections of Brixius Creek, east of Christopher Street to the eastern edge of N. McKinley Avenue, in the Town of Union, New York. A map depicting the area of potential effect is enclosed with this letter.

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

Proposed Project Description: The project includes the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

Pursuant to NHPA Section 106, GOSR has initiated consultation with the State Historic Preservation Office (SHPO) concerning this Project and its potential to affect historic resources that are listed on or eligible for listing on the NRHP. No comments have been received from the SHPO to date. GOSR is completing an environmental review for this project pursuant to HUD NEPA regulations. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

I am available to answer any questions that you may have regarding this action. If you have any questions, please feel free to contact me at (518) 473-0015 or via email at [Thomas.King@stormrecovery.ny.gov](mailto:Thomas.King@stormrecovery.ny.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. King", with a long, sweeping horizontal line extending to the right.

Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map

**Electronic letter sent to:**

Nekole Alligood, Cultural Preservation Director  
Delaware Nation  
P.O. Box 825  
Anadarko, OK 73005



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Shannon Holsey, President  
Stockbridge-Munsee Community, Band of the Mohicans  
N8476 Moh He Con Nuck Road  
Bowler, WI 54416

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear President Shannon Holsey:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Community to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. GOSR proposes to provide funding for stream bank restoration work to sections of Brixius Creek in the Town of Union, Broome County, New York. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 302706(b)), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, the Delaware Tribe of Indians, the Oneida Indian Nation, the Onondaga Nation, the Stockbridge-Munsee Community Band of Mohicans, and the Tuscarora Nation of New York.

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Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

I am available to answer any questions that you may have regarding this action. If you have any questions, please feel free to contact me at (518) 473-0015 or via email at [Thomas.King@stormrecovery.ny.gov](mailto:Thomas.King@stormrecovery.ny.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. King". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map

**Electronic letter sent to:**

Bonney Hartley  
THPO, New York Office  
Stockbridge-Munsee Community, Band of the Mohicans  
65 1st Street  
Troy, NY 12180



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Ray Halbritter, Nation Representative  
Oneida Indian Nation  
5218 Patrick Road  
Verona, NY 13478

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Ray Halbritter:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery (“CDBG-DR”) funds from the United States Department of Housing and Urban Development (“HUD”). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. GOSR proposes to provide funding for stream bank restoration work to sections of Brixius Creek in the Town of Union, Broome County, New York. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 302706(b)), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, the Delaware Tribe of Indians, the Oneida Indian Nation, the Onondaga Nation, the Stockbridge-Munsee Community Band of Mohicans, and the Tuscarora Nation of New York.

Area of Potential Effect: GOSR proposes to fund an application for stream bank restoration work to sections of Brixius Creek, east of Christopher Street to the eastern edge of N. McKinley Avenue, in the Town of Union, New York. A map depicting the area of potential effect is enclosed with this letter.

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Pursuant to NHPA Section 106, GOSR has initiated consultation with the State Historic Preservation Office (SHPO) concerning this Project and its potential to affect historic resources that are listed on or eligible for listing on the NRHP. No comments have been received from the SHPO to date. GOSR is completing an environmental review for this project pursuant to HUD NEPA regulations. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

I am available to answer any questions that you may have regarding this action. If you have any questions, please feel free to contact me at (518) 473-0015 or via email at [Thomas.King@stormrecovery.ny.gov](mailto:Thomas.King@stormrecovery.ny.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. King". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map

**Electronic letter sent to:**

Jesse Bergevin, Historic Resources Specialist  
Oneida Indian Nation  
2037 Dream Catcher Plaza  
P.O. Box 662  
Oneida, NY 13421-0662



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Irving Powless, Chief  
Onondaga Nation  
RR#1, Box 319-B  
Onondaga Nation via Nedrow, NY 13120

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Chief Irving Powless:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

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Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

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Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Anthony Gonyea, Faithkeeper-Beaver Clan  
Onondaga Nation  
RR#1, Box 245  
Onondaga Nation via Nedrow, NY 13120

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Mr. Anthony Gonyea:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery (“CDBG-DR”) funds from the United States Department of Housing and Urban Development (“HUD”). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

GOSR processes environmental reviews for projects funded with HUD CDBG-DR on a case-by-case basis. GOSR proposes to provide funding for stream bank restoration work to sections of Brixius Creek in the Town of Union, Broome County, New York. In accordance with Section 101(d)(6)(B) of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 302706(b)), and its implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, this letter serves as notification of the proposed action. This consultation is being sent to the Delaware Nation, the Delaware Tribe of Indians, the Oneida Indian Nation, the Onondaga Nation, the Stockbridge-Munsee Community Band of Mohicans, and the Tuscarora Nation of New York.

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During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

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Pursuant to NHPA Section 106, GOSR has initiated consultation with the State Historic Preservation Office (SHPO) concerning this Project and its potential to affect historic resources that are listed on or eligible for listing on the NRHP. No comments have been received from the SHPO to date. GOSR is completing an environmental review for this project pursuant to HUD NEPA regulations. If the Area of Potential Effect encompasses historic properties of religious or cultural significance to your Nation, please respond within 30 days or sooner. Additionally, please indicate if there are other sources of information or other parties, Nations, Tribes, or members of the public you believe should be included in the consultation process. Please respond by email or in writing to the address listed below.

Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

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Sincerely,

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Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Ms. Thane Joyal  
Attorney at Law, Counsel to Onondaga Nation  
512 Jamesville Avenue  
Syracuse, NY 13210

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Ms. Thane Joyal:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBG-DR") funds from the United States Department of Housing and Urban Development ("HUD"). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

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Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

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Sincerely,

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Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 21, 2016

Leo Henry, Chief  
Tuscarora Nation of New York  
2006 Mt. Hope Road, Tuscarora Nation  
Lewiston, NY 14092

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Chief Leo Henry:

Pursuant to the Disaster Relief Appropriations Act, 2013 (Public Law 113-2) and the Housing and Community Development Act (42 U.S.C. § 5301 et seq.), the Governor's Office of Storm Recovery (GOSR) is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery (“CDBG-DR”) funds from the United States Department of Housing and Urban Development (“HUD”). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments.

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Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

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Sincerely,

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Thomas J. King  
Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Enclosures:  
Project Site Map  
Project Aerial Map

**Electronic letter sent to:**

Mr. Bryan Printup, Nation Rep. for Section 106  
Tuscarora Nation of New York  
5226 E. Walmore Road, Tuscarora Nation  
Lewiston, NY 14092



**The Delaware Nation**  
**Cultural Preservation Department**

31064 State Highway 281  
Anadarko, OK 73005  
Phone (405)247-2448 Fax (405) 247-8905

NAGPRA ext. 1182  
Museum/106 ext. 1181  
Library ext. 1196  
Director ext. 1180

24 March 2016

To Whom It May Concern:

The Delaware Nation Cultural Preservation Department received correspondence regarding the following referenced project(s).

**106 Compliance, Town of Union, Broome County, NY; Brixius Creek Stream Restoration Project.**

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects.

The Lenape people occupied the area indicated in your letter during prior to European contact until their eventual removal to our present locations. According to our files, the location of the proposed project does not endanger cultural or religious sites of interest to the Delaware Nation. **Please continue with the project as planned** keeping in mind during construction should an archaeological site or artifacts inadvertently be uncovered, all construction and ground disturbing activities should immediately be halted until the appropriate state agencies, as well as this office, are notified (within 24 hours), and a proper archaeological assessment can be made.

Please note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices at 405/247-8903 or by email: [nalligood@delawarenation.com](mailto:nalligood@delawarenation.com), [csmith@delawarenation.com](mailto:csmith@delawarenation.com) or [jross@delawarenation.com](mailto:jross@delawarenation.com).

Nekole Alligood  
Cultural Preservation Director  
The Delaware Nation  
31064 State Highway 281  
Anadarko, OK 73005  
Ph. 405-247-2448

## Barthelme, Mary (STORMRECOVERY)

---

**From:** Bonney Hartley <Bonney.Hartley@mohican-nsn.gov>  
**Sent:** Monday, April 18, 2016 3:25 PM  
**To:** Barthelme, Mary (STORMRECOVERY)  
**Subject:** RE: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project, Town of Union, Broome County, New York

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

*ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.*

Hi Mary,

I completed review of the Brixius Creek Stream Bank Restoration Project in Union, NY.

On behalf of Stockbridge-Munsee Mohican Tribe I confirm we do not have significant cultural resource concerns with this project due to the limited ground disturbance the project entails.

As always, should any cultural materials inadvertently be discovered during construction we request immediate notice.

Respectfully,

Bonney

*Bonney Hartley*

Tribal Historic Preservation Officer

Stockbridge-Munsee Mohican Tribal Historic Preservation

New York Office

65 1st Street

Troy, NY 12180

(518) 244-3164

[Bonney.Hartley@mohican-nsn.gov](mailto:Bonney.Hartley@mohican-nsn.gov)

[www.mohican-nsn.gov](http://www.mohican-nsn.gov)

*Physical Address: 37 1<sup>st</sup> Street*

---

**From:** Barthelme, Mary (STORMRECOVERY) [mailto:Mary.Barthelme@stormrecovery.ny.gov]

**Sent:** Monday, March 21, 2016 1:26 PM

**To:** Bonney Hartley

**Cc:** King, Thomas J (STORMRECOVERY); Landler, Michael

**Subject:** Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project, Town of Union, Broome County, New York

Dear Bonney,

Please see the attached consultation for the above-mentioned project.

A hard copy is being sent today by mail. Please let me know if you have any questions.

Thank you,

Mary Barthelme

**Mary Barthelme**

Environmental and Historic Preservation Specialist

Bureau of Environmental Review and Assessment

Governor's Office of Storm Recovery

99 Washington Avenue Suite 1224

Albany, New York 12260

Office: (518) 473-0154

[Mary.Barthelme@stormrecovery.ny.gov](mailto:Mary.Barthelme@stormrecovery.ny.gov)

# ONEIDA INDIAN NATION



JESSE J. BERGEVIN  
HISTORIC RESOURCES SPECIALIST

DIRECT DIAL: (315) 829-8463  
FACSIMILE: (315) 829-8473  
E-MAIL: [jbergevin@oneida-nation.org](mailto:jbergevin@oneida-nation.org)

## ONEIDA NATION HOMELANDS

April 8, 2016

Mary Barthelme  
Environmental and Historic Preservation Specialist  
Bureau of Environmental Review and Assessment  
Governor's Office of Storm Recovery  
99 Washington Avenue Suite 1224  
Albany, New York 12260  
*(Transmitted by email)*

Re: Section 106 Compliance for the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York)

Dear Ms. Barthelme,

On March 21, 2016, the Oneida Indian Nation (the "Nation") received an email with documentation from the Governor's Office of Storm Recovery regarding the proposal to fund, through the Community Development Block Grant Disaster Recovery Program, stream bank restoration work to sections of Brixius Creek (the "Project") in the Town of Union, New York.

I have reviewed the information provided and it appears the Project lies outside of the Oneida's aboriginal territory.

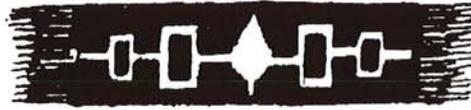
Please feel free to contact me at (315) 829-8463 with any questions.

Very truly yours,

ONEIDA INDIAN NATION

A handwritten signature in black ink, appearing to read "Jesse J. Bergevin".

Jesse J. Bergevin



# HAUDENOSAUNEE

TUSCARORA NATION

2006 MT. HOPE ROAD — VIA: LEWISTON, NEW YORK 14092

March 23, 2016

Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12260

Dear Mr. King:

The Tuscarora Nation wish to inform you that they have no objection to the Town of Union Brixius Creek Stream Bank Restoration Project (Town of Union, Broome County, New York). The Tuscarora Nation only request that should you uncover any human remains, funerary or sacred objects or camp sites that work ceases and we consult on what to do with the findings.

Thank you for your cooperation in this project.

ONEH!

Chief Leo R. Henry, Clerk  
Tuscarora Nation

**APPENDIX D**

SOLE SOURCE AQUIFER



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

March 28, 2016

Ms. Grace Musemeci  
Chief, Environmental Impacts Branch  
U.S. Environmental Protection Agency  
Region II Main Regional Office  
290 Broadway, 25th Floor New York, NY 10007

RE: CDBG-DR Funding Application, Town of Union Brixius Creek Stream Bank Restoration

Dear Ms. Musemeci:

The New York State Governor's Office of Storm Recovery (GOSR) received a funding application from the Town of Union for the Brixius Creek Stream Bank Restoration Project, within the Town of Union, Broome County, New York. The project involves the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Work includes the construction of a 900 cubic foot debris basin with stone weirs. Also work is to include cleaning the invert of two road crossing culverts (approximately 250 lineal feet).

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In accordance with the Memorandum of Understanding ("MOU") between EPA and HUD dated August 24, 1990, GOSR hereby requests an Initial Screen/Preliminary Review for the Town of Union Brixius Creek Stream Bank Restoration. Please review the attached documentation, including Attachment 2.A to the MOU.

Responses can be sent to me via email at [Thomas.King@stormrecovery.ny.gov](mailto:Thomas.King@stormrecovery.ny.gov). In accordance with the MOU, a non-response within fifteen days shall constitute a favorable review of the project/activity. If you have any questions, please call me at (518) 473-0015.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas J. King", with a long, sweeping horizontal stroke extending to the right.

Thomas J. King  
Assistant General Counsel and Certifying  
Officer

Enclosures

ATTACHMENT 2.A

**NON-HOUSING/PROJECT ACTIVITY INITIAL SCREEN CRITERIA**

The following list of criteria questions are to be used as an initial screen to determine which **non-housing** projects/activities should be forwarded to the Environmental Protection Agency (EPA) for Preliminary Sole Source Aquifer (SSA) Review. (For housing projects/activities see Attachment 2.B) If any of the questions are answered affirmatively, Attachment 3, SSA Preliminary Review Requirements, should also be completed. The application/final statement, this Attachment, Attachment 3, and any other pertinent information should then be forwarded to EPA at the address below.

Any project/activity not meeting the criteria in this Attachment, but suspected of having a potential adverse effect on the Sole Source Aquifer should also be forwarded.

CRITERIA QUESTIONS	YES	NO	N/A
<p>1. Is the project/activity located within a currently designated or proposed groundwater sensitive area such as a special Ground Water Protection Area, Critical Supply Area, Wellhead Protection Area, etc.?                      [This information can be obtained from the County or Regional Planning board, the local health department, the State health department or the State environmental agency.]</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>2. Is the project/activity located within a one half mile radius (2640 feet) of a current or proposed public water supply well or wellfield?                      [This information can be obtained from the local health department, the State health department or the State environmental agency.]</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3. Will the project/activity include or directly cause (check appropriate items):

	YES	NO	N/A
construction or expansion of solid waste disposal, recycling or conversion facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion or closure of landfills	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion of water supply facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion of on-site wastewater treatment plants or sewage trunk lines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion of gas or petroleum trunk lines greater than 1320 feet	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion of railroad spurs or similar extensions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
construction or expansion of municipal sewage treatment plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Will the project/activity include storage or handling of any hazardous constituents as listed in Attachment 4, Hazardous Constituents

5. Will the project/activity include bulk storage of petroleum in underground or above ground tanks in excess of 1100 gallons?  
(Please give what assurance they are done in a proper manner.)

6. Will the project/activity require a federal or state discharge elimination permit or modification of an existing permit?

This attachment was completed by:

Name: Thomas King

Title: Assistant General Counsel and Certifying Officer  
Governor's Office of Storm Recovery

Address: 99 Washington Avenue  
Suite 1224  
Albany, NY 12260

Telephone number: (518) 473-0015

Date: March 28, 2016



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 2  
290 BROADWAY  
NEW YORK, NY 10007-1866

**APR 15 2016**

Mr. Thomas J. King  
Director, Bureau of Environmental Review  
and Assessment  
Assistant General Counsel  
Governor's Office of Storm Recovery  
99 Washington Avenue, Suite 1224  
Albany, NY 12260

Dear Mr. King:

This is in response to your letter dated March 28, 2016 requesting a Sole Source Aquifer (SSA) review of the proposed "Brixius Creek Stream Bank Restoration" project to be located in the Town of Union, Broome County, New York. The project is to receive funding from the U.S. Department of Housing and Urban Development's Community Development Block Grant – Disaster Recovery program (CDBG-DR). The project site is located in the Clinton Street Ballpark Aquifer System, designated by the U.S. Environmental Protection Agency (EPA) as a Sole Source Aquifer on January 14, 1985 (citation 50 CFR 2025). Therefore, our review has been conducted in accordance with Section 1424(e) of the Safe Drinking Water Act (SDWA).

The goal of this project is to reduce stream bank erosion and buildup of sediment along three non-contiguous sections of Brixius Creek that lie between Christopher Street and the western edge of N. McKinley Avenue. The creek flows from north to south and is a tributary of the Susquehanna River. It is about 10 feet wide in the segments to be worked on. The project involves the following:

- Regrading stream banks to achieve slopes of 1:2 (vertical rise: horizontal), and formation of a berm where needed;
- Placement along the banks of 300- to 600-pound angled stones, probably granite or limestone, to a height of approximately three feet;
- Widening the stream bed and constructing a 900 cubic feet sediment basin containing stone arrays and weirs; and
- Cleaning two culverts.

We note that the purpose of regrading the stream banks is to increase the stability of the stones that will be set down along the banks. These stones – some of which are on the river bed but most on land – will in turn reduce stream bank erosion. The weirs and stones within the excavated sediment basin will reduce stream flow velocity, which will facilitate the settling of

sediment and prevent future buildup of debris downstream. Based on the information provided, we understand that the culverts, which are rectangular in cross section, are closed on three sides but open along the bottom. They are currently clogged with stones, sediment, and debris and cleaning them will help prevent future flooding. We recommend planting native vegetation in the project area to the extent feasible. Please see our recommendations below on environmentally-friendly landscaping as well as on stormwater and Low Impact Development.

