



Environmental Consultants
Mailing Address:
25 Dundee Road
Gorham, Maine 04038
Phone: 207.591.5220
www.BoyleAssociates.net

Transmittal

To: Jay Clement (USACE), Jim Glasgow (MDEP), Dan Bacon (Scarborough), Jim Wendel (Scarborough), Ken Grondin (Grondin)

From: David Brenneman (Boyle Associates) on behalf of Grondin Aggregates/Larrabee Farms Wetland Mitigation Site

Date: 1/10/12

Re: Cabela's (New England Expedition Scarborough LLC)
Wetland Mitigation Monitoring Report – Year 4 of 10

Corps Permit No.: NAE-2006-3128
Maine DEP NRPA Project Number: L-23242-26-A-N

Attached please find the 2011 (year 4) monitoring report for the wetland mitigation project completed for the Gateway at Scarborough retail development (anchored by Cabela's).

If you have any questions or would like to conduct a site visit, please contact Ken Grondin (207-854-1147) or Richard Jordan (207-591-5220).

Thank you,

David Brenneman
Environmental Scientist – Boyle Associates

MITIGATION REPORT
TRANSMITTAL AND SELF-CERTIFICATION

DEPARTMENT OF THE ARMY PERMIT NUMBER: NAE-2006-3128
PROJECT TITLE: The Gateway at Scarborough (Cabela's): Larrabee Farms Wetland Mitigation Project

PERMITTEE: New England Expedition – Scarborough, LLC
MAILING ADDRESS: 220 Elm Street, Ste 104, New Caanan, CT 06840

AUTHORIZED AGENT: Grondin Aggregates, LLC
MAILING ADDRESS:
Ken Grondin
11 Bartlett Road
Gorham, Maine 04038
TELEPHONE: 207.854.1147

ATTACHED MITIGATION REPORT TITLE: The Gateway at Scarborough (Cabela's): Fourth Year Wetland Mitigation Monitoring Report

PREPARERS: Boyle Associates (207.591.5220)

DATE: January 9, 2012

CERTIFICATION OF COMPLIANCE: I certify that the attached report is accurate and discloses that the mitigation required by the Department of the Army Permit **[is] [is not] in full compliance with the terms and conditions of that permit.**

CORRECTIVE ACTION: A need for corrective action **[is] [is not] identified in the attached report.**

CONSULTATION: I **[do] [do not] request consultation with the Corps of Engineers to discuss a corrective strategy or permit modification.**

CERTIFIED: _____ on file year 1
(Signature of permittee) Date

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<p><u>Appendix B</u> -- A vegetative species list of volunteers in each plant community type. The volunteer species list should, at a minimum, include those that cover at least 5% of their vegetative layer.</p>	
<p><u>Appendix C</u> -- Representative photos of each mitigation site taken from the same locations for each monitoring event. Photos should be dated and clearly labeled with the direction from which the photo was taken. The photo sites must also be identified on the appropriate maps.</p>	
<p><u>Appendix D – Tables</u></p> <ul style="list-style-type: none"> ● <u>Tables 1 – 5: Soils Data</u> ● <u>Table 6: Fauna List</u> ● <u>Table 7: PSS/PFO Creation Area Plot Data</u> ● <u>Table 8: Herbaceous Vegetation Cover List</u> 	
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Project Overview Form

Corps Permit No.: NAE-2006-3128

Maine DEP NRPA Project Number: L-23242-26-A-N

Mitigation Site Name(s): Larrabee Farms Wetland Mitigation Site: The Gateway at Scarborough (Cabela's)

Monitoring Report : Year 4 of 10 years

Name and Contact Information for Permittee (left) and Agent (right):

New England Expedition – Scarborough, LLC 220 Elm Street, Ste 104 New Caanan, CT 06840	Grondin Aggregates, LLC Ken Grondin #207.854.1147 11 Bartlett Road Gorham, ME 04038
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Name of Party Conducting the Monitoring: Boyle Associates (David Breneman #207.591.5220)

Date(s) of Inspection(s) (Specific to Monitoring): June 7th and 8th and September 20th, 2011

Project Summary:

Fourth year monitoring procedures were conducted at the herbaceous, scrub-shrub and forested wetland creation areas at the Larrabee Farms Wetland Mitigation Site on June 7th and 8th and September 20th, 2011. These wetland areas were created as compensation for wetland functions and values impacted by construction of the Gateway at Scarborough (anchored by Cabela's). Construction of the project impacted approximately 4.47 acres of freshwater wetland (2.49 acres wet meadow, 1.29 acres forested and 0.69 acres of mixed forested/shrub/open water wetlands). Wetland compensation totals 31.55 acres and consists of 4.55 acres of wetland creation (2.10 acres PEM, 0.35 acres PSS and 2.10 acres PFO), preservation of 14.93 acres of existing upland, and preservation of 12.07 acres of existing wetland (including a stretch of the Nonesuch River). Wetland compensation took place at Grondin Aggregate's Larrabee Farms Wetland Mitigation Site, a multi-user mitigation project site.

Location of and Directions to Mitigation Site:

The Larrabee Farms Wetland Mitigation Site is located in the town of Scarborough, approximately 1 mile southeast of the corner of Route 114 and Beech Ridge Road.

Start and Completion Dates for Mitigation:

Conservation easement recorded - Cumberland County Registry of Deeds	Spring 2007
Final wetland grading began	February 2007
Final wetland grading completed	Oct. 15, 2007
Hydroseeding with wetland herbaceous seed mix completed and installation of woody vegetation completed	Oct. 15, 2007

Performance Standards are/are not being met:

All success standards being met.

Dates of Corrective or Maintenance Activities Conducted Since Last Report:

- In January of 2011 additional white pines (*Pinus strobus*) were planted in the northern creation cell.
- Mechanical and chemical control of the invasive species purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), and Japanese knotweed (*Polygonum cuspidatum*) was completed in September of 2011.
- Chemical control (cut-stump treatment) of a large autumn olive (*Elaeagnus umbellata*) shrub on the side-slope above the northern creation cell in December of 2011.

Recommendations for Additional Remedial Actions:

- Continue on-going monitoring and follow-up chemical control, if necessary, of the two colonies of common reed, any purple loosestrife, and the few Japanese knotweed clumps found on the side-slope of the basin.

Requirements (1 page)

Performance Standards

The wetland creation areas will be assessed once annually during the growing season (May-October) for at least 10 years. Monitoring will take place twice per season during the first through fifth years following planting. One visit will take place in the spring, and will include a general site walk and assessment of general site health, an assessment of any winter damage and in order to determine any corrective needs. A second site visit will take place between June and October to assess plant mortality/vitality and to gather data for the annual monitoring reports. The data gathering and reporting procedure will then take place once during the first through fifth years, and during the 7th and 10th years, if necessary, following construction.

