TOWN OF BERWICK WATER DEPARTMENT

JANUARY 2022

Environmental Review

20839A

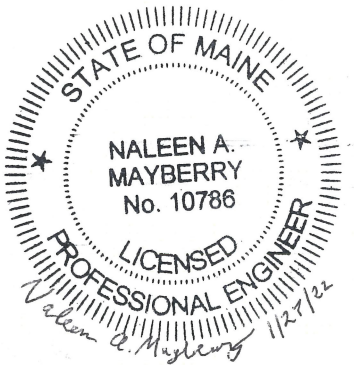
Water Treatment Plant Upgrades

Berwick, Maine

WRIGHT-PIERCE
Engineering a Better Environment

EVIRONMENTAL REVIEW
WATER TREATMENT PLANT UPGRADES
Berwick Water Department, Berwick, Maine

January 2022



Prepared By:

Wright-Pierce
11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | www.wright-pierce.com

Table of Contents

List of Appendices

Environmental Information Document Worksheet

Public Water System: Town of Berwick Water Department
PWSID: ME0090150
Project Number (if known):
Project Name: Water Treatment Plant Upgrades
Project Location: Berwick, ME

Public Water Systems should use this form for projects that are not eligible for a categorical exclusion (CATEX). The following information must be prepared and submitted to your DWSRF Project Manager in order to request an environmental determination. A determination will not be made until all information/documentation is received and all requirements have been fulfilled. It is ultimately the Public Water System's responsibility to ensure that all of the information necessary for the DWSRF Project Manager to make an environmental determination is accurate and complete.

Purpose and Need for the Project

Berwick Water Department (BWD)'s water treatment plant (WTP), located at 150 Rochester Street in Berwick, Maine supplies potable water to the Berwick community. The plant was constructed in 1998 to treat water from the Salmon Falls River. Surface water is drawn from the river through a SS Johnson Screen intake and conveyed to the WTP where it is treated by coagulation and filtration using an existing Microfloc® Trident® upflow clarifier/filtration system. Each of two treatment trains has a nominal design capacity of 350 gpm. The system currently produces approximately 250,000-400,000 gpd of treated water. The Total Organic Carbon (TOC) removal capability of this Microfloc® system has been optimized to the extent possible for this type of technology, removing 45% of incoming TOC.

Exceedances of disinfection byproduct (DBP) MCLs within the distribution system during October 2018 is the main justification supporting the need to upgrade the 20-year-old treatment facility. Additionally, this 2018 compliance exceedance occurred two years after the drought of 2016 that had caused high levels of manganese in the raw water supply, and these high levels resulted in the water system temporarily exceeding the existing USEPA secondary standard for manganese. With manganese currently being considered by EPA for possible health-based regulation (already regulated by several states), and the on-going possibility of further exceedance of DBP standards, both the treatment facility and raw water intake require upgrades that will improve their performance and reliability in addressing TOC and manganese.

The performance of the current treatment process is challenged by rapid changes in river source water quality coinciding with rainfall, drought, and run-off from snow melt. The existing Microfloc® technology is limited in treating "flashy" river sources such as the Salmon Falls River with its large increases in turbidity, color, TOC (precursor to DBP formation), and manganese. The Salmon Falls River has recently experienced color over 100 color units and turbidity over 300 NTU. Both manganese and TOC enter the river water during drought periods when the river levels are low and water chemistry conditions promote their mobilization from the bottom sediments surrounding the intake screen. The river depth at the intake is only about 8-feet. The intake is comprised of a 14-inch stainless steel Johnson Tee screen in a horizontal position at the end of a 12" pipe that places the intake 3' from the river bottom, where it is more likely to pull in the mobilized manganese and TOC. In addition, the system currently recycles the process wastewater generated from spent filter

backwash water and clarifier flushes, which tends to re-introduce manganese and TOC back into the WTP influent stream. The residuals management system at the site consists of Geotube™ filter bags that separate water and retain solids, allowing the filtrate to be recycled back to the clarifier. This system has been shown to also recycle previously removed manganese back into the system.

The project is required to upgrade and modernize the 20-year-old treatment facility for the next 20-year period. The project will improve finished water quality and allow the WTP to meet all primary drinking water standards including disinfection byproducts and to address secondary standard exceedances of manganese.

A 2016 Comprehensive System Facilities Plan provided the basis for significant investment, data collection, and process enhancement for developing this project. A survey of the deficiencies identified at the treatment plant through prior studies include the following:

1. The plant does not consistently remove sufficient natural organic matter (NOM, also meaning TOC) DBP precursors to levels that would reliably and consistently manage DBP formation, creating a significant risk for future non-compliance occurrences.
2. A manganese and iron removal approach, implemented in 2017, was not effective and was discontinued.
3. The process wastewater and residuals management system (using a Geotube® Dewatering Container made of permeable fabric) is inefficient and difficult to manage operationally.
4. The control system is nearly 20 years old and must be upgraded to eliminate obsolete equipment and maintain reliable plant operations.
5. Critical process pumps and chemical storage equipment are in poor condition or are not meeting design requirements for operations. These require replacement.
6. The core Microfloc® Trident® process is optimized for the levels of TOC (DBP precursor) removal that is achievable for this technology, but the technology cannot respond effectively to the rapidly changing water quality in the river. Since the technology was implemented in 1998, newer technologies that are more effective at improving TOC removal in water from such "flashy" river sources have been developed and implemented for public water treatment.
7. Raising the level of the intake an additional 1 to 2 feet would help separate it from the concentrations of manganese and TOC released from the riverbed during drought conditions.

The Town and WTP operations staff agree that the path forward is to implement a comprehensive upgrade that will address various plant deficiencies, modernizing it for the future, and ensuring compliance with current and emerging water quality regulations. The Town has completed several studies over multiple years to explore various alternatives for address deficiencies at the treatment plant. Groundwater options have been exhausted and the consensus is that the core Trident® process can be retained with the addition of a pretreatment process or possible a post filter process such as GAC polishing. Pretreatment with a ballasted flocculation process will be pilot tested and is an advantageous treatment strategy for the combined objective: to remove TOC and manganese in the raw water prior to filtration.

Proposed Project and Funding Status

Proposed Project

The project focuses on implementing a new pre-treatment process to improve TOC/Manganese removal and improve management of the process residuals (spent backwash and settled solids) generated during treatment processes. Ballasted flocculation and the Tridents® HS pretreatment clarifiers will be screened for pilot testing in early 2022 for testing in the second and third quarter of 2022.

Based on review of prior studies and experience with the source water quality, a pretreatment process placed upstream of the existing clarification/filtration process is an appropriate strategy that has been successfully implemented under similar conditions. Wright-Pierce pilot tested and implemented ballasted flocculation in Somersworth NH, which is located downstream on the same river very close to the Berwick WTP, and has been operating successfully for the past 15 years.

To house the new process, the project will include a separate pretreatment building located adjacent to the existing facility. Raw water from the intake main would be diverted to the pretreatment process for initial removal of turbidity, color, and oxidized manganese. This pretreated water would then be directed to the existing raw water wetwell. The existing Trident® clarifier/filtration system and pumping infrastructure would be retained as following the new pretreatment steps. It is currently envisioned that the sludge residuals from the pretreatment process and spent filter backwash would be stored and pretreated in either on-site settling lagoons or below grade concrete tanks, that would replace the existing Geotubes™. The supernatant from the settling lagoons or below grade clarifier tanks would be recycled back to the pretreatment facility. The alternative for residual solids management will be evaluated during the preliminary design phase of the project. In the alternative approach, solids may be discharged to the public sewer system, or possibly managed in an onsite residuals gravity thickening drying bed. The economics of the residual solids disposal and site constraints for managing the residuals on-site needs to be assessed in detail during the preliminary design phase.

Other project upgrades include the following:

1. Upgrade chemical feed systems by replacing aging polyethylene storage tanks and repainting containment areas
2. Update the facility control system and SCADA software platform
3. Replace raw water and backwash pumps with new pumps to achieve original design flow rates.
4. Assess and upgrade the existing horizontal 14” Johnson Tee screen intake. Upgrade may include an intake extension and/or an increase in the vertical elevation of the intake screen by the addition of a pipe elbow fitting.
5. Replace existing Geotube® with a system of three lagoons to settle and recycle spent process/backwash streams and dry solids.

The project includes the erection of an ancillary building to house the new pre-treatment equipment. The building is currently envisioned to be located to the southeast of the existing building outside the 100-year floodway boundary and mapped wetlands. Water would be diverted from an existing raw water vault that

would be modified to divert raw water into the pre-treatment building, then to accept pretreated water returned to the raw water vault to then enter the WTP.

The project also includes (Item 4 above) modifications to raise the inlet level of the existing 14" SS Johnson Screen Intake that is now set 3-feet off the bottom (at an average 8-foot depth below the water surface).

The project also includes (Item 5 above) replacement of the existing Geotube™ backwash solids capture/spent wash water recycle system with a system consisting of three lagoons that will recycle spent backwash water and settle and dry solids.

Funding

This project is intended to be funded by the Maine Drinking Water State Revolving Fund (DWSRF).

The Town received an SRF funding commitment of $1.2 M in 2020 to begin the preliminary design work for a treatment facility upgrade. The 2020 application envisioned an upgrade scope based on previous studies that focused on changing the plant disinfection strategy with possible treatment upgrades to improve TOC removal.

The BWD has also submitted a 2022 DWSRF funding application for the actual construction. The project is anticipated to be constructed in multiple phases (contracts); the overall project is proposed to start construction in spring of 2022 with anticipated completion of all phases (contracts) by December of 2023.

The project is receiving funding only through the DWSRF at this time

Alternatives Analysis

Develop a Ground Water Source of Supply

Ground water typically has much lower concentrations of TOC precursor to the formation of disinfection by products. Moreover, groundwater typically requires significantly less operational costs and treatment infrastructure compared surface water sources of supply.

In 2020, Wright-Pierce was retained by the Town to revisit prior groundwater studies and determine whether groundwater development could be a possible alternative to more costly surface water treatment plant upgrades.

The groundwater investigation phase was recommended by the Maine Drinking Water Program to determine whether groundwater development is a feasible, long-term strategy to address water quality concerns with the surface water supply source, while at the same time lowering the capital investment and operating costs for treatment. The 2020 hydrogeologic investigation identified several properties within the area served by the public water system which were favorable for completion of exploratory drilling to assess potential for groundwater well development.

The groundwater field study was not able to identify productive overburden soils that could be developed into a new groundwater supply for the system. A desktop study of prior groundwater investigation work revealed

that the viable overburden well development for municipal water supply would be a minimum of 2 miles away from the existing distribution system. Connection to the distribution system would require an investment of multiple millions of dollars in infrastructure to connect a groundwater source to the system if well locations could be identified and developed.

These findings suggests that groundwater development is not a favorable solution from a cost standpoint given several unknowns such as proximity to distribution infrastructure and possible treatment requirements (in the case that iron and manganese or other contaminants were present in the groundwater) that could cost several million dollars. As such, the Town has elected to revisit the prior upgrade scope of the treatment facility to modernize the facility and implement upgrades to improve water quality and operations.

The Do Nothing Alternative

Climate Change with resulting storms of increasing intensity and more frequent drought conditions will impact the ability of the BWD to be consistent in the successful treatment of the Salmon Falls River source water. The Do Nothing Alternative will result in on-going DBP Rule violations, and increasing problems with manganese.

Existing Environment

A completed Environmental Review Submission Form is attached to this Environmental Information Document Worksheet.

The proposed project is located within the boundaries of the Town of Berwick, Maine, including 150 Rochester Street which is located on the north side of Berwick town center. The proposed project is located on property currently owned by the Berwick Water Department and adjacent property. The Town has approached an abutting property owner about possibly acquiring additional property to site the pretreatment facility and solids handling lagoons or below grade tanks. The abutting property owner has been receptive and the Town plans to engage the property during the preliminary design process at site development alternatives are reviewed.

Water is drawn from the Salmon Falls River through a horizontally-placed, 14-inch diameter stainless steel Johnson Tee screen, which is located close to the northeastern shore of the river. The screen connects to a a 12-inch ductile iron water main, approximately 700 feet long, that brings water from the Salmon Falls River for treatment at the WTP.

The property is located in the R2 Transitional Residential Zone. The Maine Shoreland Zoning Act applies to the "shoreland zone" which, by law includes all land within 250 feet of any river that drains at least 25 square miles.

The Salmon Falls River watershed is 330 square miles, within the area shared by 21 municipalities, and is located in both Maine and New Hampshire. The Salmon Falls river drains into the Great Bay estuary. Municipal water systems in both states use the Salmon Falls river to supply more than 47,000 people with drinking water.

Consulting the wetland data from the US Fish and Wildlife Service's National Wetland Inventory, and a Wetland Delineation Study, completed by Caron Environmental (11/22/2021), identified wetlands occurred within the project area. The site uplands contain the WTP, lawn, paved areas, a field and woods. The Wetland Delineation Report with wetland maps are included in Appendix A. An image of the USFW National Wetland Inventory Map is included in Appendix A.

The Official Species List generated through the U.S. Fish and Wildlife's online Information for Planning and Consultation (IPaC) tool indicates the potential for the threatened northern long-eared bat to occur within the project area; however, no critical habitat within the project area has been designated for this species. The monarch butterfly is included on the Official Species List as a candidate species and is not yet listed or proposed for listing. There are generally no Section 7 requirements for candidate species.

An effects determination was completed on December 2, 2021 using the northern long-eared bat key within the IPaC system, and it was determined the project is consistent with activities analyzed in the U.S. Fish and Wildlife Service's January 5, 2016, Programmatic Biological Opinion. The Official Species List and the Verification Letter are included in Appendix B of this submittal. As shown on the Maine – Bald Eagle Nest Locations and Buffer Zones map included in Appendix B of this submittal, there are no Bald Eagle nests located in or near the project area. According to the Maine Department of Inland Fisheries and Wildlife (MDIFW) there are no mapped essential or significant wildlife habitats within the project area. Additionally, the Maine Natural Areas Program indicated there are no rare botanical features documented specifically within the project area.

Flood zones are shown on the Berwick WTP-Flood Zones Figure, and the FIRMette, both included in Appendix A. The Firmette shows, the project area is located in Zone AE and unshaded Zone X . Zone AE indicates a 1% annual risk for flooding, also known as the 100-year flood zone. The unshaded Zone X indicates a 0.2% chance of flood hazard, which is considered to be above the 500-year flood elevation, an area of minimal flood hazard. The base flood elevation for the subject area is 177 feet above mean sea level. The data for the Berwick WTP- Flood Zones Figure were from the 2013 "Preliminary FEMA Data" which is more current for York County than the FIRMette data. Base Flood elevation is based upon the NAVD88 Vertical Datum.

Soils data for the project area were obtained from the Natural Resources Conservation Service (NCRS), which indicates the soils are not considered prime farmland or farmland of statewide importance, except for the previously disturbed area where the WTP is located, which would be considered developed land. The project is not anticipated to have any impact on historical or cultural resources. Refer to the attached cross-cutter agency letters, responses, and other supporting documentation in Appendix B for additional details.

Environmental Impacts and Mitigation

It is not anticipated that the proposed project with its modifications to the intake will impact Salmon Falls River and associated wetlands per the response from the USACE this waterway at this location is not navigable by Corps definition. However, when working within the water body, silt would be stirred up. A silt curtain will be deployed around the intake while work is being conducted and an NRPA individual permit from MDEP is anticipated for any in-water work associated with the intake upgrade.

The new pre-treatment building is expected to be sited outside mapped wetland boundaries (see Wetland Delineation Report in Appendix A) to the southeast of and adjacent to the existing treatment building. The infiltration/drying lagoons or buried clarifier tanks will likely be located within identified wetlands, which will be anticipated to require a Natural Resource Protection Act (NRPA) Individual Permit. The lagoon option would require the largest impact to wetlands, therefore, the preliminary design will include a detailed evaluation of buried waste storage tanks for solids separation and storage as an option to reduce wetland impacts. The site topography, hydric soils, and extend of wetlands on the property suggest that a design that minimizes lagoon developed area may be the most appropriate strategy. To reduce the impact on local waterbodies, proper erosion and sedimentation controls will be installed to prevent the discharge of pollutants directly to nearby wetlands and the Salmon Falls River and the associated wetlands, or to any nearby storm drain systems (MS4).

As previously discussed, the project area includes habitat for the threatened, northern long-eared bat and the proposed project does include cutting of existing trees to accommodate the site improvements. Although the project has the potential to affect the northern long-eared bat, it has been determined by the Maine Dept Inland Fisheries & Wildlife that it does not anticipate significant impacts to any of the bat species as a result of this project. Mitigation measures to prevent the take of the northern long-eared bat and activities include no tree cutting of trees three inches in diameter at breast height or greater within the project area during the months of June or July.

Interagency Coordination and Consultation Activities

Endangered Species Act Compliance

An Endangered Species Act review was completed for the project area. The following documentation is included in Appendix B of this submittal:

- ☑ Official Species List from IPaC
- ☐ Verification Letter for Final 4(d) Rule for Northern Long-Eared Bat (If project involves cutting trees three-inches in diameter or greater)
- ☑ Bald Eagle Nest Location Map (showing project site and nearest documented eagle nest.)
- ☑ Completed Species Summary Table
- ☐ Informal consultation letter to USFWS (if applicable)

Maine Endangered Species Act Compliance

Documentation of cross-cutter review by the Maine Department of Inland Fisheries and Wildlife is included in Appendix B of this submittal.

- ☑ Documentation Provided

National Historic Preservation Act Compliance

Documentation of cross-cutter review by the Maine Historic Preservation Commission is included in Appendix B of this submittal.

- ☑ Documentation Provided

Other Cross-Cutter Coordination

Letters were sent to the applicable Cross-Cutters requesting an intergovernmental review for the project. Copies of all letters sent and responses received are included in Appendix B of this submittal. Applicable Cross-Cutters are checked below.

- ☑ US Army Corp of Engineers
- ☑ Maine Floodplain Management Program
- ☐ Maine Geological Survey
- ☐ Maine Coastal Program
- ☑ Maine Natural Areas Program
- ☐ Maine Drinking Water Program
- ☐ Division of Parks and Public Resources
- ☐ Natural Resources Conservation Service
- ☐ DEP Bureau of Air Quality
- ☐ DEP Bureau of Land & Water Quality
- ☐ DEP Division of Solid Waste Management
- ☑ DEP Division of Land Resource Regulation
- ☐ DEP Division of Water Resource Regulation

Permits

The following permits are anticipated for the proposed project. Status of the permits is included in parentheses.