Based on the information provided, the project satisfies the requirements of Section 1424(e) of the SDWA. Please be advised that meeting the requirements of 1424(e) does not preclude the need to meet National Environmental Policy Act (NEPA) requirements to address direct, indirect, and cumulative impacts. This review does not constitute a review under Section 309 of the Clean Air Act; EPA therefore reserves the right to review additional environmental documents on this project.

EPA offers the following for your consideration to reduce environmental impacts and to create a more sustainable project.

*Clean Diesel:*

Implement diesel controls, cleaner fuel, and cleaner construction practices for on-road and off-road equipment used for transportation, soil movement, or other construction activities, including:

- Strategies and technologies that reduce unnecessary idling, including auxiliary power units, the use of electric equipment, and strict enforcement of idling limits; and
- Use of clean diesel through add-on control technologies like diesel particulate filters and diesel oxidation catalysts, repowers, or newer, cleaner equipment.

For more information on diesel emission controls in construction projects, please see: <http://www.northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf>

*Stormwater:*

We emphasize the importance of Low Impact Development (LID) principles such as minimizing effective imperviousness to create site drainage, and the planting of native and non-invasive vegetation on the project site for stormwater management purposes. Other LID practices can include bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. For further information, please see the following website: <http://water.epa.gov/polwaste/green/>

*Encourage cost-efficient, environmentally friendly landscaping:*

There are many benefits to making greener landscaping choices. For additional information, please see the following website: <http://www2.epa.gov/greenerproducts/identifying-greener-landscaping-choices>

*Energy-Efficiency:*

Energy-efficient technologies should be incorporated into all aspects of the project. Please see the following website: <http://www.energystar.gov>

If you have any questions concerning this matter or would like additional information, please feel free to contact Rajini Ramakrishnan of my staff at (212) 637-3731.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Grace Musumeci".

Grace Musumeci, Chief  
Environmental Review Section

**APPENDIX E**  
ENGINEERING DRAWINGS

IMPROVEMENT/RESTORATION PROJECT  
**BRIXIUS CREEK STREAM BANK**

STATE OF NEW YORK

TOWN OF UNION

COUNTY OF BROOME

INDEX OF DRAWINGS

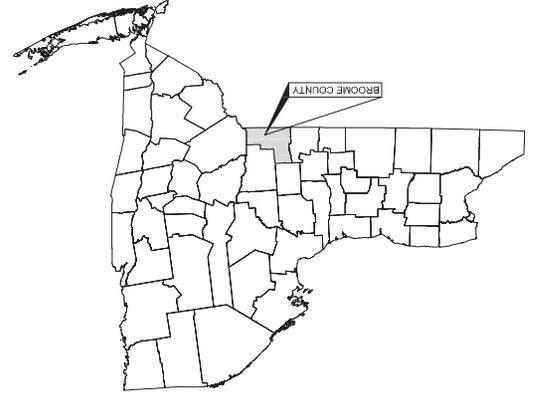
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KEY MAP

TITLE

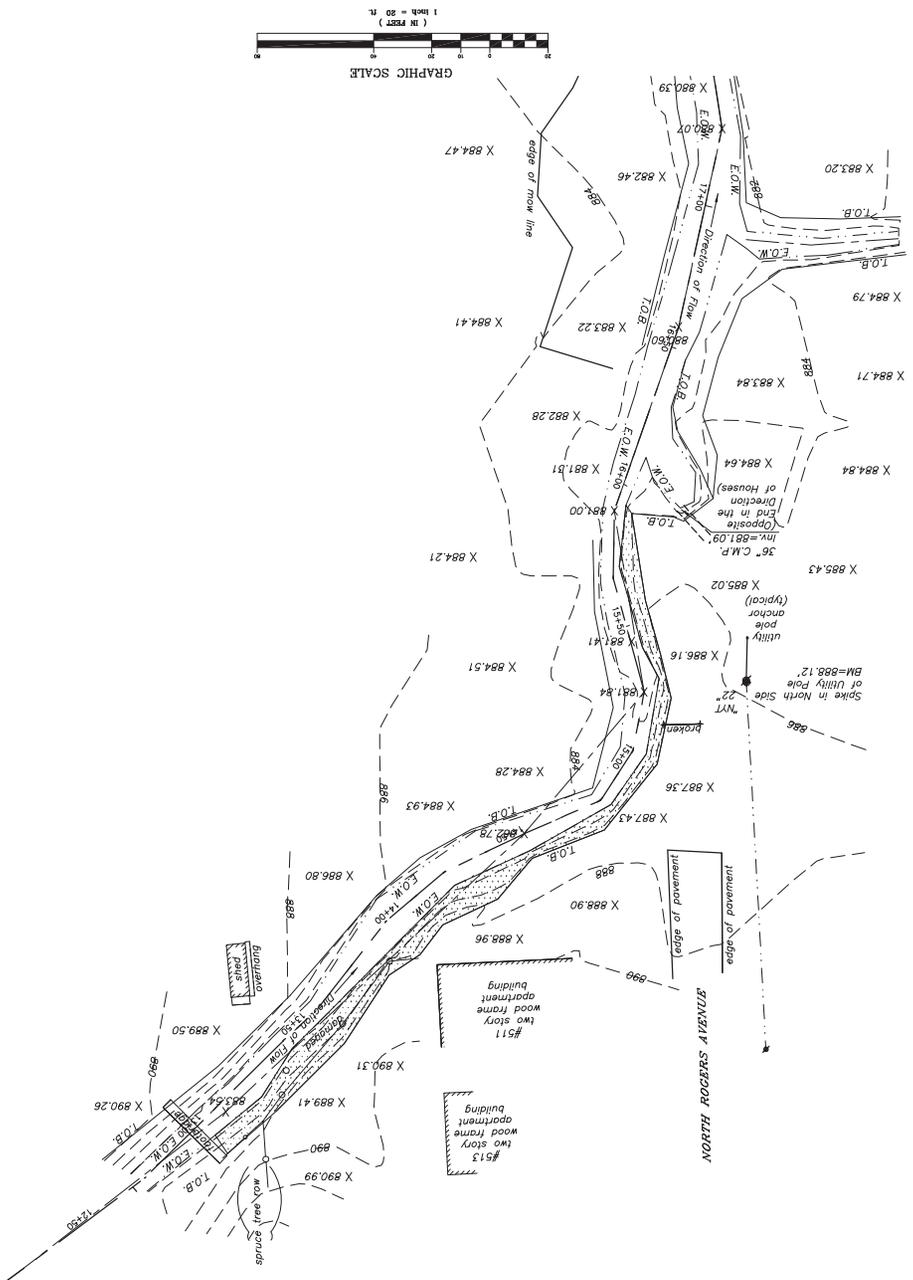
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NOT FOR CONSTRUCTION

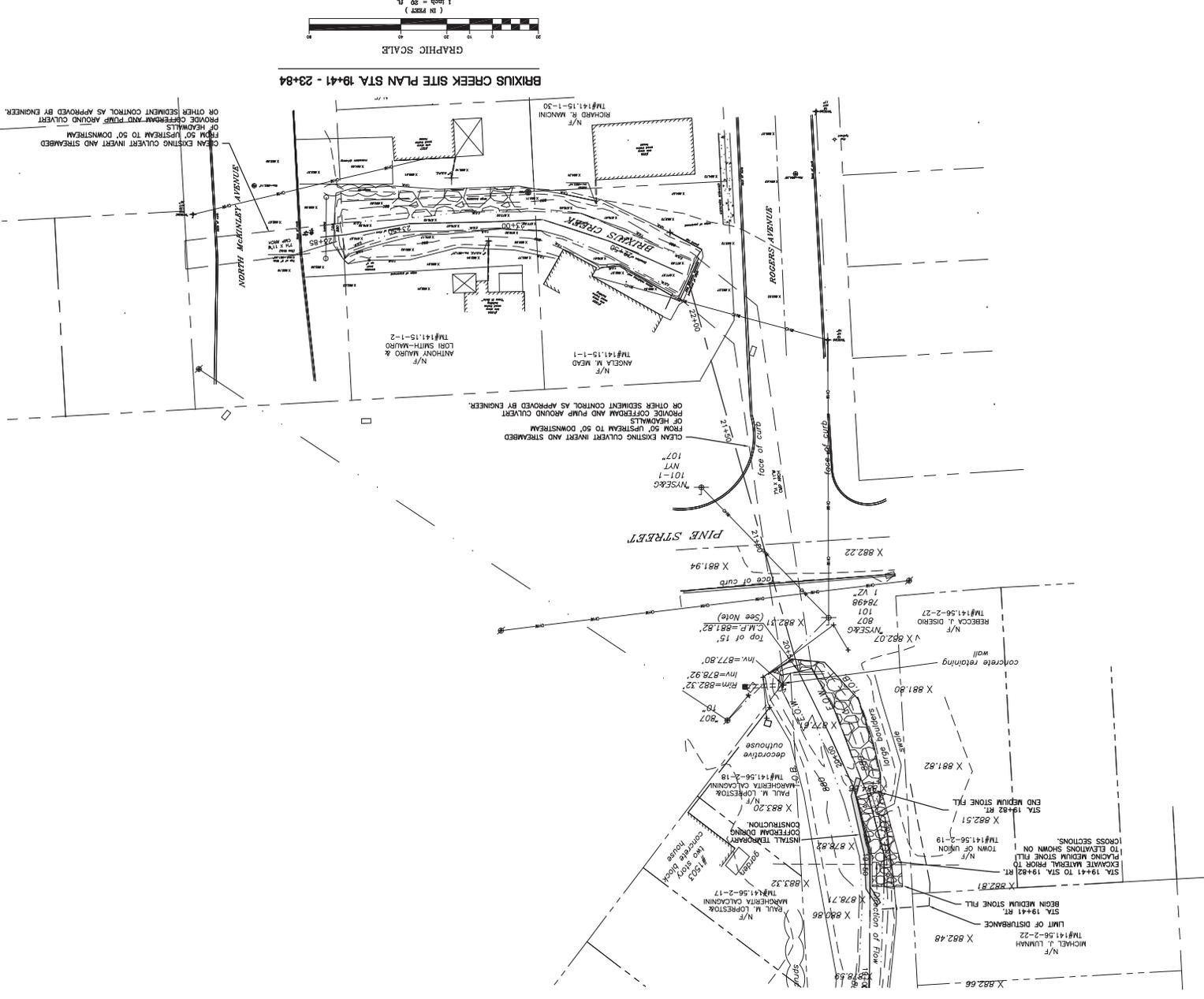
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<small>St. Eschelon Street          Binghamton, New York 13901          Phone: 607.721.1100          Fax: 607.721.2115          Email: info@keystone.com          www.keystone.com</small>				



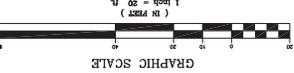




NOT FOR CONSTRUCTION



BRIXIUS CREEK SITE PLAN STA 19+41 - 23+84



IMPROVEMENT/RESTORATION PROJECT  
**BRIXIUS CREEK STREAM BANK**  
 BROOME COUNTY, NY  
 SHEET NO. **C120**  
 PROJECT # 19-0315  
 DATE 02-08-2019

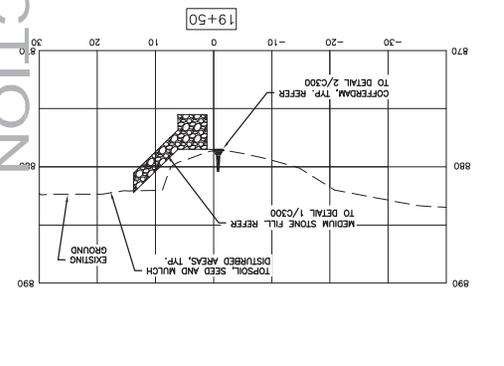
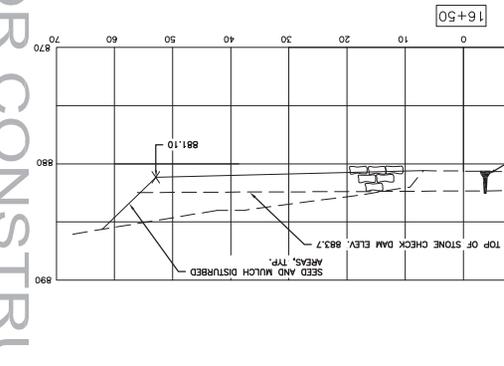
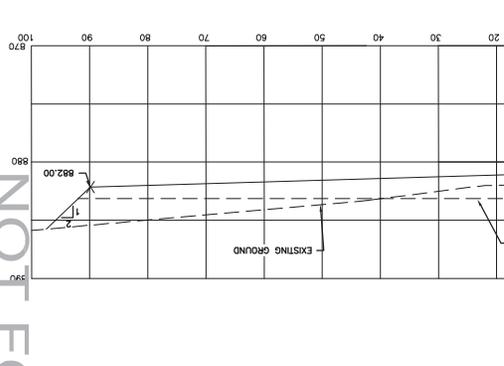
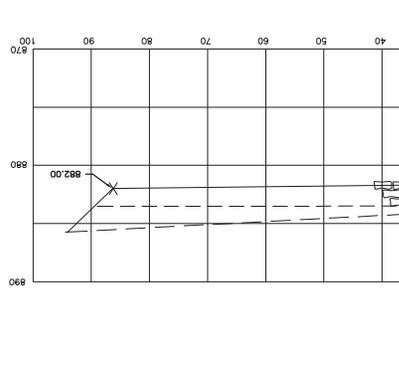
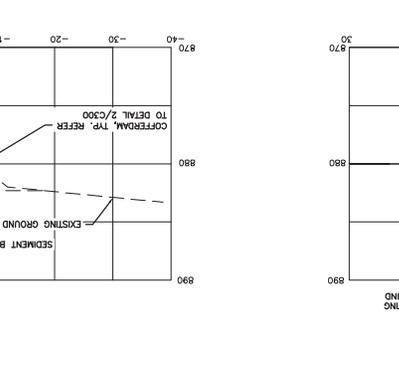
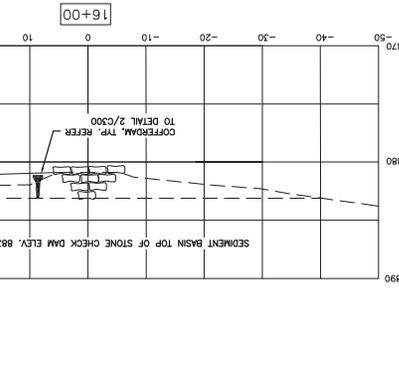
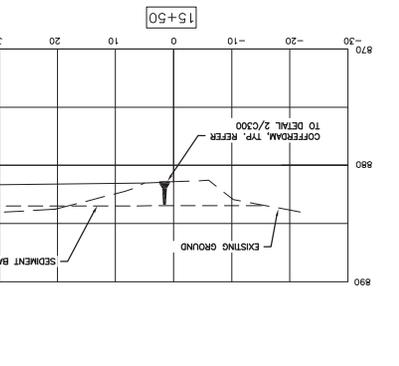
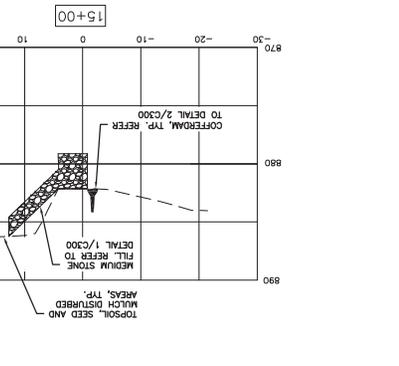
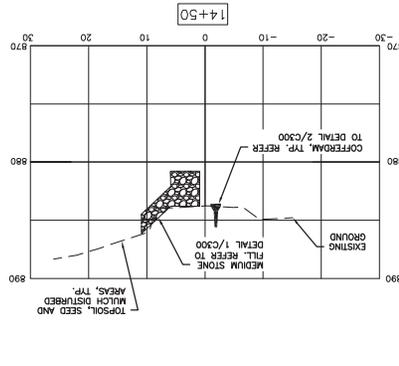
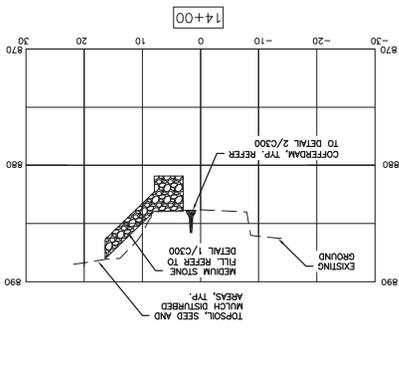
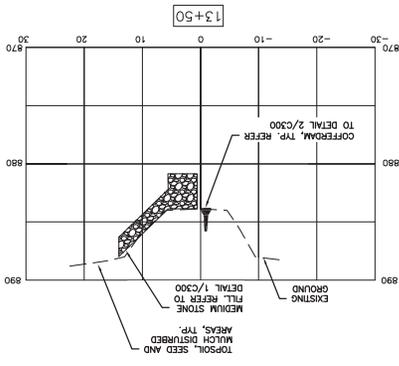
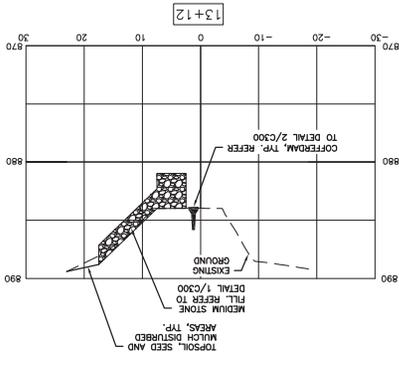
NO.	DATE	BY	DESCRIPTION

