

**Annual Wetland Monitoring Report #2
for Vermont Transco's
Zelazny Wetland Mitigation/Restoration
Project**



November 7, 2007

i Project Overview:

(1) ACOE Permit Information

ACOE permit # NAE-2004-856 - Issued on December 21, 2005 for the construction of a new 345kV electrical transmission line from West Rutland to New Haven Vermont.

(2) Permittee Contact Information

Vermont Electric Power Company (VELCO)
Contact: Brian Connaughton – Environmental Compliance Lead
366 Pinnacle Ridge Road
Rutland, VT 05701

(3) Monitoring Information

The responsible party for performing monitoring for this period was LA Restoration of Rutland, VT. The annual monitoring effort was performed between June and July 2007.

(4) Purpose

The purpose of the mitigation effort is to provide compensation for 1.46 +/- acres of permanent wetland impacts associated with the construction of a new 345kV transmission line from West Rutland to New Haven, Vermont, the construction of a new electrical substation in New Haven, the expansion of Granite substation in Williamstown, Vermont, and the expansion of a substation in Poultney, Vermont. The mitigation effort includes the enhancement of a 62 acre (44+/- acres of upland and 18+/- acres of wetland). The goal of the NRP Wetland Mitigation and Restoration Plan is to establish a "Riparian Forest Buffer" throughout a large portion of the property, which has been historically drained and degraded by dense stands of reed canary grass (*Phalaris arundinacea*) and is not adequately regenerating to forest after agricultural abandonment.

(5) Project Description

The mitigation project (Zelazny site) is located along the western bank of Otter Creek in Pittsford, Vermont (see Figure 1 in Section iv). Existing site conditions primarily consist of abandoned agricultural field, which experiences regular cycles of flooding and receding waters associated with the hydrology of the nearby Otter Creek. Site conditions have been modified as part of the Wetland Mitigation Plan. As part of this plan, activities were undertaken throughout 2006, including mowing and chemical treatment of the reed canary grass, the installation of gates, and the planting of 3,101 native tree seedlings. Site conditions have continued to be developed during 2007 as additional wetland mitigation efforts have been implemented.

Access to the site is provided via an existing field drive extending eastwards from West Creek Road and into the site. The site is bound to the north and east by Otter Creek, to the south by undeveloped agricultural land, and to the west by railroad tracks. Access to the site is controlled by two fences. The perimeter of the site is identified in the field with signage labeled "Protected

Resource Area”. Each sign is affixed to a metal or wooden post positioned approximately every 50 feet.

(6) Directions

Directions to the mitigation site are as follows:

- Take US Route 7 to Kendall Hill Road in Pittsford, Vermont
- Take Kendall Hill Road over Otter Creek and towards “Y” in Road
- At “Y”, take a right onto West Creek Road
- Access to the Zelazny site is located 1.15 +/- miles from the intersection of Kendall Hill Road and West Creek Road. The access is located on the eastern side of West Creek Road.

(7) Compensatory Mitigation Summary

Mitigation activities on this project were initiated in 2005, with the purchase of the parcel. Additional activities were undertaken throughout 2006, including mowing and chemical treatment of the reed canary grass, the installation of gates, and the planting of 3,101 native tree seedlings. Work performed throughout 2007 included:

- During January 22-25, 2007 Markowski Construction Company (Markowski) performed work on the site to restore wetland hydrology. Specifically, work crews installed three (3) ditch plugs and removed three (3) buried culverts up to a point 50’ from Otter Creek. All work areas, equipment access routes, and culvert removal work areas in Section 1 were flagged by LA Restoration in order to enable Markowski to perform the required work without disrupting the seedlings planted in 2006. In accordance with the Wetland Mitigation Plan, the culvert removal work included the use of machinery on top of construction matting. Additionally, this work was performed under the oversight of an archeologist (see *The Louis Berger Group, Inc.*, report in Attachment A). No cultural material was discovered and no impact to cultural resources was identified.
- In accordance with *Section H* of the *Wetland Mitigation Plan*, twenty (20) logs were deployed at the site by Markowski work crews between January 22 and January 25, 2007. The logs were generally placed in Planting Section 1 so that the logs would not encumber the planting efforts in Sections 2 & 3. It is anticipated that woody debris will be deposited in these Sections as a result of the seasonal flooding events at the site.
- LA Restoration was retained in June 2007 to perform the required yearly monitoring of the site for mortality and/or the need for corrective action. The results of the monitoring program are summarized in Section ii and detailed in the *Zelazny Wetland Monitoring Report* in Attachment A.
- In preparation of the remaining planting event, Sections 2 and 3 were chemically treated on June 15, 2007 to control the reed canary grass.