- Maine Construction General Permit (to be completed)
- Maine DEP NRPA Individual Permit (to be completed)
- Berwick Conditional Use and Land Development Permit (to be completed)
- Berwick Shoreland Zone Permit (to be completed)

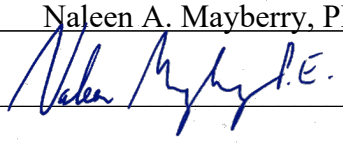
Public Participation

Public involvement completed to date for this project includes discussion of the project at several Berwick Board of Selectman meetings. which are open to the public. The Town approved bonding the water treatment facility upgrade at Town Meeting in 2020. The Town meeting process included a public hearing to discuss the need to upgrade the water treatment facility to improve water quality and bonding would be necessary for the upgrade. Board of Trustees meeting minutes are available at https://www.berwickmaine.org/government/board_of_selectmen/agendas_and_minutes.php

Certification

I certify that, to the best of my knowledge, the information submitted in this Request for Environmental Assessment, including the accompanying attachments, is true and accurate. I further certify that I agree to refrain from any construction activity, including, but not limited to, site preparation, demolition, or land disturbance, for the above proposed project(s) until (1) the Drinking Water Program issues a final written environmental decision for the proposed project(s); and (2) the Drinking Water Program notifies me in writing of compliance with all other applicable DWSRF approval actions. I further certify that I am a person authorized to render this certification and that I may be subject to penalties under federal and Maine law, if I provide false or untrue information.

Prepared by: Naleen A. Mayberry, PE Title: Lead Project Engineer

Signature:  Date: January 27, 2022

To be completed by DWSRF Project Manager

☐ As the Responsible Official, I have determined that this **project is eligible for a Finding of No Significant Impact (FONSI)** as per the substantive environmental review requirements under EPA regulations at 40 C.F.R. § 6.205

The State shall revoke a FONSI and shall require an Environmental Impact Statement if, subsequent to granting the Finding, the State determines that: the proposed action no longer meets the requirements for a FONSI due to changes in the proposed project; or the State determines from new evidence that serious local or environmental issues exist; or that Federal, State, or local laws are being or may be violated.

☐ As the Responsible Official, I have determined that this project is eligible for an Environmental Impact Statement (EIS) as per the substantive environmental review requirements under EPA regulations at 40 C.F.R. § 6.207

Signature of Responsible Official	Title	Date

Environmental Review Submission Form

Public Water System: Town of Berwick Water Department
PWSID: ME0090150
Project Number (if known):
Project Name: Water Treatment Plant Upgrades
Project Location: Berwick, ME

Instructions: Use the following checklist to identify potential environmental and cultural resources that may be impacted by the proposed project. Every question must be answered either 'Yes' or 'No'. Describe the specific circumstances as well as mitigation measures for each question answered 'Yes' in your CATEX Worksheet or Environmental Information Document. Any question answered 'No' must be supported by the applicable Cross-Cutter unless it can be eliminated based off of geographic location. For example, if a main replacement were taking place in interior Maine, you would not need to include documentation by the Maine Coastal Program indicating that coastal zones will not be impacted.

Area of Environmental Concern	YES	NO
Historical Resources **[Cross-Cutter: Maine Historic Preservation Commission]**		
Are there historic/cultural resources listed (or eligible for listing) on the National Register of Historic Places located in the Area of Potential Effect? See Executive Order 11593 – Protection and enhancement of the cultural environment.	☐	☒
Are there any natural landmarks located in/nearby the project area?	☐	☒
Will the project have any impact of the Appalachian Trail?	☐	☒
Coastal Resources **[Cross-Cutters: Maine Geological Society, Maine Coastal Program, Division of Parks & Public Lands, NOAA Fisheries]**		
Will the project occur in or impact a coastal zone as defined by the State's Coastal Zone Management Plan (CZMP)?	☐	☒
Will the project occur in or impact the Coastal Barrier Resource System as defined by the US Fish and Wildlife Service?	☐	☒
Will the project occur in or impact essential marine fish habitat within 200 nautical miles from shore? See Magnuson-Stevens Fishery Conservation & Management Act.	☐	☒
Ecological Resources **[Cross-Cutters: US Fish and Wildlife Service, Dept. of Inland Fisheries and Wildlife, NOAA Fisheries, Maine Natural Areas Program]**		
Are there any federal or state listed endangered, threatened, or candidate species or designated critical habitat in or near the project area? This includes species protected by individual statute, such as the Bald Eagle and Golden Eagle Protection Act and the Migratory Bird Treaty Act.	☒	☐
Does the project affect or have the potential to affect, directly or indirectly, any federal or state-listed, threatened, endangered or candidate species, or designated habitat?	☐	☒

Farmland [Cross-Cutter: Division of Agricultural Resource Development]	YES	NO
Is there prime, unique, state or locally important farmland in/near the project area?	☐	☒
Does the project include the acquisition and conversion of farmland?	☐	☒
Floodplains [Cross-Cutter: Maine Floodplain Management Program]		
Will the project be located in, encroach upon or otherwise impact a floodplain?	☐	☒
Wetlands and Other Waters of the U.S. [Cross-Cutter: US Army Corp of Engineers, DEP Division of Land Resource Regulation]		
Are there any wetlands or other waters of the U.S. in or near the project area?	☒	☐
Will the project result in impacts, directly or indirectly (including tree clearing)?	☒	☐
Is a USACE Clean Water Act Section 404 permit required?	☐	☒
Wild and Scenic Rivers [Cross-Cutter: Division of Parks and Public Lands]		
Is there a river on the Nationwide Rivers Inventory, a designated river in the National System, or river under State jurisdiction (including study or eligible segments) near the project? (Note: Allagash Wilderness Waterway is the only designated scenic river in Maine.)	☐	☒
Will the project directly or indirectly affect the river or an area within ¼ mile of its ordinary high water mark?	☐	☒
Air Quality [Cross Cutter: DEP Bureau of Air Quality]		
Could the project impact air quality or violate local, State, Tribal or Federal air quality standards under the Clean Air Act Amendment of 1990?	☐	☒
Water Quality [Cross-Cutters: Bureau of Land and Water Quality, Maine Drinking Water Program, DEP Bureau of Water Quality		
Are there water resources within or near the project area? These include groundwater, surface water (lakes, rivers, etc.), sole source aquifers and public water supply.	☒	☐
Will the project impact any of the identified water resources?	☐	☒
Does the project have the potential to violate federal, state, tribal or local water quality standards established under the Clean Water and Safe Drinking Water Acts?	☐	☒
Are any permits required?	☒	☐
Established Communities		
Will the project disrupt a community, planned development or be inconsistent with plans or goals of the community?	☐	☒
Are residents or businesses being relocated as part of the project?	☐	☒
Will the project cause any disproportionately high and adverse impacts to minority and/or low-income populations?	☐	☒

Controversial Nature	**YES**	**NO**
Is the project highly controversial? The term “highly controversial” means a substantial dispute exists as to the size, nature, or effect of a proposed federal action. The effects of an action are considered highly controversial when reasonable disagreement exists over the project’s risks of causing environmental harm. Mere opposition to a project is not sufficient to be considered highly controversial on environmental grounds. Opposition on environmental grounds by a federal, state, or local government agency or by a tribe or a substantial number of the persons affected by the action should be considered in determining whether or not reasonable disagreement exists regarding the effects of a proposed action.	☐	☒

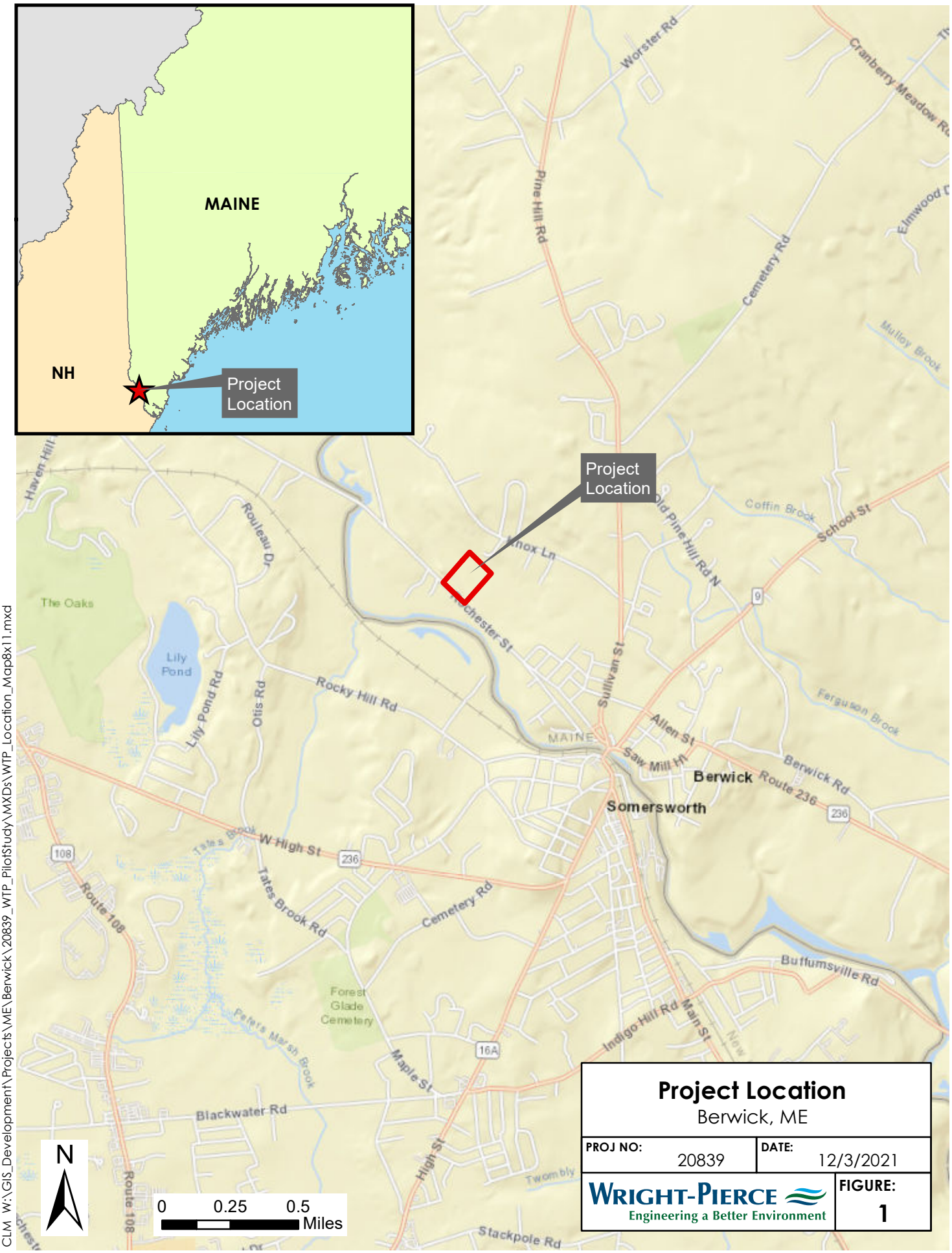
Species Summary Table

Your Name: Naleen Mayberry, PE, Wright-Pierce on behalf of Town of Berwick, Maine
Project Name used in IPaC: Water Treatment Plant Upgrades
IPaC Number: 05E1ME00-2022-E-0093
Date: 01/14/2022

Step 1 Listed species that are likely present according to the Official Species List from IPaC? Enter "No Species" or each species from IpaC Species List Bald eagle nest(s) ID # from Step 4.	**Step 2** Is your action area in critical habitat (only for Canada lynx or Atlantic salmon)? "Yes" "No"	**Step 3A** Is suitable habitat for listed species present in your action area? "Suitable habitat present" "Suitable habitat not present" "Don't know"	**Step 3B** Does the species occur in your action area? "Species present" "Species not present" "Don't know"	**Step 4** Is your project likely to take or disturb eagles and require an Eagle Act permit? "Will not disturb" "May disturb" "Don't know"	**Step 5** Determinations for the Endangered Species Act – **only Federal agencies complete this column** "No effect" "May effect"	**Notes and Documentation** (provide additional information if needed)
Bald Eagle (No nests in area)	N/A	Don't know	Don't know	Will not disturb		No mapped Bald Eagle nests in or near project area.
Northern Long-eared Bat	N/A	Suitable habitat present	Don't know	N/A		Project consistent with activities analyzed in USFWS January 5, 2016 PBO. No trees will be cut in June or July.
Atlantic salmon	No	Don't know	Don't know	N/A		The main part of the project is located approximately 700 feet away from the Salmon Falls River. The part of the project that involves raising the intake is located next to the river bank in water approximately 8 feet deep. The Salmon Falls River does not appear on Fish and Wildlife maps of Atlantic salmon habitat.
Monarch Butterfly	N/A	Don't know	Don't know	N/A		Candidate species; not yet listed or proposed for listing. No Section 7 requirements for candidate species.

Notes:

Appendix A
Location Maps, Site Plans, and Renderings



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

Project Site
Berwick, ME

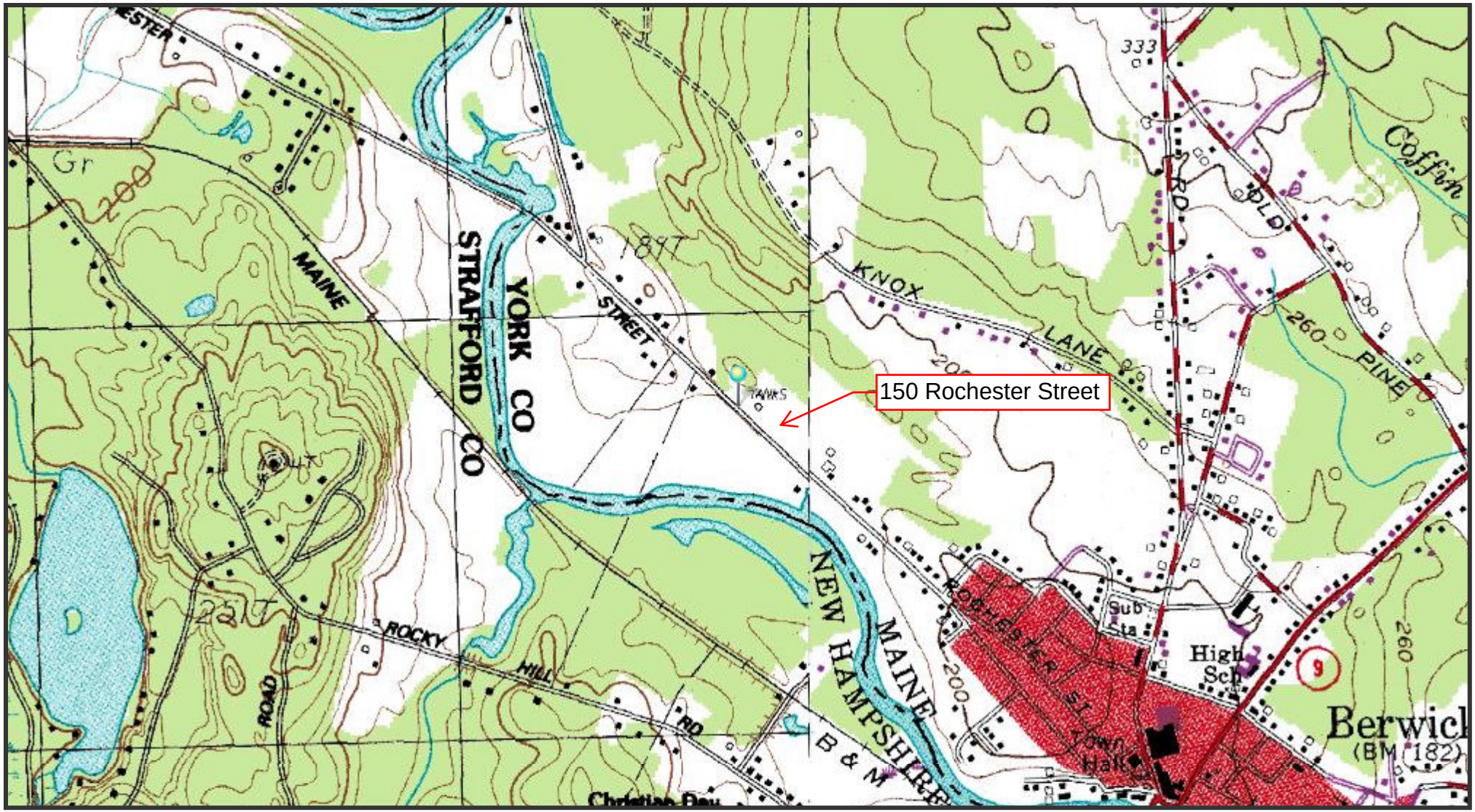
PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd

TOWN OF BERWICK WTP - 150 ROCHESTER ST.