APPROVED FOR CONSTRUCTION  
 DATE 02-08-2019  
 PROJECT # 19-0315  
 BROOME COUNTY, NY



38 Exchange Street  
 Broome County, NY 13810  
 Phone: 607.721.1100  
 Fax: 607.721.2415  
 Email: info@keystone.com  
 www.keystone.com





CROSS SECTIONS  
 HORIZONTAL SCALE: 1" = 10'  
 VERTICAL SCALE: 1" = 5'

NOT FOR CONSTRUCTION

IMPROVEMENT/RESTORATION PROJECT  
**BRIXIUS CREEK STREAM BANK**  
 TOWN OF UNION  
 BROOME COUNTY, NY  
 CROSS SECTIONS

SHEET NO. **C210**  
 PROJECT NO. 81-20315  
 DATE: 02-09-2016

PROJECT LOCATION:  
 BRIXIUS CREEK, BROOME COUNTY, NY  
 PROJECT NO. 81-20315

DATE: 02-09-2016  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]

**KEYSTONE ASSOCIATES**  
 A DIVISION OF CANTONLAND ASSOCIATES, INC.  
 51 Exchange Street  
 Broome County, NY 13816  
 Phone: (607) 732-2415  
 Fax: (607) 732-2415  
 Email: info@keystone.com  
 www.keystone.com









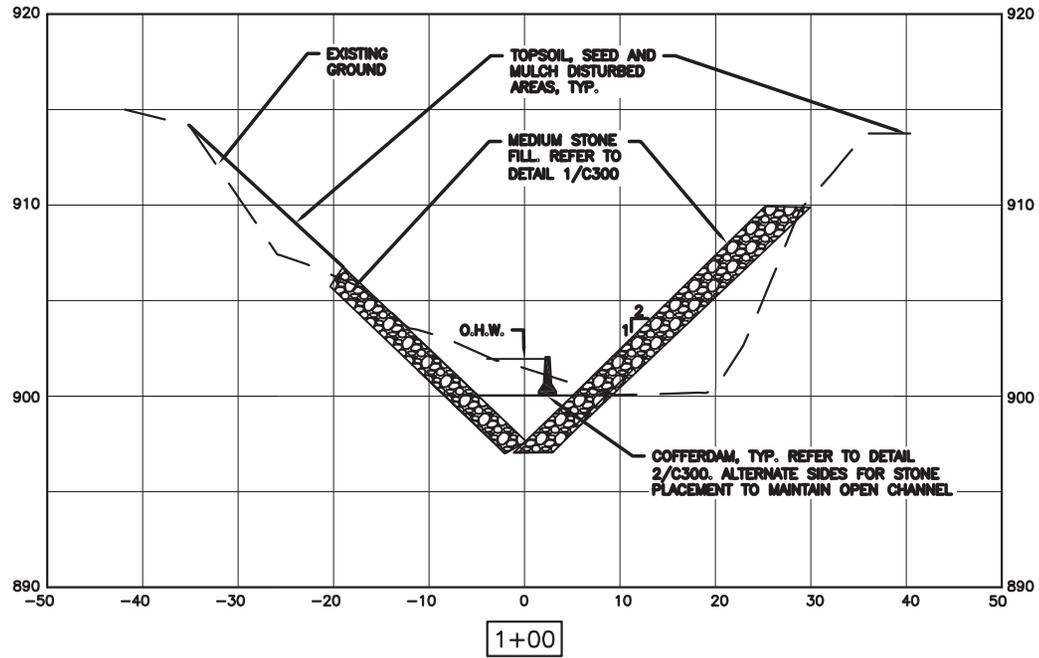
BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

SECTIONS

STA. 1+00



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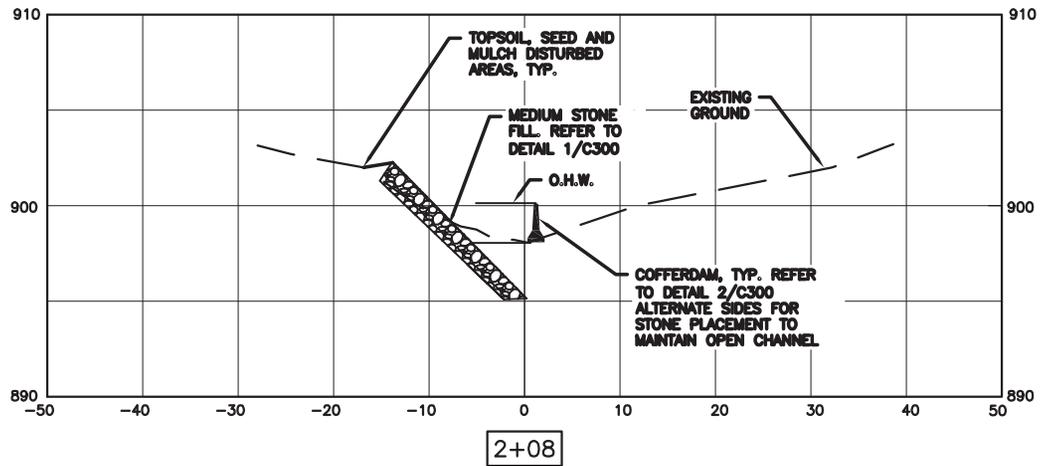
BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

SECTIONS

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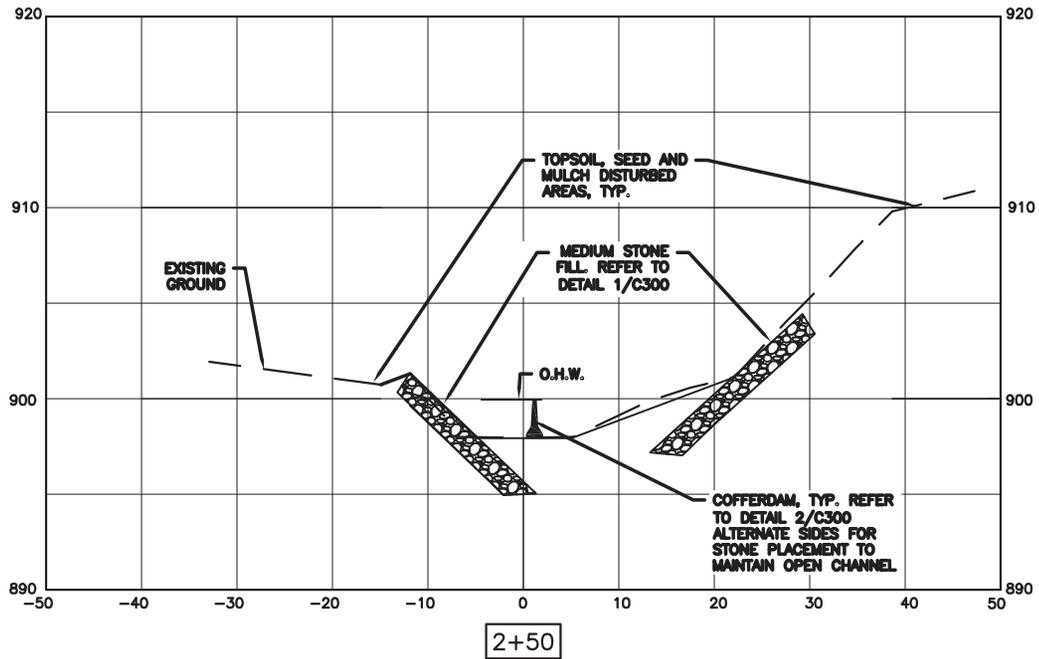


**BRIXIUS CREEK STREAM STABILIZATION**

**TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE**

KEYSTONE PROJECT #081.30215

**SECTIONS  
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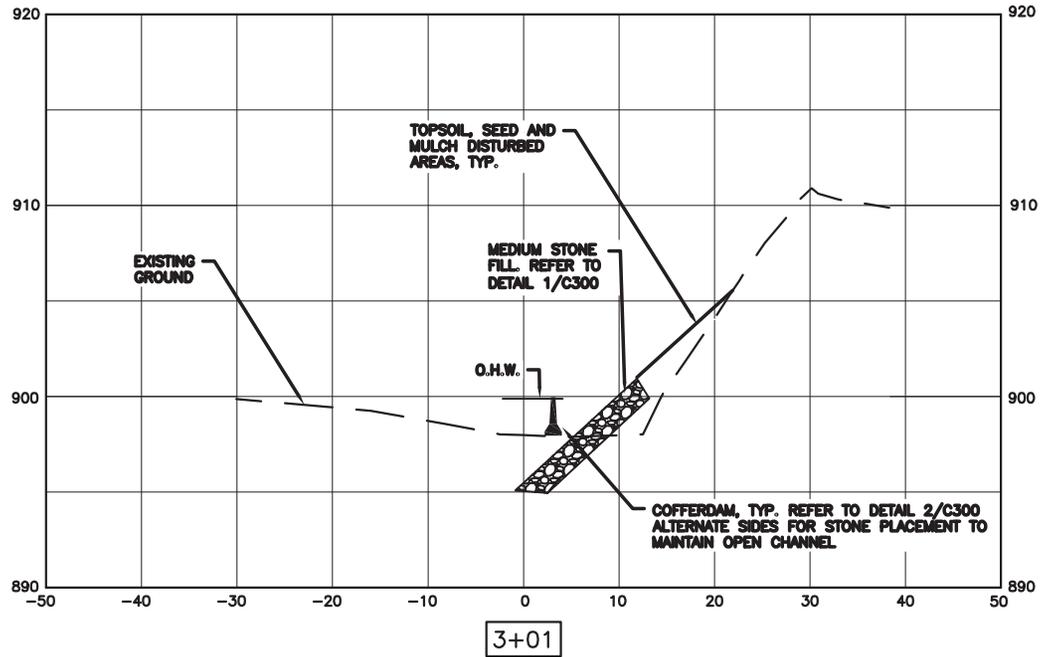


**BRIXIUS CREEK STREAM STABILIZATION**

**TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE**

KEYSTONE PROJECT #081.30215

**SECTIONS  
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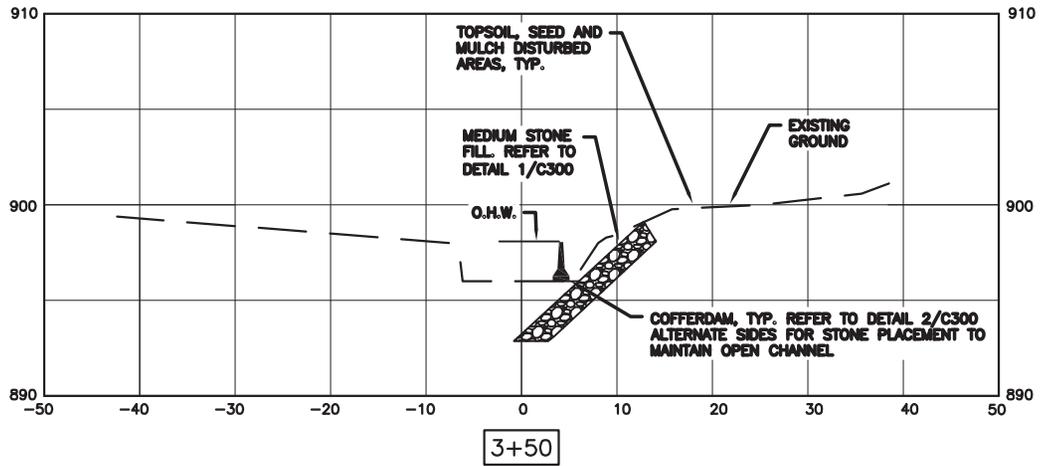


BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

SECTIONS  
STA. 3+50



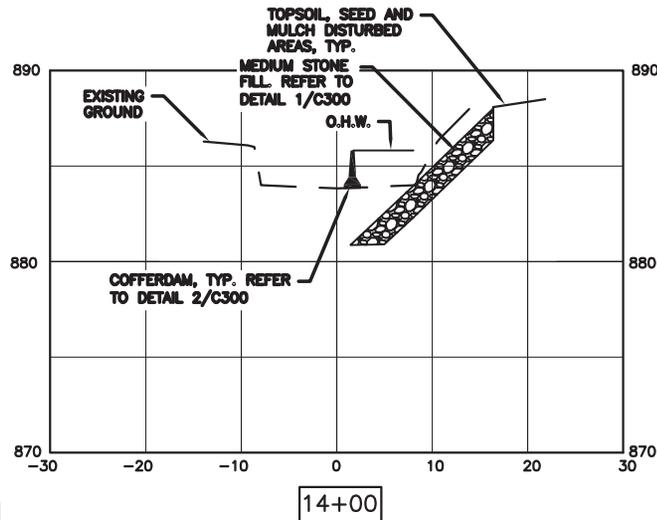
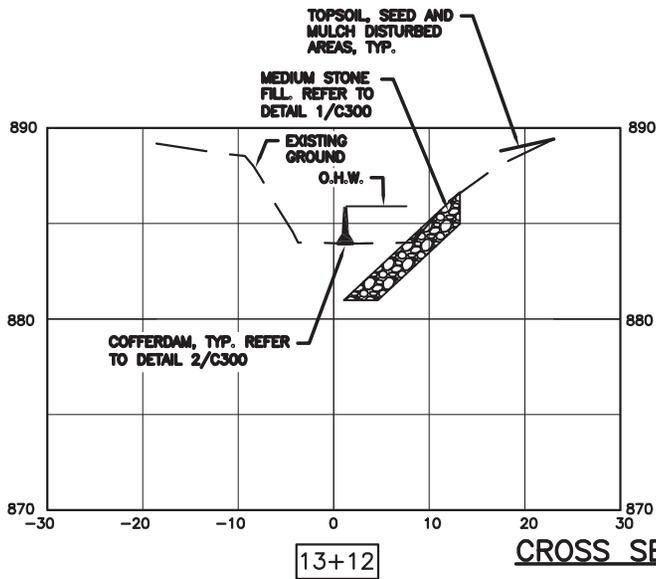
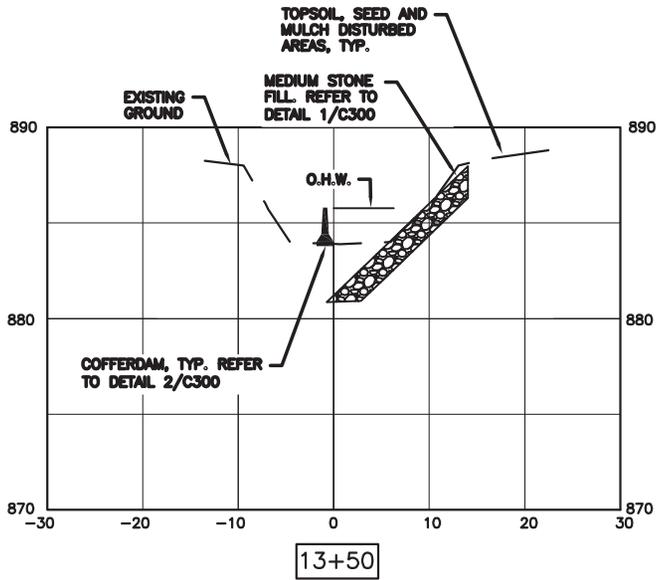
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BRIXIUS CREEK STREAM STABILIZATION  
TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE  
KEYSTONE PROJECT #081.30215

SECTIONS  
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STA. 14+00



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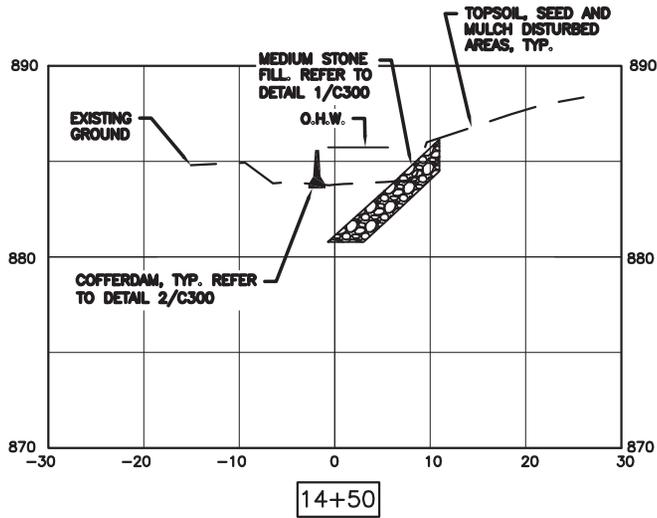
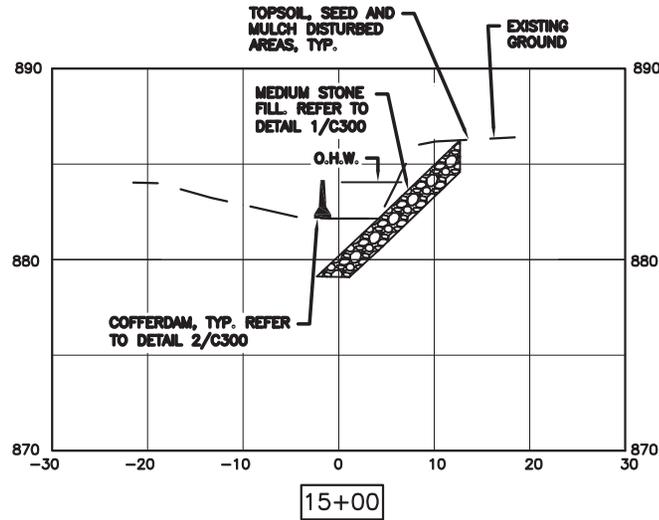
BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