Success Standards:

1. Hydrology <ul style="list-style-type: none"> • Adequate to support the designed wetland type: • Proposed hydrology being met: • Percentage of site meeting proposed hydrology: • Too wet/dry areas identified and corrective measures proposed: 	Yes Yes 100% N/A
2. Proposed vegetation diversity and/or density goals for woody plants from the plan met:	Yes
3. Aerial cover <ul style="list-style-type: none"> a. Each mitigation site has at least 80% aerial cover, by noninvasive species: b. Emergent areas have at least 80% cover by noninvasive hydrophytes: c. Scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species: 	Yes Yes Yes
4. Common reed (<i>Phragmites australis</i>), Purple loosestrife (<i>Lythrum salicaria</i>), Russian and Autumn olive (<i>Elaeagnus umbellata</i>), Buckthorn (<i>Rhamnus</i> spp.), Japanese knotweed (<i>Polygonum cuspidatum</i>), and/or Multiflora rose (<i>Rosa multiflora</i>) plants at the mitigation site(s) are being controlled:	Yes
5. All slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) are stable:	Yes

In general, the mitigation area is doing well and is successfully providing wetland functions and values similar or superior to those provided by wetlands impacted by construction of The Gateway at Scarborough. Wetland functions and values served by the site include wildlife habitat, groundwater recharge/discharge, floodflow alteration, educational and scientific value, production export, and recreational value. There is a dominance of hydrophytic vegetation, presence of hydric soils and evidence of prolonged saturation in the upper part of the soil profile. Finally, survivorship of the planted shrubs and trees is good and overall plant cover is high. The site experienced a better-than-average growing season year with a relatively wet spring and a warm, dry summer. These conditions allowed for substantial vegetation growth across the site. The percent aerial coverage of non-invasive hydrophytes has greatly increased since the 2008 monitoring session (from approximately 40% in 2008 to greater than 100% in 2011) and the site is maturing into a complex PEM/PSS with pockets of PFO (which are sure to increase as trees mature).

Summary Data (maximum of 4 pages)

Describe the monitoring inspections, and provide their dates, that occurred since the last report.

Wetland Creation Monitoring

Site walks were conducted throughout winter, spring and summer of 2011 to assess overall conditions and to determine if any winter damage occurred which would warrant corrective actions. Some girdling by rodents, (mainly of chokeberry and ash) was observed. However, no significant damage was noted and no corrective measures are recommended. In-depth monitoring of the creation area occurred in June and September of 2011. As discussed in the as-built report (30 October 2007): “(w)hile some areas were planted solely with tree or shrub species, most of the plants were installed in clumps, with tree and shrub plantings close together and dispersed over the site. Much of the creation area will presumably grow to achieve a PSS/PFO or PFO/PSS description, showing co-dominance among the tree and shrub species with interspersed pockets of both wetland types.” Thus, as during the first through third monitoring sessions, we reviewed the PSS and PFO areas together as a PFO/PSS wetland type. In subsequent monitoring seasons, as the site begins to reach maturity and the PSS and PFO habitat breaks become clearer, we will map and monitor the habitats separately.

Linear transects were established 25 feet apart in a generally north-to-south direction across the upper and lower wetland creation areas in order to survey woody vegetation. Six-foot wide transects with varying lengths were used to create rectangular plots in order sample twenty-five percent (25%) of the mixed scrub-shrub/forested (PSS/PFO) wetland creation area. Every other transect end was marked with a wooden stake. The locations of each transect was GPS-located using a survey-grade GPS unit. Herbaceous vegetation data was gathered for all wetland creation cover types (emergent and scrub-shrub/forested) by transacting the creation cells at least two times. Herbaceous vegetation was identified to species level and aerial cover was determined for each species within each cover type and within each creation cell. For planted woody species, if more than half of the plant was located within the sample plot, the plant was counted. Please see Figure 1 for a map of the monitoring transects.

Success Standards

1) Hydrology

Is the proposed hydrology met at the site?

Yes.

The entire creation site is meeting the projected hydrology levels as evidenced by: the presence of reducing conditions within the soil profile, ponded water within the lowest portions of the site, and signs of drainage through the rip rap overflow spillways. As anticipated, the primary source of hydrology in the wetland creation area comes from groundwater interception and surface runoff from the adjacent quarry area. Further hydrologic input is provided by rain and snow. General hydrology across the wetland mitigation area varies from seasonally saturated to semi-permanently flooded. Indicators of hydrology include pockets of standing water (up to 6 inches deep), water-stained leaves, surface soil cracks, oxidized rhizospheres on living roots, evidence of flooding, and evidence of reducing conditions within the soil profiles. Furthermore, the wetland species planted in the creation area are alive and growing, indicating an adequate hydrologic regime.

A soil berm between the upper cells was removed and a rip rap spillway directing excess surface flow from the road and quarry was installed in 2009. Thanks, in part, to these two improvements, the PEM creation areas continue to show signs of improved hydrology.

What percentage of the site is meeting projected hydrology levels?

100%

Areas that are too wet or too dry should be identified along with suggested corrective measures.

During spring, summer, and monitoring visits, adequate hydrology was noted in all creation areas. Standing water was observed in depressions, saturation to the surface was observed in all soil test pits and wetland plants on the site appear vigorous.

2) The proposed vegetation diversity and density goals for woody plants from the plan are met.

Yes.

The density of planted woody species exceeds the density goal and 12 of the 14 tree and shrub species planted at the mitigation site have densities greater than 50 plants per acre. Volunteer shrub species (particularly speckled alder) that met the density goals were assessed with the planted species during this year's monitoring. This influx of countable plants greatly added to the overall woody plant density and diversity data.

The planted densities for the PSS/PFO creation areas were 600 shrubs/acre and 400 trees/acre. The planted density goal, as described in the Corps checklist, is 500 trees and shrubs per acre (of which at least 350 per acre are tree species for PFO creation areas). The actual average shrub density at the site is approximately 610 shrubs per acre (an increase from 2010 findings of 294 shrubs per acre). The average tree density is approximately 363 trees per acre (an increase from 2010's findings of 320 trees per acre). Total average density of the site is 1073 woody plants per acre. For additional details on the shrub and tree plantings and volunteer shrubs, please see Table 7 in Appendix B.

3) a. Each mitigation site has at least 80% aerial cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species.

Yes.

Based on transect data, average aerial cover by non-invasive species was approximately 156% throughout the wetland creation site. The transect areas did not include some planned non-vegetated areas such as sand mounds (turtle nesting islands) and a few of the deeper pits and puddles excavated during the initial construction (see Table 8 in App. D).

3) b. Planned emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes.

Yes.

Average percent aerial cover during this year's monitoring shows that there is 136% average aerial cover by non-invasive hydrophytes within the planned emergent areas (see table 8 in App. D). Total cover by invasive hydrophytes is only 3% in the emergent areas. This is a decrease of five percent from 2010 due to increased competition on the small colonies of cattails by non-invasive species.

3) c. Planned scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species.

Yes.

Monitors observed 170% aerial cover by non-invasive hydrophytes in the southern scrub-shrub and forested creation area (herbaceous vegetation and woody vegetation). Thirty percent of the cover is provided by woody hydrophytes; this number is expected to increase as the shrubs and trees continue to grow.