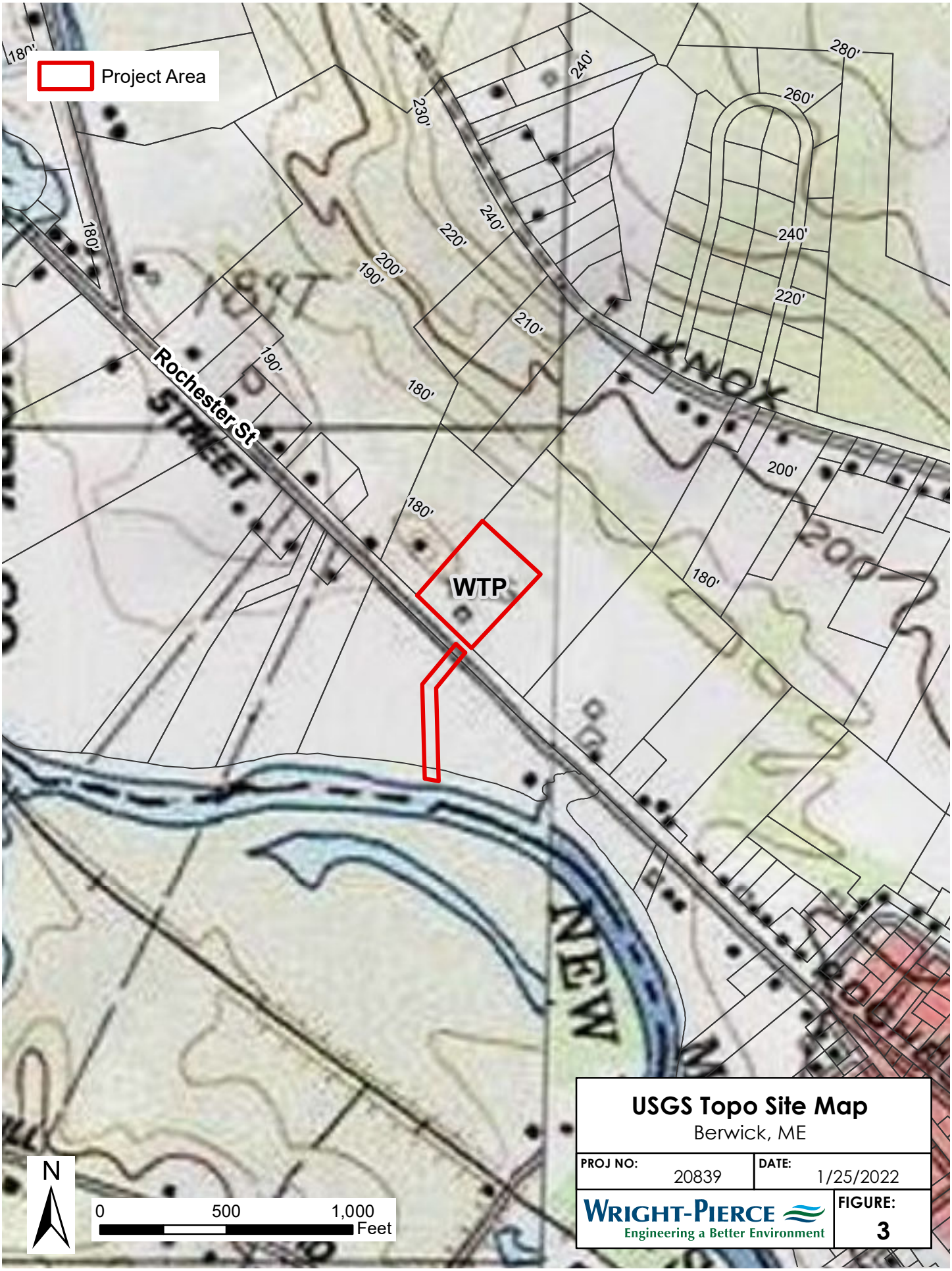


LEGEND

0.4 Miles

1 inch = 0.28 miles

Date: 11/23/2021
Time: 9:56:54 AM



CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

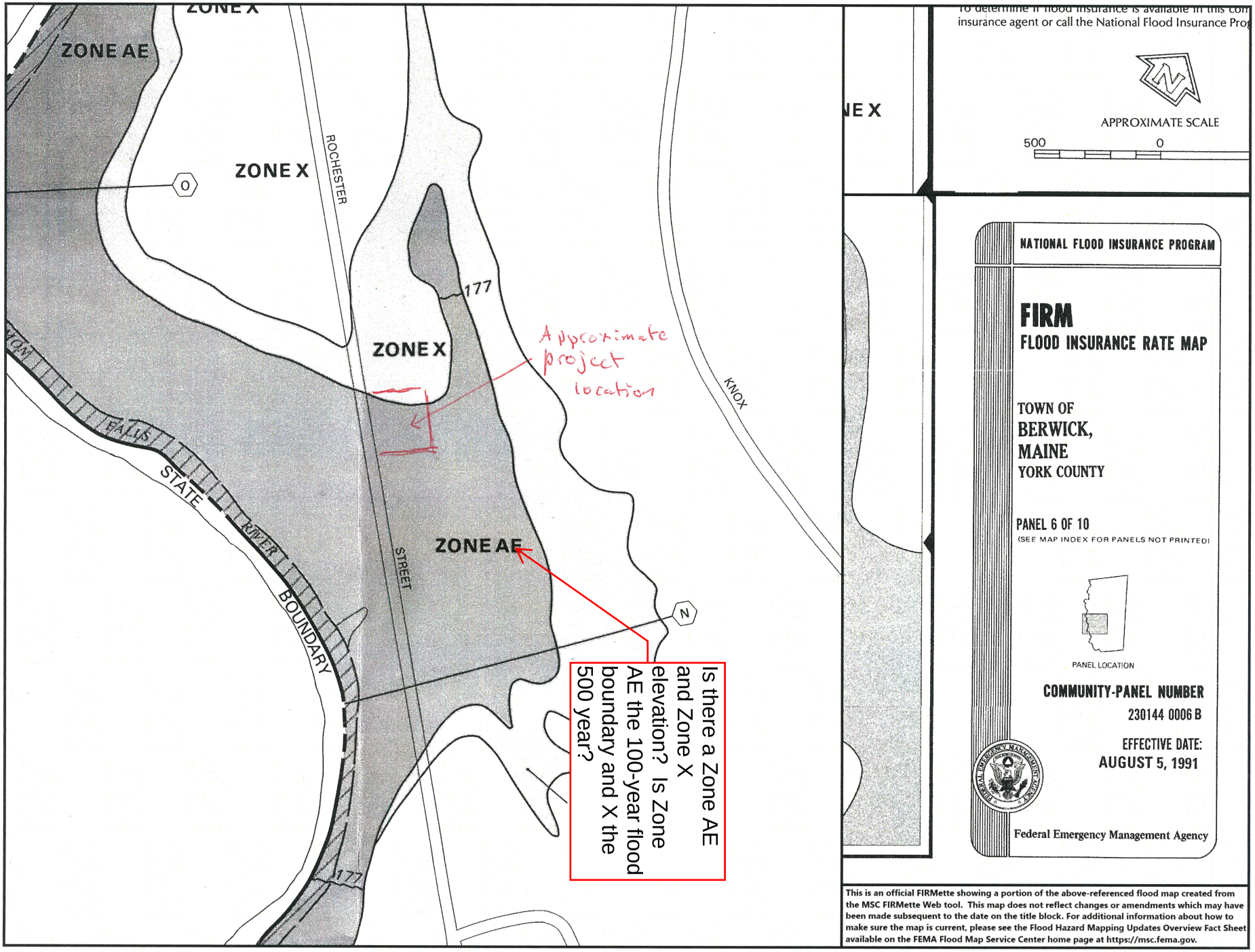
USGS Topo Site Map

Berwick, ME

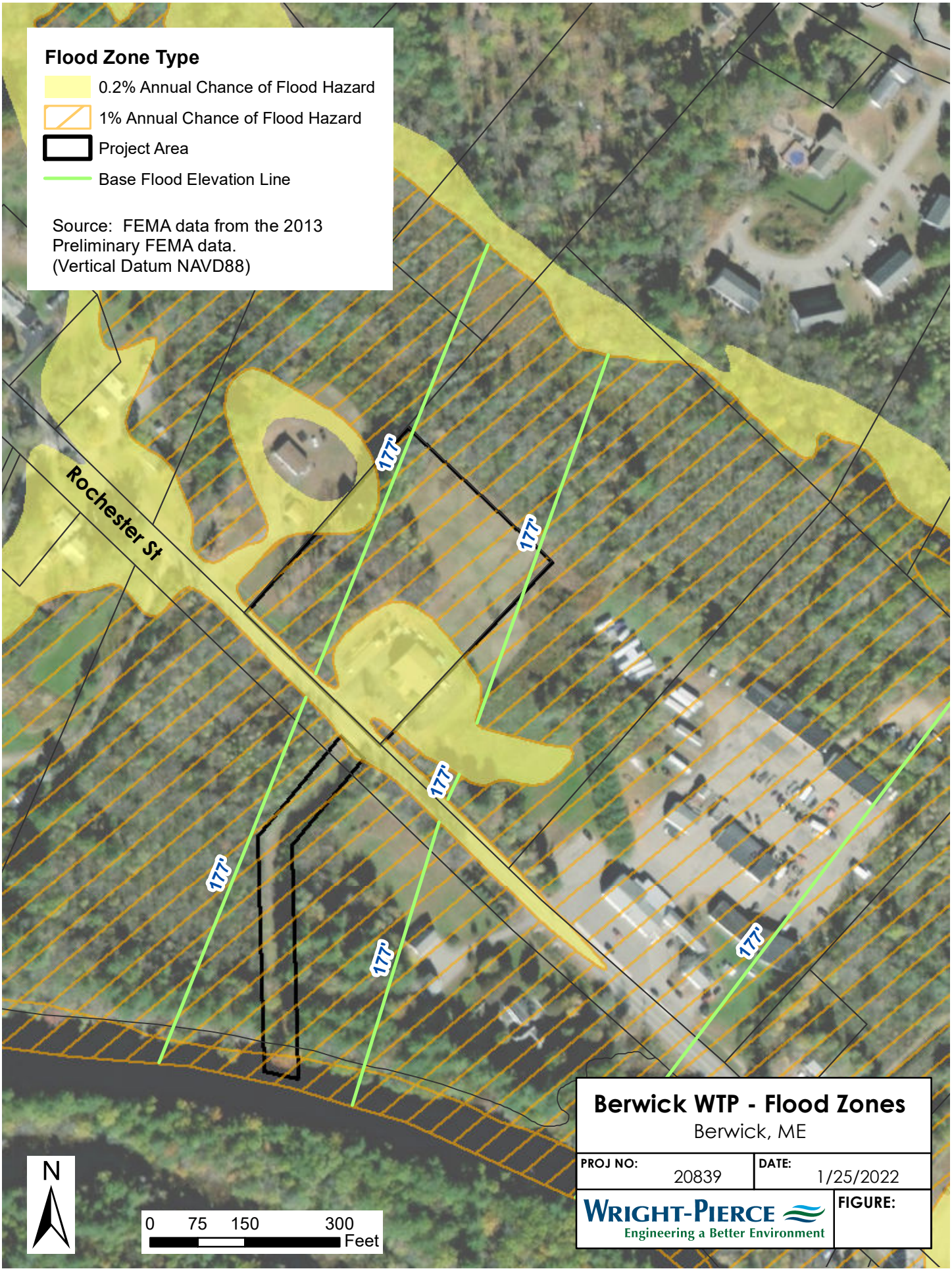
PROJ NO:	DATE:
20839	1/25/2022

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3



This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.


Flood Zone Type
0.2% Annual Chance of Flood Hazard
1% Annual Chance of Flood Hazard
Project Area
Base Flood Elevation Line
Source: FEMA data from the 2013 Preliminary FEMA data.
(Vertical Datum NAVD88)
Rochester St
177'
177'
177'
177'
177'
177'
N
0 75 150 300
Feet
Berwick WTP - Flood Zones
Berwick, ME
PROJ NO: 20839
DATE: 1/25/2022
WRIGHT-PIERCE
Engineering a Better Environment
FIGURE:
CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_FEMA_8x11.mxd

Caron Environmental Consulting, LLC

Wetlands • Forestry • Permitting • Habitat Studies

November 22, 2021

Dustin J. Lacombe, P.E.
Wright-Pierce
11 Bowdoin Mill Island; Suite 140
Topsham, ME 04086

Re: Wetland Delineation
Berwick Water Department
150 Rochester Street/Berwick, ME

Dear Mr. Lacombe:

As requested, we have delineated the wetlands on the above-referenced site. The delineation was conducted on October 28, 2021. The delineation was based on observations of the soils, the plant communities and hydrology. The delineation was conducted in accordance with the procedures outlined in the 1987 United States Army Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Northcentral and Northeastern Region.

The edges of wetlands were delineated with blue flagging labeled A1 to A21, B1 to B29, and C1 to C9. The wetlands on the site include wooded wetlands, a wet meadow, shrub swamp and ditches. The uplands contain a water treatment plant, lawn, paved areas, a field and woods.

Species which were observed to be dominant primarily in the wetlands include willows, Speckled Alder, Cattail, Purple Loosestrife, Phragmites, Sensitive Fern, Winterberry, Soft Rush, Maleberry and sedges. Several species are common in both the wetlands and uplands including Red Maple, Gray Birch, European Buckthorn, Highbush Blueberry, Sheep Laurel, goldenrods, White Meadowsweet, Spotted Geranium and Haircap Moss. Species abundant primarily in the uplands include Black Cherry, Sugar Maple, White Oak, Beech, Black Locust, Russian Olive, Morrow's Honeysuckle, Japanese Knotweed, Multiflora Rose, Milkweed, Bittersweet, Little Bluestem, Red Fescue, Timothy, Sweet Fern and Field Clover. The attached Wetland Determination Data Forms provide greater detail on the vegetation, soil conditions and hydrological indicators.

The Maine GeoLibrary Online Viewer does not show any Endangered Threatened and Special Concern Wildlife Habitats or Significant Vernal Pools on the site.

The delineation was based on features visually apparent and the regulations in place at the time. As you are aware the interpretation of the boundaries of wetlands can vary depending on many factors including the time of year, growth phase of vegetation, groundwater levels, soil conditions, weather, and political factors. As a result, no delineation can be considered definitive until it has been reviewed and verified by all of the relevant approving authorities.

If you have any questions in regards to this matter, please feel free to contact us.

Very truly yours,
CARON ENVIRONMENTAL CONSULTING, LLC
By;

Charles E. Caron

247 Bragg Hill Road • Westminster, MA 01473
978-874-5469 • Email: caronenv@aol.com

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 150 Rochester Street City/County: Berwick Sampling Date: 10/28/2021

Applicant/Owner: State: ME Sampling Point: A11-W

Investigator(s): Charles Caron, Caron Environmental Consulting, LLC Section, Township, Range:

Landform (hillside, terrace, etc.): Low Sand Plain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R Lat: 43.274406N Long: 70.876098W Datum:

Soil Map Unit Name: Naumburg Sand NWI classification: PF01E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No	**within a Wetland?**	**Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):
Water Table Present?	Yes x	No	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes x	No	Depth (inches): 0"

Wetland Hydrology Present? **Yes** X **No**

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A11-W

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	100	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	100	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15' r)			
1. *Frangula alnus*	14	Yes	FAC
2. *Acer rubrum*	9	Yes	FAC
3. *Pinus strobus*	3	No	FACU
4. *Lonicera morrowii*	3	No	FACU
5. *Vaccinium corymbosum*	2	No	FACW
6. *Spiraea alba*	2	No	FACW
7.			
	33	=Total Cover	
Herb Stratum (Plot size: 6' r)			
1. *Onoclea sensibilis*	69	Yes	FACW
2. *Equisetum arvense*	15	No	FAC
3. *Dryopteris intermedia*	2	No	FAC
4. *Ulmus americana*	1	No	FACW
5. *Thalictrum*	1	No	
6. *Spiraea alba*	1	No	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	89	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	140	x 3 =	420
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals:	221 (A)		594 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: A11-W

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loamy/Clayey	
14-22	2.5Y 5/2	87	5YR 4/6	10	c	m	Loamy/Clayey	Prominent redox concentrations
			10YR 6/1	3	d	m		

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 150 Rochester Street City/County: Berwick Sampling Date: 10/28/2021

Applicant/Owner: Berwick Water Department State: ME Sampling Point: A11U

Investigator(s): Charles Caron, Caron Environmental Consulting, LLC Section, Township, Range:

Landform (hillside, terrace, etc.): Sand Plain Local relief (concave, convex, none): convex Slope (%): 20

Subregion (LRR or MLRA): LRR R Lat: 43.274406N Long: 70.876098W Datum:

Soil Map Unit Name: Naumburg Sand NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**	
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: A11U

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula populifolia*	49	Yes	FAC
2. *Prunus serotina*	36	Yes	FACU
3. *Acer saccharinum*	15	No	FACW
4.			
5.			
6.			
7.			
	100	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15' r)			
1. *Lonicera morrowii*	32	Yes	FACU
2. *Betula populifolia*	7	No	FAC
3. *Pinus strobus*	3	No	FACU
4. *Frangula alnus*	3	No	FAC
5. *Pinus strobus*	2	No	FACU
6.			
7.			
	47	=Total Cover	
Herb Stratum (Plot size: 6' r)			
1. *Celastrus orbiculatus*	17	Yes	UPL
2. *Solidago canadensis*	5	Yes	FACU
3. *Lonicera morrowii*	5	Yes	FACU
4. *Equisetum arvense*	4	No	FAC
5. *Prunus serotina*	2	No	FACU
6. *Dryopteris carthusiana*	2	No	FACW
7. *Thalictrum*	1	No	
8. *Acer saccharinum*	1	No	FACW
9.			
10.			
11.			
12.			
	37	=Total Cover	
Woody Vine Stratum (Plot size: 15' r)			
1. *Celastrus orbiculatus*	8	Yes	UPL
2.			
3.			
4.			
	8	=Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	18	x 2 =	36
FAC species	63	x 3 =	189
FACU species	85	x 4 =	340
UPL species	25	x 5 =	125
Column Totals:	191 (A)		690 (B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: A11U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-22	10YR 3/3	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Wetland at Plot A11-W

Upland at Plot A11-U

Soil at Plot A11-W

Soil at Plot A11-U

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 150 Rochester Street City/County: Berwick Sampling Date: 10/28/2021

Applicant/Owner: Berwick Wqater Dept State: ME Sampling Point: B18W

Investigator(s): Charles Caron, Caron environmental Consulting, LLC Section, Township, Range:

Landform (hillside, terrace, etc.): Low Sand Plain Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR or MLRA): LRR R Lat: 43.274893N Long: 70.875070W Datum:

Soil Map Unit Name: Naumburg Sand NWI classification: PEM1Ed

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes x	No ____	Depth (inches): 7"
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 2"

Wetland Hydrology Present? Yes X No

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: B18W

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 6' r)			
1. *Festuca rubra*	75	Yes	FACU
2. *Carex crinita*	54	Yes	OBL
3. *Symphyotrichum lateriflorum*	8	No	FAC
4. *Geranium maculatum*	4	No	FACU
5. *Fragaria vesca*	3	No	UPL
6. *Schizachyrium scoparium*	2	No	FACU
7. *Plantago lanceolata*	2	No	FACU
8.			
9.			
10.			
11.			
12.			
	148 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	54	x 1 =	54
FACW species	0	x 2 =	0
FAC species	8	x 3 =	24
FACU species	83	x 4 =	332
UPL species	3	x 5 =	15
Column Totals:	148 (A)		425 (B)

Prevalence Index = B/A = 2.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: B18W

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5YR 4/1	94	2.5YR 4/6	2	C	PL	Loamy/Clayey	Prominent redox concentrations
			10YR 5/1	4	D	M		Below 8"
18-28	10YR 5/2	60	7.5YR 4/6	10	C	M	Sandy	Prominent redox concentrations
			5Y 6/1	30	D	M		

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 150 Rochester Street City/County: Berwick Sampling Date: 10/28/2021