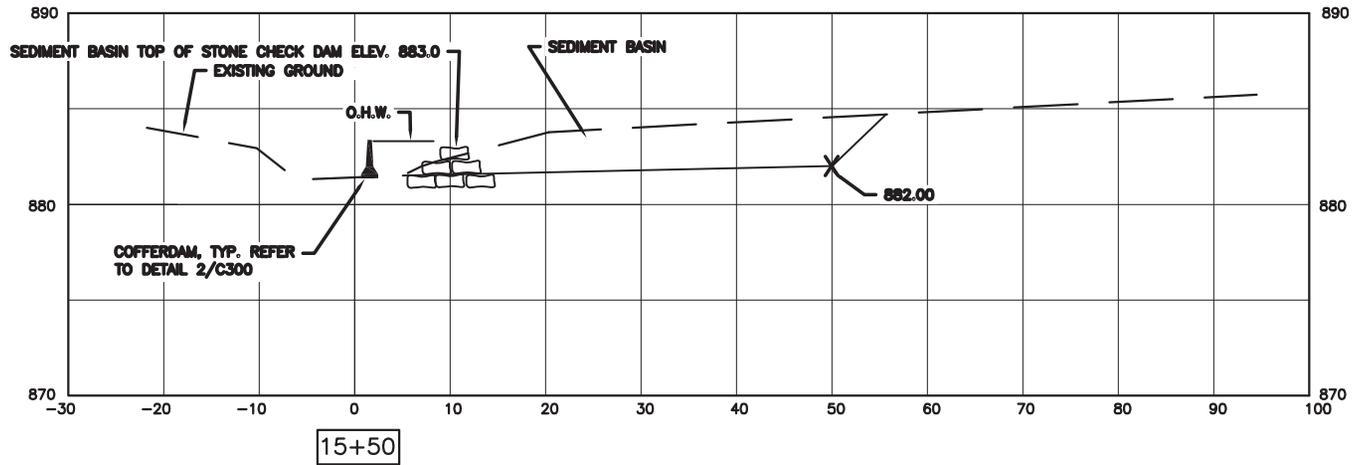
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STA. 14+50 TO  
STA. 15+00



CROSS SECTION

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**CROSS SECTION**

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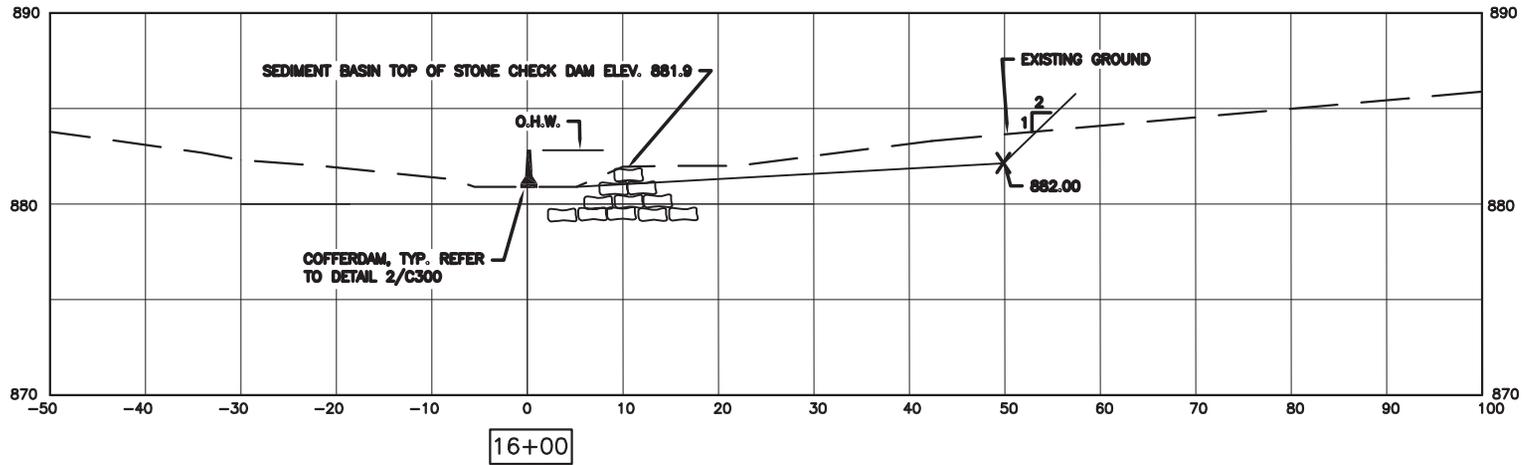


BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

SECTIONS  
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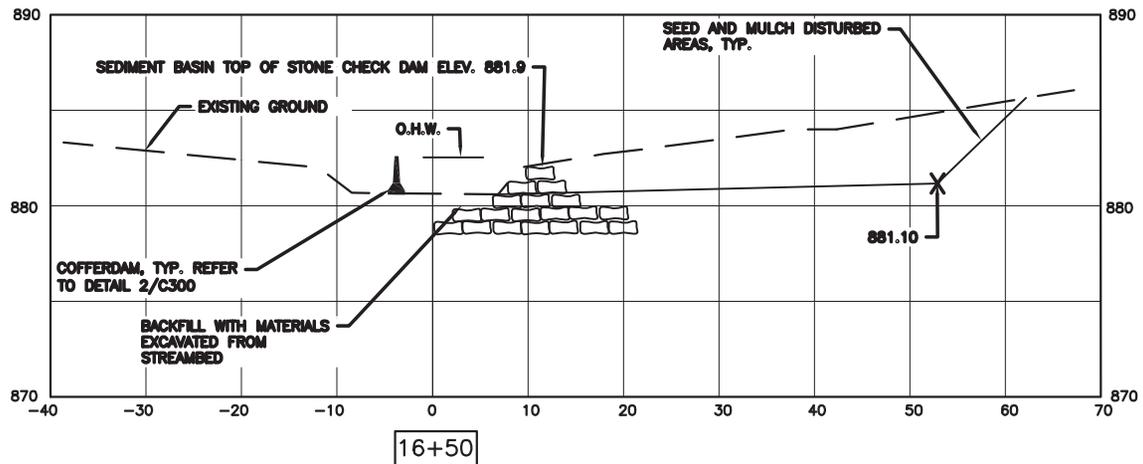
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BRIXIUS CREEK STREAM STABILIZATION  
TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE  
KEYSTONE PROJECT #081.30215

SECTIONS  
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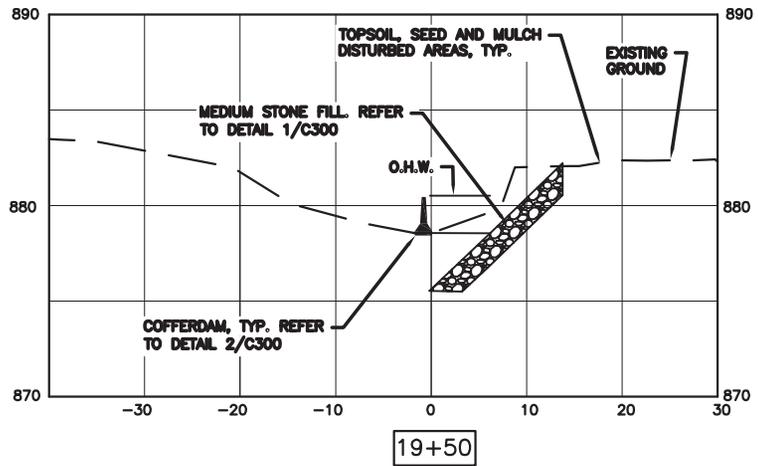
BRIXIUS CREEK STREAM STABILIZATION

TOWN OF UNION  
BROOME COUNTY  
NEW YORK STATE

KEYSTONE PROJECT #081.30215

SECTIONS

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CROSS SECTION

SCALE: 1" = 20' HORIZ.  
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**APPENDIX F**

SEQRA LEAD AGENCY RESPONSE LETTERS  
NYSDEC PROJECT COMMENTS  
PERMIT APPROVALS



# Governor's Office of Storm Recovery

Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director



May 5, 2016

Re: Lead Agency Designation for Environmental Review of Town of Union Brixius Creek Stream Bank Restoration Project (Broome County, NY)

Dear Involved/Interested Agency:

The Governor's Office of Storm Recovery ("GOSR") proposes to serve as lead agency under the National Environmental Policy Act ("NEPA") and State Environmental Quality Review Act ("SEQRA") and related laws for the environmental review of the proposed Town of Union Brixius Creek Stream Bank Restoration Project (the "Proposed Action"). GOSR is conducting an environmental review of the Proposed Action on behalf of the State of New York as the recipient of Community Development Block Grant - Disaster Recovery ("CDBG-DR") funds from the U.S. Department of Housing and Urban Development under 42 U.S.C. § 5304(g).<sup>1</sup>

The Proposed Action would be located east of Christopher Street to the western edge of N. McKinley Avenue, Town of Union, Broome County, New York. The Action consists of the placement of heavy stacked stone to mitigate soil erosion along approximately 790 feet of Brixius Creek beginning east of Christopher Street and ending at the western edge of N. McKinley Avenue. Three specific sections have been selected as areas where restoration efforts will be made. Improvements to the stream banks include the placement of stone fill, the construction of earth berms, and the construction of stone check dams. Specially, work includes the construction of a 900 cubic foot debris basin with stone weirs; cleaning the invert of two road crossing culverts (approximately 250 lineal feet); placing stone fill along 560 lineal feet of stream bank for slope stabilization; cleaning the invert of two road crossing culverts (approximately 250 lineal feet); construction of a 900 cubic foot sediment basin with stone weirs; and construction of two concrete headwalls for new storm lines discharging to Brixius Creek from Pine Street and McKinley Avenue.

During Hurricane Irene and Tropical Storm Lee, excessive rainfall led to flash flooding that caused the banks of the Brixius Creek to erode. The creek is in need of repair in order to increase resiliency in key areas of the creek. Bank stabilization and erosion control are required in order for the Town and residents living along the creek to recover. The proposed improvements will help mitigate damage caused by flooding in future storm events, while stabilizing stream banks, reducing erosion and decreasing sediment deposit downstream.

This action has been preliminarily classified as an Unlisted action pursuant to SEQRA. Additional information regarding the Proposed Action and its location are provided in the enclosed Short Environmental Assessment Form. The review of the Proposed Action under NEPA and SEQRA

---

<sup>1</sup> The Governor's Office of Storm Recovery, operating under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation, is the responsible entity for the administration of the CDBG-DR grants to the State of New York.

would satisfy the requirements of 24 CFR Part 58 and 6 NYCRR Part 617.

Your agency or organization has been identified as a potential cooperating, involved, or interested agency for the review and approval of the Proposed Action. If your agency consents to GOSR's serving as the lead agency for review under SEQRA, please so indicate by signing this letter and returning it at your earliest convenience to Thomas J. King at 99 Washington Avenue, Suite 1224, Albany, New York 12260, or simply email a signed copy to Thomas.King@Stormrecovery.ny.gov. If we have not heard from you by June 5<sup>th</sup>, 2016 your consent will be assumed.

If you have any questions, please feel free to contact me at (518) 473-0015. Thank you for your consideration and cooperation.

Sincerely,



Thomas J. King  
Assistant General Counsel

The undersigned hereby consents to The Governor's Office of Storm Recovery serving as lead agency for Town of Union Brixius Creek Stream Bank Restoration Project.

Agency/Organization: Broome County

By:

Name: Frank Evangelisti

Title: Director of Planning

Date: 5-10-16

Permits/Approvals/Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Enclosure: Full Environmental Assessment Form Part 1  
List of Involved and Interested Agencies  
Figures and Maps



# Governor's Office of Storm Recovery



Andrew M. Cuomo  
Governor

Lisa Bova-Hiatt  
Executive Director

May 5, 2016

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<sup>1</sup> The Governor's Office of Storm Recovery, operating under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation, is the responsible entity for the administration of the CDBG-DR grants to the State of New York.

would satisfy the requirements of 24 CFR Part 58 and 6 NYCRR Part 617.

Your agency or organization has been identified as a potential cooperating, involved, or interested agency for the review and approval of the Proposed Action. If your agency consents to GOSR's serving as the lead agency for review under SEQRA, please so indicate by signing this letter and returning it at your earliest convenience to Thomas J. King at 99 Washington Avenue, Suite 1224, Albany, New York 12260, or simply email a signed copy to Thomas.King@Stormrecovery.ny.gov. If we have not heard from you by June 5<sup>th</sup>, 2016 your consent will be assumed.

If you have any questions, please feel free to contact me at (518) 473-0015. Thank you for your consideration and cooperation.

Sincerely,



Thomas J. King  
Assistant General Counsel

The undersigned hereby consents to The Governor's Office of Storm Recovery serving as lead agency for Town of Union Brixius Creek Stream Bank Restoration Project.

Agency/Organization: Town of Union Code Enforcement

By:

Name: Daria M. Golazeski

Title: DCPW/ Codes + Ordinances

Date: May 11, 2016

Permits/Approvals/Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Enclosure: Full Environmental Assessment Form Part 1  
List of Involved and Interested Agencies  
Figures and Maps

would satisfy the requirements of 24 CFR Part 58 and 6 NYCRR Part 617.

Your agency or organization has been identified as a potential cooperating, involved, or interested agency for the review and approval of the Proposed Action. If your agency consents to GOSR's serving as the lead agency for review under SEQRA, please so indicate by signing this letter and returning it at your earliest convenience to Thomas J. King at 99 Washington Avenue, Suite 1224, Albany, New York 12260, or simply email a signed copy to Thomas.King@Stormrecovery.ny.gov. If we have not heard from you by June 5<sup>th</sup>, 2016 your consent will be assumed.

If you have any questions, please feel free to contact me at (518) 473-0015. Thank you for your consideration and cooperation.

Sincerely,



Thomas J. King  
Assistant General Counsel

The undersigned hereby consents to The Governor's Office of Storm Recovery serving as lead agency for Town of Union Brixius Creek Stream Bank Restoration Project.

Agency/Organization: NYSDOT

By: 

Name: Kathryn Mangan

Title: Senior Transportation Analyst

Date: 5/27/2016

Permits/Approvals/Comments: Any work in the NYSDOT Right of way requires a Highway Work Permit. Contact Corey Hurlburt of the Broome Residency (607) 775-0522 for information on permit process.

Enclosure: Full Environmental Assessment Form Part 1  
List of Involved and Interested Agencies  
Figures and Maps

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

Division of Environmental Permits & Pollution Prevention  
625 Broadway, 4th Floor, Albany, New York 12233-1750  
P: (518) 402-9167 | F: (518) 402-9168 | deppermitting@dec.ny.gov  
www.dec.ny.gov

March 4, 2016

Mr. Thomas J. King  
Governor’s Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, NY 12260

RE: Brixius Creek Improvement/Restoration  
Town of Union, Broome County

Dear Mr. King:

Based upon our review, we offer the following comments:

**PROTECTION OF WATERS**

The following waterbodies are located within or near the site you indicated:

<u>Name</u>	<u>Class</u>	<u>DEC Water Index Number</u>	<u>Status</u>
<input checked="" type="checkbox"/> <b>Brixius Creek</b>	<b>C</b>	<b>SR-33</b>	<b>Navigable</b>

A Protection of Waters permit is required to physically disturb the bed or banks of stream over 300 Linear Feet to mitigate the erosion and stabilization mitigation of the creek. This project proposes to disturb over 300 Linear Feet and therefore would need an individual Water Quality Certification. It would not qualify for the blanket Water Quality Certification due to the amount of disturbance for bank stabilization.

A Protection of Waters permit is required for any excavation or filling below the mean high water line of any waterbodies and contiguous wetlands identified above as “navigable.”

If a permit is not required, please note, however, you are still responsible for ensuring that work shall not pollute any stream or waterbody. Care shall be taken to stabilize any disturbed areas promptly after construction, and all necessary precautions shall be taken to prevent contamination of the stream or waterbody by silt, sediment, fuels, solvents, lubricants, or any other pollutant associated with the project.

## **WATER QUALITY CERTIFICATION**

Please contact your town officials and the United States Army Corps of Engineers in New York City, telephone (315) 255-8090 (Buffalo District, Auburn Field Office) for any additional permitting they might require.

## **STATE-LISTED SPECIES**

The absence of data does not necessarily mean that any other rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. 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 sources may be required to fully assess impacts on biological resources.

## **CULTURAL RESOURCES**

We have reviewed the statewide inventory of archaeological resources maintained by the New York State Museum and the New York State Office of Parks, Recreation, and Historic Preservation. These records indicate the following:

- the project is located within an area considered to be sensitive with regard to archaeological resources.

For more information, please visit the New York State Office of Historic Preservation website at <http://www.nysparks.com/shpo/>.

## **OTHER**

Please note that this letter only addresses the requirements for the following permits from the Department:

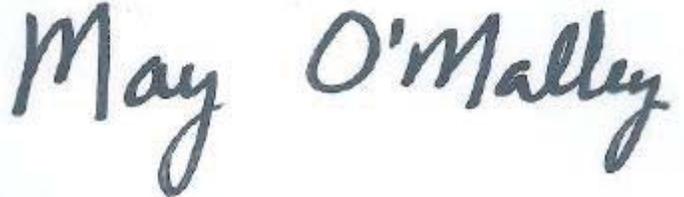
Protection of Waters

Other permits from this Department or other agencies may be required for projects conducted on this property now or in the future. Also, regulations applicable to the location subject to this determination occasionally are revised and you should, therefore, verify the need for permits if your project is delayed or postponed. This determination regarding the need for permits will remain effective for a maximum of one year unless you are

otherwise notified. Applications may be downloaded from our website at [www.dec.ny.gov](http://www.dec.ny.gov) under "Programs" then "Division of Environmental Permits."

Please contact this office if you have questions regarding the above information. Thank you.

Sincerely,

A handwritten signature in black ink that reads "May O'Malley". The signature is written in a cursive, slightly slanted style.

