



Wetlands Assessment

Seneca Compressed Air Energy Storage Project

New York State Electric and Gas

Town of Reading
Schuyler County, New York

Environmental Resources Management
399 Boylston Street
Boston, MA 02116

TABLE OF CONTENTS

1.0 INTRODUCTION AND BACKGROUND 1

2.0 EXISTING CONDITIONS 2

 2.1 DESKTOP WETLAND INVESTIGATION AND FIELD
 RECONNAISSANCE 2

 2.2 DESKTOP REVIEW RESULTS..... 3

 2.3 FIELD RECONNAISSANCE WETLAND OBSERVATIONS..... 3

3.0 DETERMINING JURISDICTION 5

4.0 IMPACTS AND MITIGATION REQUIREMENTS 6

5.0 REFERENCES CITED 8

FIGURES

ATTACHMENT 1 *Wetlands Photo Log*

In 1975, the New York State Legislature passed The Freshwater Wetlands Act with the intent to “preserve, protect, and conserve freshwater wetlands.” Pursuant to this act, the New York State Department of Environmental Conservation (NYSDEC) maps all wetlands regulated by the Act that includes: 1) wetlands greater than 12.4 acres in size, and 2) wetlands “of unusual local importance.” The NYSDEC mapped regulated wetlands in the greater vicinity of the New York State Electric and Gas (NYSEG) Seneca Compressed Air Energy Storage (CAES) project are presented in the inset of Figure 1. (Note that no NYSDEC mapped wetlands are within a two mile radius of the CAES project site.)

The United States Army Corps of Engineers (USACE) regulates most wetlands in New York State under the federal Clean Water Act. Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory, 1987). Identifying a federal wetland employs a three-parameter approach, including a dominance of wetland vegetation, hydrology, and hydric soils.

This wetlands assessment was performed under Phase 1 of the CAES project. Once unbridled access to the land parcels to be impacted is secured, formal wetland delineations will be conducted. These activities will be undertaken under Phase 2 of the project.

2.0 *EXISTING CONDITIONS*

2.1 *DESKTOP WETLAND INVESTIGATION AND FIELD RECONNAISSANCE*

An ERM scientist conducted both a desktop review and a field reconnaissance of the areas proposed to be disturbed as part of the construction and operation of the CAES facility. The project boundary comprising the CAES plant site and linear utility lines was discussed with NYSEG staff prior to performing the desktop wetland investigation and field reconnaissance, the latter performed with a NYSEG staff member.

Wetlands in the Project area were first investigated with a desktop review using two sources: the National Wetlands Inventory (NWI) and the NYSDEC freshwater wetland maps. The NWI is an online geographic database maintained by the U.S. Fish & Wildlife Service (USFWS) that identifies national wetlands and deepwater habitats (Cowardin, 1979). State-regulated wetlands are provided in an electronic database maintained by the NYSDEC and are identified using a combination of aerial photography, soil surveys, previous wetland inventories, and field verification. The NYSDEC categorizes regulated wetlands according to cover type, ecological association, special features, hydrological and pollution control features, and distribution and location. In addition to review of the NYS Geographic Information Systems (GIS) datalayers, the NYDEC Environmental Resource Mapper was employed to determine if the project boundary intersected with any mapped freshwater wetlands.

Potential wetland areas not identified in the federal and state databases were identified through desktop surveys of local topography using United States Geological Survey (USGS) topographic maps and color infrared aerial photography.

Following initial review of existing data sources for wetlands in the region, an ERM scientist conducted a preliminary field reconnaissance visit. The purpose of the field effort was to confirm the presence of wetlands depicted on publicly-available data sources and identify the potential for additional wetlands to be present that are not identified on existing state or federal wetland maps.

2.2

DESKTOP REVIEW RESULTS

The outcome of the resources evaluated resulted in the identification of one small open-water feature at the CAES plant site and three potential wetland areas (non-NYSDEC designated) at the CAES plant site. A small drainage channel was also identified at the intersection of Jennings Road and County Route 28 near the substation location. The multiple tributaries (or streams) to Seneca Lake, and Seneca Lake itself are identified in the Surface Water section and have potential to be jurisdictional under section 404 of the Clean Water Act (CWA) as Waters of the US.