Applicant/Owner: Berwick Water Dept State: ME Sampling Point: B18U

Investigator(s): Charles Caron, Caron Environmental Consulting, LLC Section, Township, Range:

Landform (hillside, terrace, etc.): Sand Plain Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): LRR R Lat: 43.274893N Long: 70.875070W Datum:

Soil Map Unit Name: Naumburg Sand NWI classification: U

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: B18U

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 6' r)			
1. *Festuca rubra*	72	Yes	FACU
2. *Phleum pratense*	19	Yes	FACU
3. *Symphyotrichum lateriflorum*	19	Yes	FAC
4. *Fragaria vesca*	13	No	UPL
5. *Carex crinita*	10	No	OBL
6. *Schizachyrium scoparium*	9	No	FACU
7. *Plantago lanceolata*	4	No	FACU
8. *Trifolium campestre*	4	No	UPL
9. *Potentilla simplex*	4	No	FACU
10. *Poa pratensis*	4	No	FACU
11. *Solidago canadensis*	1	No	FACU
12.			
	159 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	19	x 3 =	57
FACU species	113	x 4 =	452
UPL species	17	x 5 =	85
Column Totals:	159 (A)		604 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: B18U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 3/2	100					Loamy/Clayey	
14-24	10YR 3/3	98	10YR 6/4	2	C	M	Loamy/Clayey	Distinct redox concentrations

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

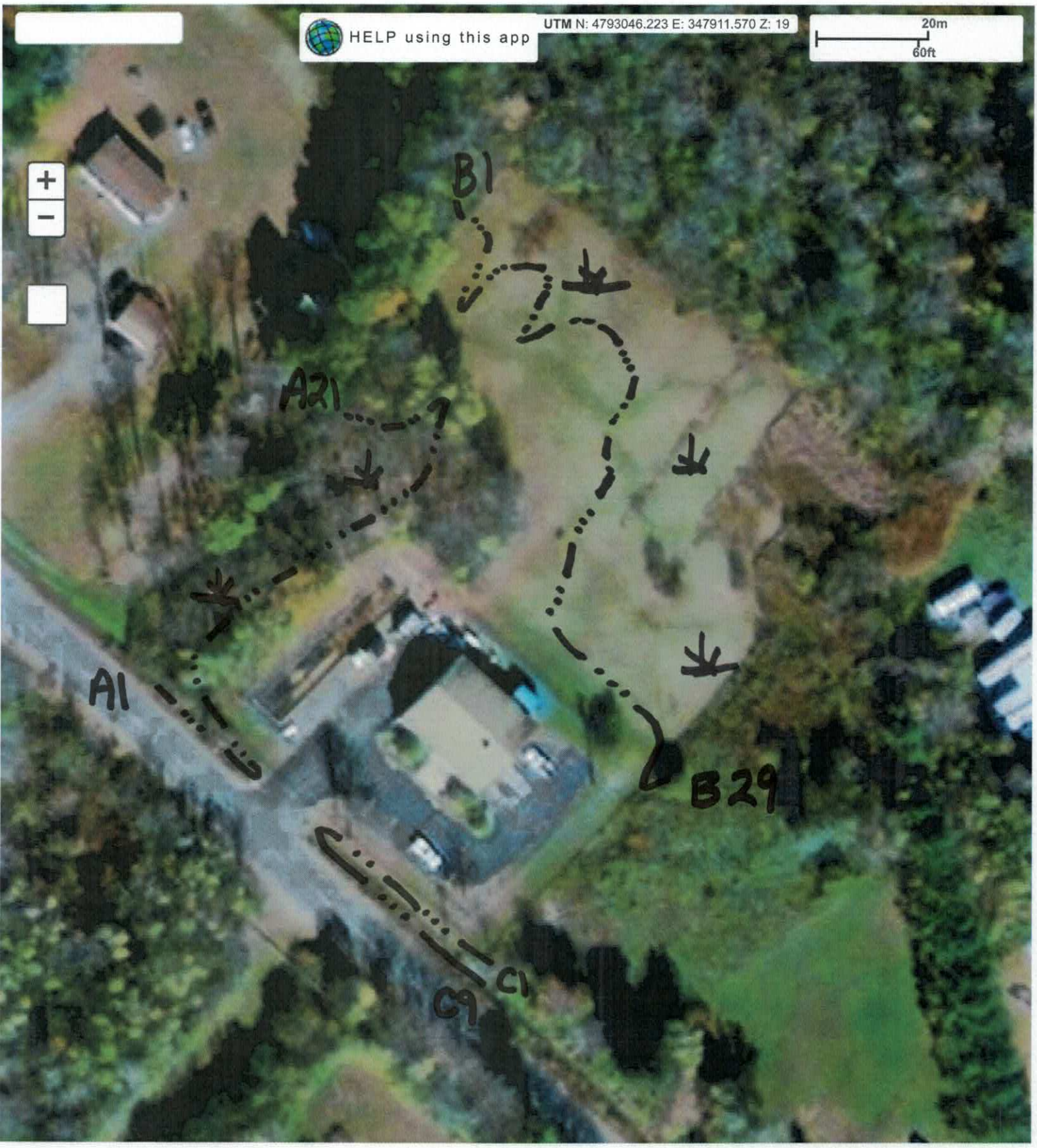
Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)



Sketch of Wetlands
- Locations Approximate -

Wetland at Plot B18-W

Upland at Plot B18-U

Soil at Plot B18-W

Soil at Plot B18-U

Hydric Rating by Map Unit—York County, Maine
(150 Rochester Street- soils)

Map Scale: 1:1,940 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 20, Aug 31, 2021

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ch	Chocorua peat	87	2.3	36.0%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	0	1.0	16.1%
Na	Naumburg sand	85	3.0	47.9%
Totals for Area of Interest			**6.3**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

U.S. Fish and Wildlife Service

National Wetlands Inventory

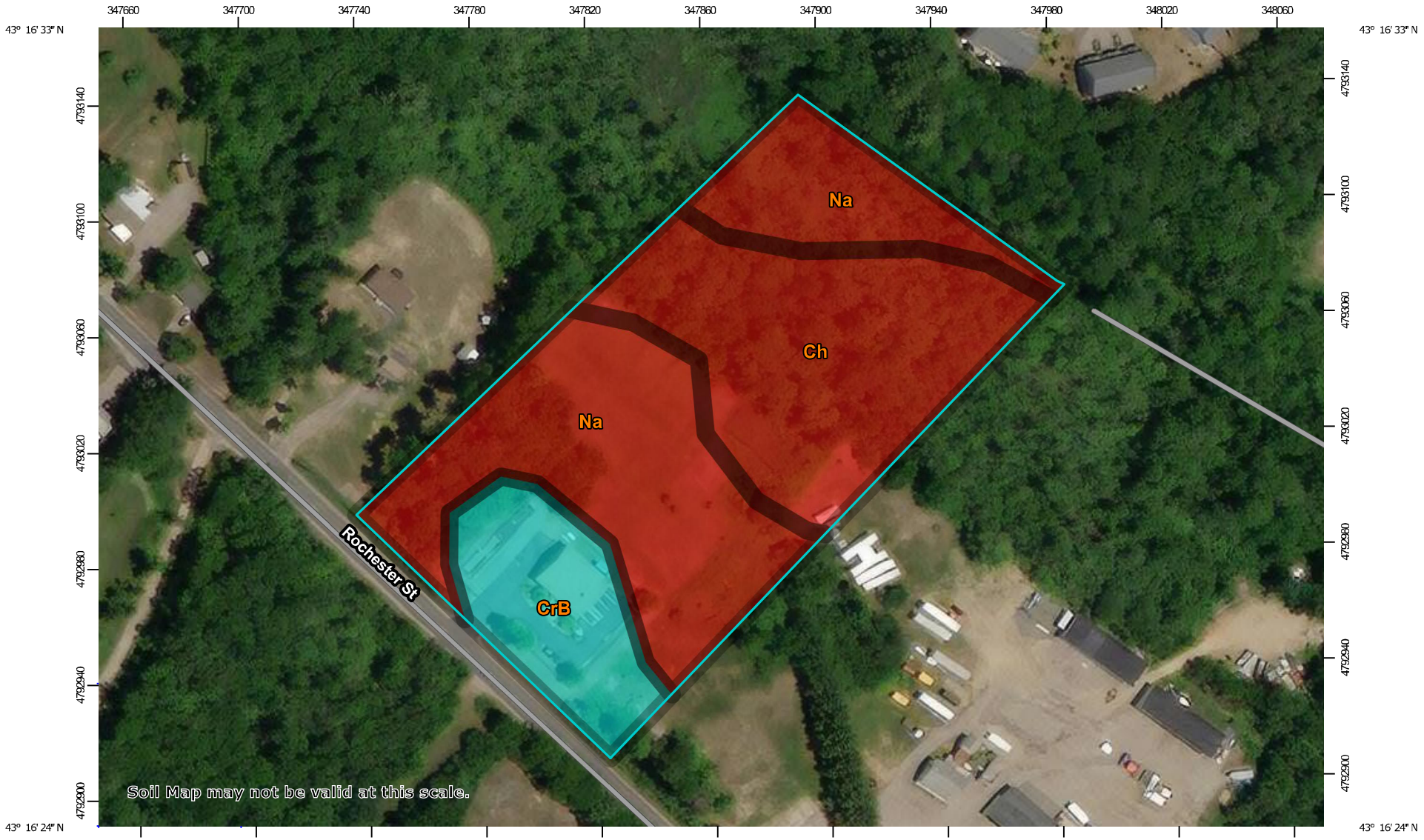
WTP Site - 150 Rochester Street, Berwick,

January 11, 2022

Wetlands

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

Farmland Classification—York County, Maine
(150 Rochester Street- soils)



Map Scale: 1:1,940 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 20, Aug 31, 2021

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ch	Chocorua peat	Not prime farmland	2.3	36.0%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	Farmland of statewide importance	1.0	16.1%
Na	Naumburg sand	Not prime farmland	3.0	47.9%
Totals for Area of Interest			**6.3**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

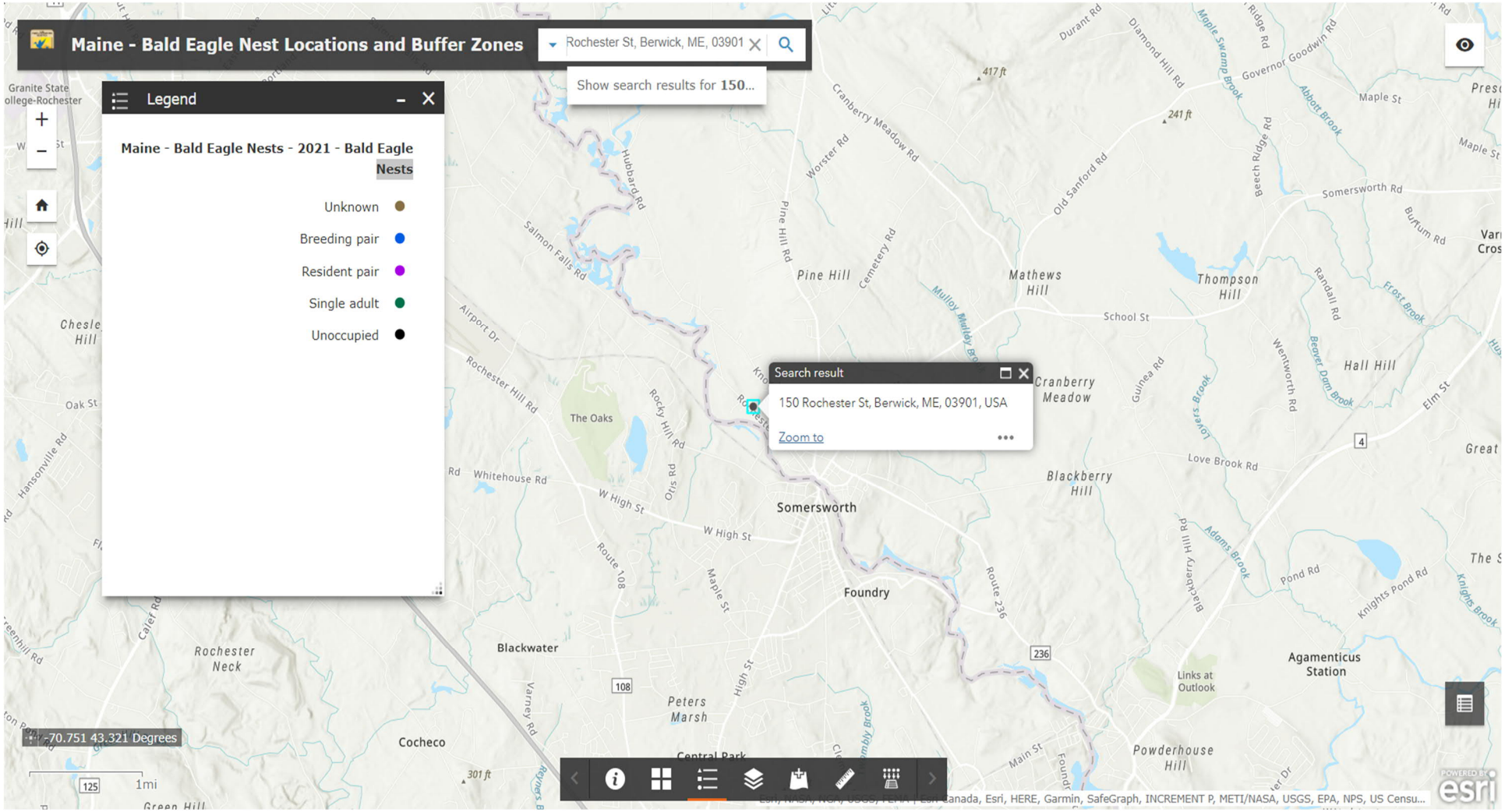
A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The majority of soil attributes are associated with a component of a map unit, and such an attribute has to be aggregated to the map unit level before a thematic map can be rendered. Map units, however, also have their own attributes. An attribute of a map unit does not have to be aggregated in order to render a corresponding thematic map. Therefore, the "aggregation method" for any attribute of a map unit is referred to as "No Aggregation Necessary".

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.


Maine - Bald Eagle Nest Locations and Buffer Zones
Rochester St, Berwick, ME, 03901
Show search results for 150...
Legend
Maine - Bald Eagle Nests - 2021 - Bald Eagle Nests
Unknown
Breeding pair
Resident pair
Single adult
Unoccupied
Search result
150 Rochester St, Berwick, ME, 03901, USA
Zoom to
Somersworth
Foundry
Blackwater
Rochester Neck
Cocheco
Peters Marsh
Central Park
Pine Hill
Mathews Hill
Thompson Hill
Hall Hill
Cranberry Meadow
Blackberry Hill
Powderhouse Hill
Agamenticus Station
Links at Outlook
The Oaks
Granite State College-Rochester
-70.751 43.321 Degrees
1mi
Esri, NASA, NGA, USGS, FEMA | Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Censu...
esri

Appendix B
Agency Cross-Cutter Letters, Responses, and Supporting Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To: December 02, 2021
Consultation Code: 05E1ME00-2022-SLI-0259
Event Code: 05E1ME00-2022-E-00983
Project Name: Berwick Water Treatment Plant Upgrades

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at:

http://www.towerkill.com; and at:
http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1ME00-2022-SLI-0259
Event Code: Some(05E1ME00-2022-E-00983)
Project Name: Berwick Water Treatment Plant Upgrades
Project Type: WATER SUPPLY / DELIVERY
Project Description: Upgrades to be made at the existing Berwick Water Treatment Plant (WTP) located at 150 Rochester St. in Berwick, ME. Pre-treatment processes (ballasted microsand or GAC) will be added to existing processes. The new pretreatment processes will be housed in a new building adjacent to the existing WTP. Replace existing GeoTubes with construction of new spent backwash settling/drying lagoons. The elevation of an existing 14" diameter screen intake in the Salmon Falls River will be raised by 1-2 feet. Other upgrades will occur entirely within the footprint of the existing building, including replacement of aging chemical storage tanks, recoating secondary containment areas, Upgrading facility control and SCADA systems, and replacing pumps.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.2740369,-70.87499539125426,14z

Counties: Maine and New Hampshire

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

---

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: December 02, 2021
Consultation Code: 05E1NE00-2022-SLI-0666
Event Code: 05E1NE00-2022-E-02294
Project Name: Berwick Water Treatment Plant Upgrades

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Consultation Code: 05E1NE00-2022-SLI-0666
Event Code: Some(05E1NE00-2022-E-02294)
Project Name: Berwick Water Treatment Plant Upgrades
Project Type: WATER SUPPLY / DELIVERY
Project Description: Upgrades to be made at the existing Berwick Water Treatment Plant (WTP) located at 150 Rochester St. in Berwick, ME. Pre-treatment processes (ballasted microsand or GAC) will be added to existing processes. The new pretreatment processes will be housed in a new building adjacent to the existing WTP. Replace existing GeoTubes with construction of new spent backwash settling/drying lagoons. The elevation of an existing 14" diameter screen intake in the Salmon Falls River will be raised by 1-2 feet. Other upgrades will occur entirely within the footprint of the existing building, including replacement of aging chemical storage tanks, recoating secondary containment areas, Upgrading facility control and SCADA systems, and replacing pumps.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.2740369,-70.87499539125426,14z

Counties: Maine and New Hampshire

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

---

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 6, 2021
W-P Project No. 20839

Ms. Sue Baker
Maine Floodplain Management Program
Department of Agriculture, Conservation & Forestry
93 State House Station
Augusta, Maine 04333-0093