- Between October and November 2007, LA Restoration transported approximately 4,078 one to two year old seedlings (tubelings) from The Nature Conservancy's native plant nursery in Whitehall, NY to the Zelazny site for planting of Sections 2 & 3. Prior to planting, the areas were delineated in the field by Gilman & Briggs Environmental and reviewed with LA Restoration work crews. Pursuant to the approved plan, the new tubelings were spaced on a grid of 14' x 7', mulched with 2' x 2' pinned black plastic matting, staked, and protected with plastic tree guards and herbivore deterrent spray. All the seedlings were planted and protections in place by November 30, 2007. Due to a shortage of black willow (*Salix nigria*) seedlings this year, The Nature Conservancy substituted the order with other species planned to be planted, resulting in a final count for Section 2 & 3 of 1,076 silver maple (*Acer saccharinum*), 580 swamp white oak (*Quercus bicolor*) 682 green ash (*Fraxinus pennsylvanica*), 365 cottonwood (*Populus deltoids*), 506 bur oak (*Quercus macrocarpa*), and 272 black willow (*Salix nigra*).

(8) Performance Standards

As documented in the 2007 annual monitoring report, the project has exceeded the performance standard for mortality (75% or less) by achieving a 95.9% survival rate during the first year. Note that this assessment was performed on the plantings within Section 1, which were installed in 2006. The 2008 monitoring report will include a review and assessment of all plantings at the site (Sections 1, 2 & 3), and will be compared to the success rate of 75%, which is the project goal for the first year. Subsequent monitoring events will be compared to the project goals as outlined in the *Wetland Mitigation Plan*.

(9) Corrective Action and/or Maintenance Activities

The following corrective actions have been performed at the Zelazny site since the last monitoring report.

- Vermont Railway repaired the existing railroad crossing in December 2006, to allow for the safe access by VT Transco construction equipment.
- On May 10, 2007, VELCO and NRCS personnel performed an inspection of the site to assess overall site conditions. During this inspection it was discovered that the protective mesh tubes had accumulated flood debris during the fall/spring flooding events at the site. The trapped debris was inhibiting the growth of the trees by shading the plants and distorting the mesh tubes. Additionally, it was determined that the ditch plugs required maintenance.
- In order to ensure the proper growth of the seedlings, LA Restoration was retained in May 2007 to remove the impacted mesh tubes and to reinstall multiple protective mesh mats, raised by the floodwaters. All mesh tubes located proximate to Otter Creek (i.e. high flood prone area) were removed and stockpiled for use during the planting efforts of Sections 2 & 3.
- Although the plantings were equipped with protective matting to inhibit weed growth proximate to the plant, it was determined that multiple seedlings were being overcrowded

by herbaceous weed growth. Since weed control by mowing would result in damage to the seedlings and soil rutting, LA Restoration work crews were retained to perform weed control services with the use of hand tools. This work was performed in June 2007 in conjunction with the yearly monitoring effort.

- On September 7, 2007, Markowski work crews performed maintenance activities on the three (3) ditch plugs. Specifically, crushed rock was installed along the upper sections of the plugs to reinforce the plugs from erosive forces.
- In response to the relatively high mortality rate of cottonwood (*Populus deltoids*), by rabbit and deer browse damage; LA Restoration was retained to apply deterrent spray to the seedlings. This work was performed during the fall planting effort between October and November 2007.