Monitors observed 148% aerial cover by non-invasive hydrophytes in the northern scrub-shrub and forested creation areas (herbaceous vegetation and woody vegetation). Twenty-five percent of the cover is provided by woody hydrophytes; this number is expected to increase as the shrubs and trees continue to grow.

4) Common reed (*Phragmites australis*), Purple loosestrife (*Lythrum salicaria*), Russian and Autumn olive (*Elaeagnus* spp.), Buckthorn (*Rhamnus* spp.), Japanese knotweed (*Polygonum cuspidatum*), and/or Multiflora rose (*Rosa multiflora*) plants at the mitigation site(s) are being controlled.

Yes.

Invasive or noxious species observed within the creation area were purple loosestrife (*Lythrum salicaria*), bird's-foot trefoil (*Lotus corniculatus*), Japanese knotweed (*Polygonum cuspidatum*), reed canarygrass (*Phalaris arundinacea*), common reed (*Phragmites australis*), broad-leaf cattail (*Typha latifolia*), and yellow foxtail (*Setaria pumila*). Invasive species are sparse at the site and do not make up a significant portion of the plant

makeup (3% cover by invasive species across the entire creation site) and were tagged for treatment and/or further monitoring.

5) All slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) are stable.

Yes.

A spoil pile being stored in the adjacent quarry area and upslope of the creation basin was noted to be eroding toward the creation area in the summer of 2010. The pile has an erosion control mix berm placed around it to contain sediments. However, monitors noted that the berm was not being maintained and the sediment eroding from the spoil pile was over-topping the erosion control berm. No sediment was noted to be reaching the creation basin due to the long distance and vegetation between the berm and the basin. In January of 2011 the erosion control berm was cleaned of all sediments and the entire spoil pile was moved over 100 feet to the north and away from the creation basin. No further evidence of erosion was noted at the time of monitoring in June or September.

Soils data:

Five soil profiles were investigated within the wetland creation site (three from the PEM areas and two from PSS/PFO areas). Soils observed consisted of dark and very dark A horizons underlain by grayish-brown horizons with redoximorphic features. All profiles investigated keyed as hydric following the Field Indicators of Hydric Soils in the United States, Version 7.

Please see Tables 1 through 5 in Appendix D for representative soil profile descriptions for each creation type. The HSUS7 hydric soil indicator reference is indicated in parentheses after the wetland creation type.

Remediation:

Additional plantings:

In January 2011, 26 additional white pine trees were planted within the northern creation cell. The large white pines, some over ten feet tall, were salvaged from an area of the expanding quarry. In an effort to increase animal habitat and structure and woody species density these trees were replanted within the wetland creation area. Twelve trees were dug from uplands in the quarry with an excavator and then replanted in the former berm location and staked. The trees were staggered in a double row to create a wind break and a place for songbirds and small mammals to hide from predators, and to nest or forage. Many sparrows were seen foraging under and within these planted trees during monitoring in September. An additional 15 pine trees were planted at random locations along the western half of the northern creation cell.

As of monitoring in the late summer, several of the trees had fallen over or died from the stress of replanting. These individuals are now providing habitat as coarse woody debris.

Invasive species control:

A site visit in mid-summer of 2011 was conducted to identify and locate any patches of invasive species for control during the growing season. Small patches were identified and some hand removal of small Japanese knotweed and purple loosestrife individuals occurred in the summer of 2011. A new patch of common reed was identified on the east side of the north creation area, as well as a few re-sprouts of some purple loosestrife and Japanese knotweed. As common reed is a tenacious grower and can be very hard to eradicate, it was determined that chemical treatment was warranted before the plants become established. In September of 2011, a State of Maine licensed pesticide applicator transected the creation area and applied a 1.5% solution of Accord Concentrate (active ingredient: glyphosate) to any individuals of common reed, purple loosestrife, and Japanese knotweed found within the creation basin. Several weeks later a follow-up site visit revealed a large percentage of the sprayed plants were either severely damaged or had died. Follow-up visits will be needed to ascertain if future spraying is needed to control re-sprouts of any new plants that germinate from seeds stored in the soil bed. The other problem species do not appear to be a threat to the creation site and will continue to be monitored. It can be noted in Table 8 that each of these undesirable species are decreasing in their cover across the site as other desirable plants out-compete them.

A single large clump of autumn olive was identified on the side-slope slightly to the north of the northern creation basin. In early winter a cut-stump treatment of Accord Concentrate was applied for control. The area will be monitored for any signs of re-sprouting during the 2012 growing season.

No treatments (mechanical or chemical) were applied to the small pockets of reed canarygrass, cattail, trefoil, or foxtail. These species are slowly being outcompeted by non-invasive herbaceous species, such as soft rush (*Juncus effusus*) and switchgrass (*Panicum virgatum*), and are reducing in density over time.

Erosion Control Measures:

No erosion concerns were observed within the creation area. Temporary measures, such as silt fence, were removed upon completion of the project in October 2007. Erosion control mulch remains in place around the lower perimeter of the wetland creation site and will be left to degrade in place. The permanent riprap spillways are functioning as planned.

Visual Estimate of Percent Cover of Non-invasive and Invasive Species:

The average percent vegetative cover by non-invasive plants at the mitigation site is approximately 128%. The average percent cover of invasive species is approximately 3%.

Fish and Wildlife Use at the Site:

Please see Table 6 in Appendix D. Of particular note, a wood turtle (*Glyptemys insculpta*) was located within the creation area in early 2009. A rare animal reporting form was filed with MDIF&W. This is the second wood turtle identified on this creation site. In October 2009, Grondin found broken, predated turtle shells in one of the sandy turtle nesting islands installed during initial site construction. MDIF&W biologists were contacted and are unsure of the species – but signs indicate that the desiccated shells *could* be those of wood turtles. Monitors planned to conduct a site visit with MDIF&W, but could not coordinate a meeting in 2011. A meeting will be planned for 2012. For additional information on the abundant wildlife observations made at the site, please see Table 6.

General health and vigor of the surviving plants, prognosis for their future survival, and a diagnosis of the cause(s) of morbidity or mortality:

Overall, planted shrub species (*Aronia melanocarpa*, *Betula populifolia*, *Cornus sericea*, *Ilex verticillata*, *Salix discolor*, *Vaccinium corymbosum*, *Viburnum cassinoides*, and *Viburnum dentatum*) and tree species (*Acer rubrum*, *Fraxinus pennsylvanica*, *Larix laricina*, *Pinus strobus*, *Quercus bicolor*, and *Ulmus americana*) appear to be healthy and growing. The 2011 growing season was slightly better than average and much better than previous growing seasons. The wet spring and hot summer allowed many of the woody plants to add a great amount of growth during this growing season. Many individuals that were previously presumed to be dead or dying were noted to be “suckering out” at the base of their stem. In addition to the abundance of volunteer alders, this resprouting of planted species helps explain the increase in woody plant density from last year. Hydrology appears adequate for these plants and there is limited evidence of death from herbivory, flooding, or desiccation. These plants have a high likelihood of survival.