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review – Project Review

Dear Ms Baker:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

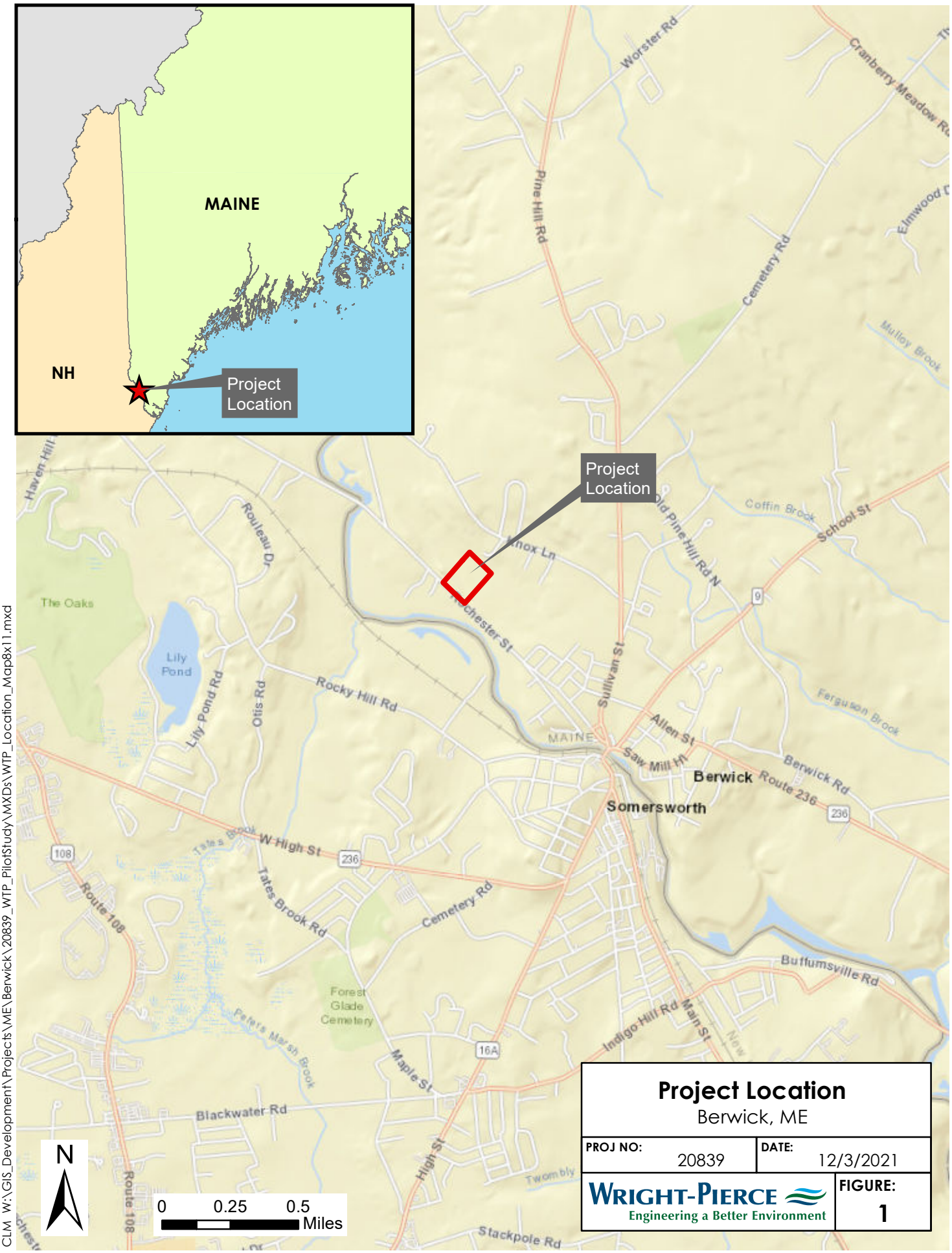
- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence)
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing supporting pipeline. (to address prior water quality issues with managanese release from river sediments)
- Replace the existing Geotube® Dewatering Container on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals. (to be evaluated during preliminary design)
- Other projects occur on the inside the existing facilities (i.e,replacing old polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the Maine Floodplain Management Program. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

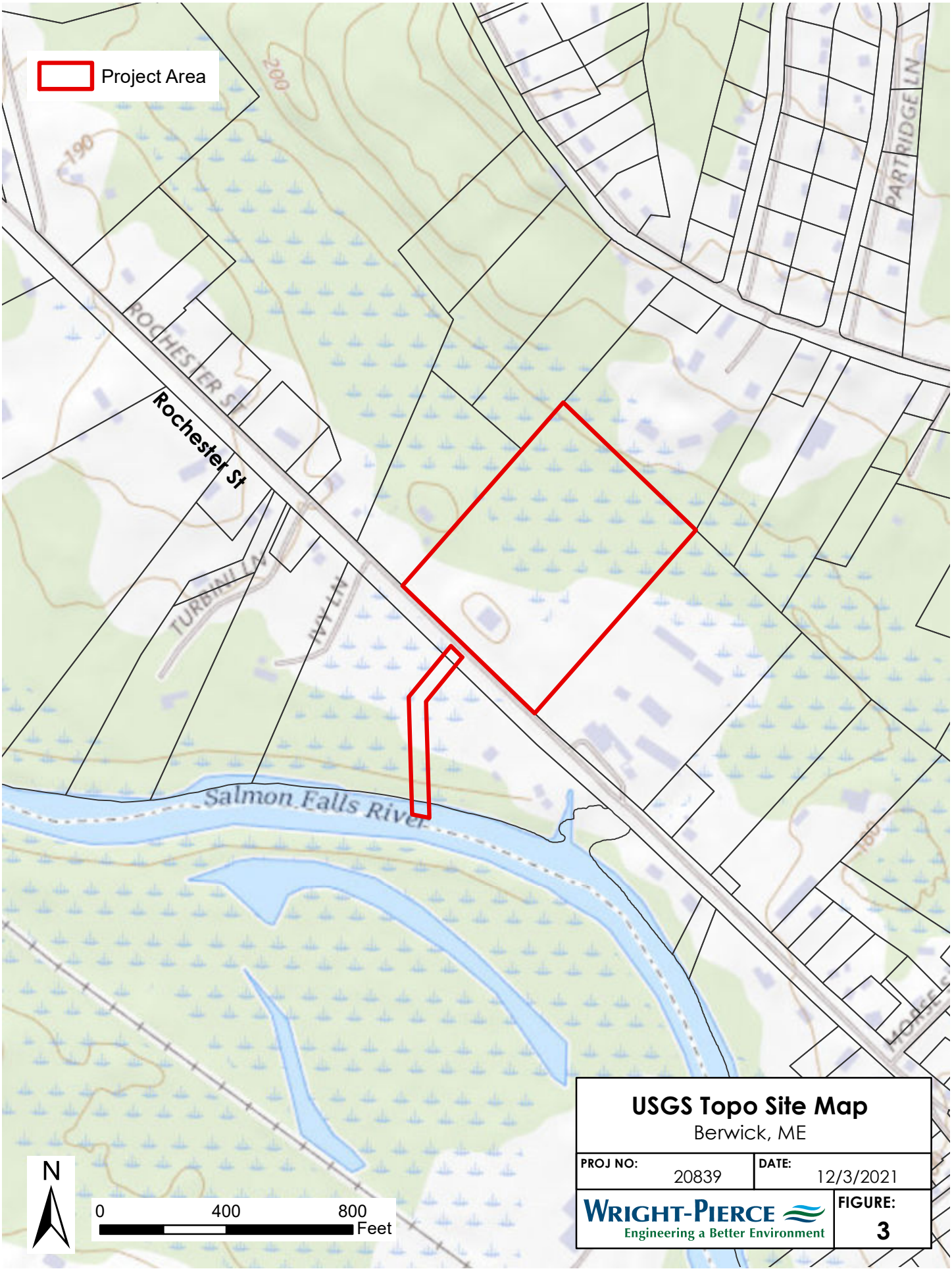
Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd



USGS Topo Site Map

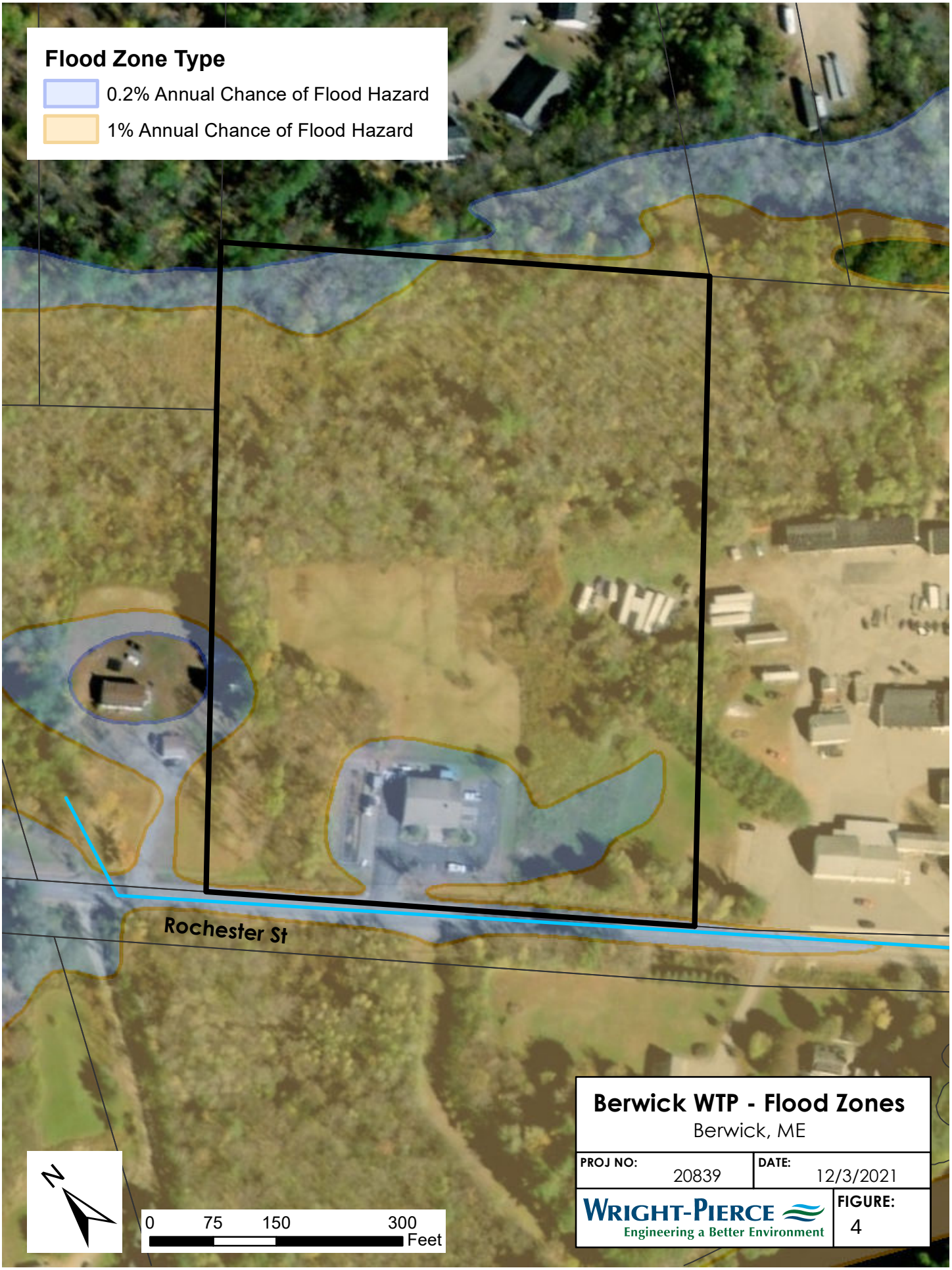
Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd



Berwick WTP - Flood Zones

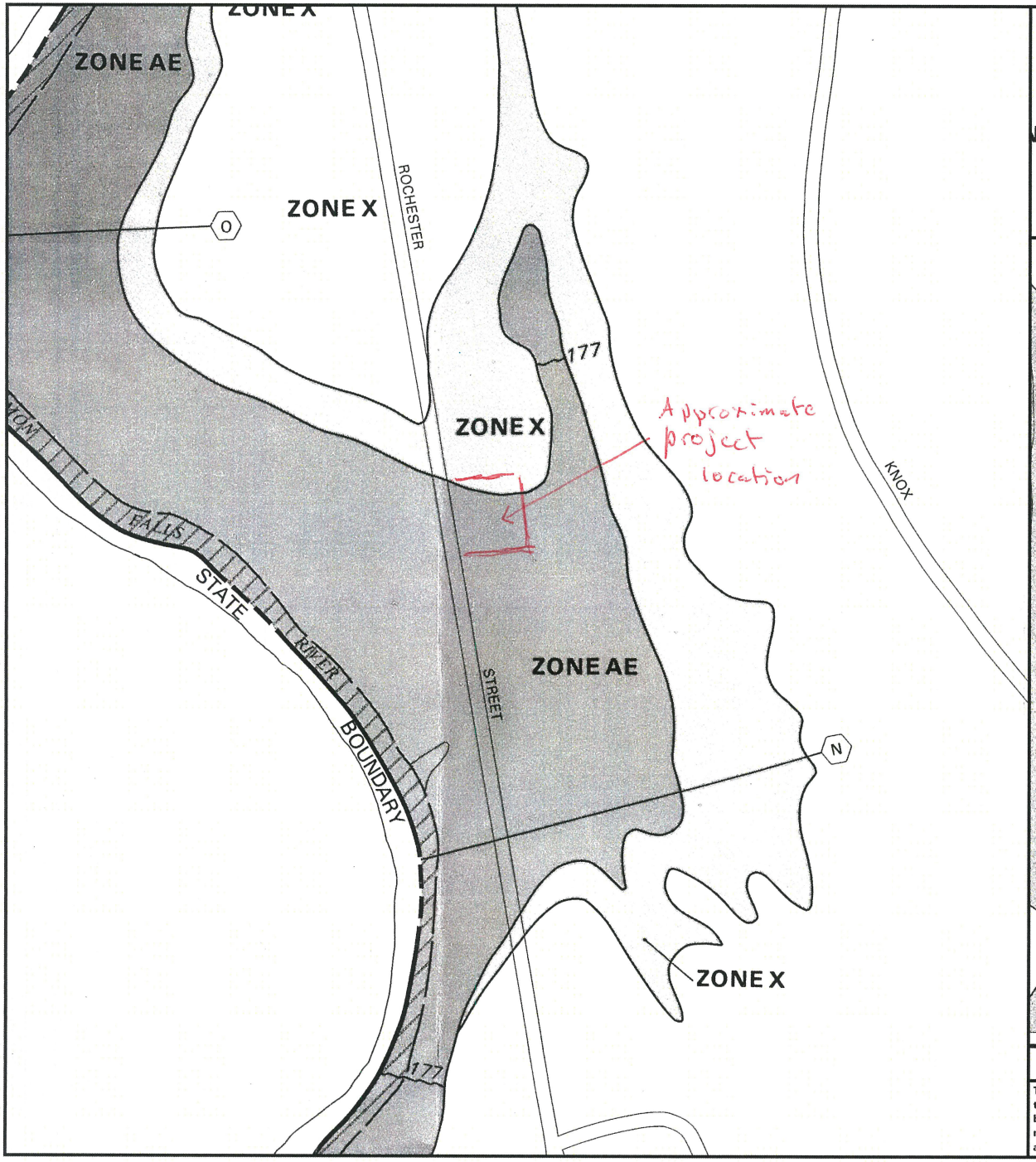
Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 4

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_FEMA_8x11.mxd



To determine if flood insurance is available in this com
insurance agent or call the National Flood Insurance Prog

APPROXIMATE SCALE

500 0

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
BERWICK,
MAINE
YORK COUNTY

PANEL 6 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
230144 0006 B

EFFECTIVE DATE:
AUGUST 5, 1991

Federal Emergency Management Agency

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 6, 2021
W-P Project No. 20839

Mr. Jay Clement, Senior Project Manager
U.S. Army Corp of Engineers
442 Civic Center Drive, Suite 350
Augusta, Maine 04333

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review

Dear Mr. Clement:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 10 Rochester Street in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

- Construction of a new building to house new treatment process equipment located immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen water by approximately 1 to 2 feet, by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing pipeline supporting the Tee Screen. (purpose is to address on-going water quality issues with manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals.
- Other projects inside the existing facilities (i.e., replacement of aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

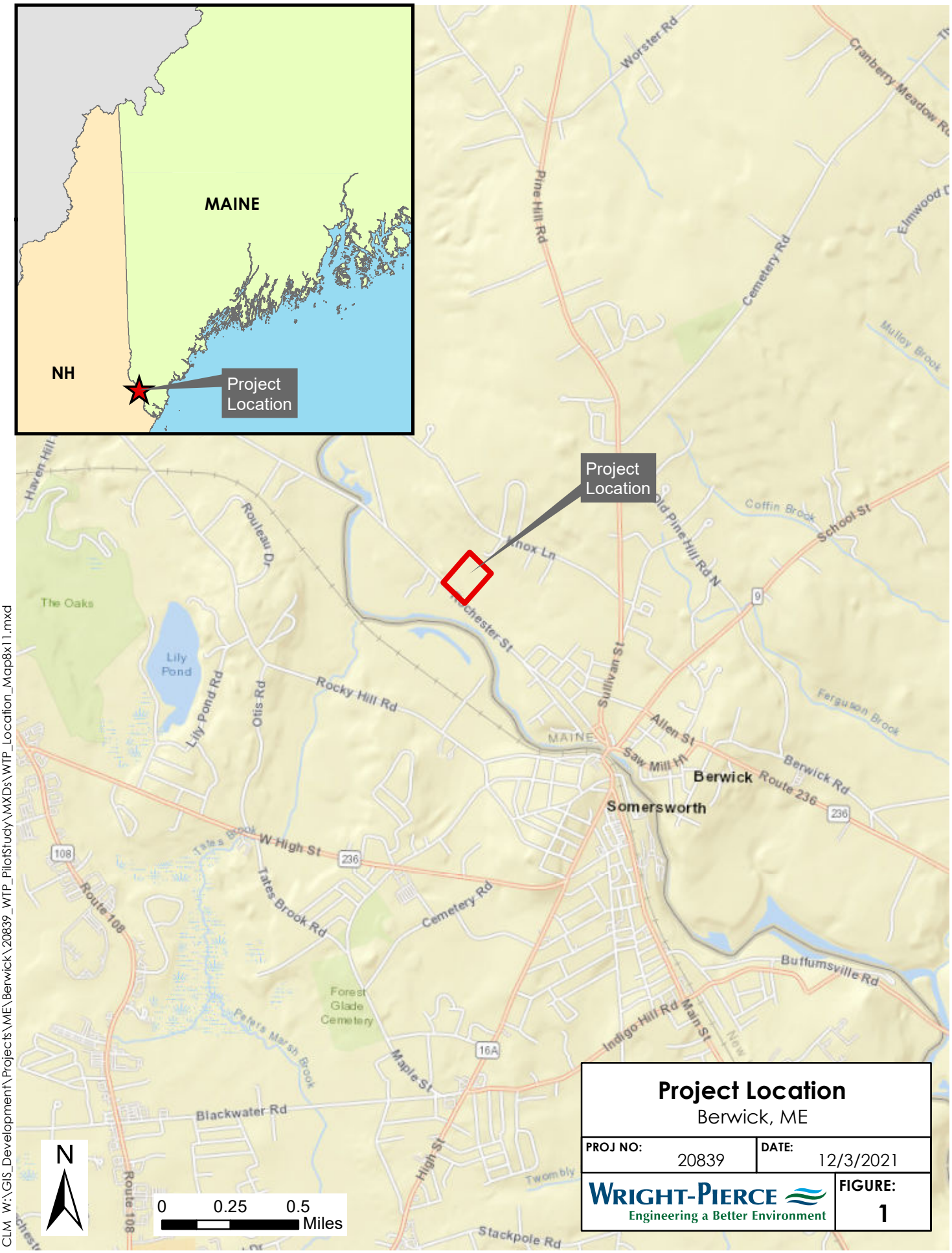
The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the U.S. Army Corps of Engineers. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen Mayberry PE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