The CAES Project is located approximately one mile west of Seneca Lake within the Seneca Lake sub-watershed (HUC code 04140201), which is located in the larger Oswego River/Finger Lakes Watershed. The NYSDEC Environmental Resource Mapper identifies no State-regulated freshwater wetlands or classified ponds in the vicinity of the CAES project site. The nearest State wetland mapped by NYSDEC is located greater than two miles to the southeast of the Project boundary (see inset of Figure 1). Three classified streams are within, or in the vicinity of, the project boundaries (see Figure 1). These are Class C streams in the vicinity of the CAES site, and as they enter Seneca Lake, the classification shifts to Class AA(T), which denotes that these streams are known to support a trout population. The first stream is located just south of the proposed CAES plant site and the second stream is located north of the proposed Facility. Both streams flow in an easterly direction, ultimately discharging into Seneca Lake.

2.3

FIELD RECONNAISSANCE WETLAND OBSERVATIONS

The field reconnaissance confirmed that areas identified in the desktop assessment are potential jurisdictional wetlands, based on observations of wetland vegetation, hydric soil characteristics, and hydrology. In addition, the field reconnaissance identified wetlands that are not depicted on the NWI or NYSDEC maps, which is not unexpected because these maps are used for planning level purposes only.

Within the proposed CAES plant site footprint, three areas of potential wetlands were noted (see Figure 2). Wetland 1 is proximate to a freshwater pond identified by the NWI database. Wetland 2 appears to be associated with a drainage channel that flows in an easterly direction across the proposed Project site, ultimately discharging to a stream located to the north of the Project site. Approximate to the proposed overhead power line route from the CAES site, one area of potential wetland,

Wetland 3, was noted to the west-southwest of the Project site. In addition to these three wetlands, a roadside drainage swale was noted along Jennings Road and State Route 28 near the proposed substation location. Based on this preliminary field reconnaissance, no wetlands were observed along the proposed underground pipeline route corridor leading approximately south and east of the project site. Photographs of Wetlands 1, 2, and 3 are provided in Attachment 1.

A list of wetland plant species observed in Wetlands 1, 2, and 3 is presented in Table 1. This list is not exhaustive, but represents those predominant species that were observed and noted during the preliminary site walkover. Soils observed in Wetlands 1 and 3 contained hydric features including a gleyed matrix and redoximorphic features, and evidence of hydrology at the three wetlands included aerial photo identification of standing water, saturation to the surface, inundation, and/or a dominance of wetland vegetation, as noted during field observations.

Table 1. List of Plant Species Observed in Potential Wetland Areas

Wetland Identifier	Approximate Size of Wetland (acres)	Observed plant species ¹	Wetland Indicator Status
1	0.6	Rice cutgrass (<i>Leersia orzoides</i>) Green bulrush (<i>Scirpus atrovirens</i>) Soft rush (<i>Juncus effusus</i>) Purple loosestrife (<i>Lythrum salicaria</i>) ² Lurid sedge (<i>Carex lurida</i>) Water plantain (<i>Alisma</i> sp.)	OBL OBL FACW FACW OBL OBL ³
2	0.5	Purple loosestrife (<i>Lythrum salicaria</i>) ² Soft rush (<i>Juncus effusus</i>)	FACW FACW
3	0.2	Sensitive fern (<i>Onoclea sensibilis</i>)	FACW

OBL = Obligate; FACW = Facultative Wetland

¹ None of the listed plant species are identified as sensitive, threatened, endangered, or of special concern as listed by NYSDEC or USFWS.

²Listed on NYSDEC Interim Invasive Species Plant List (<http://www.dec.ny.gov/animals/65408.html>)

³Water plantain not identified to species, but most *Alisma* species are OBL.

Based on the results of the field reconnaissance, formal wetland delineations will be required under Phase 2 of the project leading to licensing and permitting. The potential wetlands identified at the Project site are not mapped by NYSDEC as freshwater wetlands and none of them is large enough (each was determined to be less than 12.4 acres in size) or contain unusual local importance to trigger jurisdiction by NYSDEC.

Wetland 2 appears to have a potential connection to the NYSDEC Class C stream located north of the proposed CAES site. Therefore, this wetland is anticipated to be under federal jurisdiction as Waters of the US. Based on the field reconnaissance, the small open water area and Wetland 1 within the CAES plant footprint, as well as Wetland 3 nearby the overhead power line route, may be isolated and may not have a connection to any other wetland or water body. However, this will need to be confirmed during a formal wetlands delineation. It is important to note that it is often difficult to establish small pond and/or wetland areas as 'isolated' and not subject to jurisdiction under the federal Clean Water Act. A connection to navigable waters would indicate likely jurisdiction under section 404 of the CWA. Both the USACE and the US Environmental Protection Agency must approve any such determination of isolation.