Maps

Maps must be provided to show the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan. In addition, the submitted maps must clearly delineate the mitigation site boundaries to assist in proper locations for subsequent site visits. Each map or diagram must fit on a standard 8 ½ x 11” piece of paper and include a legend and the location of any photos submitted for review.

PLEASE SEE FIGURE 1 ON NEXT PAGE (10) FOR A CLOSEUP OF MITIGATION TRANSECTS AND AS BUILT CONDITIONS (additional maps can be available by request)

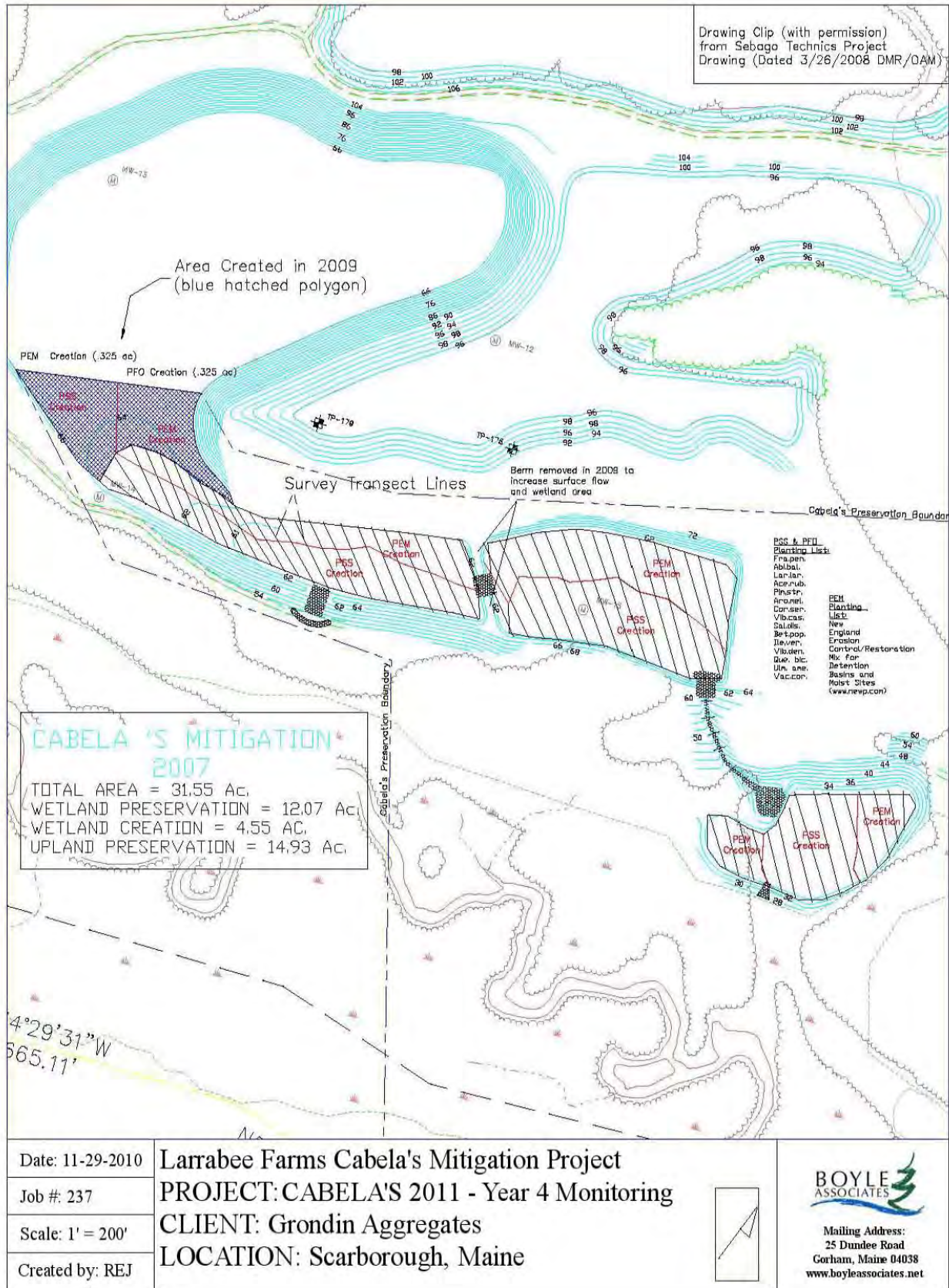


Figure 1. Site map and survey transect centerlines.

Conclusions (1 page)

In general, and as can be noted from the photographs and data, the wetland creation areas are responding well after four years of growth. In the wetland creation area, hydrology is adequate and wetland conditions are being achieved. Pockets of standing water were observed within the creation area and all soil profiles described within the creation area key as hydric using the Corps' *Hydric Soils of the United States, Version 7*. Herbaceous plants are growing well and aerial cover increased by approximately 30% since the third year monitoring, and all creation areas meet the requirements for vegetative cover.

Woody plant material is doing well at the site. Plant material that quickly established during years one and two are now becoming more robust and growing well. Also of note, several trees that were thought to be dead last year are "suckering out" heavily around the base of their stems. This can be attributed to the slightly wetter than average spring in 2011 that allowed woody plants a healthier start to the growing season before drier conditions set in.

Woody volunteer (*i.e.* not planted) species found within the mitigation site are red maple, speckled alder, and a few willow species. Many of these volunteers have reached the density and height requirements to be counted along with the other planted species. Volunteer species are typically more robust and adapted to the environment than the cultivated nursery stock that is planted. Additionally, the volunteer species are better adapted to the harsh conditions that can occur in the open outdoors.

Two-thirds of the southern creation area was originally planned as an emergent covertype. However, it appears that the existing wetland adjacent to the southern creation area is supplying a healthy seed source of speckled alder shrubs. In 2011, alders 18" tall and taller were counted along with the other woody planted material; these volunteers are helping to increase the density of woody plants across the site. Due to the influence of the adjacent alder swamp, some of the planned emergent areas are growing into scrub-shrub wetlands. As described in the mitigation plan section 3.2 Mitigation Objective, the goal was to:

“...replace, through wetland creation, the 4.5 acres of wetlands to be directly impacted by the proposed Gateway at Scarborough project. The objective is to create an even mix of PFO and wet meadow wetland types, as well as some scrub-shrub habitat, with the intent that the wet meadow and shrub types will naturally, over time, revert to forested wetlands.”

Thus, the site is progressing as planned - that is, toward a diverse mix of the common wetland covertypes while still replacing the functions and values of the impacted wetlands.

Some invasive species were noted within the creation area and are being monitored and treated on a yearly basis. Search and control measures will continue on a yearly basis to help facilitate long-term control of invasives at the mitigation site.

Appendix A -- An as-built plan showing topography to 1-foot contours, any inlet/outlet structures and the location and extent of the designed plant community types (e.g., shrub swamp). Within each community, type the plan shall show the species planted—but it is not necessary to illustrate the precise location of each individual plant. There should also be a soil profile description and the actual measured organic content of the topsoil. This should be included in the first monitoring report unless there are grading or soil modifications or additional plantings of different species in subsequent years.