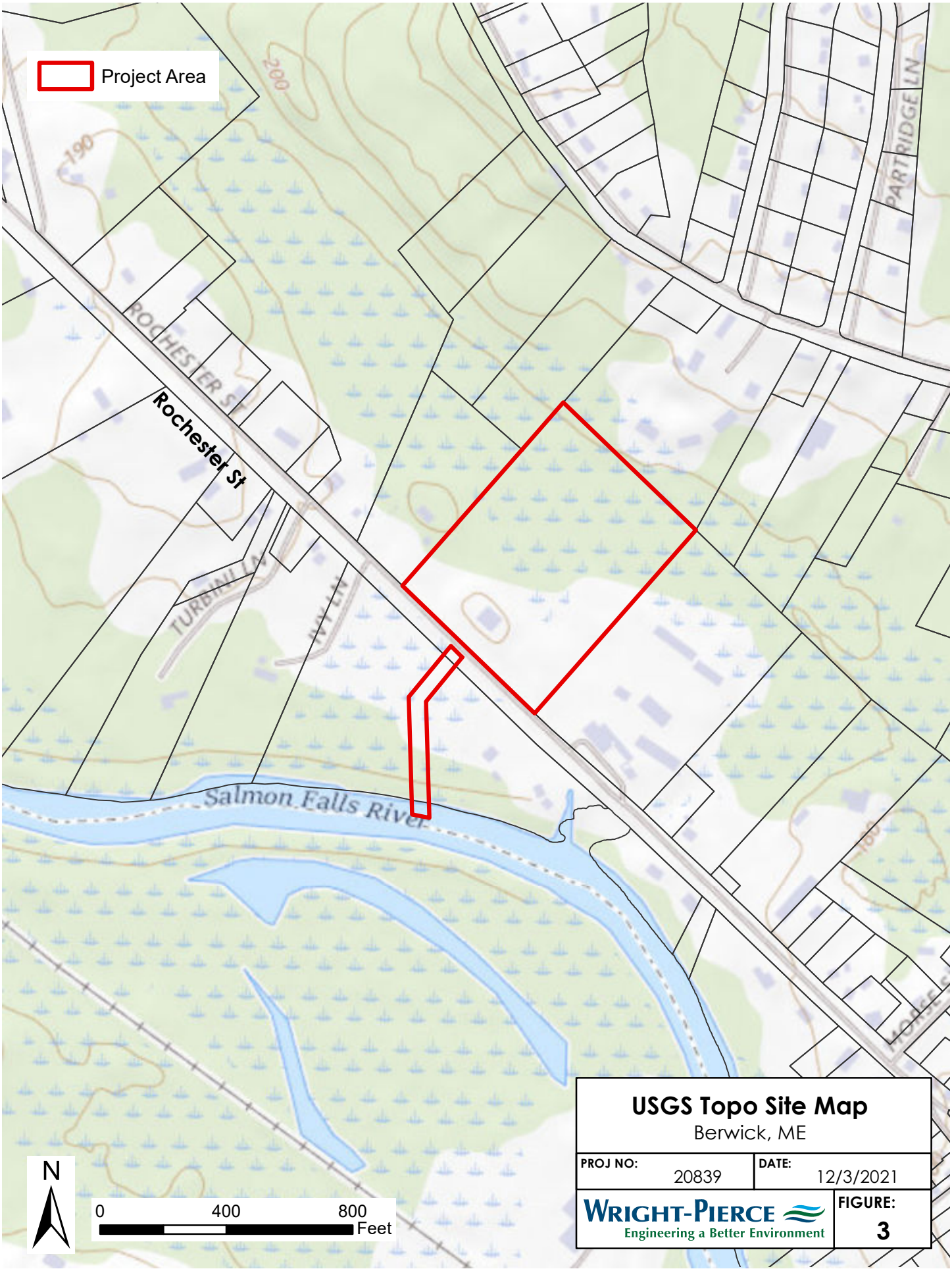
Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd



USGS Topo Site Map

Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

Stacey Smith

From: Clement, Jay L CIV USARMY CENAE (USA) <Jay.L.Clement@usace.army.mil>
Sent: Tuesday, December 7, 2021 6:39 AM
To: Naleen Mayberry
Subject: RE: USACE - Berwick WTP Upgrades - Environmental Review Request

Naleen:

Our regulatory jurisdiction in this area is over the discharge of dredged or fill material into all waters of the United States including adjacent wetlands under Section 404 of the Clean Water Act. Permits are also required for work performed in navigable waters of the United States under Section 10 of the Rivers and Harbors Act.

Based on a review of the information you provided, it is unclear what work if any will be performed in waterways or wetlands. There are no navigable waters present in the area noted on the plans (to correct you – this waterway at this location is not navigable by Corps definition). If all of the work will occur on uplands, no further action is required from this office. Conversely, if temporary or permanent waterway or wetland fill occurs, a Corps permit will be required. In most cases if a permit is required, a copy of your application to the Maine DEP will suffice for our process. Any wetland delineations must be performed in accordance with the 1987 Corps of Engineers Wetland Delineation Manual and its 2012 Regional Supplement.

If you have any questions on this matter, please contact me at 207-623-8367 at our Augusta, Maine Project Office.

Sincerely,

Jay Clement
Senior Project Manager
US Army Corps of Engineers
Maine Project Office

From: Naleen Mayberry <naleen.mayberry@wright-pierce.com>
Sent: Monday, December 6, 2021 3:28 PM
To: Clement, Jay L CIV USARMY CENAE (USA) <Jay.L.Clement@usace.army.mil>
Subject: [Non-DoD Source] USACE - Berwick WTP Upgrades - Environmental Review Request

Dear Mr. Clement,

This Environmental Review package is for upgrades by the Town of Berwick to its municipal drinking water treatment plant at its location at #150 Rochester Street in Berwick, Maine. You are receiving this letter because one of the proposed projects is to increase the elevation of the existing water intake in the Salmon Falls River, a navigable body of water.

Attached is our Cross-Cutter Agency request letter to U.S. Army Corps of Engineers.

Please feel free to call or email with questions.

Regards, Naleen Mayberry, PE

Naleen Mayberry, PE
Wright-Pierce | Lead Project Engineer
direct 207.798.3749 | **office** 207.725.8721

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 9, 2021
W-P Project No. 20839

Ms. Kendyl Reis, Tribal Historic Preservation Officer
Aroostook Band of Mi'kmaq
8 Northern Road
Presque Isle, Maine 04769

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review – Project Review

Dear Ms. Reis:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

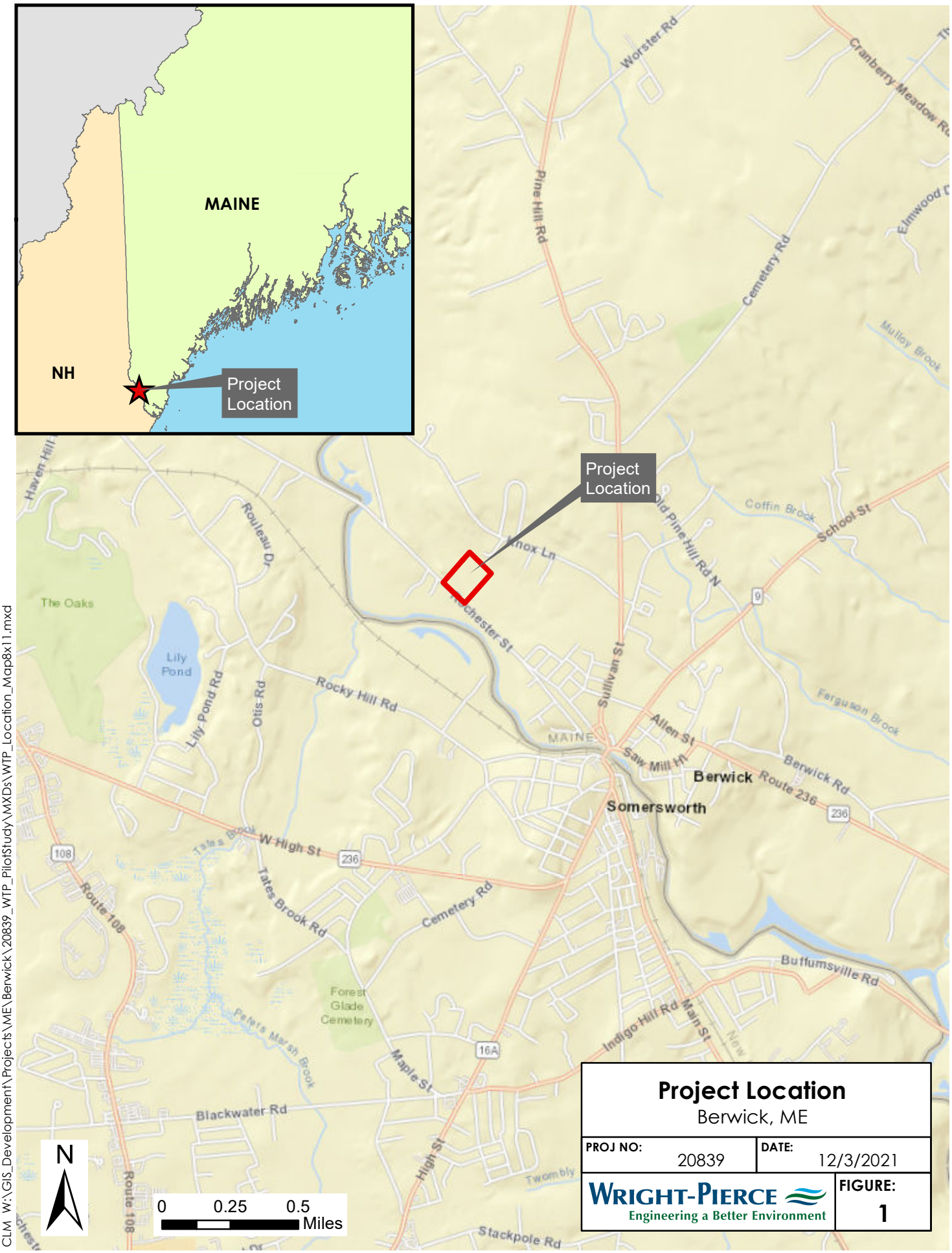
- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing pipeline supporting the Tee Screen. (purpose is to address on-going water quality issues with manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals.
- Other projects inside the existing facilities (i.e., replacement of aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the interests of the Aroostook Bank of Micmac. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

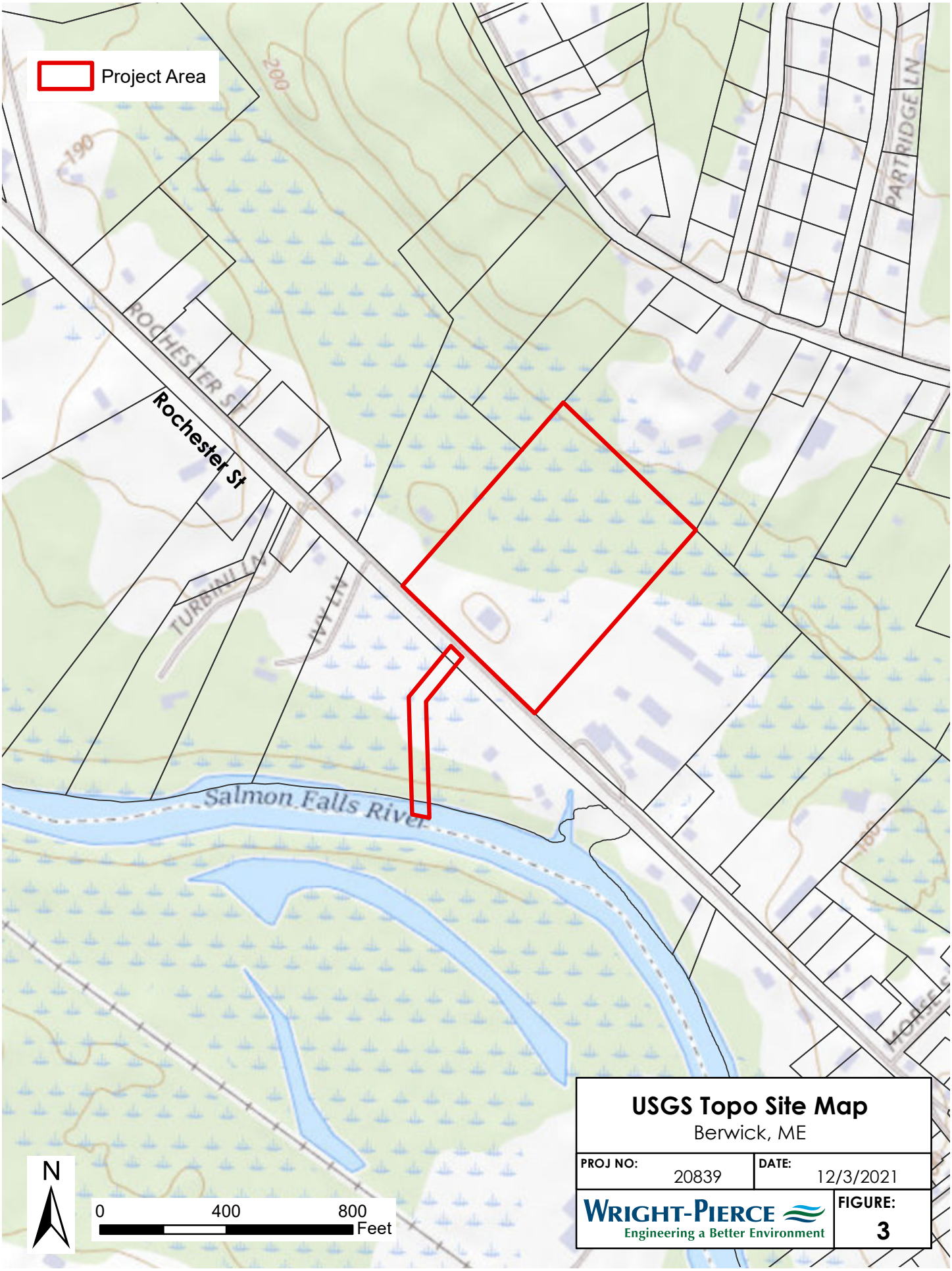
FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd

Photo A: 133 Rochester Street: Across the street from WTP, View Toward SW From Rochester Street

Photo B: #154 Rochester Street: To the left (NW) when facing WTP

Photo C: #136 Rochester Street: To the right (SE) when facing the WTP (Google Earth Pro Photo)



USGS Topo Site Map

Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

Tribal Historic Preservation Office
Mi'kmaq Nation (Formerly known as the Aroostook Band of Micmac)
Kendyl Reis
Tribal Historic Preservation Officer
7 Northern Road
Presque Isle, ME 04769
Phone: (207)764-1972 ext. 161
Fax: (207)764-7667
Email: kreis@micmac-nsn.gov

Berwick Water Department Project

150 Rochester Street, Berwick, Maine
December 10th, 2021

Thank you for the opportunity to review the above-referenced project for compliance with National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA), or other, requirements.

Based on the project description, we do not have knowledge of any specific sites or cultural features that exist at the proposed project location. However, this geographic area does constitute traditional areas that were historically utilized by members of the Mi'kmaq Nation and the other Wabanaki Tribes. Therefore, we respectfully request that if during the course of excavation/construction activities, human remains, artifacts, or any other evidence of Native American presence is discovered, that site activities in the vicinity of the discovery immediately cease, pending notification to us.

In addition, if this project results in wetland disturbances requiring mitigation, we are requesting that you utilize the black ash (Fraginus nigra) as the principal wetland species for wetland restoration activities. The black ash tree has special significance in the culture of the northeastern Tribes and is used extensively for weaving baskets and other Native American crafts. The black ash tree also provides valuable food and habitat for migratory waterfowl and other wildlife. Unfortunately, however, this species has been selected against by foresters and landowners who favor other tree species. As a result of this, and other environmental factors, the black ash tree is in serious decline in Maine. The Mi'kmaq Nation has completed several black ash wetland restoration projects and have a dependable source for highly-quality seedlings, and the experience and expertise to assist you with black ash wetland restoration projects.

On the subject of human remains, artifacts, or any other evidence of Native American presence is discovered. The human remains will be reburied with the appropriate respect for the remains that is required at a distinctive and respectable site. The artifacts and other evidence of Native American discovery will be documented with appropriate detail. The items will be analyzed for the precise period of the items' distinctive period and will be documented by the Tribal Historic Preservation Officer for the Mi'kmaq Nation.

If you have any questions or comments, please feel free to contact me.

Sincerely,

Kendyl Reis
Tribal Historic Preservation Officer

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

Maine December 6, 2021
W-P Project No. 20839

Mr. Kirk F. Mohney, Director
Maine Historic Preservation Commission
65 State House Station
Augusta, Maine 04333-0041

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review

Dear Mr. Mohney:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, show on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based upon preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing supporting pipeline. (purpose is to address prior water quality issues caused by manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals. (to be evaluated during preliminary design).
- Other projects inside the existing facilities (i.e., replacing aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

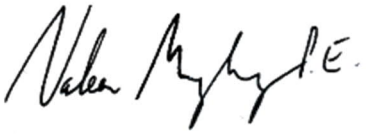
Based on the Town's tax data, there are no buildings older than 50 years old on parcels adjacent to the project area. The following abutting parcels and parcels across the street are:

- #133 Rochester Street: Across Rochester St. from the WTP is a Cape Cod style home built in 1976.
- # 154 Rochester Street: To the left when facing the WTP, is a mobile home built in 2008.
- # 136 Rochester Street: To the right when facing the WTP, is a group of Hall Bros construction businesses.
- In back of the WTP is a vacant parcel.