May O'Malley  
Division of Environmental Permits  
[may.omalley@dec.ny.gov](mailto:may.omalley@dec.ny.gov)  
518-402-9154

Cc: Joe Dlugolenski, NYSDEC Region 7 Deputy Regional Permit Administrator  
NYS Parks, Recreation, and Historic Preservation  
U.S. Army Corps of Engineers, Buffalo District

**NOTE: Regarding erosion/sedimentation control requirements:**

Stormwater discharges require a State Pollutant Discharge Elimination System (SPDES) Stormwater permit from this Department if they either:

- occur at industrial facilities and contain either toxic contaminants or priority pollutants OR
- result from construction projects involving the disturbance of 5000 square feet or more of land within the NYC Department of Environmental Protection East of Hudson Watershed or for proposed disturbance of 1 acre or more of land outside the NYC DEP Watershed

Your project may be covered by one of two Statewide General Permits or may require an individual permit. For information on stormwater and the general permits, see the DEC website at <http://www.dec.ny.gov/chemical/8468.html>.

For construction permits, if this site is within an MS4 area (Municipal Separate Storm Sewer System), the stormwater plan must be reviewed and accepted by the municipality and the MS-4 Acceptance Form must be submitted to the Department. If the site is not within an MS4 area and other DEC permits are required, please contact the regional Division of Environmental Permits.



# TOWN OF UNION

## Department Of Planning

Paul A. Nelson, Director

May 19, 2016

Paul Nelson, Planning Director  
Town of Union Planning Department  
3111 E. Main Street  
Endwell, NY 13760

Re: Special Permit Approval for Development in the Floodplain  
Brixius Creek Stream Bank Improvements/Restoration  
Repair and stabilization of eroded banks along Brixius Creek north of Pine St. at the following locations:  
Tax Map Numbers 141.56-1-32, 141.56-1-33, 141.56-1-34, 141.56-2-4, 141.56-2-5, 141.56-2-19, 141.56-2-22, 141.56-2-27, 141.57-1-3, 141.57-1-5, 141.57-2-11, 141.11-4-22, 141.11-4-23, 141.11-4-28, 141.11-4-29, 141.11-4-30, 141.11-4-39 and 141.11-4-40, 141.05-1-23

Dear Mr. Nelson:

On Tuesday, May 17, 2016, the Town of Union Planning Board approved the Negative Declaration under SEQRA, and the Special Permit for development in the floodplain for the Brixius Creek Restoration project.

Respectfully,

Marina A. Lane  
Senior Planner

Cc: R. Sotak, Supervisor  
L. Caforio, C.P.W.  
G. Springer, Town Clerk  
A. Pope, Town Attorney  
L. Zier, # BC Case# 239-2016-063

3111 East Main Street • Endwell • New York • 13760-5990

Rental Assistance (607) 786-2985 • Planning & Community Development (607) 786-2975 • TTY (607) 786-2915  
Fax (607) 748-0041 • World Wide Web: [www.townofunion.com](http://www.townofunion.com) • E-Mail: [cdbg@townofunion.com](mailto:cdbg@townofunion.com)

## **APPENDIX G**

Hydrologic and Hydraulic Study

# HYDROLOGIC & HYDRAULIC STUDY FOR LOWER BRIXIUS CREEK

Village of Endicott  
Broome County, NY



Prepared for:

**Town of Union  
Planning Department  
3111 E. Main St.  
Endwell, NY 13760-5990**

Prepared by:



**Woidt Engineering & Consulting, P.C.  
41 Chenango Street, Suite 200  
Binghamton, NY 13901**

June 11<sup>th</sup>, 2014

**HYDROLOGIC & HYDRAULIC STUDY  
For Lower Brixius Creek**

**Village of Endicott  
Broome County, New York**

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Appendix B

- HEC-RAS Water Surface Profiles Brixius Creek - Existing Conditions
- HEC-RAS Water Surface Profiles Brixius Creek - Proposed Conditions
- Engineers Opinion of Probable Cost - Sediment Management Improvements
- Engineers Opinion of Probable Cost - Watson Boulevard Culvert/Huron Campus
- Engineers Opinion of Probable Cost - Pine Street Localized Drainage Improvements

## 1.0 Study Description & Location

This study consists of a hydrologic and hydraulic investigation of the Lower Brixius Watershed and stream located roughly between Watson Boulevard to the south and a Broome County owned flood control dam located just downstream of Taft Avenue. (See Project Location Map - Appendix A). The project limits are generally located in the Village of Endicott; however, the upper area of the project extends into the Town of Union.

Specifically, periodic flooding occurs in the vicinity of the intersection of North Rogers Avenue and McKinley Avenue intersections with Pine Street and at the lower end of the study area in the vicinity of Watson Boulevard (see photos below). This area along Pine Street is the most chronically affected, with street flooding occurring even after moderate rainfall events.



Lower Brixius Creek, upstream of  
Watson Boulevard



Pine Street, view east towards  
N. McKinley Avenue

Residents have reported that the existing stormwater sewer system along Pine Street frequently backs up through the inlets and manholes, resulting in street flooding and sheet flow flooding of adjacent homes and properties. It is reported that this condition develops during even moderate rainfall events. Ponding of stormwater within the travel lanes of public roadways also creates a public safety issue and potential liability to the Village of Endicott.

The study will analyze the hydraulic capacity and identify deficiencies of the existing drainage system along Pine Street and the existing stream channel and culvert bridge crossings along Lower Brixius Creek. The study will also investigate conceptual improvement options, and will provide recommendations regarding possible future projects. The study was conducted by Woidt Engineering & Consulting, PC (WEC) with support from Village of Endicott Department of Engineering and Town of Union Planning Department.

## **2.0 Field Review/Data Collection**

WEC conducted multiple site visits to the project area, met with the Village of Endicott Engineer, Town of Union Planning Department, and obtained available existing information related to the stormwater system along Pine Street and the flood control dam. Available storm water collection system drawings were obtained from the Village of Endicott and hydrologic and hydraulic assessment data for the flood control dam was obtained from the Broome County Engineering Department. Since existing data was unavailable for the Brixius Creek stream channel and culvert/bridge crossings, WEC conducted additional field review and a GPS/Total Station survey to verify the locations, sizes, elevations of waterway structures, and critical stream cross sections.

## **3.0 Existing Conditions**

### **Brixius Creek**

As mentioned previously, outflows to Brixius Creek within the study area are regulated by a flood control dam (Patterson Brixius Grey Watershed 2 Dam) located just downstream of Taft Avenue. Additional stormwater enters the Brixius Creek channel downstream of the dam via closed storm drainage systems and surface sheet flow (see additional discussion, Section 4.0). The Brixius Creek channel between the flood control dam and Pine Street generally consists of a narrow confined channel that passes underneath several streets via culverts before reaching the Pine Street/North Rogers intersection. Eroding stream banks were observed in multiple locations (see additional discussion, Section 5.0) in this reach of Brixius Creek.

Below Pine Street, Brixius Creek passes underneath the Pine Street/North Rodgers intersection, through a large culvert that begins as a metal arch culvert at the inlet, and transitions to a concrete box culvert at the outlet. Brixius Creek then turns west and passes underneath North McKinley Avenue via a large metal arch culvert. The creek then makes several 90 degree bends and passes underneath North Roosevelt Street and Jenkins Street via metal arch culverts. Downstream of Jenkins Street, the stream is confined by a narrow undeveloped gorge until it passes underneath Witherill Street through a metal arch culvert.

Downstream of Witherill Street, Brixius Creek heads due south until it is conveyed underneath a parking lot of the Pucedo Funeral Home by a metal arch culvert. This metal arch culvert connects to a large underground junction box with an open grating at the north side of Watson Boulevard. From the junction box, a concrete box culvert continues underneath Watson Boulevard where Brixius Creek daylights briefly before then being conveyed underneath a parking lot of the Huron Campus by a metal arch culvert (see Project Area Map, Appendix A and photos below).



Culvert Inlet @ Funeral Home parking lot



Grate of Junction Box, Watson Boulevard area

### **Pine Street/North Rogers/North McKinley Intersections**

The drainage area contributing to these intersections is generally confined to the street drainage system of Pine Street, Villa Court and Newell Road (see Localized Pine Street Drainage Map - Appendix A). To the east of North McKinley Avenue, Pine Street drainage is collected via a gutter and inlet system. It is noted that the street grades of Pine Street are very steep (exceeding 10%). The street grade of Pine Street flattens as it approaches the North McKinley Avenue Intersection.

The low point of the Pine Street profile is located between the North McKinley Avenue and North Rogers Street intersections. The street drainage is collected via a number of curb inlet catch basins connected by a closed drainage system that then outlets to Brixius Creek. It is this specific area that experiences the most frequent flooding.

## **4.0 Hydrologic Analysis**

### **Brixius Creek**

The total contributory drainage area to Brixius Creek for the study is depicted on the Drainage Area Map - Brixius Creek in Appendix A. The total drainage area was subdivided into three subareas. Subarea A represents the upper portion of the watershed that is controlled by the Patterson Brixius Grey 2 Watershed flood control dam. Inflow hydrographs and reservoir routing information for the dam was obtained from Broome County Department of Engineering. It is noted that the hydrologic and hydraulic assessment for the dam was recently updated in 2012 as part the NYSDEC Dam Safety compliance regulations.

Subarea B represents the drainage area below the dam and upstream of Pine Street. Subarea C represents the drainage area generally between Pine Street and the downstream project limits near Watson Boulevard.

Inflow hydrographs for subareas 2 and 3 were developed using the Soil Conservation Service (SCS) TR-20 methodology that utilizes a dimensionless unit hydrograph method to transform rainfall excess to basin runoff. Precipitation loss was estimated using the SCS Curve Number "CN" method. Weighted "CN" values for each subarea were obtained from review of aerial photography field review, and the Broome County Soil Survey. The higher the CN value means that less infiltration and more direct stormwater runoff will occur.

The 24-hour precipitation values for the 2, 5, 10, 25, 50 and 100-year recurrence interval storms were obtained from Northeast Regional Climate Center (NRCC) precipitation data for the project vicinity. Inflow hydrographs were then computed for the 2, 5, 10, 25, 50 and 100-year storm events to fully evaluate the capabilities and capacity of the system. It is noted that a 25 or 50-year storm event is a typical design storm for a waterway structure crossing a local or minor roadway.

The subarea drainage areas and a representative range of peak flow values are shown in Table 1.

**Table 1 – Brixius Creek Subarea and Composite Drainage Area and Peak Flows (cfs)**

Drainage Area	Area (acres)	Peak flow 2-year	Peak Flow 10-year	Peak Flow 25-year	Peak Flow 50-year	Peak Flow 100-year
A (above dam)	781	83	95	101	104	107
B (above Pine Street)	261	68	173	270	363	482
C (Between Pine Street & Watson Blvd)	92	9	48	89	132	187
Composite Area	1134	145	259	362	490	634

As can be noted from Table 1, the flood control dam highly regulates peak outflow discharges for all storms up to and including the 100-year recurrence interval storm.

**Pine Street Localized Street Drainage**

The drainage area contributing to the street drainage system at the Pine Street intersections with North Rogers and McKinley Avenues is depicted on the Localized Pine Street Drainage Map in Appendix A. The inflow hydrographs were developed by the same methods as used for the larger Brixius Creek watershed. The peak discharges for a range of recurrence interval storms is shown in Table 2.

**Table 2 – Pine Street Subarea Drainage Area and Peak Flows (cfs)**

Drainage Area	Area (acres)	Peak flow 1-year	Peak Flow 2-year	Peak Flow 5-year	Peak Flow 10-year
N. Roosevelt Ave.	7.6	2.5	4.5	8.4	12.1
N. McKinley Ave.	7.3	4.7	7.2	11.6	15.6

**5.0 Hydraulic Analysis - Existing Conditions**

**Brixius Creek**

Water surface profiles for Brixius Creek were developed for existing conditions utilizing the U.S Army Corps of Engineers HEC-RAS computer program (version 4.1). The starting water surface elevations were determined by a normal depth computation at the downstream and upstream cross sections of Brixius Creek.

Stream channel cross sections were obtained by GPS survey methods and supplemented with 2' contour data available from the Broome County GIS website. Culvert sizes and waterway openings were surveyed at the North Rogers/Pine Street, North McKinley Avenue, Roosevelt Avenue, Jenkins Street, Witherill Street, Watson Boulevard and at a culvert underneath a parking lot on the Huron Campus (see Cross Section Location Map - Appendix A).

Water surface profiles were computed for the 2, 5, 10, 25, 50 and 100-year return interval storm events (see HEC-RAS Water Surface Profiles Brixius Creek Existing Conditions in Appendix B).

The size, waterway opening, and overtopping storm event for each of the culverts are shown in Table 3.

**Table 3 - Brixius Creek Culvert Sizes and Capacity**

Culvert Location	Approximate Size	Culvert Type	Waterway Opening (SF)	Overtopping Storm Event
N. Rogers/Pine Street	17.5' W X 4.8' H <sup>1</sup>	Metal Arch	45	10-year
N. McKinley Avenue	11' W X 7' H	Metal Arch	65	50-year
N. Roosevelt Avenue	10' W X 7' H	Metal Arch	62	50-year
Jenkins Street	8' W X 6' H	Metal Arch	38	25-year
Witherill Street	9' W X 7' H	Metal Arch	58	50-year
Watson Boulevard	15' W X 5' H <sup>2</sup>	Metal Arch	32	10-year
Huron Campus Parking Lot	12' W X 4.5' H	Metal Arch	28	25-year

1 - Structure transitions to 14' W X 3.2' H Box @ outlet, outlet waterway opening shown in table

2 - Structure transitions to a 14' W X 2.3' H Box @ outlet, outlet waterway opening shown in table

As can be observed from Table 3, in general, a smaller effective waterway opening has a direct correlation to the cross culverts that are more frequently overtopped and result in periodic flooding. It is also noted that the waterway constriction at the North Rogers Street/Pine Street and Watson Boulevard culverts are towards the outlet of the structure where bedload deposits have accumulated and reduced the effective waterway opening. Further discussion of the probable cause of such bedload deposits follows.

### **Existing Geomorphic Conditions at North Rogers/Pine Street Culvert**

The downstream opening of the North Rogers/Pine Street culvert is plugged with debris and bedload deposits which reduce the capacity to pass flood flows. After measuring the waterway opening and probing for the invert bottom, it appears the design opening height was approximately 5' which has been reduced to approximately 3.0' (see photo below). The deposits were visually inspected and appear to consist of coarse sands and fine gravels that extend across the entire width of the channel for approximately 20' downstream of the end of the culvert. The size of the bottom material at the culvert opening is notably finer (smaller) than the channel bottom substrate upstream and downstream of the culvert crossing, which consists mainly of coarse gravels and fine cobbles.



Looking at North Rogers/Pine Street outlet with smaller substrate size

When there is a notable variation in channel bottom substrate size localized in one area of a stream reach, it is an indication that the capacity to transport sediments in that area is different from the rest of the reach. At the culvert crossing location, it appears the velocity and shear stress (the hydraulic conditions that influence sediment transport) are not the same as adjacent areas and lack the power to move smaller (finer) sediments causing deposition. The notable smaller (finer) sized channel bottom substrate in the culvert crossing area (not in the upstream and downstream reaches) supports this

theory. This deposition is the root cause of the reduction of the culvert waterway opening that impedes flood flows.

To understand if the deposition was caused by a one-time event or is a continual phenomenon, it is important to characterize the upstream sediment transport conditions in the headwaters. If there is an ample sediment supply upstream of the crossing, then it can be assumed there will be perpetual sediment deposition leading to continual blockage of the opening.

The Brixus Creek Corridor from the Patterson Brixus Grey Dam downstream to the Pine Street culvert was inspected for signs of sediment transport (bedload movement). The headwaters upstream of the dam were not inspected because the dam's outfall was designed with a vertical riser whose crest elevation is above the dam's pond bottom. This distance (freeboard) prevents bedload from upstream of the dam from moving downstream.

Downstream of the dam, gravel bars (signs of localized sediment deposition) and eroding banks (signs of sediment supply) were observed beginning 100' downstream of the dam. Eroding banks which had either an average bank height over 1.5 feet or were longer than 15', were inventoried. Eight (8) stream banks met or exceeded this threshold. Of these eight (8), five (5) stream banks were notably larger because they had either an average height exceeding 2.5' or were longer than 60'. The five largest eroding stream banks are shown on the Eroding Bank Location Map in Appendix A.

Using a simple volumetric calculation and an assumed erosion rate provides a rough estimate of how much sediment from the eroding banks is transported to the Pine Street culvert. Based on field observations between field visits, it was assumed that each bank would erode on average, 0.5' per year, resulting in 57 tons (114,000 pounds) of sands/gravels that are being transported to the culvert from the Eroding Banks listed in Table 4.

**Table 4 - Eroding Bank Volume Estimates**

Eroding Bank #	Height (ft)	Length (ft)	Erosion Rate (ft)	Volume (ft <sup>3</sup> )
1	7.0	30	0.5	105
2	10.5	40	0.5	210
3	2.5	68	0.5	85
4	4.5	60	0.5	135
5	3.6	190	0.5	342
Volume Total (ft <sup>3</sup> )				877
Density (lbs/ft <sup>3</sup> )				130
Load from Eroding Banks (lbs) (tons)				114,010 (57)

The calculations show that there is an ample supply of sediment sources in the headwaters upstream of the crossing. The numerous gravel bars observed in the creek channel is evidence that sediments are moving through the system. Ongoing sediment management at, or upstream, of the Pine Street culvert inlet is recommended because sediment will continue to be transported to the culvert, compromising the waterway opening and hydraulic capacity of the culvert. Proposed solutions to address this issue are discussed in detail in Section 6.0.