- Please see Figure 1 on page 10 of this report for a close-up site map.
- Soil Profile Descriptions are included in Tables 1 through 5 in Appendix D.
- A site map showing the Cabela's location in comparison to the overall Larrabee Farms is on file with previous years monitoring reports.

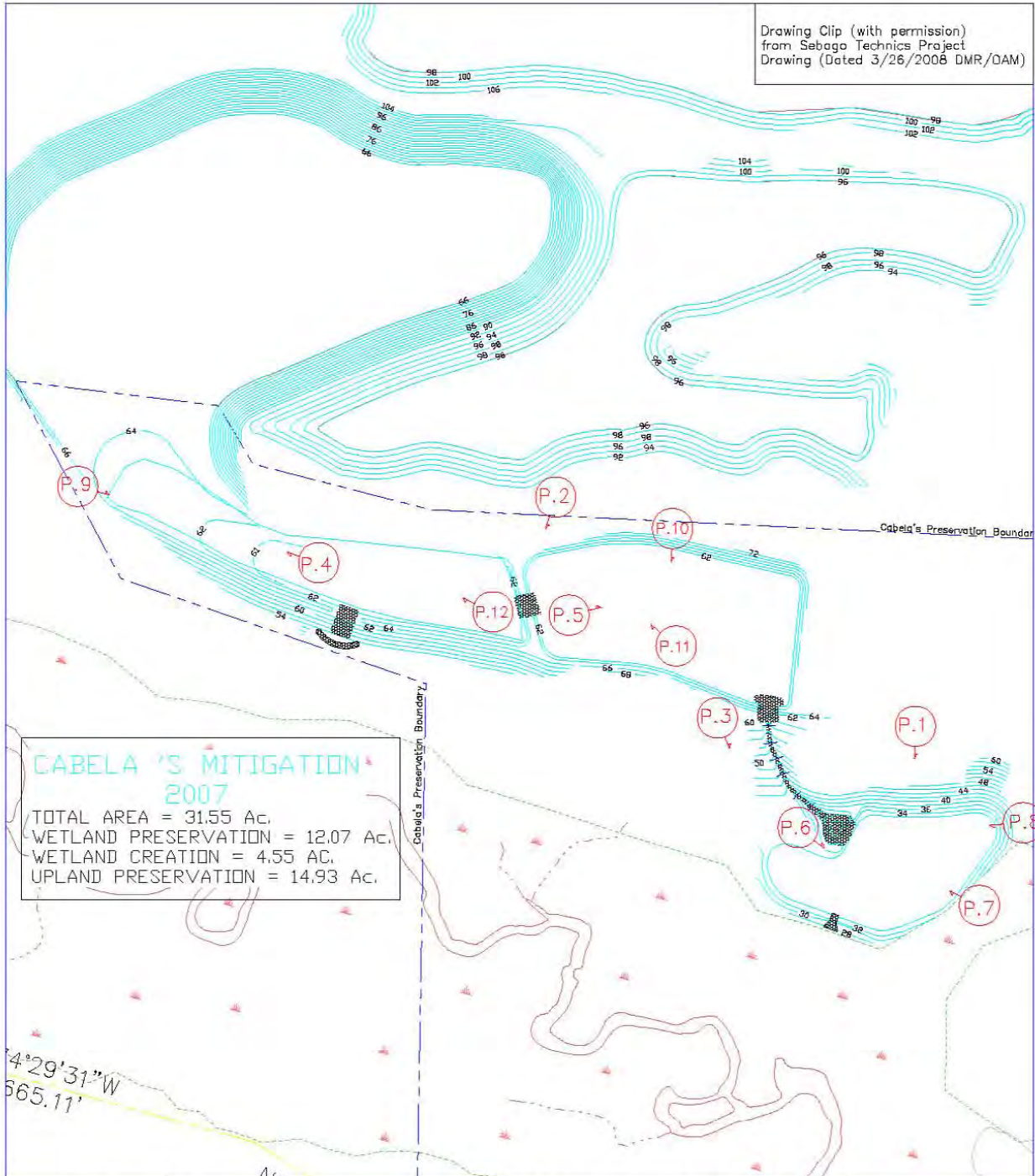
Appendix B – A vegetative species list of volunteers in each plant community type. The volunteer species list should, at a minimum, include those that cover at least 5% of their vegetative layer.


Year Four Herbaceous Volunteer Vegetation (Plot Data) - 2011

Scientific Name	Common Name	Indicator Status	Percent Aerial Cover (On average across creation area)
<i>Agrostis gigantea</i>	Redtop	FACW	9
<i>Carex lurida</i>	Shallow Sedge	OBL	12
<i>Carex scoparia</i>	Pointed Broom Sedge	FACW	7
<i>Symphyotrichum novi-angliae</i>	New England Aster	FACW	3
<i>Symphyotrichum racemosum</i>	Small White Aster	FACW	4

*All volunteer species with 3% aerial cover or greater (within the area of the mitigation site surveyed) are included in the volunteer species table. For additional species observed, please see Table 8 in Appendix D.

Appendix C -- Representative photos of each mitigation site taken from the same locations for each monitoring event. Photos should be dated and clearly labeled with the direction from which the photo was taken. The photo sites must also be identified on the appropriate maps.



Date: 2008-Dec-15	Larrabee Farms: Cabela's Mitigation Project	 BOYLE ASSOCIATES 25 Dundee Road Gorham, Maine 04038 Phone: 207.591.5220 www.boyleassociates.net
Job #: 237	PROJECT: Cabela's - PHOTO LOCATIONS	
Scale: 1"=200'	CLIENT: Grondin Aggregates	
Created By: REJ	LOCATION: Scarborough, Maine	



Photolocation 1 (Year 4). Facing south towards southeastern wetlands creation cell, 21-Oct-2011.



Photolocation 2 (Year 4). Facing south from side-slope towards former separator berm, 21-Oct-2011.



Photolocation 3 (Year 4). Facing southeast towards southern creation cell in early fall, 21-Oct-2011.



Photolocation 4 (Year 4). Facing northwest across north PFO/PSS creation cell, 21-Oct-2011.



Photolocation 5 (Year 4). Facing northeast at PEM northeastern creation cell, 21-Oct-2011.



Photolocation 6 (Year 4). Facing southeast towards southeastern creation cell, 21-Oct-2011.



Photolocation 7 (Year 4). Facing northwest at lower creation cell from southeastern boundary towards PSS. Note, speckled alder volunteers are flourishing, 21-Oct-2011.



Photolocation 8 (Year 4). Facing west across lower creation cell from the northeastern boundary. Note, reduction of broadleaf cattail from common rush competition, 21-Oct-2011.



Photolocation 9 (Year 4). Facing west across upper creation cell from southwestern boundary, 21-Oct-2011.



Photolocation 10 (Year 4). Facing south/southwest across the eastern half of the upper creation cell, 21-Oct-2011.



Photolocation 11 (Year 4). Facing north/northwest across the eastern half of the upper creation area, 21-Oct-2011.