(10) **Additional Corrective Action and/or Maintenance Activities**

Additional corrective actions recommended as part of the yearly monitoring effort include:

- Use of fertilizer,
- Planting additional clusters of fast growing black willow (*Salix nigra*) and cottonwood (*Populus deltoids*), seedlings,
- Perform “live-plantings” from on-site black willows (*Salix nigra*),
- Perform direct seeding from native on-site trees, and
- Install additional photo-documentation reference posts.

The above-referenced suggested corrective actions will be evaluated and reviewed as part of the 2008 monitoring effort.

ii Requirements:

The site was visually inspected between June and July 2007 for determine the mortality rate of the seedlings and to evaluate whether corrective actions were necessary. In accordance with the *Wetland Mitigation Plan*, this work consisted of a visual inspection of each seedling. Also, each stake was color-coded (to facilitate future monitoring events), protective matting was replaced, and weeding of herbaceous growth around the seedlings was performed. The objective of the first year of monitoring was a 75% or greater success rate. The results of the 2007 monitoring program are included in Attachment A and are outlined below.

Species	Mortality Within Species	Mortality Within Whole Site
Burr oak (<i>Quercus macrocarpa</i>)	5.9%	.16%
Silver maple (<i>Acer saccharinum</i>)	1.1%	.32%
Green ash (<i>Fraxinus pennsylvanica</i>)	0%	0%
Black willow (<i>Salix nigra</i>)	.89%	.22%
Cottonwood (<i>Populus deltoids</i>)	20.8%	3.4%

The total mortality for the site was determined to be 4.1%, resulting in a 95.9% survival rate, well above the project objective of 75% for the first year. As indicated above, since this monitoring was limited to Section 1 (Sections 2 & 3 were not planted at the time of the monitoring event), the 2008 monitoring effort will be applied to the 75% survivability standard. The monitoring events will be held to the following performance standards:

Year	Success Rate Goal (% survival)*	Actual
2007	75 %	95.9 %**
2008	75 %	
2009	70 %	
2010	65 %	
2011	60 %	
2012	50 %	

* Includes natural recruits

** Based upon a review of Section 1

iii Summary Data:

Supporting documentation, including *The Louis Berger Group, Inc.*, archeological report and the LA Restoration *Wetland Monitoring Report for 2007* are included in Attachment A and B, respectively. Photo-documentation reference sites have been installed at the site and photo-documentation has been performed throughout the year. Select pictures are provided in Attachment B.

iv Maps:

Maps of the Zelazny site, including a Site Location Map and an Overall Site Plan are included below. Both maps demarcate the site perimeter, depict landscape features (waterways, wetlands, topography), and illustrate the approximate location of the photographic reference locations 1, 2 & 3. Maps are included in Attachment C.

v Conclusions:

To date, VT Transco has accomplished major objectives towards achieving the overall project goal of establishing a "Riparian Forest Buffer" at the Zelazny site. Major activities performed this monitoring period include culvert removal, ditch plug installation, maintenance activities associated with the plantings and the ditch plugs, preparing and planting Sections 2 & 3, and yearly monitoring. As described in this report, the project is achieving the set performance standards, achieving a 95.9 % survival rate. The overall success of the project activities will be monitored by yearly inspections and associated monitoring reports.

ATTACHMENT A – Reports

ATTACHMENT B – Site Photographs



1) A view looking east of Planting Section 1 from Photograph Station 1. Note the plantings in the foreground are indicated with flagging. Otter Creek is located in the background. – 10/3/07



2) A view looking north of Planting Section 1 from Photograph Station 2. – 10/3/07