### **Brixius Creek-Watson Boulevard Culvert/Huron Campus Area**

The other area along Brixius Creek that experiences more frequent flooding is the area in the vicinity of the Pucedo Funeral Home and Watson Boulevard Culvert crossing. The HEC-RAS analysis showed that all storms including and exceeding a 10-year recurrence interval storm will overtop the culvert inlet. Based on field observations, review of existing 2' contour mapping, and interviews with local residents, the overtopping flooding generally begins along the right bank (looking downstream) and sheets flows around the Pucedo Funeral Home, then flows south along North Arthur Avenue and continues southward through a low area of a Huron Campus parking lot (see Appendix A Watson Boulevard Crossing Map). As previously mentioned, the inlet capacity of this system is controlled by the outlet culvert leaving the large underground vault adjacent to Watson Boulevard. Although no design or record plans could be found, it is suspected that the large open grate on top of the vault was installed to relieve excessive surcharging during extreme flooding events.

### **Pine Street/North Rogers/North McKinley Intersections**

A hydraulic analysis of the existing stormwater drainage system along Pine Street was performed using the HydroCAD version 10.0 software package. HydroCAD is a comprehensive stormwater modeling package available for analyzing and designing urban drainage systems, stormwater systems, and detention facilities. The existing drainage system along Pine Street is shown on the Localized Pine Street Drainage Map in Appendix A.

The grades along Pine Street approaching from the east are very steep (exceeding 10%). The Pine Street stormwater from this area (N. Roosevelt Avenue subarea) is collected by a concrete gutter that begins in the vicinity of North Adams Street and conveys the street stormwater to curb inlets located along Pine Street. Additional stormwater from the North McKinley Ave subarea is conveyed along the curbs of Newell Road and from Pine Street to curb inlets located at the Newell/North McKinley Avenue/Pine Street intersection. It is noted that this intersection is located at the low point of the Pine Street profile. Stormwater is then conveyed via existing pipes into Brixius Creek.

Our initial hydraulic analysis of the existing closed system identified that there is inadequate inlet capacity to capture all the contributory runoff that is being conveyed to the Newell/North McKinley Avenue/Pine Street intersection. As such, some of the surface street drainage bypasses the curb inlet grates and sheet flows to the low point. In addition, the hydraulic analysis also identified insufficient capacity for the underground piping system that conveys the stormwater to Brixius Creek. The end result is

surcharging of stormwater out of the inlet grates and into the street and surrounding properties. This condition was verified through interviews with local business owners and residents.

The results of the analysis showed that storms exceeding approximately a 1-year recurrence interval storm surcharged out of the top of the inlet grates. It is noted that urban closed stormwater systems typically are designed to convey at least a 10-year recurrence interval storm without surcharging.

## **6.0 Hydraulic Analysis of Proposed Improvements**

### **Brixius Creek Proposed Improvements Pine Street/North Rogers Avenue Culvert Area**

The hydraulic analysis of existing conditions identified that the hydraulic capacity of Brixius Creek is constrained at several cross culvert crossing locations. It was also noted that the hydraulic capacity of several of the culvert crossings were significantly reduced as a result of bedload deposits and debris accumulating at the culvert. This is particularly true at the North Rogers/Pine Street culvert location. As such, our proposed improvement plan focuses on options for managing sediment load with the goal of increasing hydraulic capacity and reducing maintenance costs for ongoing sediment removal.

There are three solutions to sediment management that could help mitigate the deposition at the Pine Street culvert and reduce future debris buildup. The first is to increase the velocity and shear stress at the opening by manipulating the channel geometry to create favorable hydraulic conditions that would continue the sediment transport downstream. The second solution is to manage the sediment upstream of the culvert by capturing sediment before it reaches the crossing. The final solution is a combination of the first two solutions which would create the optimal condition to mitigate further sediment deposition at the crossing.

The Pine Street culvert crossing is located within a reach of Brixius Creek which has a notably flatter channel bed slope than the surrounding areas. The profile in this area is shown on the Brixius Creek Profile in Appendix A. The slope leading into the culvert opening has an approximate 1.0% slope. The slope at the culvert crossing is less than 0.1% slope, an order of magnitude reduction in channel slope. The channel slope downstream of the culvert then becomes steeper (0.6%). A reduction in channel slope within a channel that has the same waterway area, causes slower velocities and shear stress, leading to sediment deposition. The optimal approach would be to increase the channel slope through the Pine Street culvert to match the steeper upstream and downstream slopes, to continue to help move the sediment through the culvert.

The downstream vertical control is the fixed bottom elevation of the next downstream culvert crossing at North McKinley Avenue. The proposed channel slope should match this elevation to avoid an unstable channel. Since the channel bottom between the deposition area at the end of the Pine Street/North Rogers culvert and North McKinley culvert is 0.6% and does not exhibit the fine sediment found in the deposition area,

matching the 0.6% channel slope through the crossing should provide adequate grade to continue sediment transport. Grading a 0.6% slope beginning at the North McKinley Avenue inlet invert through the Pine Street/North Rogers culvert crossing can be completed and would require the invert at the outlet at North Rogers Avenue to be reduced approximately 0.5', and the invert at Pine Street entrance to drop approximately 0.2'. The proposed slope would meet the existing channel slope approximately 130' upstream of the Pine Street culvert entrance.

The proposed channel slope would be sustained using cross vanes as grade control structures. These structures would be located at multiple locations within the proposed slope, including at the upstream and downstream crossing inverts, to maintain grade at the culvert crossing. In addition to maintaining the proposed channel slope, the cross vanes would also be used to manipulate the channel geometry to increase velocities and shear stress at the culvert crossing which would improve the likelihood that sediments would continue to be transported downstream.

Cross vanes are an effective way to manipulate the channel geometry to improve sediment transport. Cross vanes are designed to redistribute flow and sediment transport towards the center of the channel and increase the velocity and shear stresses that move bedload through the cross section. The location and conceptual details of the cross vanes are shown on the Brixius Creek Profile and Conceptual Details for Sediment Management sheets in Appendix A.

The estimated construction cost of adjusting the channel slope and manipulating the channel geometry is provided in Appendix B. This cost does not include the cost of removing debris underneath the Pine Street crossing, nor any acquisition of Right of Way. Debris removal inside the crossing would need careful consideration given the physical constraints of working underneath a bridge and culvert.

Capturing sediment upstream of the Pine Street culvert and stabilizing the largest eroding banks would have the highest efficacy of reducing sediment build up if the sediment management practices are maintained. Sediment traps are a practice to capture sediment and bedload in a stream channel. Sediment traps work by decreasing velocities in strategic areas, which encourages bedload deposition. Velocities are decreased through a combination of increasing channel roughness and increasing the channel waterway area. Within the sediment trap, there is a storage volume that is designed to capture and store bedload. Once this volume is filled, the bedload should be removed via a maintenance program.

The efficacy of this approach depends on the dedication of the sediment trap owner to maintain the trap by periodically removing sediment. A proposed location of a potential sediment trap is shown on the Conceptual Location for Sediment Trap in Appendix B. It is noted that the Town of Union owns a portion of the property for the proposed sediment trap. Undeveloped adjacent parcels would need to be acquired in order to construct the trap. These parcels are landlocked (not connected to a street) and perhaps could be purchased at an affordable cost. The estimated construction cost for construction of the sediment trap is provided in Appendix B). The costs do not include the acquisition of private property. The majority of the cost is from excavating and hauling material from the right bank in order to build the trap.

Stabilizing the largest eroding banks will also reduce incoming sediment load. Eroding banks #4 and #5 could be stabilized in conjunction with the construction of the sediment trap which would save mobilization and access costs. The existing rip-rap at eroding bank #4 could be reused, further reducing costs. Rip rapping the stream banks is the recommended solution to the eroding bank problems in Brixius Creek. A typical Rip Rap bank stabilization detail is shown on the Brixius Creek Sediment Management Plan in Appendix A. The estimated construction cost for stabilizing the five (5) eroding banks is provided in Appendix B.

### **Brixius Creek Proposed Improvements Watson Boulevard/Huron Campus Culvert Area**

As mentioned previously, the existing culvert conveyance system underneath the Pucedo Funeral Home and Watson Boulevard is unusual, consisting of metal arch culverts connecting to a large underground concrete junction box with a large metal grate at existing ground level. Since the overall length of the system is quite long (over 175') and the hydraulic capacity of the system is seemingly controlled at the Junction Box, replacement with a larger culvert would be very expensive and if constructed, might potentially be constrained near its outlet. As such, our recommended improvements focus on better controlling the sheet flow flooding that currently finds its way down North Arthur Avenue and through the Huron Campus parking lot.

To alleviate the existing sheet flow flooding it is recommended that the following improvements be considered:

1. Construct a low height wall (2' +/-) along the right bank of the culvert inlet at the Pucedo Funeral Home Parking lot. The location of the wall would need to be located as close to the back of an existing garage located at 106 North Arthur Avenue that is also owned by the Pucedo Funeral Home (see photo, next page). Such a system would eliminate the low area where overflow flooding begins. Although it would not eliminate inlet flooding from major floods, such a system would make some improvements in hydraulic capacity due to the increased hydraulic head available. This option would require collaboration with the owners.



View North of Brixius Creek Adjacent to Garage

2. Reconstruct and regrade North Arthur Avenue and a small portion of the Huron Campus Parking lot as shown on the Brixius Creek Watson Boulevard Crossing Area Map in Appendix A. The proposed grading creates a low point along North Arthur Avenue that would redirect sheet flow flooding back towards Brixius Creek instead of continuing south through the Huron Campus Parking lot. In addition to the street regrading, the undeveloped existing green space on each side of Brixius Creek would be excavated and graded towards the creek channel. This would also provide flood storage relief for overflow flooding that may come from surcharging out of the open grate of the junction box during larger storm events. This option would require confirmation of utility conflicts along North Arthur Avenue and the green space areas and collaboration with the Huron Campus Owners.

The estimated opinion of probable cost for the proposed improvements is provided in Appendix B.

## **Proposed Improvements**

### **Localized Drainage along Pine Street**

As mentioned in Section 5.0, the localized street drainage problems are a combination of inadequate inlet capacity and an undersized, closed stormwater piping system. As such, it is recommended that additional inlets and supplemental and larger storm pipes be installed along Pine Street. A conceptual proposed stormwater layout is shown on the Localized Pine Street Drainage System Map in Appendix A. The locations, types of inlets, and the alignment of the system will likely need adjustment during final design due to possible utility conflicts and right of way considerations; however, such a system will be able to convey a 10-year storm event without surcharging.

The estimated opinion of probable cost for the proposed improvements is provided in Appendix B.

## **7.0 Conclusions and Recommendations**

This study performed hydrologic and hydraulic analysis to analyze and identify the causes of capacity deficiencies along lower Brixius Creek and also along a closed drainage system along Pine Street. As noted in the report, the area of most chronic and problematic flooding along Brixius Creek is at and adjacent to the North Rogers/Pine Street culvert and the Watson Boulevard/Huron Campus parking area. The report also noted that sediment and debris has a significant role in compromising the hydraulic capacity of Brixius Creek at certain culvert locations.

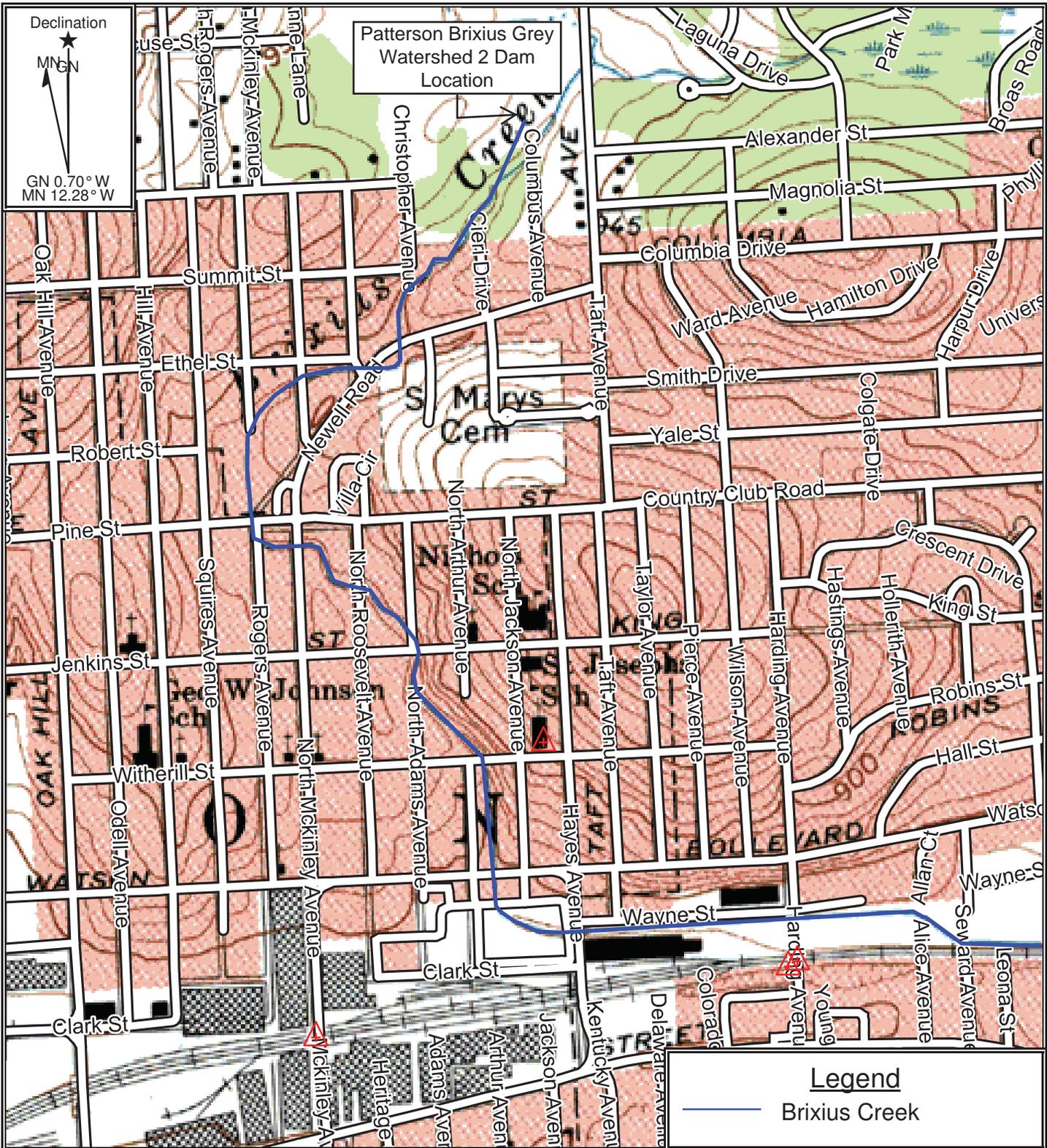
The localized street drainage problems along Pine Street appear to be related to a lack of adequate inlets and inadequate network of closed stormwater drainage pipes. Solutions to resolve the problem are geared towards more traditional upgrades, including construction of additional inlets and improvements to the piping network.

Due to the highly constrained urban Brixius Creek corridor through the project area, major upgrades to culvert crossings and channel improvements would be very expensive and would significantly impact private property. Therefore, the following recommendations focus on lower cost solutions that should help alleviate some of the root causes of frequent flooding and reduce the frequency and maintenance costs associated with flooding events.

### **Recommended Future Actions**

1. Due to the relatively low cost, it is recommended that the sediment management controls including Brixius Creek grade adjustments, construction of cross vane structures, sediment traps and stabilization of stream banks be progressed to final design and eventual construction. The installation of the sediment traps will require the purchase or establishment of easements through several undeveloped and land locked private properties.

2. With collaboration with Huron Campus and the Pucedo Funeral Home, further investigate the feasibility and acceptance of the proposed mitigation measures at the Watson Boulevard culvert/Huron Campus area. If involved parties agree to the conceptual plan, advance the proposed improvements to final design and construction.
3. Although not specifically mentioned in the report, there are other areas along the Lower Brixius Creek that have been compromised by encroachments, either by manmade measures (non-engineered flood protection systems by private owners) or obstructions created by debris (fallen trees into the channel, shopping carts, etc.). As such, it is recommended that consideration be given to a stream maintenance program that would monitor such encroachments and remove and maintain the channel of Brixius Creek.
4. To alleviate the localized street flooding problems along Pine Street, it is recommended that the proposed conceptual improvements be advanced to final design and construction. This should alleviate the street flooding from short duration, high-intensity storms that now occur on an annual basis.