Photolocation 12 (Year 4). Facing north/northwest across the western half of the upper creation cell, towards the quarry. Note, in the upper portion of photo the spoil pile has been moved significantly away from the creation basin, 21-Oct-2011.

Appendix D. Tables

Table 1. Soil profile 1 in southwestern PEM creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0-6	A	10YR 3/1	10YR 3/6 – 3%	fSL
6-18	B1	5Y 5/1	2.5Y 4/4 – 5%	CL
18-20+	B2	5Y 6/2	10Y 5/8 – 7%	CL

Table 2. Soil profile 2 in southern PSS creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0-13	A	10YR 3/2	None observed	fSL
13-18	B1	2.5Y 4/2	10YR 4/4 – 2%	S
18-20+	B2	5Y 5/1	10YR 4/6 – 5%	SC

Table 3. Soil profile 3 in southeastern PEM creation area (HSUS7 Indicator A11).

Depth	Horizon	Matrix	Redox	Texture
0 -11	A	10YR 3/1	None observed	fSL
11-20+	B	5PB 4/2	10YR 4/6 - 5%	LC

Table 4. Soil profile 4 in northern PSS/PFO creation area (HSUS7 Indicator F3).

Depth	Horizon	Matrix	Redox	Texture
0-6	A	2.5Y 4/2	10YR 4/6 – 2%	CL
6-13	B1	10YR 4/2	10YR 4/6 – 20%	CL
13-17	B2	10YR 3/1	10YR 3/6 – 5%	fSL
17-20+	B3	5PB 6/2	10YR 4/6 – 15%	vfSL

Table 5. Soil profile 5 in northern PEM creation area (HSUS7 Indicator F3).

Depth	Horizon	Matrix	Redox	Texture
0-6	A	10YR 4/2	10YR 3/6 – 2%	fSL
6-20+	B	5Y 5/1	1-YR 4/6 – 20%	fSL

Table 6: Fauna Species List April through October 2008-2011 (wetland creation area)

Common Name	Scientific Name	Field ID Methodology	Use
Birds:			
Black-capped chickadee	<i>Parus atricapillus</i>	visual	feeding, nesting
American goldfinch	<i>Carduelis tristis</i>	visual	feeding, nesting
Song sparrow	<i>Melospiza melodia</i>	visual	feeding, nesting
Cedar waxwing	<i>Bombycilla cedrorum</i>	visual	feeding
Red-tailed hawk	<i>Buteo jamaicensis</i>	visual	feeding
American crow	<i>Corvus brachyrhynchos</i>	visual	feeding, roosting
Savannah sparrow	<i>Passerculus sandwichensis</i>	visual	feeding
Mallard	<i>Anas platyrhynchos</i>	visual	feeding
Killdeer	<i>Charadrius vociferus</i>	visual	feeding, nesting
European starlings	<i>Sturnus vulgaris</i>	visual	feeding
Wild turkey	<i>Meleagris gallopavo</i>	visual	feeding
Blue jay	<i>Cyanocitta cristata</i>	visual	feeding
Pileated woodpecker	<i>Dryocopus pileatus</i>	visual	feeding, roosting
Gray catbird	<i>Dumetella carolinensis</i>	visual	feeding
American robin	<i>Turdus migratorius</i>	visual	feeding
Flycatcher species	Empidonax species	visual	feeding
Northern flicker	<i>Colaptes auratus</i>	song	feeding
White-breasted nuthatch	<i>Sitta carolinensis</i>	visual	feeding
Red-breasted nuthatch	<i>Sitta canadensis</i>	visual	feeding
Chipping sparrow	<i>Spizella passerine</i>	visual	feeding
American woodcock	<i>Scolopax minor</i>	visual	feeding
Northern shrike	<i>Lanius excubitor</i>	visual	roosting
Snow buntings	<i>Plectrophenax nivalis</i>	visual	feeding
American kestrel	<i>Falco sparverius</i>	visual	feeding
Northern harrier	<i>Circus cyaneus</i>	visual	feeding
Eastern bluebird	<i>Sialia sialis</i>	visual	feeding, roosting, nesting
Red-winged blackbird	<i>Agelaius phoeniceus</i>	visual	feeding
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	visual	roosting
Turkey vulture	<i>Cathartes aura</i>	visual	feeding
Bald eagle	<i>Haliaeetus leucocephalus</i>	visual	hunting
Mammals:			
White-tailed deer	<i>Odocoileus virginianus</i>	scat, tracks	feeding
Moose	<i>Alces alces</i>	tracks	feeding
Fox	<i>Vulpes vulpes</i>	visual	feeding
Raccoon	<i>Procyon lotor</i>	tracks	feeding
Coyote	<i>Canis latrans</i>	tracks	feeding
North American Porcupine	<i>Erethizon dorsatum</i>	visual	feeding
Amphibians:			
Green frog	<i>Rana clamitans</i>	visual	feeding, breeding
Wood frog	<i>Rana sylvatica</i>	visual	feeding, breeding
American toad	<i>Bufo americanus</i>	visual	feeding, breeding
Leopard frog	<i>Rana pipiens</i>	visual	feeding
Wood turtle*	<i>Glyptemys insculpta</i>	visual	feeding
Gray tree frog	<i>Hyla versicolor</i>	Heard	feeding, breeding
Spring Peeper	<i>Hyla crucifer</i>	heard	feeding, breeding

*Maine Species of Special Concern

Table 7. Cabelas Wetland Mitigation Year Three Monitoring Results - 2011							
Scrub/Shrub and Forested Wetland Areas							
Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
S5	78	468	Alin	9	1862	372	1489
(6/7/2011)	6	0.011	Cose	2			
			Frpe	2			
			Pist	1			
			Sadi	3			
			Sani	1			
			Vica	1			
			Vide	1			
			Total	20			
S6	153	918	Acru	2	3559	569	2989
(6/7/2011)	6	0.021	Alin	56			
			Frpe	2			
			Lala	3			
			Pist	1			
			Qubi	1			
			Sadi	1			
			Ulam	3			
			Vica	6			
			Total	75			
S7	172	1032	Alin	42	2490	253	2237
(6/7/2011)	6	0.024	Bepo	1			
			Cose	2			
			Frpe	1			
			Lala	1			
			Pist	2			
			Qubi	1			
			Sadi	4			
			Vaco	3			
			Vica	1			
			Vide	1			
			Total	59			
S8	179	1074	Acru	1	2231	568	1663
(6/7/2011)	6	0.025	Alin	33			
			Bepo	1			
			Cose	5			
			Frpe	3			
			Pist	4			
			Qubi	2			
			Sadi	2			
			Sani	2			
			Ulam	1			
			Vaco	1			
			Total	55			
S9	153	918	Alin	25	2325	332	1993
(6/7/2011)	6	0.021	Arme	4			
			Cose	3			
			Frpe	2			
			Ilve	2			
			Pist	2			
			Qubi	2			
			Sani	1			
			Vaco	2			
			Vica	3			
			Vide	3			
			Total	49			
S10	126	756	Alin	8	1383	576	807
(6/7/2011)	6	0.017	Arme	1			
			Bepo	2			
			Cose	2			
			Ilve	2			
			Lala	4			
			Pist	2			
			Qubi	1			
			Sadi	1			
			Ulam	1			
			Total	24			
S11	97	582	Acru	1	2470	674	1796
(6/7/2011)	6	0.013	Alin	18			
			Arme	1			
			Bepo	1			
			Frpe	3			
			Lala	1			
			Pist	2			
			Qubi	1			
			Vica	4			
			Vide	1			
			Total	33			
S12	67	402	Alin	12	1842	325	1517
(6/7/2011)	6	0.009	Bepo	1			
			Cose	1			
			Lala	1			
			Ulam	1			
			Vica	1			
			Total	17			