Based on the results of this preliminary analysis, all three of the wetlands identified should be considered jurisdictional as Waters of the United States under Sections 401 and 404 of the federal Clean Water Act due to their potential connectivity to the tributaries to Seneca Lake. ERM recommends that following formal delineation of the wetland areas under Phase 2 of the project, a jurisdictional determination request be submitted to the USACE Buffalo Division.

All three potential wetlands identified in the vicinity of CAES project site are considered jurisdictional for the purposes of this preliminary analysis. The CAES plant footprint is anticipated to impact at least two of potentially jurisdictional federal wetland areas, Wetlands 1 and 2. Section 404 mitigation requirements include both avoidance and minimization of impacts to jurisdictional wetland areas. In those situations where impacts to wetlands cannot be avoided, compensatory mitigation options have been identified by USACE and in the US Environmental Protection Agency's (USEPA) Wetlands Compensatory Mitigation Rule (2008 Final Rule) and are ranked in a hierarchal fashion in order of preference. For the CAES Project, the following options identified in USEPA's Final Rule were reviewed in order:

1. Mitigation Banks;
2. In-Lieu Fee Program Credits;
3. Permittee-responsible mitigation under a watershed approach;
4. Permittee-responsible mitigation through on-site and in-kind mitigation; and
5. Permittee-responsible mitigation through off-site and/or out-of-kind mitigation.

Currently, there are no known approved wetland mitigation banks available to compensate for wetland impacts in Schuyler County. Similarly, no in-lieu fee programs have been established for use in this region of the State. Therefore, a permittee-responsible mitigation package is the primary option available for the CAES Project. The primary focus of the mitigation requirements is to restore the wetland functions and services lost from a project. A typical mitigation strategy is to re-establish a wetland in a suitable location to restore the functions and services within the Oswego River/Finger Lakes Watershed, or ideally in the Seneca Lake sub-watershed (HUC code 04140201). Site selection for a wetland mitigation project that includes the creation of a new wetland should consider the following factors:

- the hydrological conditions, soil characteristics, and other physical and chemical characteristics;
- watershed-scale features, such as habitat diversity and habitat connectivity;
- size and location of the site relative to the hydrologic sources;
- compatibility with adjacent land uses and watershed management plans; and

- potential for long-term protection.

Wetland creation as a compensatory mitigation tool typically requires the creation of an area at least as large as the area to be disturbed, and regulatory agencies may require that the created area be larger than the area disturbed.

Mitigation also can be in the form of restoration of wetland habitat. If this option were selected as a mitigation strategy, opportunities within the watershed would be explored to identify potential locations where wetland habitat has been degraded over time and could be restored to provide the functions and services it once provided. Restoration as compensatory mitigation typically requires the restoration of a larger area of restored wetland as compared to the area of wetland lost.

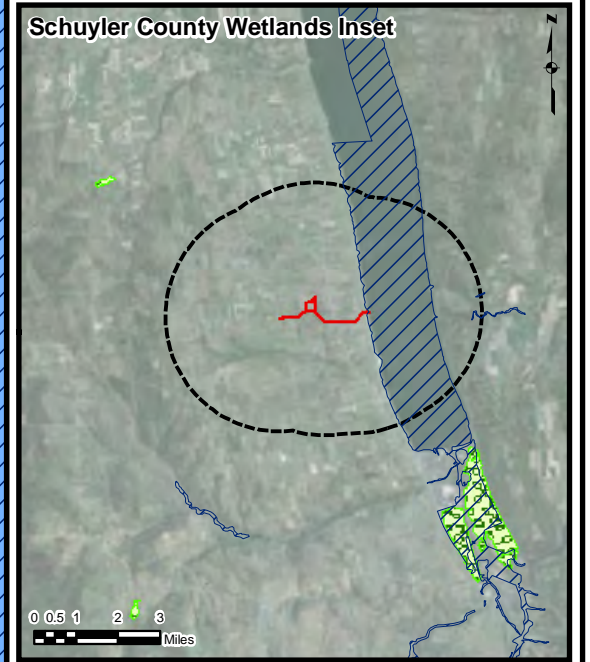
Areas created or restored for the purposes of compensatory mitigation would require long-term monitoring (typically five years) and documented long-term protection. Monitoring would be required to document the functions and services provided by the created/restored area, including the presence of wetland vegetation, the initial development of hydric soil characteristics, and evidence of hydrology. Conservation easements or another legal tenant of protection from future development or degradation would be a key component of a wetland mitigation plan.

5.0

REFERENCES CITED






Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79-31. USDI Fish and Wildlife Service, Washington, DC. 103 pp.