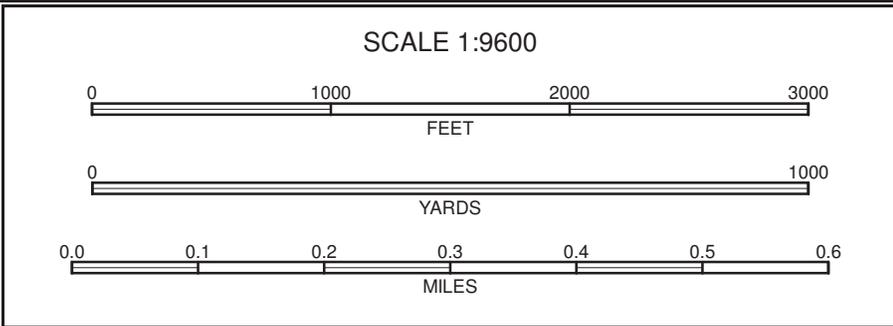
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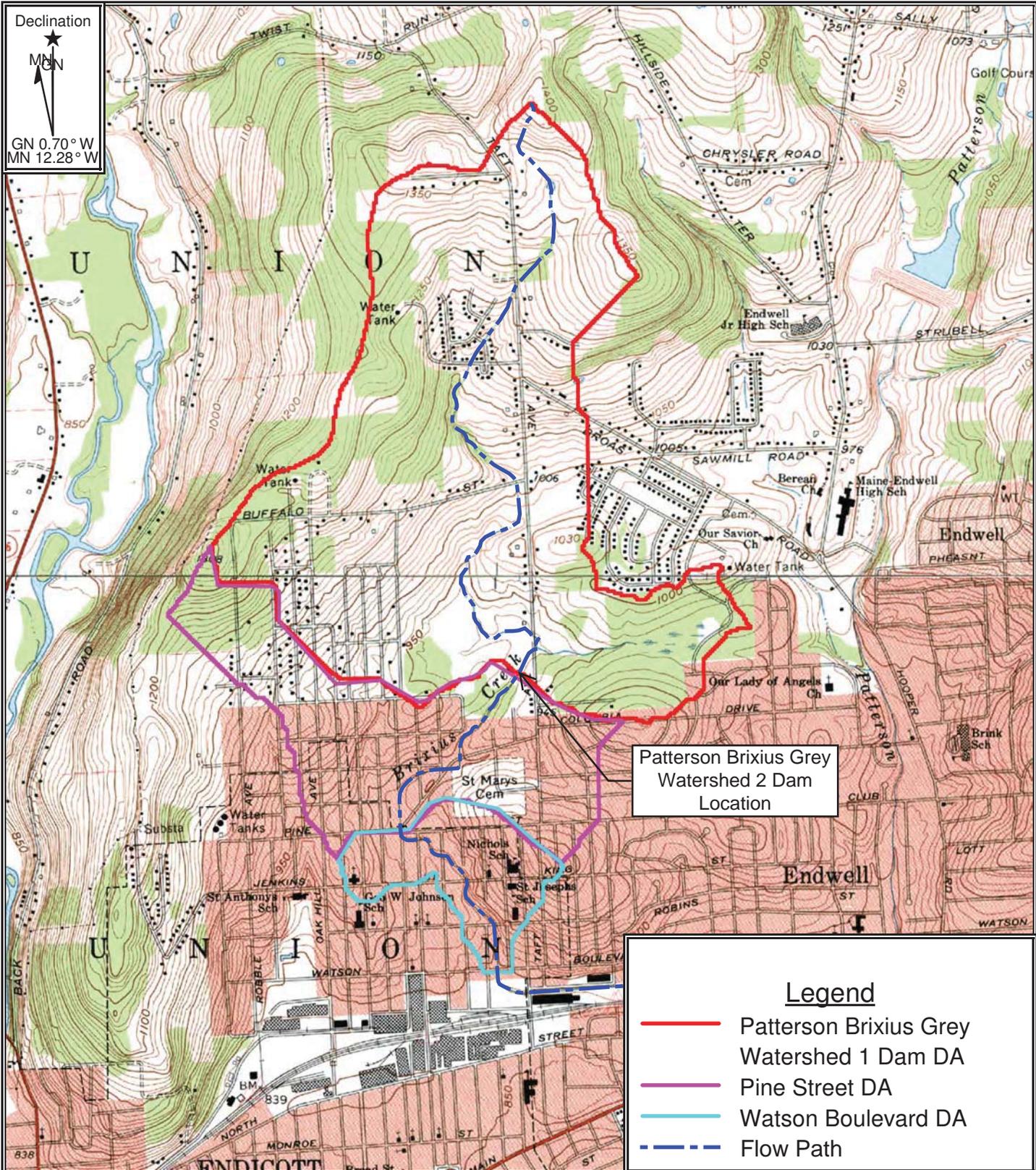
— Brixius Creek

Lower Brixius Creek - H&H Study  
Project Location Map

Scale: 1 inch = 800 feet  
Endicott, New York

June 2014



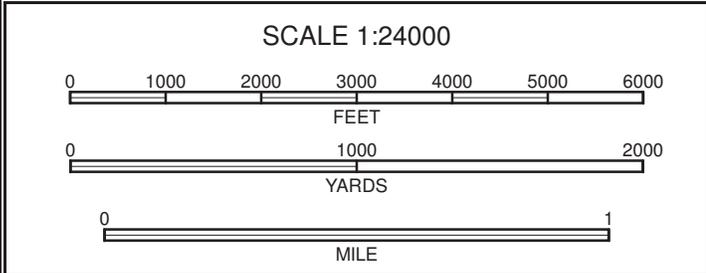


Declination  
 MN  
 GN 0.70° W  
 MN 12.28° W

Patterson Brixius Grey  
 Watershed 2 Dam  
 Location

**Legend**

- Patterson Brixius Grey Watershed 1 Dam DA
- Pine Street DA
- Watson Boulevard DA
- - - Flow Path



Town of Union Brixius Creek Drainage Study  
 Lower Brixius Creek - Drainage Area Map

Scale: 1 inch = 2,000 feet  
 Town of Union, New York



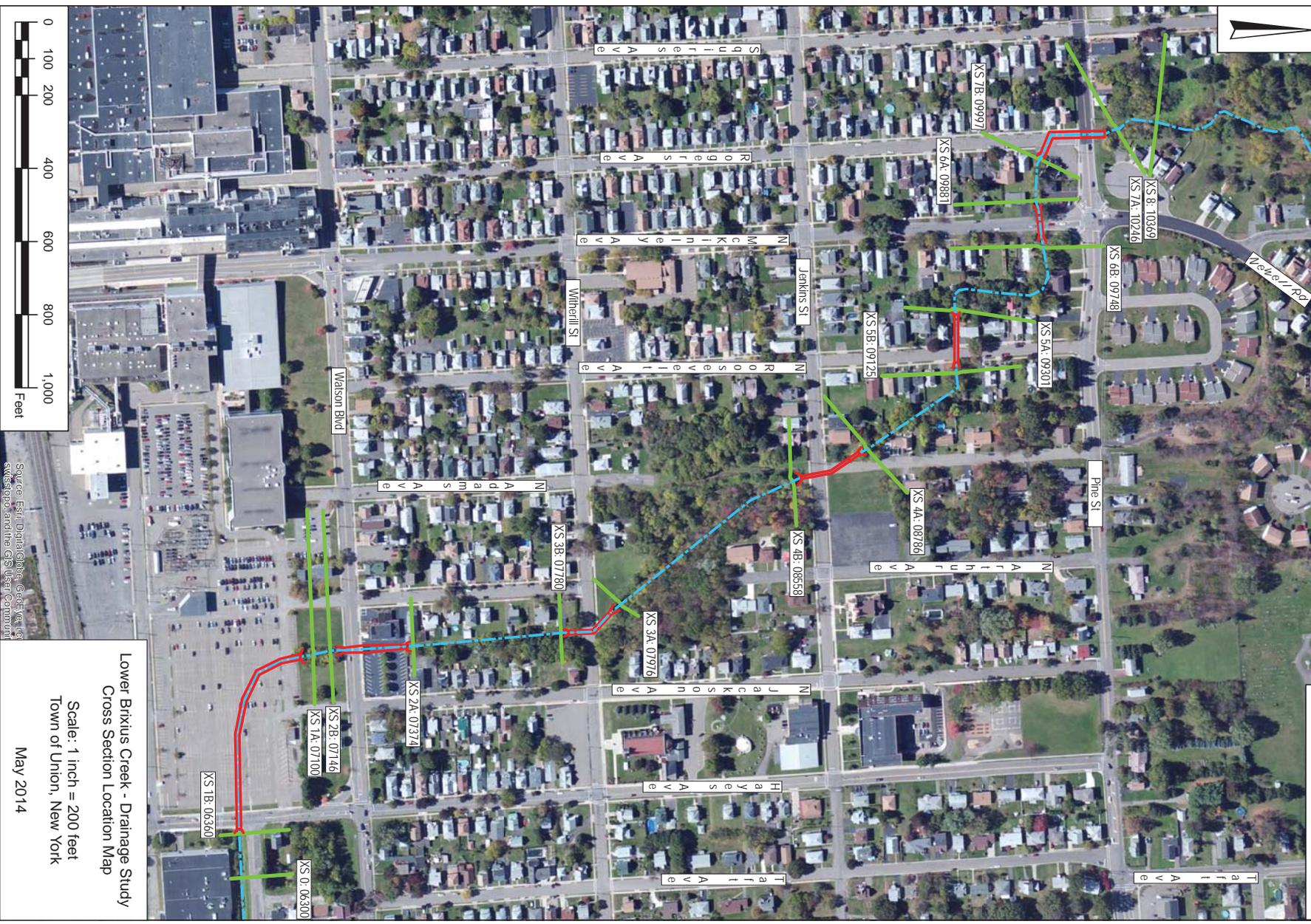
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Lower Brixius Creek - H&H Study  
 Localized Pine Street Drainage  
 Drainage Area Map  
 June 2014



**Legend**

- Cross Section Lines
- Brixius Creek
- Culverts



Source: Esri, DigitalGlobe, GeoEye, Aero  
satellite, and the GIS User Community

Lower Brixius Creek - Drainage Study  
Cross Section Location Map  
Scale: 1 inch = 200 feet  
Town of Union, New York  
May 2014



ERODING BANK 1

BRIXIUS CREEK

SUMMIT STREET

ERODING BANK 2

ERODING BANK 3

ERODING BANK 4

FLOW DIRECTION

NEWELL ROAD

ERODING BANK 5

MCKINLEY AND PINE INTERSECTION

PINE STREET

REVISION	
DATE	
DATE	



TOWN OF UNION

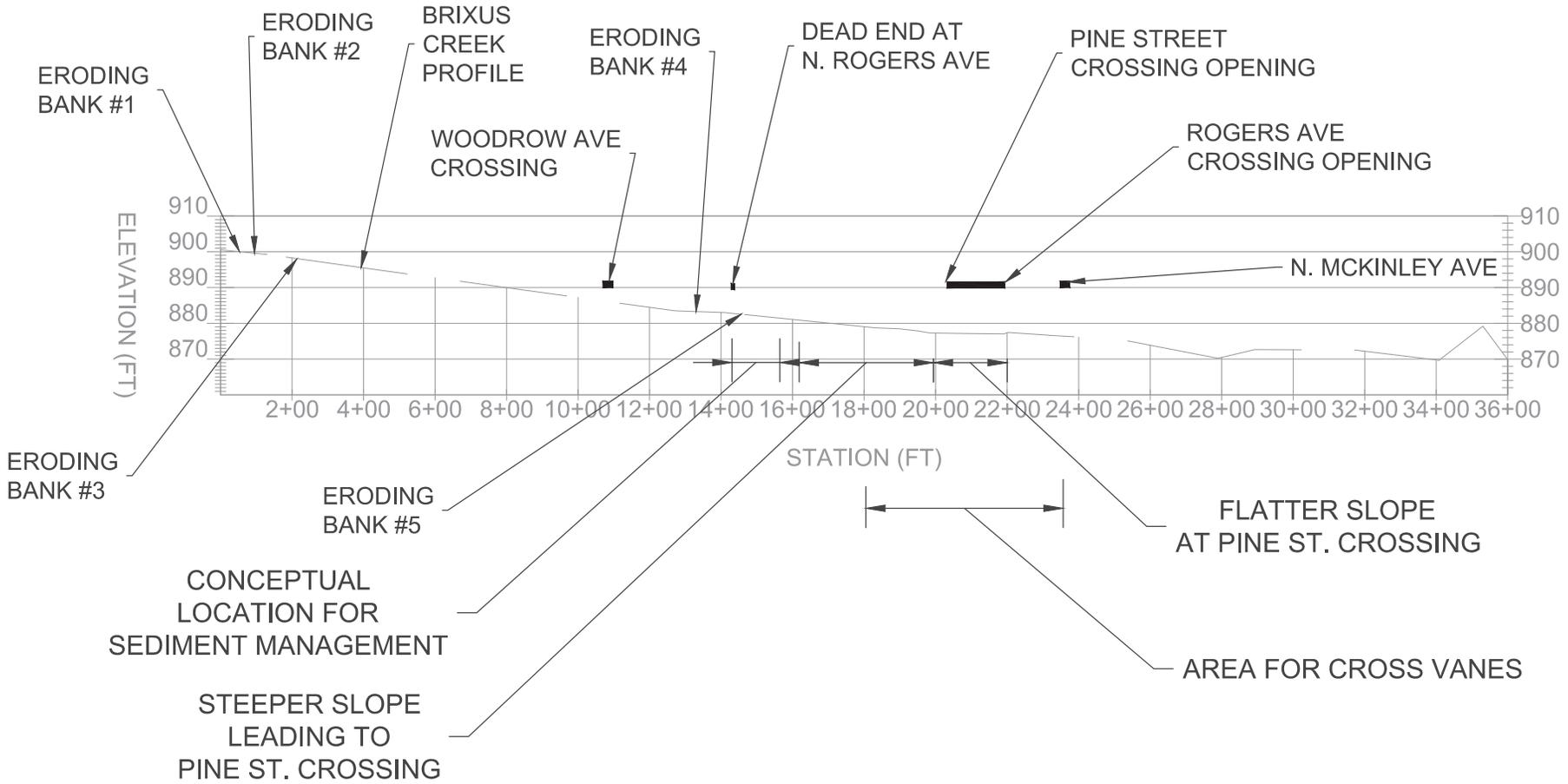
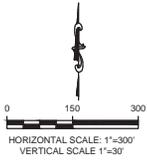
CONCEPTUAL  
NOT FOR  
CONSTRUCTION

ERODING BANK LOCATION MAP

BRIXIUS CREEK HYDRAULIC STUDY

UNION, NY

DATE:	5/28/14
DESIGNED BY:	--
DRAWN BY:	GDF
CHECKED BY:	--
WEC JOB NO.	NY E005.2014
PLAN NO.	



REVISION	
DATE	
DATE	



TOWN OF UNION

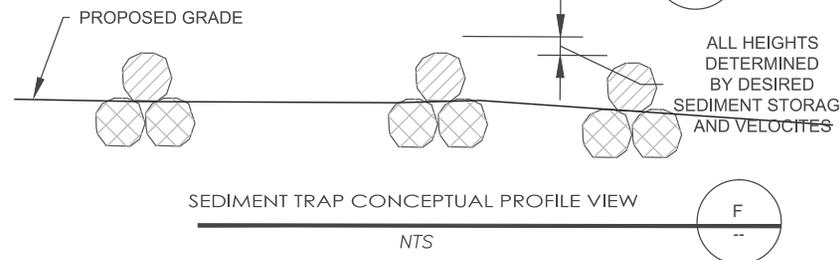
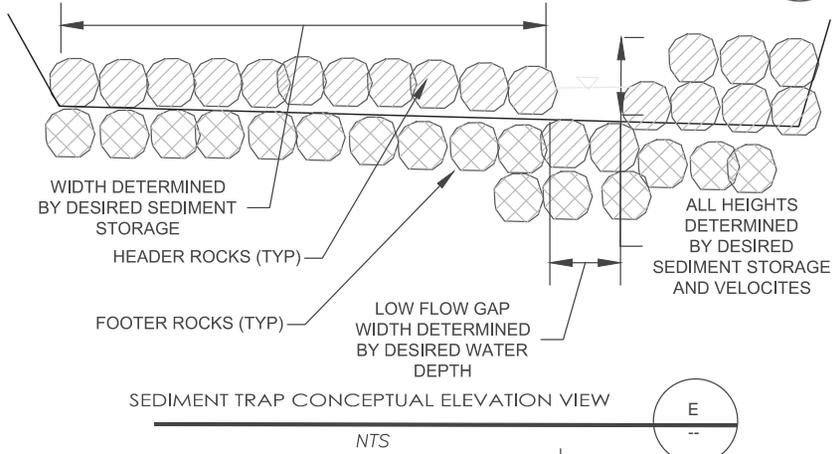
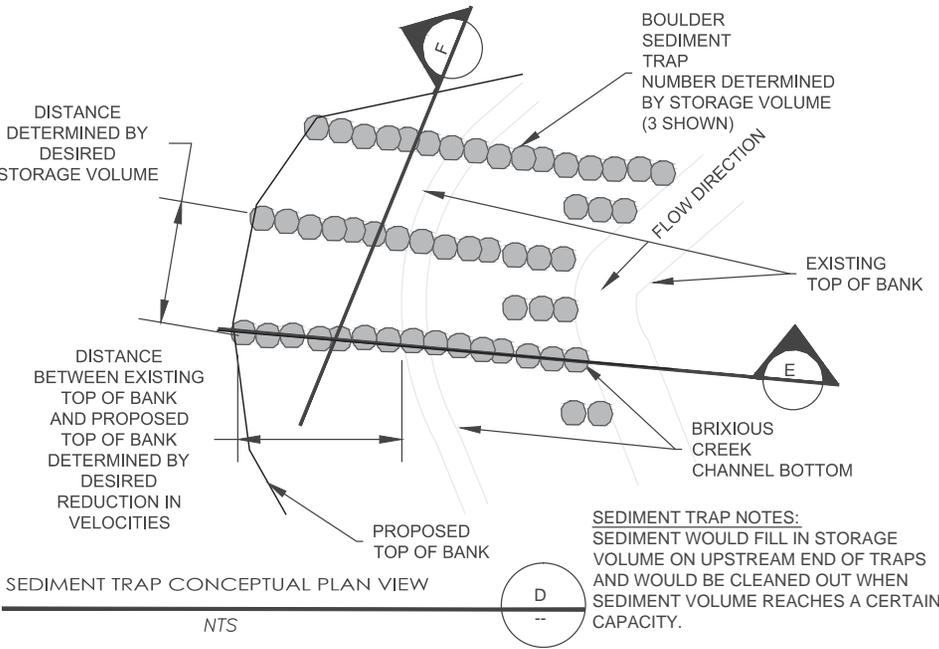
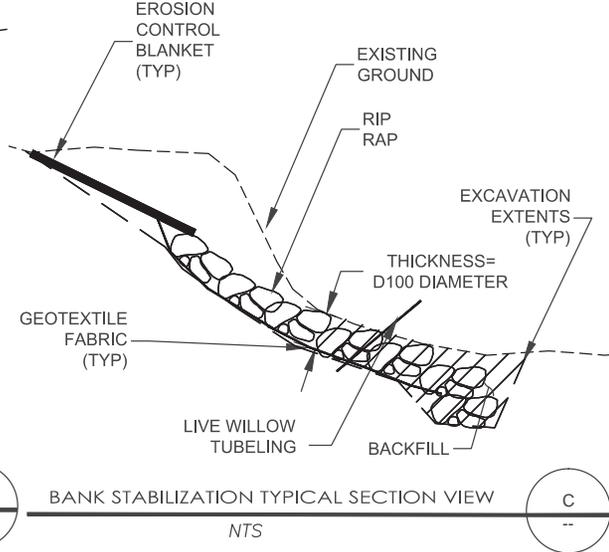
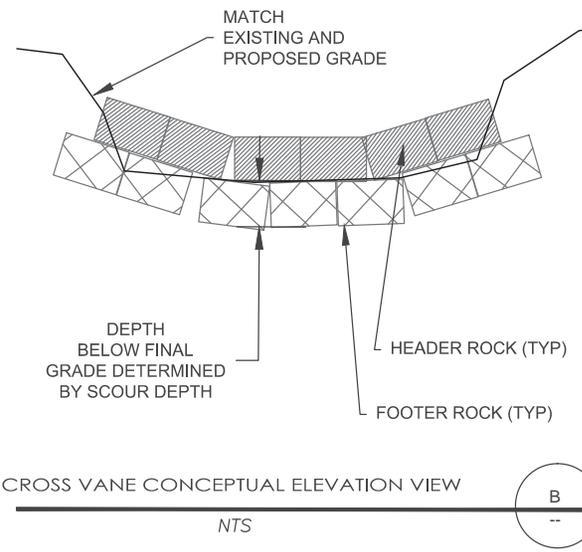
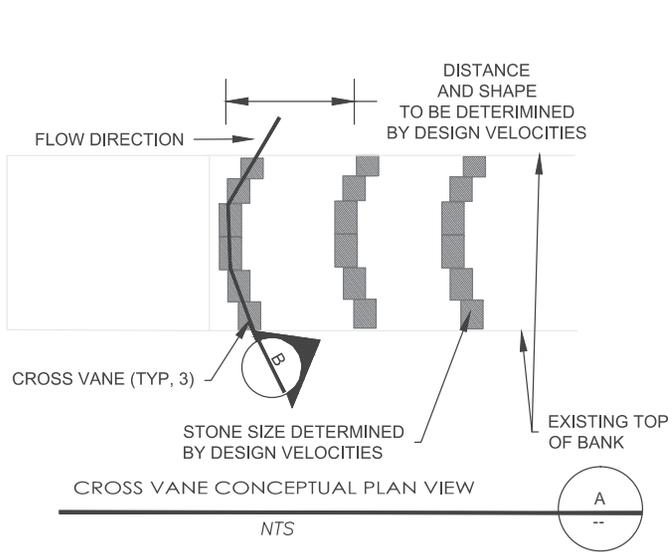
CONCEPTUAL  
NOT FOR  
CONSTRUCTION