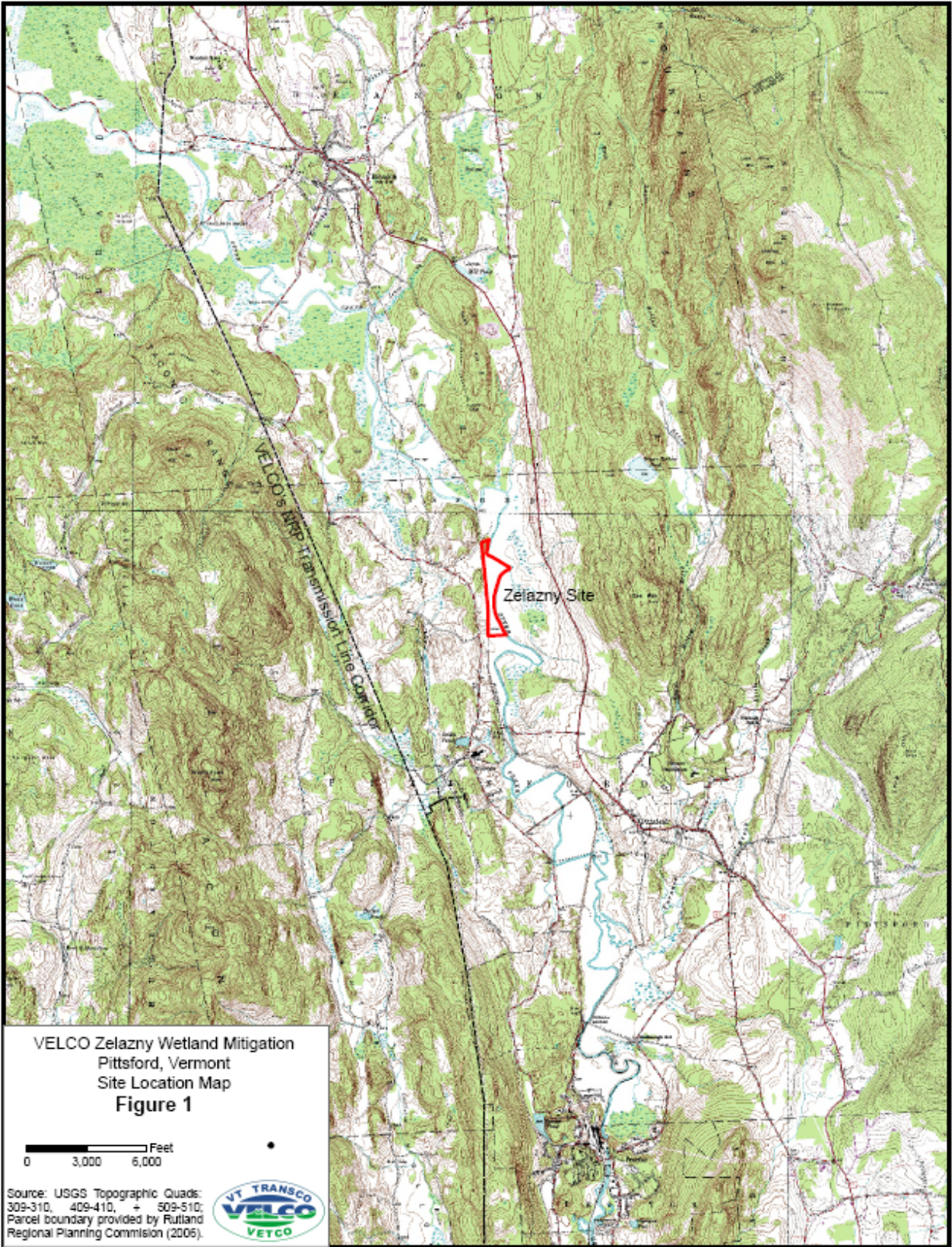


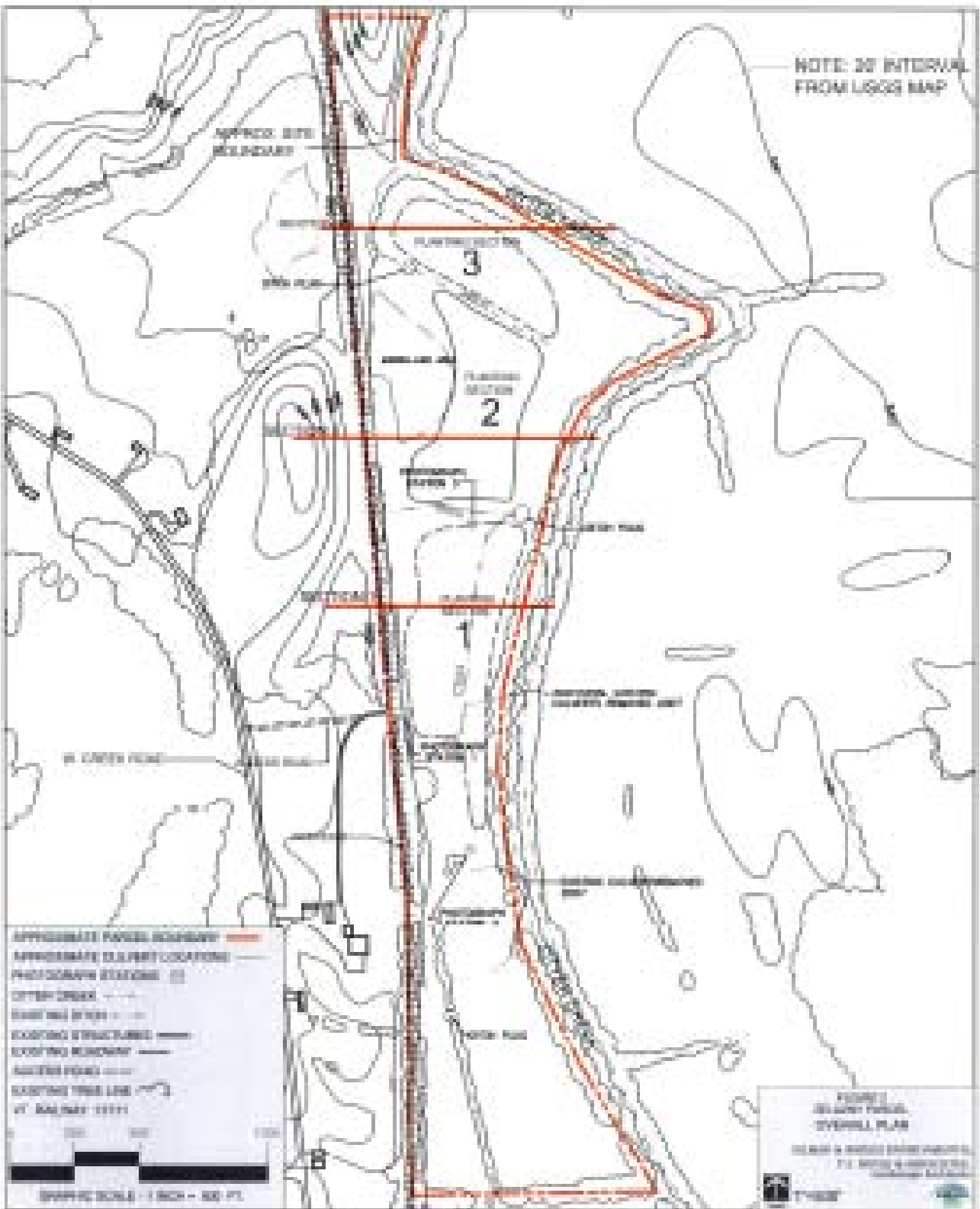
3) A view looking south of Planting Section 1 from Photograph Station 3. – 10/3/07



4) A view of planting Section 1 and the entrance to the site. Note the *Protective Resource Area* signage, deployed around the site perimeter. – 10/3/07

ATTACHMENT C – Site Plans





NOTE: 30' INTERVAL FROM LOGS MAP

APPROXIMATE PARCEL BOUNDARY ———
 APPROXIMATE LIBERTY LOCATION - - - -
 PROPOSED ROAD STATIONS ———
 OTHER ROAD ———
 EXISTING STRUCTURES ———
 EXISTING BOUNDARY ———
 ACCESS ROAD ———
 EXISTING TRAIL LINE ———
 VT. BOUNDARY ———

GRAPHIC SCALE: 1 INCH = 60 FT.

LIBERTY FOREST
 OVERALL PLAN
 PREPARED BY: [Logo]
 [Logo]