Environmental Laboratory, 1987. Corps of Engineers Wetlands Delineation manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

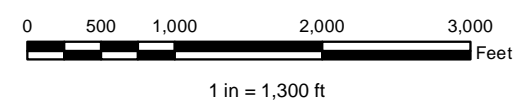


SENECA LAKE

Legend

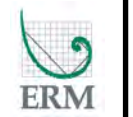
-  Approximate Site Location
-  100-year Floodplain for Schuyler County
- Wetlands (NWI)**
-  Freshwater Emergent Wetland
-  Freshwater Pond
-  Lake
- Schuyler County Wetlands**
-  DEC Wetlands
- Approximate Digitized Wetlands**
-  Potential Wetlands Observed During Field Reconnaissance
- NYS DEC - Stream**
-  Classification - C
- 2010 TIGER / Line**
-  Roads
-  2 Mile Buffer of Project Area

NOTE: THE WETLANDS NOTED ON THIS FIGURE ARE A PRELIMINARY ANALYSIS FOR PLANNING PURPOSES ONLY. NO FORMAL WETLAND DELINEATION HAS BEEN CONDUCTED

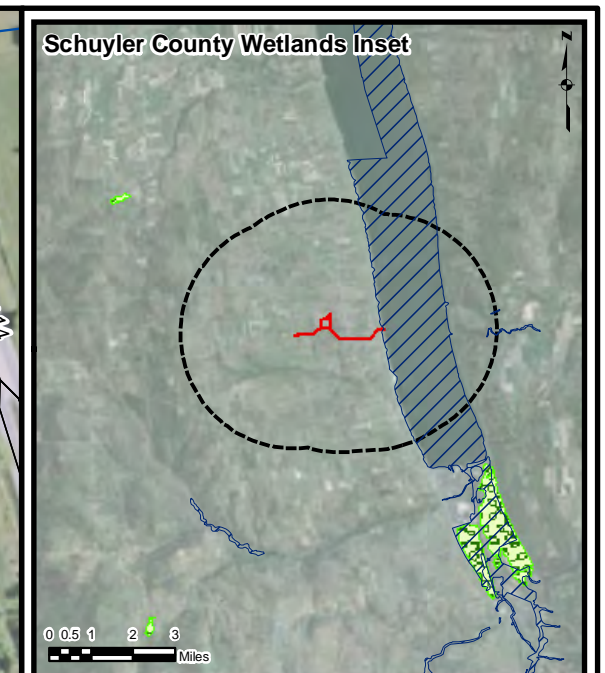
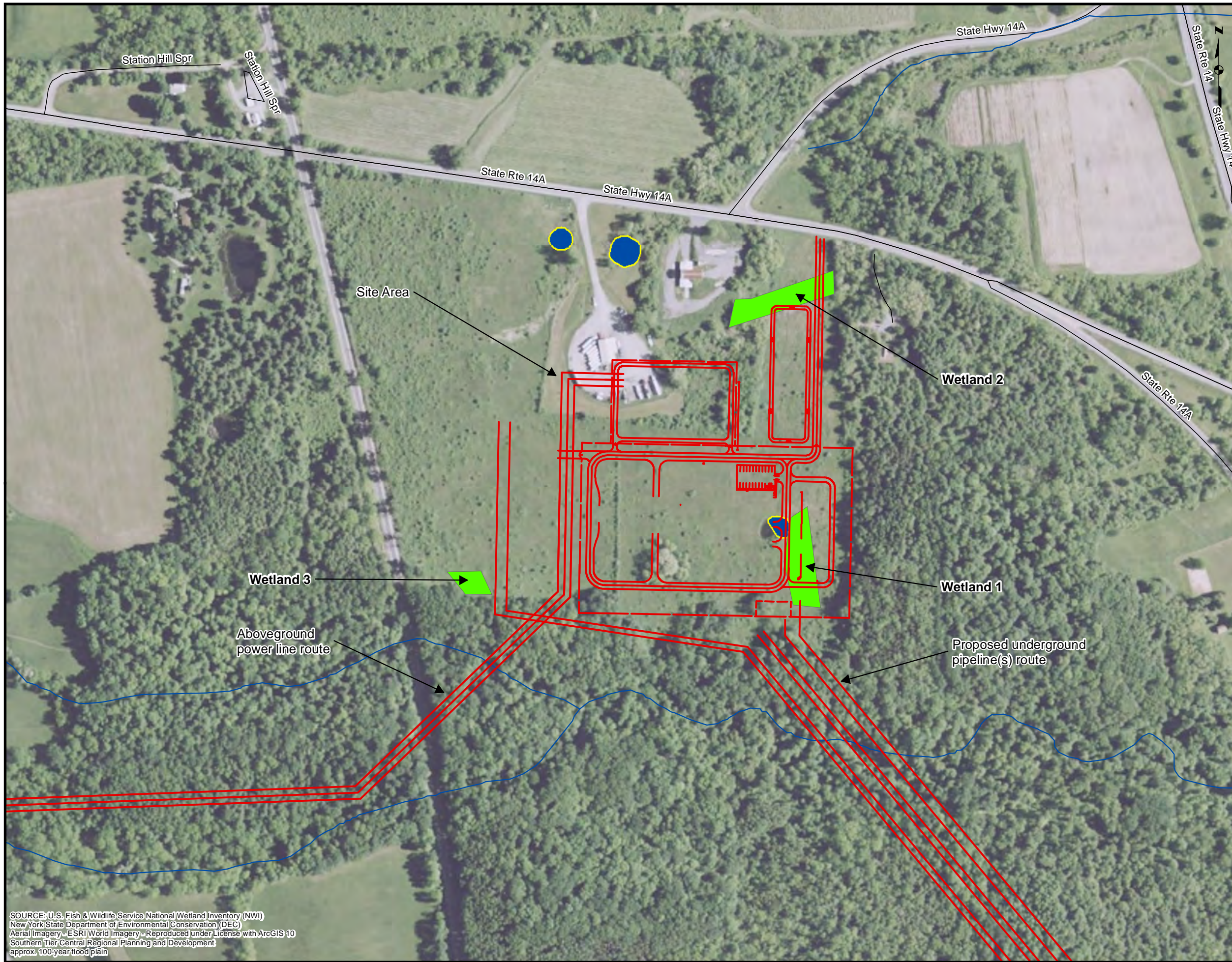