BRIXIOUS CREEK PROFILE

BRIXIOUS CREEK HYDRAULIC STUDY

UNION, NY

DATE:	5/28/14
DESIGNED BY:	-
DRAWN BY:	GDF
CHECKED BY:	-
WEC JOB NO.	NY E005.2014
PLAN NO.	



**SEDIMENT TRAP NOTES:**  
 SEDIMENT WOULD FILL IN STORAGE VOLUME ON UPSTREAM END OF TRAPS AND WOULD BE CLEANED OUT WHEN SEDIMENT VOLUME REACHES A CERTAIN CAPACITY.

REVISION	
DATE	
DATE	

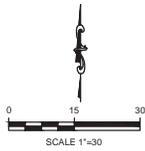


TOWN OF UNION

CONCEPTUAL  
NOT FOR  
CONSTRUCTION

CONCEPTUAL DETAILS FOR SEDIMENT  
MANAGEMENT  
BRIXIOUS CREEK HYDRAULIC STUDY  
UNION, NY

DATE:	5/28/14
DESIGNED BY:	--
DRAWN BY:	GDF
CHECKED BY:	--
WEC JOB NO.	NY E005.2014
PLAN NO.	

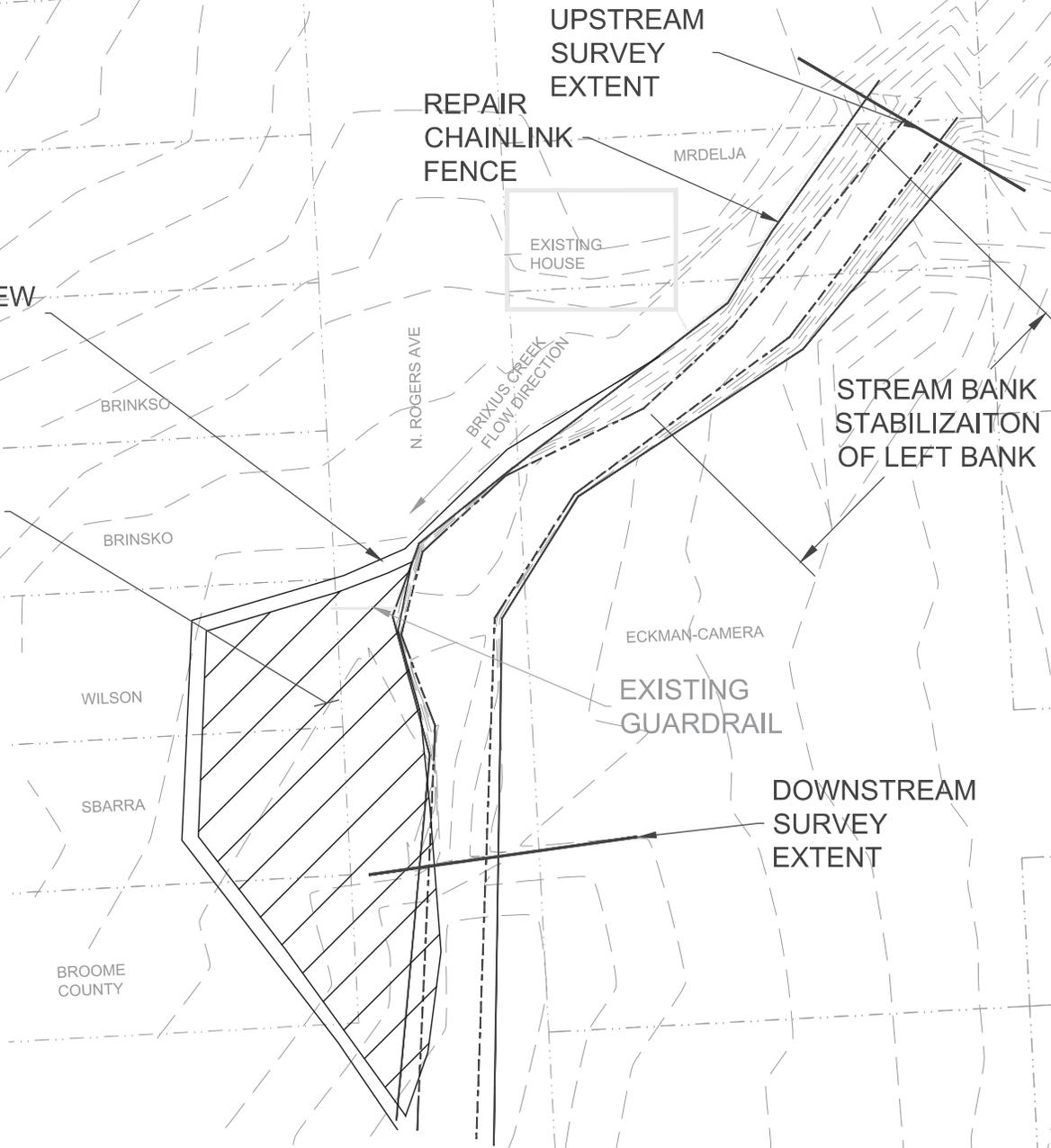


PROPOSED NEW  
TOP OF BANK

AREA FOR  
SEDIMENT  
TRAP  
SEE SEDIMENT  
TRAP CONCEPTUAL  
PLAN VIEW

**LEGEND**

- PROPERTY BOUNDARY (FROM BROOME COUNTY GIS)
- - - EXISTING CONTOURS (NOTE: IN CHANNEL ELEVATIONS MEASURED BY TOTAL STATION. OUT OF BANK ELEVATIONS FROM 2006 LIDAR)
- EXISTING TOP OF BANK
- BRIXIUS CREEK CHANNEL BOTTOM



REVISION	DATE



TOWN OF UNION

CONCEPTUAL  
NOT FOR  
CONSTRUCTION

CONCEPTUAL LOCATION FOR SEDIMENT TRAP

BRIXIUS CREEK HYDRAULIC STUDY

UNION, NY

DATE:	5/28/14
DESIGNED BY:	--
DRAWN BY:	GDF
CHECKED BY:	--
WEC JOB NO.	NY E005.2014
PLAN NO.	



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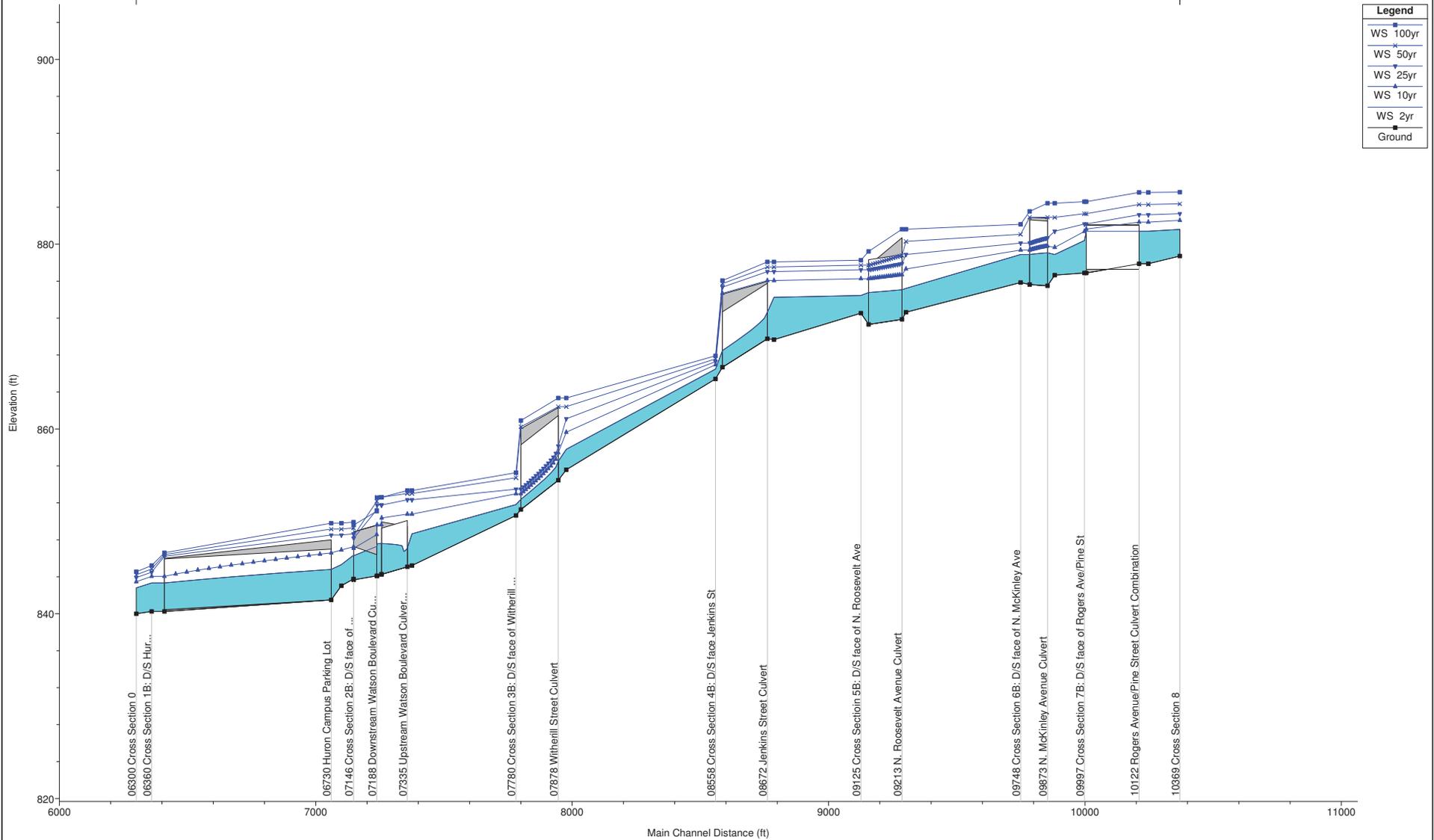
Legend	
<span style="color: red;">—</span>	Proposed Contours
<span style="color: green;">—</span>	Proposed Wall
<span style="color: cyan;">- - -</span>	Brixius Creek
<span style="color: black;">—</span>	Stream Culverts

Lower Brixius Creek - H&H Study  
 Watson Boulevard Crossing Map  
 June 2014



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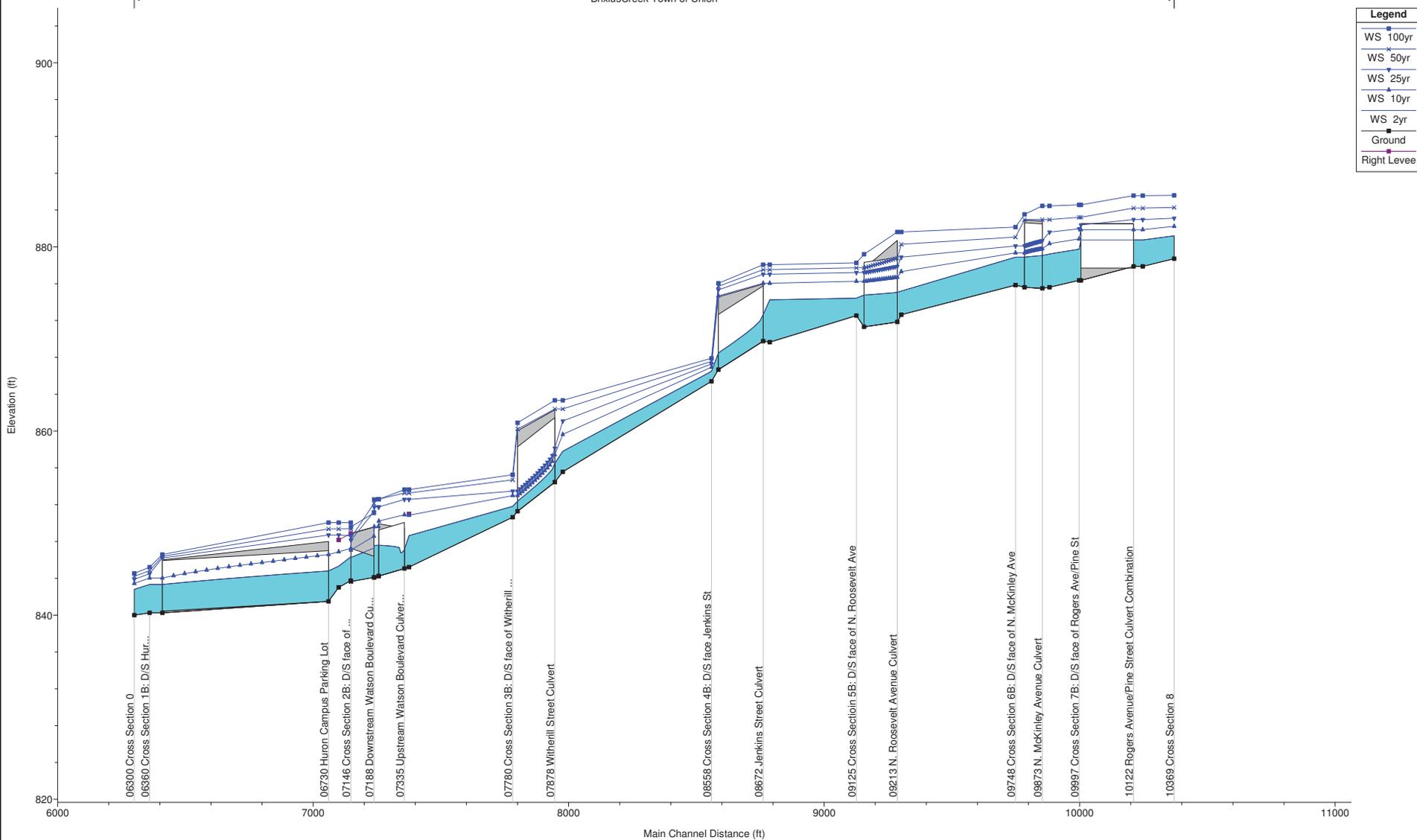
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Legend	
WS 100yr	Line with square markers
WS 50yr	Line with 'x' markers
WS 25yr	Line with triangle markers
WS 10yr	Line with diamond markers
WS 2yr	Line with square markers
Ground	Shaded area

1 in Horiz. = 360 ft 1 in Vert. = 10 ft

BrixiusCreek Town of Union



Legend	
WS 100yr	Blue line with square markers
WS 50yr	Blue line with diamond markers
WS 25yr	Blue line with triangle markers
WS 10yr	Blue line with cross markers
WS 2yr	Black line with square markers
Ground	Black line with square markers
Right Levee	Purple line with square markers

1 in Horiz. = 360 ft 1 in Vert. = 10 ft