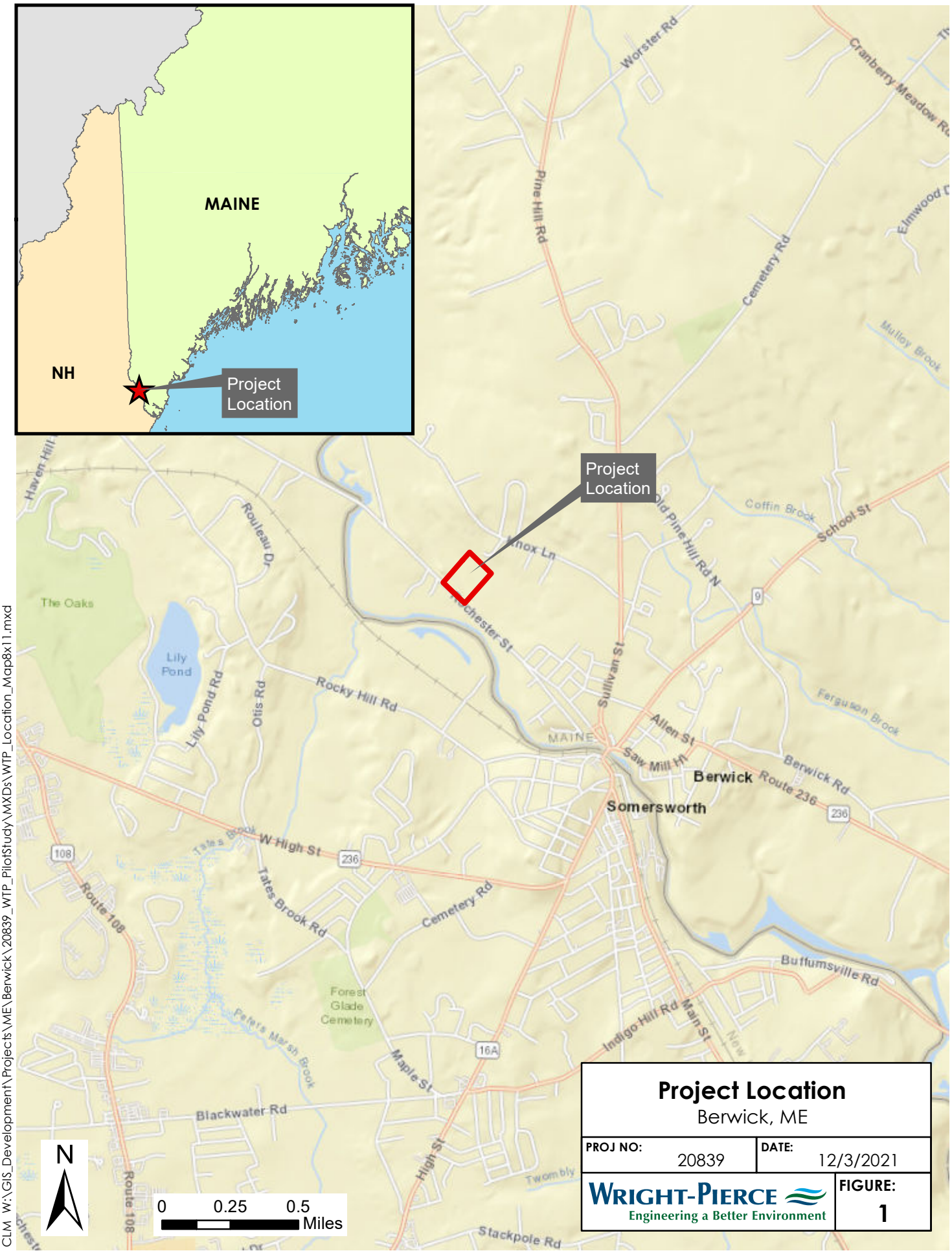
The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the Maine Historic Preservation Commission. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE



Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

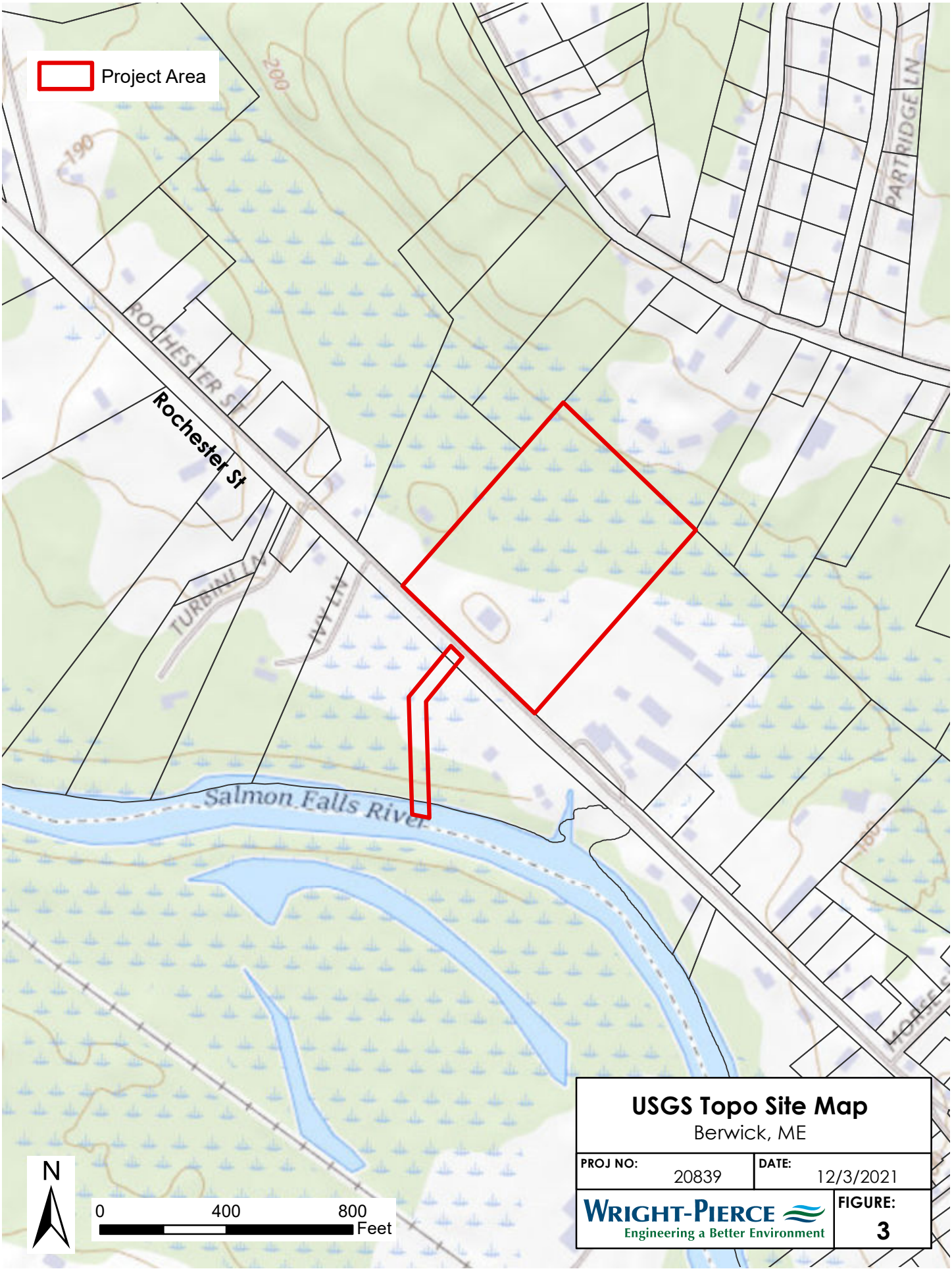
Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd



USGS Topo Site Map

Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

Photo A: Project Location: #150 Rochester Street, Berwick, ME: Town of Berwick Water Treatment Plant, NW Side (Google Earth Pro Photo)

Photo B: Project Location: #150 Rochester Street, Berwick, ME: Town of Berwick Water Treatment Plant, NW Side (Google Earth Pro Photo)

Photo C: #133 Rochester Street: Across the street from WTP, View Toward SW From Rochester Street

Photo D: #154 Rochester Street: To the left (NW) when facing WTP

Photo E: #136 Rochester Street: To the right (SE) when facing the WTP (Google Earth Pro Photo)

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

Maine December 6, 2021
W-P Project No. 20839

Mr. Kirk F. Mohney, Director
Maine Historic Preservation Commission
65 State House Station
Augusta, Maine 04333-0041

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review

Dear Mr. Mohney:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, show on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based upon preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing supporting pipeline. (purpose is to address prior water quality issues caused by manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals. (to be evaluated during preliminary design).
- Other projects inside the existing facilities (i.e., replacing aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

Based on the Town's tax data, there are no buildings older than 50 years old on parcels adjacent to the project area. The following abutting parcels and parcels across the street are:

- #133 Rochester Street: Across Rochester St. from the WTP is a Cape Cod style home built in 1976.
- # 154 Rochester Street: To the left when facing the WTP, is a mobile home built in 2008.
- # 136 Rochester Street: To the right when facing the WTP, is a group of Hall Bros construction businesses.
- In back of the WTP is a vacant parcel.

The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the Maine Historic Preservation Commission. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney
Kirk F. Mohney,
State Historic Preservation Officer
Maine Historic Preservation Commission

12/15/21
Date

MHPC # 1972-21

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 6, 2021
W-P Project No. 20839

Mr. John Perry
Maine Department of Inland Fisheries and Wildlife
284 State Street, 41 SHS
Augusta, Maine 04333-0041

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review – Project Review

Dear Mr. Perry:

The Town of Berwick (Berwick Water Department) is proposing improvements to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated will include the following general scope:

- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen water by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing pipeline supporting the Tee Screen.
- Replace the existing Geotube® Dewatering Container on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals (to be evaluated during preliminary design).
- Other projects inside the existing facilities (i.e., replacing aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

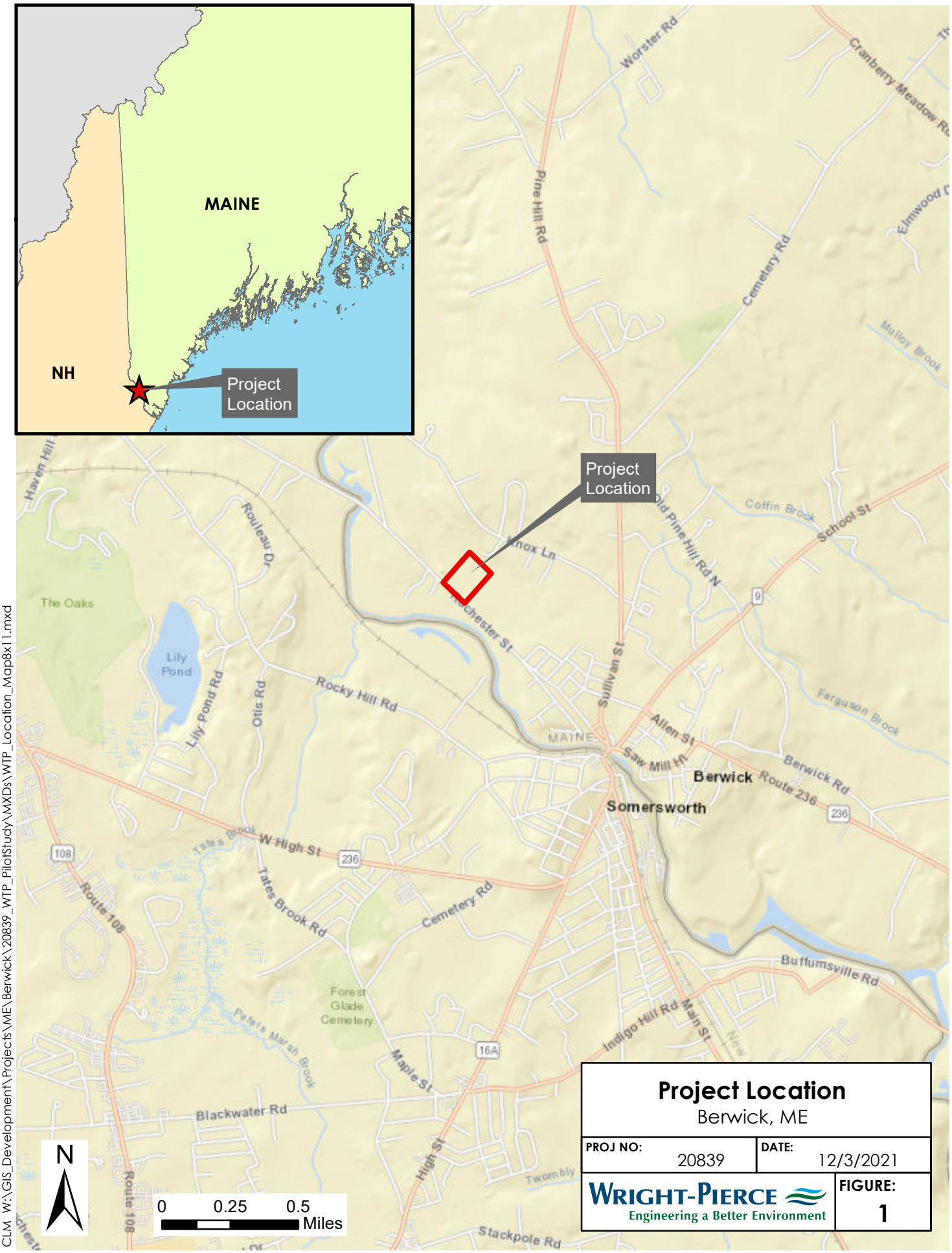
The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the Maine Department of Inland Fisheries and Wildlife. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen Mayberry PE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

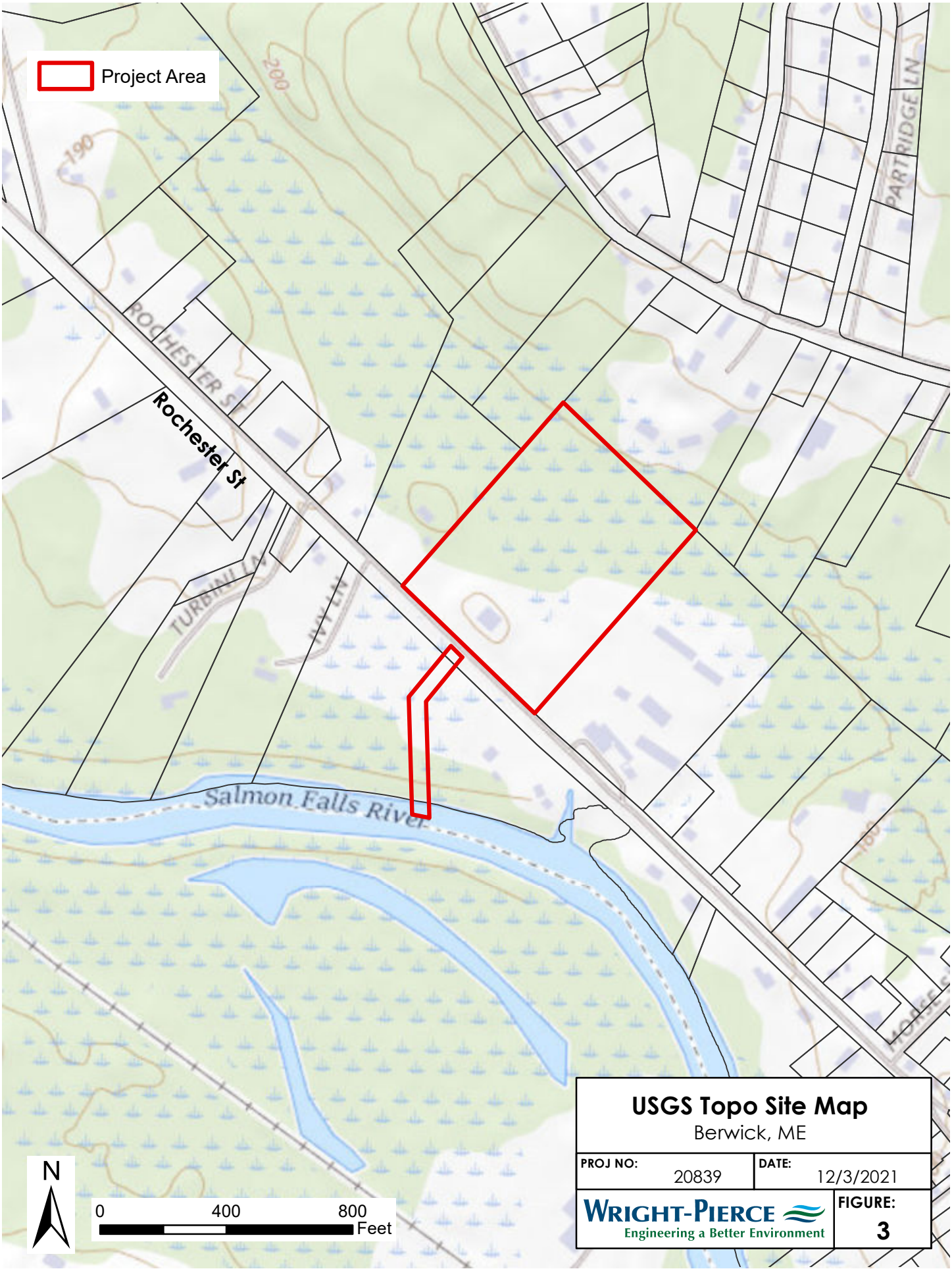
Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd



USGS Topo Site Map

Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

December 27, 2021

Naleen Mayberry
Wright-Pierce
99 Main Street
Topsham, ME 04086

RE: Information Request – Water Treatment Plant Upgrades Project, Berwick

Dear Naleen:

Per your request received on December 07, 2021, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Water Treatment Plant Upgrades* project in Berwick.