SOURCE: U.S. Fish & Wildlife Service National Wetland Inventory (NWI)
New York State Department of Environmental Conservation (DEC)
Aerial Imagery - ESRI World Imagery - Reproduced under License with ArcGIS 10
Southern Tier Central Regional Planning and Development
approx. 100-year flood plain

Figure 1: Preliminary Assessment of Wetland and Surface Water Features
NYSEG
Seneca Compressed Air Energy Storage (CAES) Project
Town of Reading
Schuyler County, NY

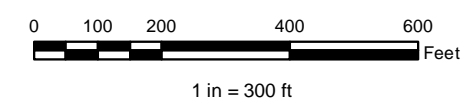


G:\Graphics\Clients_V_Z\WorleyParsons\Watkins Glen, NY\MXD\Working\Figures\Wetlands\Site_Wetlands_ZoomIn_Rev3_Sitebar.mxd



- Legend**
- Proposed CAES Facility Features
 - - - 2 Mile Buffer of Project Area
 - ▨ 100-year Floodplain for Schuyler County
 - Wetlands (NWI)**
 - Freshwater Emergent Wetland
 - Freshwater Pond
 - Lake
 - Schuyler County Wetlands**
 - ▨ DEC Wetlands
 - Approximate Digitized Wetlands**
 - Potential Wetlands Observed During Field Reconnaissance
 - NYS DEC - Stream**
 - Classification - C
 - 2010 TIGER / Line**
 - Roads

NOTE: THE WETLANDS NOTED ON THIS FIGURE ARE A PRELIMINARY ANALYSIS FOR PLANNING PURPOSES ONLY. NO FORMAL WETLAND DELINEATION HAS BEEN CONDUCTED



SOURCE: U.S. Fish & Wildlife Service National Wetland Inventory (NWI)
 New York State Department of Environmental Conservation (DEC)
 Aerial Imagery - ESRI World Imagery - Reproduced under License with ArcGIS 10
 Southern Tier Central Regional Planning and Development
 approx. 100-year floodplain

Figure 2: Potential Wetland Areas on Proposed CAES Facility Site
 NYSEG
 Seneca Compressed Air Energy Storage (CAES) Project
 Town of Reading
 Schuyler County, NY



G:\Graphics\Clients_V_Z\WorleyParsons\Watkins Glen, NY\Map\Working\Figures\Wetlands\Wetlands_Detailed.mxd

Attachment 1
Wetlands Photo Log

PHOTODOCUMENTATION - September 02, 2011
Compressed Air Energy Storage (CAES) Project
Reading, NY
Page 1 of 2



Facing East across the Pond associated with Wetland 1.



Facing South towards Wetland 2 (the wetland is within the concentration of purple loosestrife in the background).

PHOTODOCUMENTATION - September 02, 2011
Compressed Air Energy Storage (CAES) Project
Reading, NY
Page 2 of 2



Facing West across Wetland 3