Plot # ("S"=southern, lower cell; "N"=northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
N2 (6/7/2011)	25 6	150 0.003	Cose	1	581	0	581
			Vide	1			
			Total	2			
N3 (6/7/2011)	84 6	504 0.012	Acru	1	778	259	519
			Bepo	1			
			Qubi	2			
			Vaco	1			
			Vica	2			
			Vide	2			
Total	9						
N4 (6/7/2011)	110 6	660 0.015	Acru	3	1188	462	726
			Arme	3			
			Cose	3			
			Frpe	4			
			Sadi	2			
			Vide	3			
Total	18						
N5 (6/7/2011)	130 6	780 0.018	Bepo	2	558	447	112
			Cose	1			
			Frpe	2			
			Pist	1			
			Qubi	1			
			Ulam	2			
Vica	1						
Total	10						
N6 (6/7/2011)	130 6	780 0.018	Acru	1	1508	614	894
			Arme	1			
			Bepo	5			
			Cose	2			
			Frpe	2			
			Ilve	1			
			Sadi	5			
			Ulam	3			
			Vaco	1			
			Vica	6			
			Total	27			
N7 (6/7/2011)	126 6	756 0.017	Acru	1	1095	461	634
			Ilve	4			
			Lala	1			
			Pist	4			
			Qubi	2			
			Sadi	1			
			Vaco	2			
			Vica	2			
			Vide	2			
			Total	19			
N8 (6/7/2011)	141 6	846 0.019	Alin	2	875	257	618
			Arme	1			
			Cose	2			
			Ilve	1			
			Lala	2			
			Qubi	2			
			Ulam	1			
			Sadi	1			
			Vaco	2			
			Vica	2			
			Vide	1			
Total	17						
N9 (6/7/2011)	130 6	780 0.018	Acru	1	782	391	391
			Arme	2			
			Bepo	3			
			Cose	2			
			Ilve	1			
			Qubi	2			
			Ulam	1			
			Vica	2			
			Total	14			
N10 (6/7/2011)	122 6	732 0.017	Arme	1	476	119	357
			Qubi	1			
			Ulam	1			
			Vica	4			
			Vide	1			
Total	8						
N11 (6/7/2011)	111 6	666 0.015	Cose	1	262	131	131
			Frpe	1			
			Ulam	1			
			Vaco	1			
Total	4						
N12 (6/7/2011)	114 6	684 0.016	Bepo	1	446	318	127
			Cose	1			
			Frpe	1			
			Pist	1			
			Ulam	2			
			Vide	1			
Total	7						

Plot # ("S"-southern, lower cell; "N"-northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
N13	108	648	Cose	2	471	134	336
(6/7/2011)	6	0.015	Frpe	1			
			Qubi	1			
			Sadi	2			
			Vide	1			
			Total	7			
N14	110	660	Acru	1	1056	264	792
(6/7/2011)	6	0.015	Arme	1			
			Bepo	2			
			Cose	1			
			Ilve	4			
			Qubi	1			
			Vaco	5			
			Vide	1			
			Total	16			
N15	101	606	Qubi	1	431	216	359
(6/7/2011)	6	0.014	Sadi	3			
			Vide	2			
			Total	6			
N16	70	420	Frpe	1	207	207	0
(6/7/2011)	6	0.010	Lala	1			
			Total	2			
N17	18	108	Pist	1	403	403	0
(6/7/2011)	6	0.002	Total	1			
N18	22	132			0	0	0
(6/7/2011)	6	0.003	Total	0			
N19	57	342	Pist	1	127	127	0
(6/7/2011)	6	0.008	Total	1			
N20	66	396	Bepo	1	550	330	220
(6/7/2011)	6	0.009	Cose	2			
			Frpa	1			
			Ulam	1			
			Total	5			
N21	71	426	Cose	3	409	102	307
(6/7/2011)	6	0.010	Ulam	1			
			Total	4			
N22	77	462	Acru	1	660	471	189
(6/7/2011)	6	0.011	Bepo	2			
			Cose	1			
			Ulam	2			
			Vide	1			
			Total	7			
N23	80	480	Acru	2	635	635	0
(6/7/2011)	6	0.011	Bepo	2			
			Ulam	3			
			Total	7			
N24	90	540	Acru	3	887	726	161
(6/7/2011)	6	0.012	Pist	1			
			Qubi	1			
			Ulam	4			
			Vide	2			
			Total	11			
N25	95	570	Acru	2	917	611	306
(6/7/2011)	6	0.013	Cose	2			
			Lala	1			
			Qubi	3			
			Ulam	2			
			Vaco	1			
			Vide	1			
			Total	12			
N26	87	522	Acru	1	584	250	334
(6/7/2011)	6	0.012	Alin	1			
			Cose	1			
			Ilve	2			
			Lala	1			
			Ulam	1			
			Total	7			
N27	83	498	Acru	1	875	525	350
(6/8/2011)	6	0.011	Frpe	1			
			Ilve	1			
			Lala	2			
			Ulam	2			
			Vaco	2			
			Vide	1			
			Total	10			
N28	77	462	Acru	1	1320	660	660
(6/8/2011)	6	0.011	Arme	2			
			Bepo	1			
			Ilve	3			
			Lala	1			
			Pist	1			
			Ulam	3			
			Vica	1			
			Vide	1			
			Total	14			