Our Department has not mapped any Essential or Significant Wildlife Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bat Species – Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Fisheries Habitat

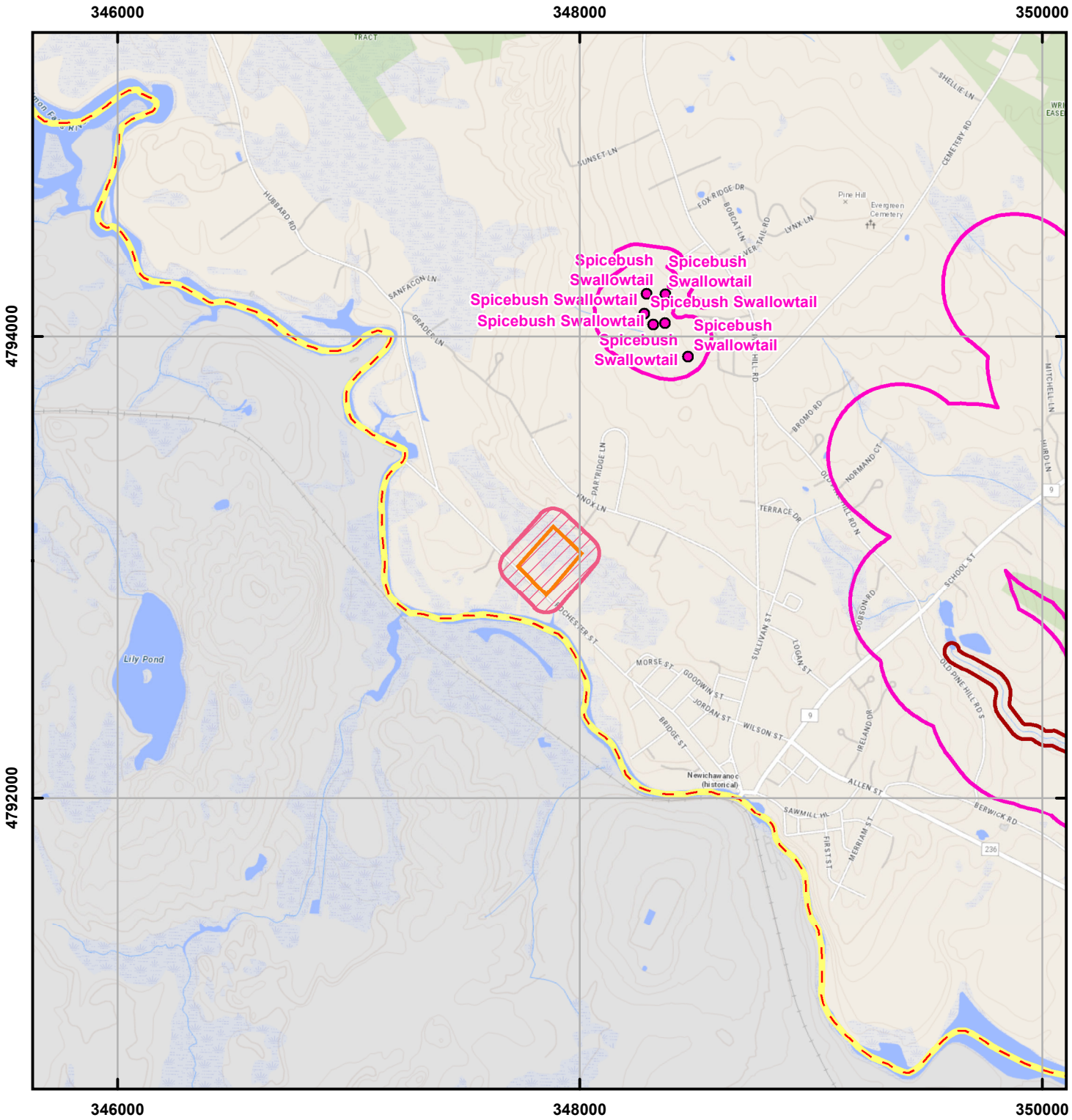
Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Water Treatment Plant Upgrades, Berwick (Version 1)

Miles

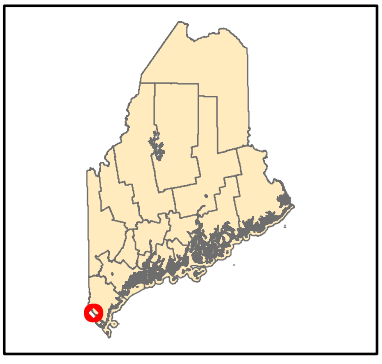
0 0.125 0.25 0.5 0.75 1

Projection: UTM, NAD83, Zone 19N

Date: 12/13/2021

Maine Department of Inland Fisheries and Wildlife

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 6, 2021
W-P Project No. 20839

Ms. Lisa St. Hillaire, Information Manager
Maine Natural Areas Program
117 State House Station
Augusta, Maine 04333-0177

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review – Project Review

Dear Ms. Hillaire:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing pipeline supporting the Tee Screen. (purpose is to address on-going water quality issues with manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals.
- Other projects inside the existing facilities (i.e., replacement of aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

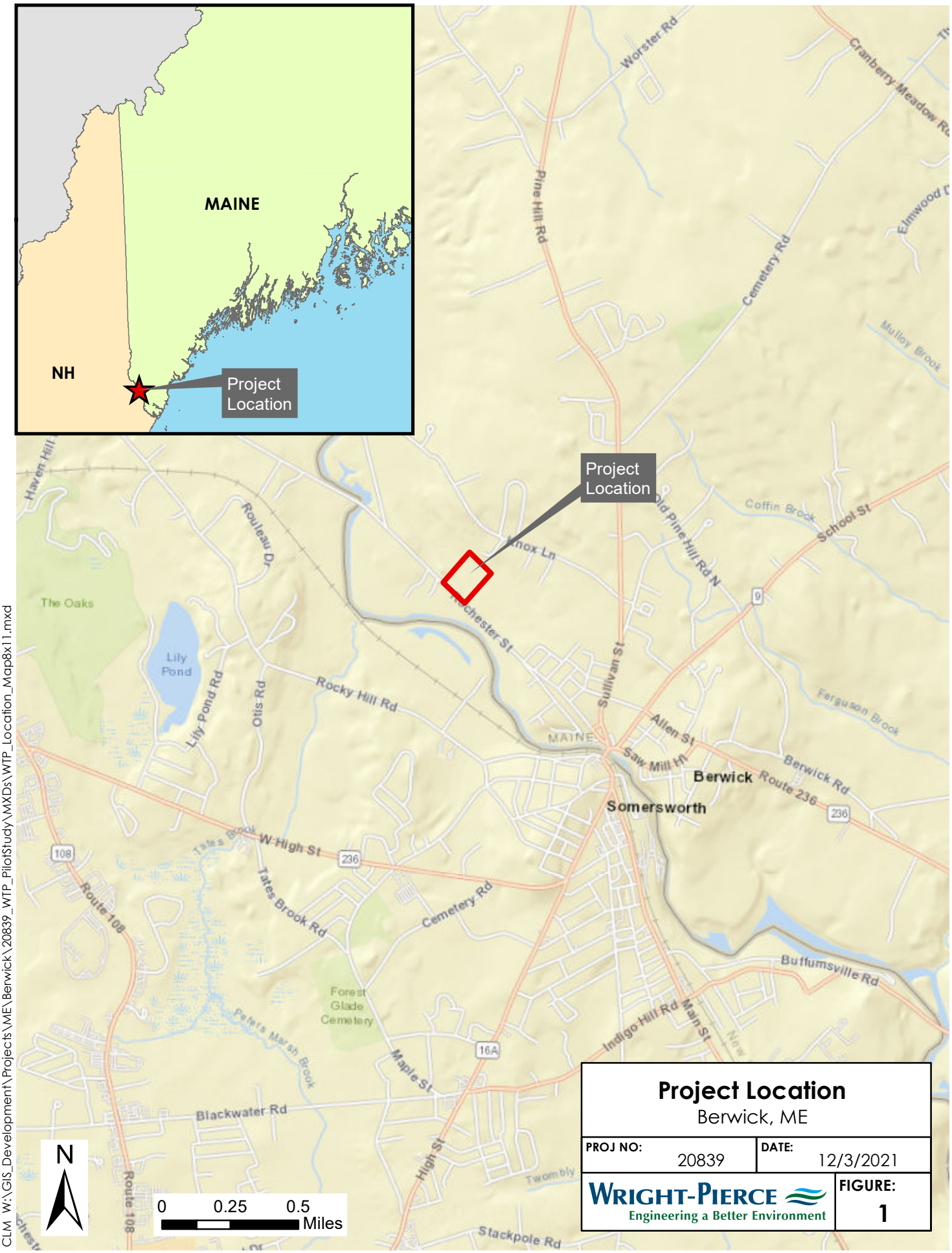
The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the Maine Natural Areas Program. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen Mayberry PE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures



Project Location
Berwick, ME

PROJ NO:	DATE:	FIGURE:
20839	12/3/2021	1

WRIGHT-PIERCE
Engineering a Better Environment

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Location_Map8x11.mxd

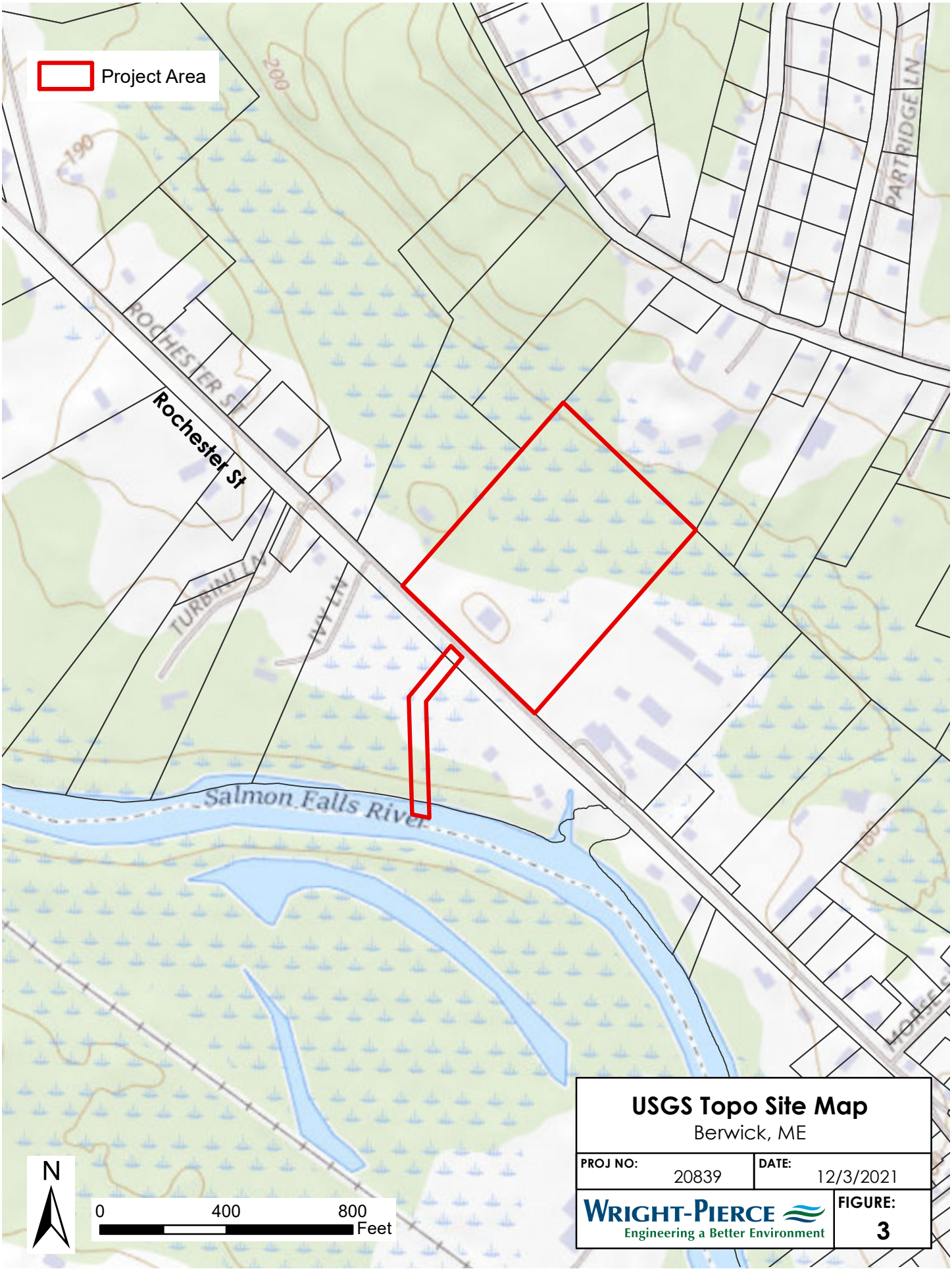
Project Site
Berwick, ME

PROJ NO:	DATE:
20839	12/6/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 2

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_ProjectSiteLoc_8x11.mxd



USGS Topo Site Map

Berwick, ME

PROJ NO:	DATE:
20839	12/3/2021

WRIGHT-PIERCE
Engineering a Better Environment

FIGURE: 3

CLM W:\GIS_Development\Projects\ME\Berwick\20839_WTP_PilotStudy\MXDs\WTP_Topo_8x11.mxd

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

December 9, 2021

Naleen Mayberry
Wright-Pierce
11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086

Via email: naleen.mayberry@wright-pierce.com

Re: Rare and exemplary botanical features in proximity to: #20839, Drinking Water Treatment Plant, Berwick, Maine

Dear Ms. Mayberry:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 6, 2021 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Berwick, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: #20839, Drinking Water Treatment Plant, Berwick, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Adder's Tongue Fern						
	SC	S1	G5	1936-07-21	6	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
American Chestnut						
	SC	S4	G3	2014-06-16	6	Hardwood to mixed forest (forest, upland)
Atlantic White Cedar						
	SC	S2	G4	2019-06-07	10	Forested wetland
Atlantic White Cedar Swamp						
	<null>	S2	G3G5	2019-06-07	8	Forested wetland
Blunt Mountain-mint						
	PE	SH	G5	1941-08-22	1	Hardwood to mixed forest (forest, upland)
Eaton's Bur-marigold						
	SC	S2	G3	1941-09-17	6	Tidal wetland (non-forested, wetland)
Featherfoil						
	T	S1	G4	1900-07-19	2	Open water (non-forested, wetland),Forested wetland
Georgia bulrush						
	SC	SU	G5	2011-10-20	5	<null>
Hairy Bush-clover						
	E	S1	G5T5?	1935-08-28	4	Dry barrens (partly forested, upland),Hardwood to mixed forest (forest, upland)
Hollow Joe-pye Weed						
	SC	S2	G5?	2013-09-01	25	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Leonard's Skullcap						
	PE	SH	G4T4	1895-07-01	4	Non-tidal rivershore (non-forested, seasonally wet)

Rare and Exemplary Botanical Features within 4 miles of
Project: #20839, Drinking Water Treatment Plant, Berwick, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Muhlenberg Sedge						
	E	S1	G5	1896-07-01	2	Dry barrens (partly forested, upland)
	E	S1	G5	1896-07-01	1	Dry barrens (partly forested, upland)
Prairie Wedge-grass						
	PE	SH	G5	1932-07-06	1	Dry barrens (partly forested, upland)
Purple Cudweed						
	PE	SX	G5	1898-07	2	Dry barrens (partly forested, upland)
Pygmyweed						
	SC	S2S3	G5	1934	11	Open water (non-forested, wetland)
Rue-anemone						
	E	S1	G5	1898	1	Hardwood to mixed forest (forest, upland)
Scarlet Oak						
	E	S1	G5	1896-06	5	Hardwood to mixed forest (forest, upland)
Small Reed Grass						
	SC	S3	G5	1938	1	Old field/roadside (non-forested, wetland or upland)
Smooth Rockcress						
	T	S1	G5	1896-06-13	2	Rocky summits and outcrops (non-forested, upland),Hardwood to mixed forest (forest, upland)
Smooth Winterberry Holly						
	SC	S3	G5	2002-09-26	31	Forested wetland
Spicebush						
	SC	S3	G5	2014-10-01	34	Forested wetland
	SC	S3	G5	2011-10-20	31	Forested wetland

Rare and Exemplary Botanical Features within 4 miles of
Project: #20839, Drinking Water Treatment Plant, Berwick, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	SC	S3	G5	2009-07-14	18	Forested wetland
Spreading Sedge						
	E	S2	G5	2020-09-16	7	Hardwood to mixed forest (forest, upland)
Torrey's Rush						
	PE	SH	G5	1932-09-08	1	Open wetland, not coastal nor rivershore (non-forested, wetland)
Upper Floodplain Hardwood Forest						
	<null>	S3	GNR	2014-06-16	23	Forested wetland

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of 1 to 5. Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

maine DEPARTMENT OF Agriculture Conservation & Forestry
NATURAL AREAS

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
Phone: 207.725.8721 | Fax: 207.729.8414
www.wright-pierce.com

December 20, 2021
W-P Project No. 20839

Mr. Mark Stebbins, Land Division Director
Dept. of Environmental Protection
11 State House Station
Augusta, Maine 04333-0017

Subject: Berwick Water Treatment Plant Upgrade
Environmental Review – Project Review

Dear Mr. Stebbins:

The Town of Berwick (Berwick Water Department) is proposing upgrades to its existing surface (potable) water treatment plant (WTP) and its water intake in the Salmon Falls River. The proposed project is on the property of the existing WTP located on 150 Rochester Street (Lots 14-A and 14) in Berwick, Maine, shown on the enclosed Project Location Maps.

The project components anticipated include the following general scope:

- Construction of a new building to house new treatment process equipment immediately adjacent to the SE side of the existing WTP. (probable location based on preliminary due diligence).
- Raising the elevation of the existing water intake's 14" Johnson Tee screen by approximately 1 to 2 feet by either adding a vertical extension from the Tee screen, or by adding an elbow to the existing pipeline supporting the Tee Screen. (purpose is to address on-going water quality issues with manganese release from river sediments).
- Replace the existing Geotube® Dewatering Container located on the NW side of the WTP with a system of three (3) lagoons located behind the building on the same property. These will be used to settle and recycle spent backwash and to dry residuals. The probable location of the lagoons will be based on preliminary study. A wetland delineation survey report is attached to this letter.
- Other projects inside the existing facilities (i.e., replacement of aging polyethylene chemical storage tanks, repainting chemical containment areas, updating facility controls, and SCADA software, and upgrading pumps to achieve original design process flow rates).

The District has applied for financial assistance from the Maine Drinking Water State Revolving Loan Fund (DWSRF), which is funded in part by a grant to the State from the U.S. Environmental Protection Agency. Consequently, it is necessary for the project to meet federal cross-cutting authority requirements.

At your earliest convenience, please review the proposed project and give us comments with regard to the interests of the DEP Division of Land Resource Regulation. Also, please let us know if you have other concerns about the potential environmental impact of the proposed activity. If you need further information, please contact me at (207) 798-3749 or by email at naleen.mayberry@wright-pierce.com . If a response to this letter is not received within 30 days, we will assume you have no concerns with regard to the proposed project.

Sincerely,
WRIGHT-PIERCE

Naleen A. Mayberry, PE
Lead Project Engineer
naleen.mayberry@wright-pierce.com
Enclosures

WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | www.wright-pierce.com