Plot # ("S"-southern, lower cell; "N"-northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre			
N29 (6/8/2011)	78	468	Acru	1	931	279	652			
	6	0.011	Alin	1						
			Arme	2						
			Ilve	1						
			Qubi	1						
			Ulam	1						
			Vaco	1						
			Vica	2						
		Total	10							
N30 (6/8/2011)	74	444	Arme	3	981	196	785			
	6	0.010	Qubi	1						
			Ulam	1						
			Vaco	4						
			Vica	1						
			Total	10						
N31 (6/8/2011)	67	402	Acru	1	975	217	759			
	6	0.009	Ilve	3						
			Ulam	1						
			Vaco	3						
			Vica	1						
			Total	9						
N32 (6/8/2011)	58	348	Qubi	1	751	376	376			
	6	0.008	Ulam	2						
			Vaco	1						
			Vide	2						
			Total	6						
N33 (6/8/2011)	53	318	Ulam	2	548	274	274			
	6	0.007	Vide	2						
			Total	4						
N34 (6/8/2011)	59	354	Cose	1	861	615	246			
	6	0.008	Frap	2						
			Sadi	1						
			Ulam	3						
			Total	7						
N35 (6/8/2011)	66	396	Acru	1	1210	330	880			
	6	0.009	Arme	5						
			Frap	1						
			Qubi	1						
			Sadi	3						
			Total	11						
N36 (6/8/2011)	72	432	Acru	1	1311	403	908			
	6	0.010	Cose	1						
			Frpe	2						
			Ilve	1						
			Qubi	1						
			Sadi	3						
			Vaco	1						
			Vica	1						
			Vide	2						
			Total	13						
N37 (6/8/2011)	71	426	Acru	2	1534	818	716			
	6	0.010	Arme	1						
			Bepo	2						
			Cose	1						
			Frpe	2						
			Qubi	2						
			Vica	3						
			Vide	2						
			Total	15						
	N38 (6/8/2011)	70	420	Acru				1	1452	933
6		0.010	Arme	1						
			Bepo	1						
			Frpe	4						
			Pist	1						
			Qubi	1						
			Ulam	1						
			Vaco	2						
			Vide	2						
			Total	14						
N39 (6/8/2011)	75	450	Alin	2	1065	484	581			
	6	0.010	Bepo	1						
			Cose	2						
			Frpe	2						
			Ilve	1						
			Pist	1						
			Qubi	1						
			Vide	1						
			Total	11						
N40 (6/8/2011)	78	468	Acru	1	1582	465	1117			
	6	0.011	Alin	1						
			Arme	1						
			Cose	2						
			Ilve	3						
			Lala	1						
			Ulam	3						
			Vica	1						
			Vide	4						
			Total	17						

Plot # ("S"-southern, lower cell; "N"-northern, upper cell) (Date Surveyed)	Length (ft) Width (ft)	Area (sq. ft. then acreage)	Plants	Number of Plants	Tree & Shrub Species/Acre	Trees /Acre	Shrubs /Acre
N41	78	468	Bepo	1	1582	1024	558
(6/8/2011)	6	0.011	Cose	3			
			Frpe	1			
			Lala	2			
			Qubi	4			
			Sadi	1			
			Ulam	3			
			Vaco	2			
			Total	17			
N42	95	570	Acru	1	1452	611	841
(6/8/2011)	6	0.013	Cose	1			
			Lala	1			
			Pist	1			
			Qubi	3			
			Sadi	1			
			Ulam	2			
			Vaco	1			
			Vica	8			
			Total	19			
N43	67	402	Ilve	3	1192	325	867
(6/8/2011)	6	0.009	Lala	1			
			Pist	2			
			Sadi	3			
			Vica	2			
			Total	11			
Total sq ft PSS/PFO Surveyed		27126			Species/Acre		
Total acreage PSS/PFO Surveyed		0.62			PSS Creation Average 673		
					PFO Creation Average 363		
					Total Woody Plants per Acre 1073		

Scientific Name	Common Name	Reg. 1 Indicator Status	SW PEM Creation	S PSS/PFO Creation	SE PEM Creation	N PEM Creation	N PSS/PFO Creation	Average Creation Area
<i>Agrostis gigantea</i>	Redtop	FACW	30	2	5	5	3	9
<i>Agrostis stolonifera</i> *	Creeping Bentgrass	FACW		20		20	25	13
<i>Ambrosia sp.</i>	Ragweed	NI					1	0
<i>Bidens cernua</i> *	Nodding-Bur Marigold	OBL			2			0
<i>Carex intumescens</i>	Greater Bladder Sedge	FACW			5	2		1
<i>Carex lurida</i>	Shallow Sedge	OBL	15	10	20	10	7	12
<i>Carex scoparia</i>	Pointed Broom Sedge	FACW		5	10	12	7	7
<i>Carex vulpinoidea</i> *	Fox Sedge	OBL	5	5		2	5	3
<i>Comptonia peregrina</i>	Sweet fern	UPL		2				0
<i>Elymus virginicus</i> *	Virginia Wild Rye	FACW				5	5	2
<i>Eupatorium perfoliatum</i> *	Common Boneset	FACW	5	10	15	2	2	7
<i>Euthamia graminifolia</i> *	Grass leaved goldenrod	FAC	7	10	7	5	5	7
<i>Iris versicolor</i>	Blue Flag	OBL		1				0
<i>Juncus bufonius</i>	Toad Rush	FACW		2				0
<i>Juncus canadensis</i>	Canada Rush	OBL		3	7	2		2
<i>Juncus effusus</i> *	Soft Rush	FACW	40	35	50	30	20	35
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	FACU				3	3	1
<i>Mimulus ringens</i>	Allegheny Monkeyflower	OBL			2			0
<i>Panicum clandestinum</i>	Deertongue	FAC	2	3	1			1
<i>Panicum virgatum</i> *	Switchgrass	FAC	5	8		25	20	12
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW		1		1	3	1
<i>Polygonum pennsylvanicum</i>	Pennsylvania Smartweed	FACW		1		1	5	1
<i>Rubus hispida</i>	Bristly Dewberry	FACW			1	1	1	1
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU-	1	2				
<i>Scirpus atrovirens</i>	Black bulrush	OBL			2		1	1
<i>Scirpus cyperinus</i> *	Woolgrass	FACW	5	8	5	2	2	4
<i>Solidago rugosa</i>	Rough-Stemmed Goldenrod	FAC	1	2				1
<i>Symphotrichum novi-angliae</i>	New England Aster	FACW	5	2		3	5	3
<i>Symphotrichum novi-belgii</i> *	New York Aster	FACW		3	2	3	2	2
<i>Symphotrichum racemosum</i>	Small White Aster	FACW	10	5		2	3	4
<i>Trifolium arvense</i>	Haresfoot Clover	NI	2	1		1	2	1
<i>Trifolium pratense</i>	Red Clover	FACU		1		1	3	1
<i>Trifolium repens</i>	White Clover	FACU	2	1		1	1	1
<i>Typha latifolia</i>	Broad-leaved Cattail	OBL			3	1		1
<i>Verbena hastata</i> *	Blue Vervain	FACW	5	5	3	5	5	5
<i>Vicia cracca</i>	Cow Vetch	UPL					1	0
Overall Average % aerial cover by herbaceous vegetation			140	148	140	145	137	142
Overall Average % cover of non-invasive herbaceous vegetation			140	147	137	140	131	139
Average % cover of hydrophytic non-invasive herbaceous vegetation in plot			135	140	105	137	123	128
Average % cover of planted woody vegetation (= % hydrophytes)			25	30	5	0	25	17
% aerial cover of non-invasive herbaceous & woody veg			165	177	142	140	156	156
% aerial cover of non-invasive herbaceous & woody hydrophytes			160	170	110	137	148	145
* in seed mix								
Red plants are considered invasive or noxious.								
Green plants are hydrophytes.								

Appendix E: Permits

Submitted in earlier reports. Copies of permits are available upon request.